



Technical Memorandum

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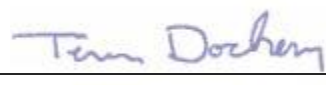
To: Mr. John Newberry, Tennessee Department of Environment and Conservation

From: Brown and Caldwell, on behalf of Bush Brothers and Company

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Limitations:

This document was prepared solely for Bush Brothers and Company in accordance with professional standards at the time the services were performed and in accordance with the contract between Bush Brothers and Company and Brown and Caldwell dated January 21, 2014. This document is governed by the specific scope of work authorized by Bush Brothers and Company; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by Bush Brothers and Company and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

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Section 1: Introduction

Brown and Caldwell (BC), on behalf of Bush Brothers and Company (Bush), has prepared this Technical Memorandum (TM) to meet annual update requirements of the Wastewater Management Program Plan (WMPP) outlined within the State Operating Permit (SOP) 79058 (SOP-79058) for their Chestnut Hill, Tennessee facility (Figure 1). This SOP authorizes Bush to continue operation of their Land Application System (LAS) that comprises a wastewater treatment system and division-approved spray irrigation fields for the discharge of treated process water. The SOP was issued by the Tennessee Department of Environment and Conservation (TDEC) Division of Water Resources (DWR) on November 22, 2019 and was effective through November 21, 2024. Note that the application for SOP renewal with an updated WMPP will be submitted to the TDEC DWR this year.

1.1 Operations and Maintenance Activity Overview

The information summarized in this document is based on information recorded and provided by Bush between January 1, 2023, and December 31, 2023. During this monitoring period, the following activities occurred:

- Completion of three compliance sampling events by the internal Bush Sampling Team (BST). Events were completed in April, July/August, and October/November 2023)
- Daily/weekly/monthly/quarterly wastewater influent and effluent monitoring with results submitted to the local TDEC field office through Monthly Operating Reports (MORs)
- Routine maintenance and Best Management Practice (BMP) enhancements for the spray irrigation fields and associated buffer zones on the LAS farms
- Continued vegetation management through cattle grazing and mowing
- Continued operation of the sanitary treatment system and associated drip irrigation fields on the Eula Farm

1.2 Report Organization

This 2023 Annual Operations and Maintenance (O&M) TM is organized as follows:

- Section 1.0 – Introduction
- Section 2.0 – Wastewater Characteristics and Sources
- Section 3.0 – LAS Operations
- Section 4.0 – LAS Maintenance and BMP Enhancement
- Section 5.0 – Compliance Monitoring
- Section 6.0 – Conclusions and Recommendations

Supporting documentation and miscellaneous submittal data have been organized as follows:

- Attachment A – LAS Monitoring Program Data
- Attachment B – Field Datasheets and Laboratory Reports



Figure 1. Site Map – LAS Associated Properties



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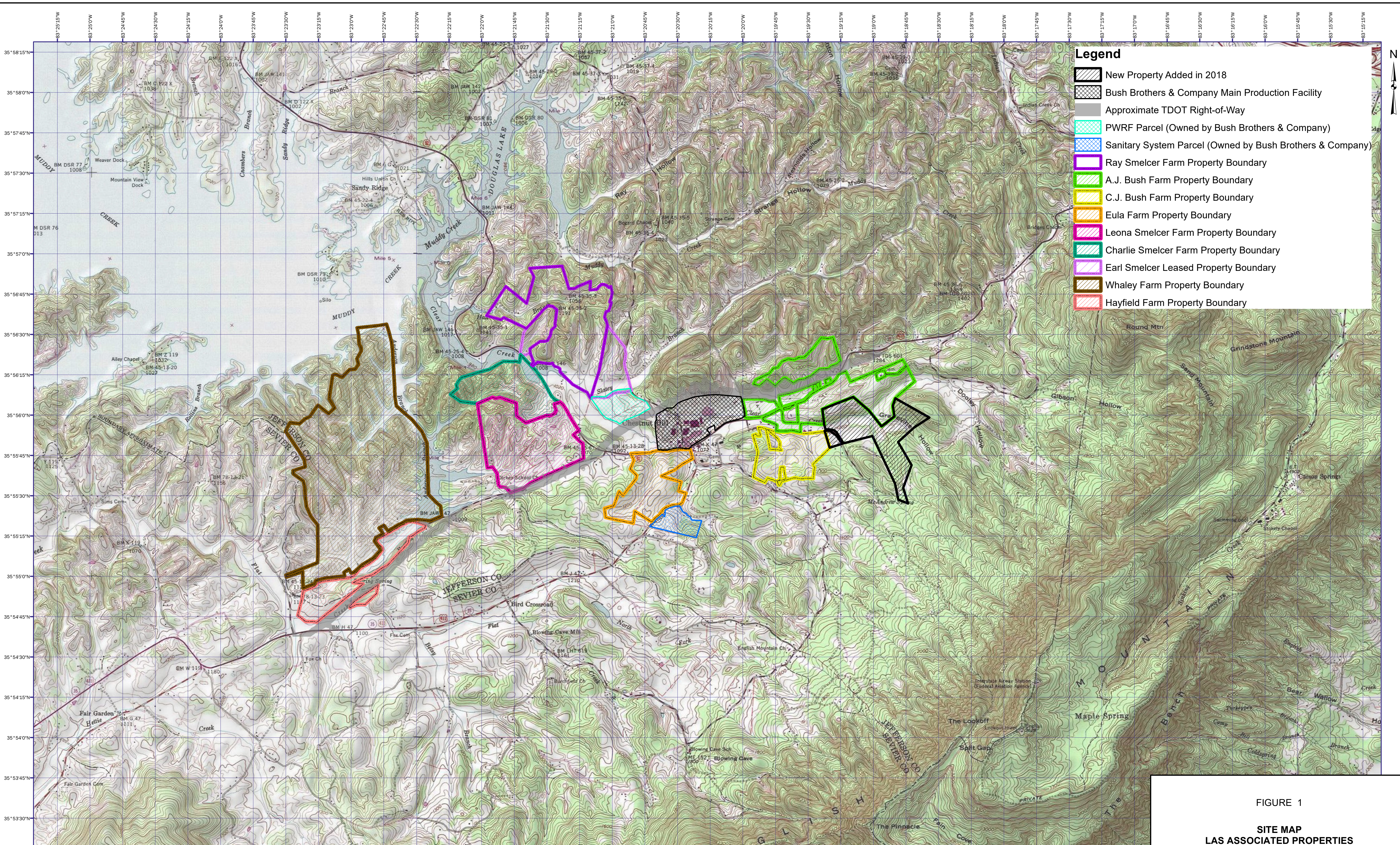
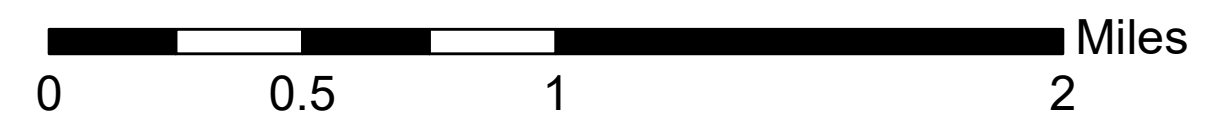


FIGURE 1
SITE MAP
LAS ASSOCIATED PROPERTIES

Notes:
 1) PWRF - Process Water Reclamation Facility
 2) TDOT - Tennessee Department of Transportation
 3) Property boundaries, revised in February 2014, are approximate based on publicly available parcel information and reflect future modification from TDOT expansion of Highway 411.
 4) Bush Brothers & Company owns additional property in the area; however, it is not currently associated with the Land Application System (LAS)



Section 2: Wastewater Characteristics and Sources

There are three main sources of wastewater at Bush’s Chestnut Hill facility: process and canning operations (process water), non-contact flows, and flows from the sanitary sewer system (sanitary wastewater). The process water flow goes to the process water reclamation facility (PWRF), completed in 2017, where the treated effluent is either reused or discharged to a temporary holding pond and then to the spray irrigation fields that comprise the LAS. Non-contact flow is pumped either to holding ponds or to the spray irrigation system.

The sanitary flow undergoes full treatment through a separate treatment system and is discharged through a drip irrigation field that is dedicated to the treated sanitary flow.

2.1 Process Wastewater

The PWRF performance is tracked and evaluated daily to identify problem areas and make adjustments, as needed. The data are summarized in the MORs. The information contained in the MORs has been summarized in Table 1 and reflects data collected by Bush between January 1, 2023, and December 31, 2023. Sampling was completed in accordance with the updated WMPP.

Table 1. 2023 Process Wastewater Effluent Characteristics				
Parameter	Monitoring Frequency ^a	Unit	Average	Peak (95 th Percentile)
Operating Flow ^b	Daily	MGD ^c	0.7049	1.23376
Total 5-day Biological Oxygen Demand (BOD ₅)	Once per Month	mg/L ^d	0.6667	3.6
Nitrate-Nitrogen	Once per Month	mg/L	8.3333	17.5

Source: Statistical evaluation of data compiled in the Bush Brothers and Company MOR data summary spreadsheet for the period between January 1, 2023, and December 31, 2023.

^a Parameter monitoring frequency as described in SOP-79058 Part I Section A Effluent Limitation and Monitoring Requirements.

^b The average and peak total flow for the monitoring period, including non-production days. Flow reflects the process water treated by the PWRF which goes for both re-use and to the spray irrigation system.

^c MGD = million gallons per day

^d mg/L = milligrams per liter

2.2 Sanitary Wastewater

Bush made the decision in 2014 to replace their existing sanitary treatment system and separate the discharge of this flow from the process water and non-contact flows. The design of this new system, along with the proposed location of dedicated subsurface irrigation fields, was submitted to TDEC DWR for review, and the first permit (SOP-14018) was issued on June 1, 2015, with an expiration date of May 31, 2020. The system moved into full operation in the spring of 2018. The permit was renewed with an effective date of July 1, 2020, and is set to expire May 31, 2025. As part of the SOP requirements, the results of this sanitary effluent monitoring are submitted to TDEC DWR monthly. MOR data collected between January 1, 2023, and December 31, 2023, have been summarized in Table 2 and are provided for reference. To reiterate, the sanitary wastewater treatment plant effluent is no longer associated with the Land Application System (LAS) and operates under a separate permit.



Table 2. 2023 Sanitary Wastewater Effluent Characteristics			
Parameter	Monitoring Frequency ^a	Unit	Average
Operating Flow ^b	Daily	Gal per Day ^c	13,793
Total 5-day Biological Oxygen Demand (BOD ₅)	Once per Year	mg/L ^d	0.0
Ammonia	Once per Quarter	mg/L	0.7158

Source: Statistical evaluation of data compiled in the Bush Brothers and Company MOR data summary spreadsheet for the period between January 1, 2023, and December 31, 2023.

^a Parameter monitoring frequency as described in SOP-14018 Part I Section A General Requirements.

^b The average flow for the monitoring period, including non-production days.

^c Gal = gallons

^d mg/L = milligrams per liter

Section 3: LAS Operations

The LAS consists of approximately 2,200 acres owned and/or leased by Bush at their Chestnut Hill, Tennessee facility and includes the PWRP, sanitary wastewater treatment system, piping network, holding lagoons, storage ponds, irrigation heads, irrigation fields (spray and drip), and buffer land (Figure 2). The LAS is operated during all three shifts, generally 8 to 10 hours a day during production. Production normally occurs 5 days per week, though occasionally 6- and 7-day production weeks occur. Generally, two or three different irrigation fields will be operated at any given time across the LAS farms, and these fields remain in operation for a standard 1-hour duration (cycle).

Field operators record the time irrigation lines are in operation, the weather conditions at the time of operation, and any additional observations made regarding the LAS and field performance. Operator logs are maintained at the Chestnut Hill facility in accordance with the recordkeeping requirements outlined in the respective SOPs and the updated WMPP.

3.1 Irrigation Management

As previously discussed, Bush’s current operation includes running two to three different irrigation fields at any given time across the LAS farms. These irrigation lines remain in operation for a maximum of 2 hours, though the majority do not exceed 1 hour as a standard procedure. Fields (actual wetted areas) range from 0.7 to 8.6 acres, with some larger fields of about 15 to 30 acres. Each line is pressurized for a discharge flow rate of 175 gallons per minute (gpm) to 700 gpm, resulting in an average application rate of 0.25 inch per hour (in/hr) or less, depending on field acreage.

During the 2023 monitoring period, Bush monitored the need for upgrades and modifications to their irrigation distribution pumps. The assessment of flow impacts from past years’, along with other general irrigation field modifications such as irrigation head (Bird) configuration, cycle durations, and BMPs, continued to be assessed throughout the 2023 monitoring period with adjustments, if necessary, made by the Bush operational team. The details of the resulting modifications to field operations from these upgrades and modifications are discussed herein.

3.2 Vegetation Management

Section 5 of the updated WMPP presents Bush’s Nutrient Management Plan (NMP) for the LAS. Stocker calves (cattle) are utilized on the LAS farms as one of the main methods of vegetation management and

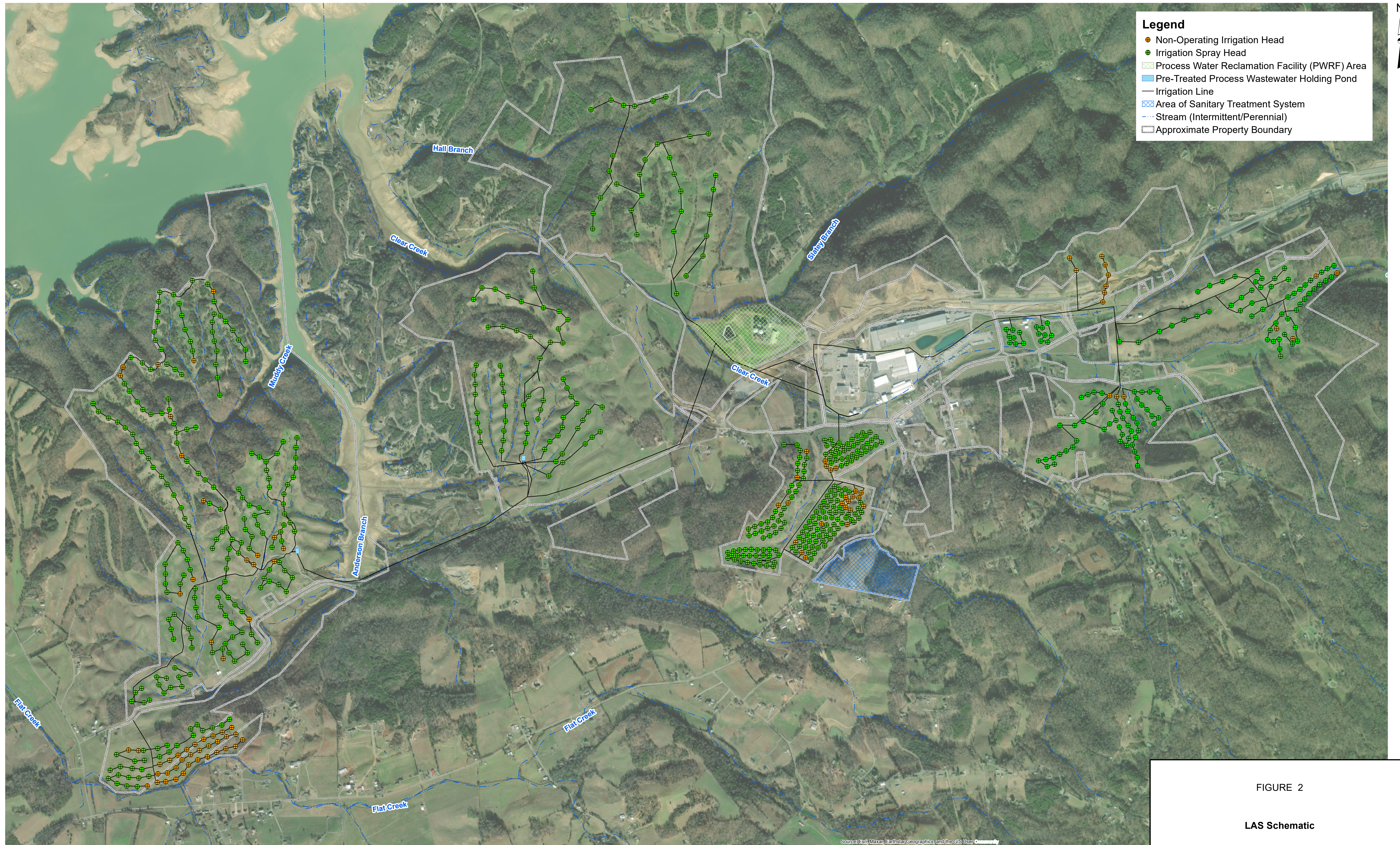


subsequent nutrient removal. Grasses that are not maintained by cattle grazing are mowed on a regular basis and baled for removal. Proper management of pastures with sufficient vegetative cover additionally provides for erosion prevention and, therefore, sediment control by 1) reducing storm and irrigation water run-off velocities, 2) intercepting sediments during run-off, and 3) stabilizing soils with root structures/systems. During the 2023 monitoring period, no modifications were made to Bush's NMP.



Figure 2. LAS Schematic





Legend

- Non-Operating Irrigation Head
- Irrigation Spray Head
- Process Water Reclamation Facility (PWRF) Area
- Pre-Treated Process Wastewater Holding Pond
- Irrigation Line
- Area of Sanitary Treatment System
- Stream (Intermittent/Perennial)
- - - - - Approximate Property Boundary

FIGURE 2

LAS Schematic

- Notes:
- 1) Property boundaries are estimated.
 - 2) Boundaries may not reflect acquisitions made in 2017.
 - 3) The exact location of the new drip irrigation fields has not been GPS'd yet.
 - 4) LAS - Land Application System

0 0.25 0.5 1 Miles

Source: Esri, Maxar, Earthstar, Geographics, and the GIS User Community

Brown and Caldwell	BUSH BROTHERS & COMPANY CHESTNUT HILL, TENNESSEE		SAVED DATE: 02/09/24 SCALE: AS SHOWN DRAWN BY: JMS CHECKED BY: REW PROJECT #: 180389 FINISHED: 02/09/24
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3.3 Adverse Condition Management

LAS O&M procedures for adverse conditions (e.g., storms and severe cold/freezing conditions) are presented in Section 4.2 of the updated WMPP. These procedures define irrigation operations during periods of heavy precipitation or during frozen ground conditions. Irrigation fields have been ranked based on ground slope, run-off potential, and ground cover. During adverse conditions, operations of these irrigation fields are varied based on this ranking system and visual observation by the operator. During the 2023 monitoring period, no modifications were made to this ranking system.

3.4 Human Health Hazard and Nuisance Prevention

Bush has multiple safeguards and preventative measures in place to minimize the potential hazards to human health from operation of the LAS. As detailed in the WMPP, recordkeeping, maintenance procedures, and adverse condition management help minimize human health hazards and nuisances. The LAS Monitoring Program was developed to continually evaluate and minimize these potential hazards. This compliance monitoring program includes the collection and analysis of groundwater and surface water samples. Based on the findings from this program, operations of the LAS are modified, as needed, by Bush. During the 2023 monitoring period, no significant operations or field modifications were made to the program.

Section 4: LAS Maintenance and BMP Enhancement

BMPs are implemented for erosion prevention and sediment control to minimize impacts to surface water quality and reduce the potential for a human health hazard or nuisance during LAS operations. Bush's SOP states that as soon as an operator first activates an irrigation line, the operator visually checks the field and records any observed maintenance problems. If any issues are observed, the line is immediately turned off and an alternate field is operated.

The following maintenance and BMP activities were implemented during the 2023 monitoring period by Bush:

AJ Bush Farm

- Bush hogged most fields twice.
- Replaced several Birds. Filled low spots around these Birds during replacement.
- Changed several valves and nozzles.
- Graded and graveled access road.
- Sprayed for weeds.

CJ Bush Farm

- Bush hogged most fields twice.
- Replaced several Birds. Filled low spots around these Birds during replacement.
- Graded and graveled access road.
- Sprayed for weeds.

Eula Farm

- Bush hogged most fields twice.
- Replaced several Birds. Filled low spots around these Birds during replacement.
- Replaced several pipes, risers, and valves.

- Graded and graveled access road.
- Sprayed for weeds.

Leona Smelcer Farm

- Bush hogged most fields twice.
- Replaced several Birds. Filled low spots around these Birds during replacement.
- Replaced couplings, as needed.
- Graded and graveled access road.
- Sprayed for weeds.

Charlie Smelcer Farm

- Bush hogged most fields twice.
- Graded and graveled access road.
- Sprayed for weeds.

Ray Smelcer Farm

- Bush hogged most fields twice.
- Replaced several Birds. Filled in low spots around these Birds during replacement.
- Replaced several gaskets and valves.
- Graded and graveled access road.
- Sprayed for weeds.
- Repaired pipe near pump (removed fused coupling)

Whaley Farm

- Bush hogged most fields twice.
- Replaced several Birds. Filled in low spots around these Birds during replacement.
- Replaced several gaskets and valves.
- Graded and graveled access road.
- Sprayed for weeds.

Hayfield Farm

- Bush hogged most fields twice.
- Replaced several Birds. Filled in low spots around these Birds during replacement.
- Replaced several valves.
- Graded and graveled access road.
- Sprayed for weeds.

Sanitary System

- Bush hogged 3 times.
- Changed ultraviolet (UV) light bulbs, as needed.
- Mowed around fence.
- Sprayed for weeds and ants around the filter perimeter.



Section 5: Compliance Monitoring

This section discusses the procedures, results, and conclusions associated with the LAS Monitoring Program sampling activities for the 2023 monitoring period (January 1, 2023, through December 31, 2023). Groundwater and surface water sampling events, as part of the LAS Monitoring Program, are implemented on a triannual basis (spring, fall, and early winter). BST field sample forms and laboratory analytical reports from these events are included as Attachment B.

The LAS farms are grouped into eight study areas based on operational layout and micro-drainage basins. Attachment A of this document includes the historical and current LAS Monitoring Program data (i.e., sample locations, current and historical data, and data trend plots) for each of these study areas.

5.1 Sampling Activities

Between January 1 and December 31, 2023, three sampling events occurred, in April, July/August, and October/November 2023. Sample locations included as part of the LAS Monitoring Program are presented in Table 3 and Figure 3. Current and historical data are presented in tabular and trend format as Attachment A for each respective study area (Section 5.2).

Study Area(s)	Upgradient/Side-Gradient Location		Compliance (Downgradient) Location	
	Monitoring Well	Surface Water Sample	Monitoring Well(s)	Surface Water Sample(s)
AJ/CJ Bush	--	SW-3R, SW-3R2 and SW-3R3	MW-2 and MW-3	SW-1, SW-2, SW-22, and SW-23
Eula	MW-4	SW-4	--	SW-5, SW-6, and SW-16
L/C Smelcer	MW-6	SW-8R	MW-7	SW-7 and SW-17
Ray Smelcer	--	SW-9 and SW-12	MW-11	SW-11 and SW-19
Whaley/Hayfield	MW-15	SW-13, SW-26, and SW-27	MW-12 and MW-14	SW-14, SW-15, SW-18, SW-24, and SW-25

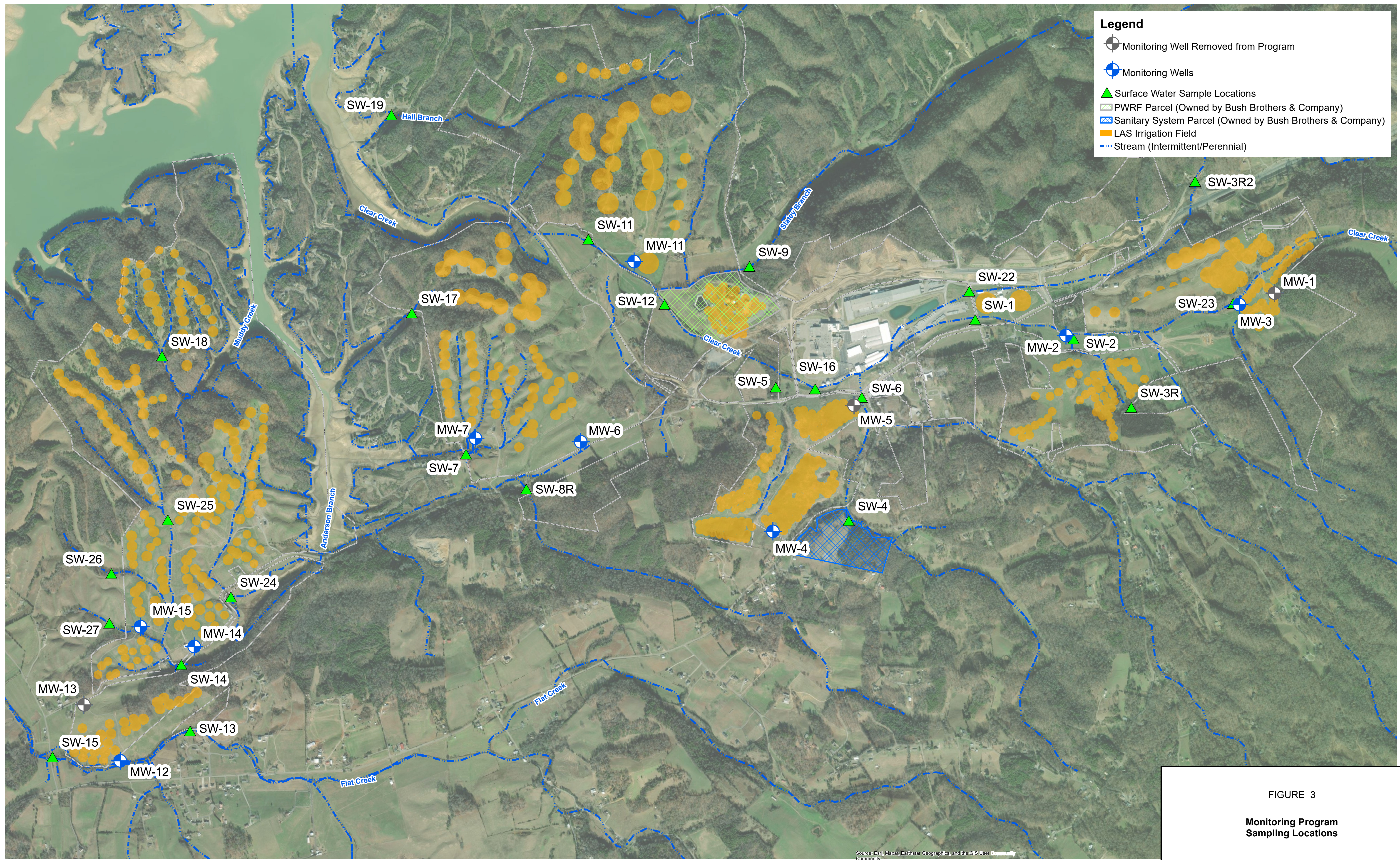
Samples collected during these events were sent to MicroBac Laboratories in Maryville, Tennessee for analysis. After collection, samples were cooled to approximately 4 degrees Celsius (°C) and delivered directly to the laboratory by the BST under standard chain-of-custody protocol. Laboratory analytical reports and field sample forms from each event have been provided by Bush and are included as Attachment B.

Consistent with previous monitoring events, several sample locations were unable to be sampled during at least one event due to insufficient water. These include MW-2, MW-3, MW-4, MW-6, SW-1, SW-2, SW-3R, SW-3R3, SW-22, SW-23, SW-5, and SW-18.



Figure 3. Monitoring Program Sample Locations





Legend

- Monitoring Well Removed from Program
- Monitoring Wells
- Surface Water Sample Locations
- PWRF Parcel (Owned by Bush Brothers & Company)
- Sanitary System Parcel (Owned by Bush Brothers & Company)
- LAS Irrigation Field
- Stream (Intermittent/Perennial)

FIGURE 3
Monitoring Program
Sampling Locations

Brown and Caldwell	BUSH BROTHERS & COMPANY CHESTNUT HILL, TENNESSEE	SHEET NO. 03/0004 SCALE AS SHOWN DRAWN BY: GFD CHECKED BY: PROJECT # 18088 FINISHED: 02/09/24
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Notes:
 1) LAS - Land Application System
 2) PWRF - Process Water Reclamation Facility
 3) Property boundaries are estimated and only reflect LAS farm boundaries and not necessarily the limit of Bush Brothers & Company owned/or leased property.

0 0.25 0.5 1 Miles

Source: Esri, Maxar, Earthstar, Geographics, and the GIS User Community

5.1.1 Groundwater Evaluation Monitoring

The internal BST completed groundwater sampling in accordance with the sampling procedures and methods outlined within the WMPP except as previously noted above. Prior to sampling, the depth to water was measured at each shallow monitoring well. Field parameters (pH, temperature, conductivity, oxidation reduction potential [ORP], and dissolved oxygen [DO]) were monitored and recorded on field sample forms (see Attachment B) during well purging and subsequent sample collection. Laboratory analyses included E. coli, nitrate-nitrogen, and alkalinity. Non-dedicated measuring and sampling equipment was decontaminated following standard decontamination procedures between each sample location.

5.1.2 Surface Water Sampling

The internal BST completed surface water sampling in accordance with the sampling procedures and methods outlined within the WMPP except as previously noted above. Surface water samples were collected from intermittent, perennial, and disappearing streams within or in close proximity of the LAS farms in each study area. Field parameters (pH, temperature, conductivity, ORP, and DO) were monitored and recorded on field sample forms (see Attachment B) at the time of sampling. Laboratory analyses included E. coli, nitrate-nitrogen, BOD₅, total suspended solids (TSS), total nitrogen, and alkalinity. As noted in TDEC's letter dated September 20, 2019, beginning at the time of the letter, Bush must include total nitrogen in the Monitoring Program, and an initial sample must be collected at all sample locations after at least one week of no rain. Two additional samples for nitrogen analysis must be taken within 24 hours of a significant rainfall event greater to or equal to 1 inch.

5.2 LAS Study Area Evaluation

The following discussion presents the data analysis for the 2023 monitoring period in relation to historical data and LAS operations for each of the LAS study areas.

5.2.1 AJ/CJ Bush Study Area

Two monitoring wells (MW-2 and MW-3) are located within the AJ/CJ Bush LAS Study Area (Figure 3). Each monitoring well was installed to 25 feet below ground surface (ft bgs) with 15-foot (ft) screens located within the soil horizon to target the shallow groundwater zone. Groundwater levels within these wells have been observed to exhibit strong seasonal fluctuations and are typically dry the majority of the year. The upgradient monitoring well, MW-1, was removed from the sampling program at the beginning of 2019; as documented in the updated WMPP, this location only had sufficient water for sample collection a total of five times since it was installed in 2008. The two downgradient monitoring wells (MW-2 and MW-3) contained insufficient water for sample collection during the fall and winter 2023 events.

Seven surface water sampling locations (SW-1, SW-2, SW-3R, SW-3R2, SW-3R3, SW-22, and SW-23) are located within the AJ/CJ Bush LAS Study Area (Figure 3). Locations SW-3R, SW-3R2, SW-3R3 are considered upgradient; locations SW-1, SW-2, SW-22, and SW-23 are downgradient of active irrigation fields. Only sample locations SW-1 (April only), SW-2 (April only), SW-22 (April and July only), SW-3R2 (all events) contained sufficient water for sampling during the 2023 sampling events.

Results from the three sampling events conducted by the BST during the 2023 monitoring period are summarized in Attachment A. This attachment includes both analytical and field data, as well as historical groundwater and surface water data, which are presented in Tables A-1 through A-3. BST field sample data sheets and laboratory analytical reports from the 2023 monitoring period are included as Attachment B. Review of the data that were collected during the 2023 monitoring period indicates that values in surface water and groundwater are generally consistent with historical data, with few notable exceptions. E. Coli at SW-22 continued to have concentrations within historical range except for April event when it had a higher concentration. BOD returned to non-detect in SW-3R2, after an elevated detection in 2021. Alkalinity,

nitrate, total nitrogen, conductivity, and E. Coli values in MW-2 during the April 2022 event were the highest observed in this well. However, in April 2023 event the alkalinity, total nitrogen, conductivity and E. Coli decreased. Results will continue to be closely reviewed during the 2024 monitoring period as Bush continues to modify LAS operations.

5.2.2 Eula Study Area

Two monitoring wells (MW-4 and MW-5) are located in the Eula LAS Study Area (Figure 3). Since installation, downgradient monitoring well MW-5 has consistently had insufficient water for sampling and was removed from the sampling program as part of the WMPP update. Monitoring well MW-4 was installed to approximately 25 ft bgs within the soil horizon and targeted as an upgradient monitoring well for this study area. Four surface water sample locations (SW-4, SW-5, SW-6, and SW-16) are identified for the Eula LAS Study Area as presented on Figure 3, with SW-4 being an upgradient/side-gradient sample location. Note that location MW-4 (November only) and SW-5 (all events) did not contain sufficient water for sample collection in 2023. Otherwise, all locations were sampled each event during the 2023 monitoring period.

Results from the three sampling events conducted by the BST during the 2023 monitoring period are summarized in Attachment A. This attachment includes both analytical and field data summarized in Tables A-1 through A-3, as well as historical groundwater and surface water data trends as presented in Attachment A2. BST field sample data sheets and laboratory analytical reports from this monitoring period are included as Attachment B. As previously discussed, monitoring well MW-4 contained insufficient water for sample collection during one of the 2023 monitoring events.

Nitrate-nitrogen has historically been elevated in samples collected from monitoring well MW-4; however, these elevated concentrations are believed to be influenced by other off-site upgradient sources and potentially from historical LAS operations, as the Eula Farm is the oldest irrigation farm at the Bush facility. Nitrate-nitrogen concentrations in this well have been generally stable since April 2013, although the concentration observed in August 2023 was the lowest observed since 2012. Surface water data during the 2023 monitoring period are generally within the range of historical results. E. Coli was detected in several 2023 samples at an order of magnitude lower than previously observed in SW-4.

5.2.3 Leona/Charlie (L/C) Smelcer Study Area

Two monitoring wells (MW-6 and MW-7) are located within the L/C Smelcer LAS Study Area (see Figure 3). Monitoring well MW-6 is located side-gradient to the irrigation fields due to equipment access restrictions (steep slope) at the time of installation. Monitoring well MW-7 is considered the downgradient monitoring point. Both of these monitoring wells were installed to approximately 25 ft bgs with 15-ft screens. Three surface water locations (SW-7, SW-8R, and SW-17) are within the L/C Smelcer LAS Study Area (Figure 3), with SW-8R being the upgradient sample point. Note that monitoring well MW-6 only contained sufficient water for sample collection during the August 2023 event. Otherwise, all locations were sampled each event during the 2023 monitoring period. Well MW-6 had the highest concentration of E. Coli from the sampling event in August 2023 while MW-7 remained lower since September 2020. The highest alkalinity from well MW-7 was sampled during the April 2023 event but returned to historical norms for the remaining events in 2023. SW-7 and SW-8R had elevated BOD concentrations in July of 2023; however, reverted to low levels in the winter event. SW-17 had the highest concentration of TSS in November 2023 and high concentration of E. Coli but still within historical ranges.

Results from the three sampling events conducted by the BST during the 2023 monitoring period are summarized in Attachment A. This attachment includes both analytical and field data presented in Tables A-1 through A-3, as well as historical groundwater and surface water data trends as presented in Attachment A3. BST field sample data sheets and laboratory analytical reports from the 2023 monitoring period are included as Attachment B. In general, groundwater and surface water sample results within this

study area continue to fluctuate slightly within historical ranges (related to seasonal variations and cattle operations). Surface water data during the 2023 monitoring period are within the range of historical results. Results will continue to be closely reviewed during the 2024 monitoring period as Bush continues to modify LAS operations.

5.2.4 Ray Smelcer LAS Study Area

Monitoring well MW-11 is located in the Ray Smelcer LAS Study Area (Figure 3) and is considered a downgradient monitoring well. This well is screened across both the soil horizon and limestone bedrock along the southern edge of the Ray Smelcer property near Clear Creek. Four surface water sample locations (SW-9, SW-11, SW-12, and SW-19) are located at the Ray Smelcer LAS Study Area (Figure 3). Surface water from sample location SW-12 is collected downgradient of where Slatey Branch discharges into Clear Creek and is therefore considered the upgradient Clear Creek sample location for this Study Area. Additionally, surface water sample location SW-9 is also collected upgradient of the Ray Smelcer farm along Slatey Branch. All locations were sampled each event during the 2023 monitoring period.

Results from the three sampling events conducted by the BST during the 2023 monitoring period are summarized in Attachment A. This attachment includes both analytical and field data presented in Tables A-1 through A-3, as well as historical groundwater and surface water data trends as presented in Attachment A4. BST field sample data sheets and laboratory analytical reports from the 2023 monitoring period are included as Attachment B. In general, results collected within this study area continue to fluctuate slightly within historical ranges (related to seasonal variation and cattle operations). DO at all sample locations during 2023 was generally elevated as compared to historical DO results; however, this was possibly related to field equipment calibration as they were back within normal range during the winter event.

5.2.5 Whaley/Hayfield LAS Study Area

Three monitoring wells (MW-12, MW-14, and MW-15) are located at the Whaley/Hayfield LAS Study Area (Figure 3). Upgradient monitoring well MW-13 historically had insufficient water for sample collection and was subsequently removed from the sampling program as part of the WMPP update. With the exception of downgradient well MW-14, the Whaley/Hayfield LAS Study Area monitoring wells are screened within the soil horizon, which extends to at least 25 ft bgs in those areas. MW-14 was screened across both soil and bedrock zones encountered during drilling activities at a depth of 25 ft bgs. Monitoring well MW-15, located on the Whaley farm, is the LAS Study Area upgradient sample point. Both MW-14 (Whaley Farm) and MW-12 (Hayfield Farm) are considered downgradient of the irrigation fields. Eight surface water sample locations (SW-13, SW-14, SW-15, SW-18, SW-24, SW-25, SW-26, and SW-27) are located at the Whaley/Hayfield LAS Study Area, as shown on Figure 3. Locations SW-13, SW-26, and SW-27 are considered upgradient sample locations. All locations (both groundwater and surface water) were sampled during each event during the 2023 monitoring period, except for SW-18 during the October 2023 event.

Results from the three sampling events conducted by the BST during the 2023 monitoring period are summarized in Attachment A. This attachment includes both analytical and field data presented in Tables A-1 through A-3, as well as historical groundwater and surface water data trends as presented in Attachment A5. BST field sample data sheets and laboratory analytical reports from the 2023 monitoring period are included as Attachment B.

In general, results collected within this study area continue to fluctuate slightly within historical ranges (related to seasonal variation and cattle operations). Alkalinity in SW-24 and SW-26 was generally elevated during several 2023 sample events but lower than events in 2022. E.Coli concentrations in surface water during the 2023 monitoring period generally remained lower than the historical range. However, some elevated E. Coli values were found in SW-13 (July and October), SW-14 (October only), SW-15 (July and

October), SW-18 (April and July), SW-24 (April and October), SW-25 (April and July) and SW-27 (April only). As part of the overall irrigation system modifications mentioned earlier, Bush is assessing irrigation head configuration and operations associated with some of the fields upgradient of this sample point and will continue to closely assess sample results through the 2024 monitoring period to modify operations as necessary.

Section 6: Conclusions and Recommendations

As previously noted, start-up activities for the new PWRP were initiated in 2017 with the system moving into full operations in the spring of 2018. Currently, Bush is maintaining the LAS operations as necessary to manage the overall process water management and treatment at the facility, which includes, but may not be limited to, the following:

- pump and irrigation field modifications
- changing the LAS field irrigation strategy and schedule

If there are any changes, that information will be provided as part of the 2024 O&M Annual Report.

Groundwater and surface water sampling events, as part of the LAS Monitoring Program, will continue to be implemented through the 2024 monitoring period on a triannual basis (spring, late summer, and early winter). During the 2024 monitoring period, the following O&M activities are anticipated to occur:

- Continue to monitor and control cattle numbers and movement across the LAS farms.
- Continue to implement BMPs for irrigation fields and associated buffer zones on the LAS farms.

Attachment A: LAS Monitoring Program Data

Table A-1. Depth to Groundwater Measurements

Table A-2. Groundwater Sampling Results

Table A-3. Surface Water Sampling Results

Appendix A1

Appendix A2

Appendix A3

Appendix A4

Appendix A5



Table A-1. Depth to Groundwater Measurements					
LAS Farm Area	Sample Location	Location Designation	Total Depth	Measurement Date	Depth to Water
			(ft bTOC)	(m/d/y)	(ft bTOC)
AJ/CJ Bush	MW-2	Downgradient	24.62	3/11/2008	24.78
				4/2/2008	DRY
				9/22/2008	24.50
				1/5/2009	DRY
				1/19/2009	7.61
				2/16/2009	DRY
				3/13/2009	19.85
				4/15/2009	17.12
				5/12/2009	17.55
				6/8/2009	24.45
				7/16/2009	DRY
				9/22/2009	DRY
				12/28/2009	6.30
				2/25/2010	10.55
				5/17/2010	24.45
				8/23/2010	DRY
				11/15/2010	DRY
				5/16/2011	15.15
				9/20/2011	DRY
				12/12/2011	6.20
				4/17/2012	11.20
				8/27/2012	DRY
				12/3/2012	24.50
				4/22/2013	8.00
				8/6/2013	24.30
				11/18/2013	DRY
				5/20/2014	DRY
				9/15/2014	DRY
				11/10/2014	DRY
				4/14/2015	11.18
				8/18/2015	24.47
				11/16/2015	24.50
				5/4/2016	DRY
				8/29/2016	DRY
				11/28/2016	DRY
				9/8/2017	NR
				4/13/2018	9.10
				8/22/2018	24.62
				12/10/2018	10.20
				3/11/2019	4.60
				12/9/2019	DRY
				4/13/2020	4.00
				9/18/2020	DRY
				7/7/2021	DRY
				11/10/2021	DRY
				3/24/2022	18.60
				11/7/2022	DRY
				12/19/2022	NR
				4/21/2023	11.00
				8/8/2023	DRY
				10/23/2023	DRY

Table A-1. Depth to Groundwater Measurements					
LAS Farm Area	Sample Location	Location Designation	Total Depth	Measurement Date	Depth to Water
			(ft bTOC)	(m/d/y)	(ft bTOC)
AJ/CJ Bush	MW-3	Downgradient	23.45	3/11/2008	23.15
				4/3/2008	23.15
				9/22/2008	23.16
				1/5/2009	DRY
				1/19/2009	17.67
				2/16/2009	DRY
				3/13/2009	DRY
				4/15/2009	DRY
				5/12/2009	21.71
				6/8/2009	DRY
				7/16/2009	23.20
				9/22/2009	DRY
				12/28/2009	4.60
				2/25/2010	21.70
				5/17/2010	23.18
				8/24/2010	DRY
				11/15/2010	DRY
				5/16/2011	DRY
				9/19/2011	DRY
				12/12/2011	5.60
				4/17/2012	19.40
				8/27/2012	23.10
				12/3/2012	DRY
				4/22/2013	9.80
				8/5/2013	22.30
				11/18/2013	DRY
				5/20/2014	NR
				9/15/2014	21.10
				11/10/2014	22.00
				4/13/2015	6.10
				11/16/2015	7.20
				5/4/2016	5.20
				8/29/2016	13.00
				11/29/2016	DRY
				9/8/2017	NR
				4/9/2018	5.20
				8/22/2018	6.80
				12/10/2018	5.40
				3/13/2019	2.00
				12/9/2019	22.20
				4/13/2020	4.70
				9/14/2020	DRY
				7/6/2021	DRY
				11/10/2021	DRY
				4/6/2022	10.20
				10/31/2022	DRY
				12/19/2022	DRY
				4/20/2023	23.00
				8/8/2023	DRY
				11/2/2023	DRY

Table A-1. Depth to Groundwater Measurements					
LAS Farm Area	Sample Location	Location Designation	Total Depth	Measurement Date	Depth to Water
			(ft bTOC)	(m/d/y)	(ft bTOC)
Eula	MW-4	Side-Gradient	24.85	3/11/2008	17.62
				4/1/2008	17.74
				9/23/2008	23.43
				1/5/2009	18.42
				1/13/2009	7.10
				2/16/2009	18.65
				3/13/2009	18.26
				4/15/2009	17.51
				5/12/2009	14.10
				6/8/2009	17.60
				7/16/2009	20.00
				9/22/2009	18.20
				12/29/2009	17.30
				2/25/2010	18.10
				5/17/2010	19.83
				8/23/2010	13.78
				11/15/2010	19.00
				5/16/2011	19.80
				9/20/2011	20.80
				12/12/2011	12.10
				4/17/2012	18.90
				8/28/2012	22.70
				12/4/2012	22.10
				4/24/2013	19.30
				8/6/2013	20.20
				11/18/2013	21.00
				5/22/2014	DRY
				9/16/2014	22.70
				11/12/2014	NR
				4/14/2015	19.13
				8/19/2015	NR
				11/20/2015	11.80
				5/5/2016	19.40
				8/30/2016	23.10
				11/29/2016	DRY
				9/6/2017	20.10
				4/10/2018	12.40
				8/27/2018	21.50
				12/12/2018	10.02
				3/12/2019	10.00
				12/12/2019	23.00
				4/13/2020	11.00
				9/14/2020	DRY
				7/9/2021	21.30
				11/11/2021	22.00
				4/6/2022	16.90
				11/7/2022	DRY
				12/30/2022	22.30
				4/21/2023	21.10
				8/8/2023	21.30
				11/2/2023	DRY

Table A-1. Depth to Groundwater Measurements					
LAS Farm Area	Sample Location	Location Designation	Total Depth	Measurement Date	Depth to Water
			(ft bTOC)	(m/d/y)	(ft bTOC)
Leona/Charlie Smelcer	MW-6	Side-Gradient	24.64	4/1/2008	DRY
				9/23/2008	DRY
				1/6/2009	DRY
				1/15/2009	DRY
				2/16/2009	24.30
				3/13/2009	DRY
				4/15/2009	DRY
				5/14/2009	DRY
				6/9/2009	24.33
				7/16/2009	24.25
				9/24/2009	DRY
				1/4/2010	DRY
				2/25/2010	DRY
				5/18/2010	22.80
				8/25/2010	DRY
				11/17/2010	DRY
				5/19/2011	17.20
				9/21/2011	DRY
				12/13/2011	19.20
				4/18/2012	16.30
				8/29/2012	DRY
				12/6/2012	24.20
				4/25/2013	17.30
				8/7/2013	22.00
				11/20/2013	DRY
				5/21/2014	DRY
				9/17/2014	DRY
				11/11/2014	24.40
				4/17/2015	12.72
				8/19/2015	21.80
				11/30/2015	24.10
				5/6/2016	17.60
				8/31/2016	DRY
				11/30/2016	DRY
				9/8/2017	22.40
				4/11/2018	11.80
				8/23/2018	21.40
				12/11/2018	14.00
				3/13/2019	9.60
				12/11/2019	16.40
				4/13/2020	11.00
				9/17/2020	DRY
				7/9/2021	16.50
				12/1/2021	23.50
				4/11/2022	13.00
				11/2/2022	23.20
				12/30/2022	24.00
				4/25/2023	23.10
				8/9/2023	16.10
				11/3/2023	DRY

Table A-1. Depth to Groundwater Measurements					
LAS Farm Area	Sample Location	Location Designation	Total Depth	Measurement Date	Depth to Water
			(ft bTOC)	(m/d/y)	(ft bTOC)
Leona/Charlie Smelcer	MW-7	Downgradient	24.61	3/11/2008	ATOC
				4/1/2008	ATOC
				9/23/2008	1.14
				1/6/2009	ATOC
				1/15/2009	ATOC
				2/16/2009	ATOC
				3/13/2009	ATOC
				4/15/2009	ATOC
				5/14/2009	ATOC
				6/9/2009	ATOC
				7/16/2009	ATOC
				9/24/2009	ATOC
				1/4/2010	ATOC
				1/4/2010	ATOC
				2/25/2010	ATOC
				5/18/2010	ATOC
				8/25/2010	ATOC
				11/19/2010	ATOC
				5/19/2011	ATOC
				9/21/2011	1.00
				12/14/2011	ATOC
				4/20/2012	ATOC
				8/29/2012	ATOC
				12/6/2012	ATOC
				4/24/2013	ATOC
				8/5/2013	4.01
				11/21/2013	ATOC
				5/23/2014	ATOC
				9/17/2014	ATOC
				11/11/2014	ATOC
				4/20/2015	ATOC
				8/21/2015	ATOC
				12/2/2015	ATOC
				5/9/2016	ATOC
				8/31/2016	1.00
				12/2/2016	1.00
				9/8/2017	ATOC
				4/11/2018	ATOC
				8/23/2018	ATOC
				12/12/2018	ATOC
				3/13/2019	ATOC
				12/11/2019	ATOC
				9/17/2020	ATOC
				7/9/2021	ATOC
				12/1/2021	ATOC
				4/11/2022	ATOC
				11/3/2022	ATOC
				12/30/2022	ATOC
				4/25/2023	ATOC
				8/9/2023	ATOC
				10/27/2023	ATOC

Table A-1. Depth to Groundwater Measurements					
LAS Farm Area	Sample Location	Location Designation	Total Depth	Measurement Date	Depth to Water
			(ft bTOC)	(m/d/y)	(ft bTOC)
Ray Smelcer	MW-11	Downgradient	24.57	3/11/2008	3.71
				3/31/2008	1.95
				9/23/2008	5.69
				1/6/2009	4.70
				1/20/2009	2.94
				2/16/2009	1.82
				3/13/2009	2.00
				4/15/2009	1.47
				5/15/2009	1.70
				6/8/2009	2.00
				7/16/2009	2.55
				9/25/2009	2.70
				1/5/2010	1.40
				2/25/2010	2.20
				5/18/2010	1.60
				8/24/2010	2.15
				11/16/2010	2.00
				5/19/2011	1.90
				9/20/2011	4.80
				12/13/2011	ATOC
				4/19/2012	2.20
				8/31/2012	5.20
				12/5/2012	5.10
				4/25/2013	ATOC
				8/7/2013	2.00
				11/20/2013	3.80
				5/21/2014	3.20
				9/16/2014	5.10
				11/13/2014	3.40
				4/16/2015	0.61
				8/19/2015	2.52
				11/20/2015	ATOC
				5/6/2016	2.70
				8/30/2016	6.70
				12/2/2016	5.70
				9/7/2017	2.00
				4/20/2018	1.90
				8/23/2018	6.00
				12/11/2018	0.03
				3/13/2019	10.00
				12/11/2019	2.00
				9/18/2020	5.00
				7/13/2021	4.60
				11/30/2021	4.50
				4/19/2022	ATOC
				11/2/2022	5.20
				12/19/2022	ATOC
				4/25/2023	Full
				8/9/2023	6.10
				10/25/2023	5.60

Table A-1. Depth to Groundwater Measurements					
LAS Farm Area	Sample Location	Location Designation	Total Depth	Measurement Date	Depth to Water
			(ft bTOC)	(m/d/y)	(ft bTOC)
Whaley/Hayfield	MW-12	Downgradient	20.04	3/11/2008	5.75
				4/2/2008	6.04
				9/23/2008	6.54
				1/6/2009	4.70
				1/14/2009	5.18
				2/15/2009	6.16
				3/13/2009	5.97
				4/16/2009	5.79
				5/13/2009	5.40
				6/9/2009	5.02
				7/16/2009	6.23
				9/25/2009	6.20
				12/30/2009	4.60
				2/25/2010	5.75
				5/19/2010	5.96
				8/26/2010	6.20
				11/18/2010	6.10
				5/18/2011	5.90
				9/22/2011	6.70
				12/15/2011	4.80
				4/19/2012	5.90
				8/30/2012	6.20
				12/7/2012	5.45
				4/26/2013	5.80
				8/9/2013	5.60
				11/22/2013	6.90
				5/20/2014	6.60
				9/19/2014	7.10
				11/14/2014	6.90
				4/21/2015	4.50
				8/21/2015	5.80
				12/1/2015	4.30
				5/11/2016	5.90
				9/2/2016	6.80
				12/2/2016	5.20
				9/27/2017	6.20
				4/20/2018	5.30
				8/26/2018	6.40
				12/3/2018	4.60
				3/14/2019	5.00
				12/12/2019	4.00
				9/17/2020	6.19
				7/8/2021	6.00
				12/1/2021	6.80
				3/24/2022	4.70
				11/1/2022	5.80
				12/29/2022	6.70
				4/26/2023	5.60
				8/10/2023	5.10
				11/3/2023	5.40

Table A-1. Depth to Groundwater Measurements					
LAS Farm Area	Sample Location	Location Designation	Total Depth	Measurement Date	Depth to Water
			(ft bTOC)	(m/d/y)	(ft bTOC)
Whaley/Hayfield	MW-14	Downgradient	19.75	3/11/2008	7.98
				4/2/2008	7.24
				9/23/2008	14.06
				1/6/2009	4.60
				1/14/2009	3.45
				2/15/2009	5.98
				3/13/2009	6.75
				4/15/2009	5.90
				5/13/2009	5.90
				6/9/2009	2.29
				7/16/2009	10.90
				9/25/2009	11.55
				12/30/2009	5.50
				2/25/2010	6.95
				5/20/2010	11.88
				8/25/2010	10.85
				11/17/2010	4.90
				5/18/2011	10.10
				9/21/2011	11.00
				12/14/2011	5.80
				4/18/2012	9.10
				8/30/2012	12.90
				12/7/2012	16.00
				4/26/2013	9.30
				8/8/2013	11.70
				11/21/2013	13.30
				5/19/2014	13.60
				9/19/2014	14.90
				11/14/2014	8.00
				4/21/2015	5.60
				8/21/2015	12.10
				12/1/2015	5.80
				5/10/2016	10.70
				9/1/2016	16.10
				12/1/2016	DRY
				9/8/2017	12.50
				4/19/2018	7.80
				8/24/2018	13.70
				12/13/2018	6.00
				3/14/2019	6.00
				12/12/2019	6.00
				9/18/2020	14.00
				7/20/2021	14.20
				11/30/2021	12.80
				4/19/2022	7.40
				11/7/2022	14.00
				12/29/2022	9.60
				4/26/2023	10.80
				8/10/2023	7.00
				10/31/2023	13.70

Table A-1. Depth to Groundwater Measurements					
LAS Farm Area	Sample Location	Location Designation	Total Depth	Measurement Date	Depth to Water
			(ft bTOC)	(m/d/y)	(ft bTOC)
Whaley/Hayfield	MW-15	Side-Gradient	25.23	3/11/2008	11.81
				4/2/2008	13.20
				9/23/2008	DRY
				1/6/2009	12.10
				1/15/2009	11.67
				2/15/2009	12.28
				3/13/2009	11.95
				4/15/2009	12.03
				5/14/2009	11.65
				6/8/2009	11.95
				7/16/2009	13.47
				9/25/2009	12.65
				1/4/2010	12.10
				2/25/2010	12.25
				5/20/2010	12.85
				8/25/2010	17.45
				11/17/2010	12.90
				5/18/2011	12.70
				9/21/2011	13.60
				12/14/2011	11.20
				4/18/2012	12.30
				8/30/2012	15.00
				12/6/2012	14.50
				4/26/2013	12.70
				8/8/2013	13.00
				11/21/2013	13.50
				5/19/2014	13.30
				9/18/2014	14.80
				11/13/2014	13.30
				4/20/2015	11.80
				8/20/2015	13.10
				11/30/2015	12.30
				5/10/2016	12.70
				9/1/2016	14.80
				12/1/2016	14.20
				9/8/2017	13.20
				4/11/2018	11.30
				8/24/2018	NR
				12/12/2018	12.60
				3/14/2019	12.00
				12/12/2019	11.50
				4/13/2020	14.00
				9/17/2020	14.00
				7/20/2021	13.20
				11/30/2021	14.50
				4/19/2022	12.60
				11/3/2022	13.20
				12/29/2022	13.50
				4/26/2023	13.90
				8/10/2023	12.60
				10/31/2023	13.30

Table A-1. Depth to Groundwater Measurements					
LAS Farm Area	Sample Location	Location Designation	Total Depth	Measurement Date	Depth to Water
			(ft bTOC)	(m/d/y)	(ft bTOC)

Footnotes:

Water level measurements have been collected by the Bush Brothers and Company sample team since 2009 with data provided to Brown and Caldwell for summary and interpretation.

LAS - Land Application System

ft bTOC - feet below top of casing

m/d/y - month/day/year

ATOC - at top of casing

DRY - groundwater was not present in monitoring well during event

NR - Not Recorded

Table A-2. Groundwater Sampling Results

LAS Farm Area	Sample Location	Location Designation	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	E. Coli (CFU/100mL or MPN/100mL)	Total Nitrogen ² (mg/L)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)
USEPA MCL				NA	10	NA		NA	NA	NA	NA	NA
AJ/CJ Bush	MW-2	Downgradient	4/2/2008									
			9/24/2008									
			1/19/2009	219	1.80	130	NA	13.00	6.89	0.465	12.11	252
			5/12/2009	175	2.57	40 H	NA	12.75	7.38	0.454	9.21	217
			9/22/2009									
			12/28/2009	137	1.82	40	NA	11.23	7.82	0.384	9.31	182
			5/17/2010									
			8/23/2010									
			11/15/2010									
			5/16/2011	168	1.90	10 U	NA	12.66	8.30	0.437	8.60	210
			9/19/2011									
			12/12/2011	109	1.19	140	NA	12.52	7.08	0.263	8.84	257
			4/17/2012	187	1.93	18	NA	12.38	6.64	0.456	6.39	191
			8/27/2012									
			12/3/2012									
			4/22/2013	188	1.63	45	NA	12.30	7.51	0.336	5.21	129
			8/6/2013									
			11/18/2013									
			5/20/2014									
			9/15/2014									
			11/10/2014									
			4/14/2015	181	1.69	43	NA	12.00	8.03	0.343	6.87	528
			8/18/2015									
			11/16/2015									
			5/4/2016									
			8/29/2016									
			11/28/2016									
			9/6/2017									
			4/13/2018	126	1.55	55	NA	12.00	7.18	0.376	4.11	182
			8/22/2018									
			12/10/2018	147	1.80	41	NA	14.49	7.06	0.388	6.93	270.3
		Nitrate re-sampled 3/20/2019 due to laboratory error	3/11/2019	108	1.03	11.6	NA	11.58	6.55	0.265	5.81	248
			12/9/2019									
			4/13/2020	94	0.571	200	0.571	13.57	4.09	0.226	5.22	325.5
			7/7/2021									
			11/10/2021									
			3/24/2022	301	2.77	490	4.53	13.10	6.70	0.948	3.10	217
			11/7/2022									
			12/19/2022									
			4/21/2023	140	0.928	12.2	<1.00	13.4	7.2	0.288	11.1	147
			8/8/2023									
			10/23/2023									

Table A-2. Groundwater Sampling Results

LAS Farm Area	Sample Location	Location Designation	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	E. Coli (CFU/100mL or MPN/100mL)	Total Nitrogen ² (mg/L)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)
USEPA MCL				NA	10	NA		NA	NA	NA	NA	NA
AJ/CJ Bush	MW-3	Downgradient	4/2/2008									
			9/24/2008									
			1/19/2009	271	9.10	210	NA	11.80	6.91	0.969	6.57	206
			5/12/2009									
			9/22/2009									
			12/28/2009	256	6.38	10 U	NA	14.43	7.00	1.793	6.22	198
			5/17/2010									
			8/23/2010									
			11/15/2010									
			5/16/2011									
			9/19/2011									
			12/12/2011	298	8.53	29	NA	11.91	7.03	0.952	6.39	198
			4/17/2012	353	4.08	960	NA	13.19	8.39	1.124	6.57	177
			8/27/2012									
			12/3/2012									
			4/22/2013	305	3.31	>2,420	NA	13.10	7.17	0.845	2.23	172
			8/5/2013									
			11/18/2013									
			4/9/2018	412	0.426	93	NA	12.00	6.47	1.646	1.91	62.9
			8/22/2018	440	8.77	410	NA	18.48	6.68	NA	2.60	131.8
			12/10/2018	325	18.80	11	NA	13.64	6.73	1.926	4.07	238.3
		Nitrate re-sampled 3/19/2019 due to laboratory issue	3/13/2019	249	3.57	3	NA	12.57	7.51	0.926	3.06	262.6
			12/9/2019									
			4/13/2020	228	2.07	280	3.32	14.25	4.03	0.746	3.65	335.2
			9/14/2020									
			7/6/2021									
			11/10/2021									
			4/6/2022			Insufficient water to collect sample		12.10	7.00	0.259	7.00	180
			10/31/2022									
			12/19/2022									
			4/20/2023									
			8/8/2023									
			11/2/2023									

Table A-2. Groundwater Sampling Results

LAS Farm Area	Sample Location	Location Designation	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	E. Coli (CFU/100mL or MPN/100mL)	Total Nitrogen ² (mg/L)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)
USEPA MCL				NA	10	NA		NA	NA	NA	NA	NA
Eula	MW-4	Side-gradient	4/1/2008	6.3	12.0	100 UD	NA	18.40	5.15	0.704	NA	225
			9/23/2008	10	10.0	10 UH	NA	16.00	NA	0.732	5.00	120
			1/13/2009	14	39.1	10 UH	NA	NA	NA	NA	NA	NA
			5/12/2009	5	22.1	10 U	NA	11.91	5.21	0.759	6.22	223
			9/22/2009	5 U	2.69	10 U	NA	13.19	4.79	0.782	5.46	224
			12/29/2009	5 U	30.5	10 U	NA	11.91	5.92	0.554	5.97	276
			5/17/2010	5 U	0.31	10 U	NA	13.19	7.16	0.671	8.77	191
			8/23/2010	5 U	0.05 U	10 U	NA	11.91	6.53	0.566	9.18	199
			11/15/2010	5 U	0.05 U	10 U	NA	13.19	8.06	0.563	6.64	199
			5/16/2011	5 U	17.7	30	NA	14.78	8.25	0.567	6.73	240
			9/20/2011	20	2.07	3	NA	15.24	7.96	0.573	5.92	259
			12/12/2011	5 U	38.5	1 U	NA	15.04	7.64	0.624	8.92	240
			4/17/2012	5 U	0.06 U	10 U	NA	15.79	6.88	0.526	8.20	229
			8/28/2012									
			12/4/2012									
			4/24/2013 ²	5	17.7	1 U	NA	16.50	7.08	0.543	3.20	117.4
			8/6/2013 ²	5 U	15.4	1 U	NA	15.90	6.94	0.524	3.13	213.6
			11/18/2013 ²	7.5	14.4	25	NA	16.10	7.15	0.556	2.98	198
			5/22/2014									
			9/16/2014									
			11/12/2014									
			4/15/2015	10	15.8	>2,420	NA	15.50	6.53	0.351	5.67	577
			8/19/2015	6.5	12.2	56	NA	NA	NA	NA	NA	NA
			11/20/2015	6	13.2	10 U	NA	16.50	5.19	0.341	5.90	353
			5/5/2016	13	12.7	1	NA	10.40	6.11	0.364	5.79	11.7
			8/30/2016									
			11/29/2016									
			9/6/2017	5 U	11.2 D	1 U	NA	16.20	7.90	0.455	3.25	162.5
			4/10/2018	5 U	15.0	1 U	NA	14.84	5.18	0.426	4.80	253
			8/27/2018	5 U	13.5	1 U	NA	15.91	5.75	0.546	4.06	197.2
			12/12/2018	8.5	15.9	1 U	NA	16.43	5.61	0.504	4.78	326
		Nitrate re-sampled 3/19/2019 due to laboratory error	3/12/2019	7.67	14.3	1 U	NA	15.44	5.45	0.491	4.28	306
			12/12/2019									
			4/13/2020	9.00	10.4	>2,400	11.5	15.07	3.65	0.440	5.69	304.4
			9/14/2020									
			7/9/2021			Insufficient water to collect sample		18.40	7.10	0.517	4.50	173
			11/11/2021			Insufficient water to collect sample		17.80	7.00	0.606	2.90	297
			4/6/2022			Insufficient water to collect sample		14.80	6.60	0.407	6.10	241
			11/7/2022									
			12/30/2022	19.0	6.98	2	8.51	14.80	8.40	0.363	9.20	93
			4/21/2023	9.8	7.38	1	8.89	16.10	6.90	0.360	10.90	170
			8/8/2023	5.5	6.57	<1	7.62	17.50	7.80	0.465	10.10	176
			11/2/2023									

Table A-2. Groundwater Sampling Results

LAS Farm Area	Sample Location	Location Designation	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	E. Coli (CFU/100mL or MPN/100mL)	Total Nitrogen ² (mg/L)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)
USEPA MCL				NA	10	NA		NA	NA	NA	NA	NA
Leona/Charlie Smelcer	MW-6	Side-Gradient	4/1/2008									
			9/23/2008									
			1/15/2009									
			5/14/2009									
			9/24/2009									
			1/4/2010									
			5/18/2010	266	0.05 U	10 U	NA	15.78	7.34	1.154	2.16	43
			8/25/2010									
			11/19/2010									
			5/19/2011	269	0.05 UB	10 U	NA	13.93	8.48	0.941	3.17	136
			9/21/2011									
			12/14/2011	257	0.096	10 U	NA	15.62	7.86	0.898	1.26	92
			4/20/2012	300	0.378	1 U	NA	13.86	6.68	0.934	1.74	175
			8/29/2012									
			12/6/2012									
			4/25/2013	305	0.011 UB	1 U	NA	14.90	7.47	0.742	0.73	102.9
			8/7/2013									
			11/21/2013									
			5/23/2014									
			9/17/2014									
			11/11/2014									
			4/17/2015	275	0.082	3	NA	14.00	7.70	0.609	2.88	241
			8/19/2015	298	0.056 U	1 U	NA	15.10	7.50	0.890	0.89	NA
			11/30/2015									
			5/6/2016	310	0.056 U	1 U	NA	10.30	7.18	0.820	2.03	19.4
			8/31/2016									
			11/30/2016									
			9/8/2017	276	0.888	1 U	NA	16.20	7.30	0.890	1.50	82
			4/11/2018	230	0.419	13	NA	13.76	6.97	0.640	3.50	221
			8/23/2018	307	0.059	1 U	NA	16.21	6.58	0.780	1.55	45.9
			12/11/2018	250	0.694	8	NA	16.92	7.26	0.875	3.93	203.3
			3/13/2019	524	1.20 U	17	NA	14.49	7.49	0.937	3.44	123.8
			12/11/2019	228	0.365	4	NA	15.89	6.86	0.698	3.39	39.8
			4/13/2020	152	0.574 M1	3	5.11	15.08	4.52	0.678	3.36	326.7
			9/17/2020									
			7/9/2021									
			12/1/2021									
			4/11/2022	284	0.130	<1	<1.67	14.00	6.70	0.867	5.70	173
			11/2/2022									
			12/30/2022									
			4/25/2023									
			8/9/2023	267	0.525	461.1	2.46	18.2	7.8	0.565	5.1	-161
			11/3/2023									

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LAS Farm Area	Sample Location	Location Designation	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	E. Coli (CFU/100mL or MPN/100mL)	Total Nitrogen ² (mg/L)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)
USEPA MCL				NA	10	NA		NA	NA	NA	NA	NA
Leona/Charlie Smelcer	MW-7	Downgradient	4/1/2008	350	0.05 U	1,200	NA	16.40	6.79	3.007	NA	9
			9/23/2008	344	0.05 U	10 U	NA	20.40	6.69	3.936	0.60	-186
			1/15/2009	303	0.05 U	10 UH	NA	15.02	6.84	3.062	0.80	33
			5/14/2009	296	0.16	10	NA	17.41	7.08	3.295	1.99	9
			9/24/2009	438	0.05 U	10 U	NA	14.94	6.78	3.213	0.22	36
			1/4/2010	326	0.05 U	10 U	NA	15.71	6.73	3.33	3.64	16
			5/18/2010	282	0.14	10 U	NA	15.23	7.07	3.341	3.86	-10
			8/25/2010	290	0.11	1,400	NA	16.45	8.09	3.394	4.71	-26
			11/19/2010	280	0.06	70	NA	15.42	8.59	3.359	3.56	22
			5/19/2011	284	0.06 UNB	2,900	NA	15.87	8.06	3.439	2.26	-14
			9/21/2011	292	0.06 U	10	NA	17.66	8.23	3.447	1.74	-2
			12/14/2011	285	0.06 U	1,900	NA	14.94	7.89	3.474	1.02	13
			4/20/2012	293	0.11 U	77	NA	14.16	6.55	3.493	1.84	19
			8/29/2012	272	0.12	10 U	NA	15.94	7.80	3.480	1.47	NA
			12/6/2012	320	0.06 U	1 U	NA	16.19	6.69	2.856	1.13	96
			4/24/2013	271	0.06	30	NA	15.10	7.00	2.810	0.97	37.5
			8/5/2013	329	0.01 U	3	NA	16.30	7.15	2.937	1.22	33.7
			11/21/2013	296	0.01 U	21	NA	15.70	7.66	2.925	1.31	66
			5/23/2014	304	0.00 U	130	NA	14.30	7.82	2.800	1.08	61
			9/17/2014	299	0.02 UD	1 U	NA	17.00	7.88	2.987	2.77	76
			11/11/2014	298	0.06 U	1 U	NA	16.30	7.74	2.928	2.30	178
			4/20/2015	318	0.06 U	23	NA	14.30	6.86	2.740	2.22	355
			8/21/2015	301	0.29 UDL	610	NA	14.90	7.00	2.820	1.64	NA
			12/2/2015	304	0.28 U	59	NA	15.60	6.64	2.820	2.50	140
			5/9/2016	317	0.09 M2	1	NA	10.20	6.77	2.570	1.91	5.9
			8/31/2016	333	0.15	19	NA	10.90	6.58	2.790	1.77	-0.9
			12/2/2016	328	0.02 UDL	1 U	NA	10.60	6.99	2.730	1.33	55.8
			9/8/2017	320	0.05 UDL	110	NA	16.10	7.10	3.210	1.80	5.7
			4/11/2018	326	0.19	20	NA	13.89	6.64	3.140	1.78	50
			8/23/2018	320	0.03	1 U	NA	15.98	6.54	NA	1.97	17.4
			12/12/2018	295	0.0133	46	NA	18.34	6.86	3.250	3.90	92.7
		Nitrate re-sampled 3/20/2019 due to laboratory error	3/13/2019	307	3.00 U	98	NA	14.77	7.30	3.383	2.22	32.7
			12/11/2019	195	0.226 U	120	NA	15.25	7.81	3.383	2.56	-46.1
			9/17/2020	305	0.226 U, A12	>2,400	1.78	16.81	5.87	3.484	24.4*	158.9
			11/12/2020	298	0.113 U	650	1.72	--	--	--	--	--
			7/9/2021					17.00	6.77	3.246	1.70	22
			12/1/2021	341	0.100 U	1 U	7.08	12.90	6.80	3.345	3.70	40
			4/11/2022	334	<0.100	<1	<1.67	14.70	6.40	3.169	5.60	37
			11/3/2022	302	<0.100	2	1.66	16.00	7.60	3.208	NR	49
			12/30/2022	318	<0.100	<1	<7.40	17.20	7.20	2.614	9.50	15
			4/25/2023	608	<0.100	1	<1.00	13.20	7.10	3.011	7.10	23
			8/9/2023	320	<0.100	14.4	<1.00	16.60	6.90	3.143	6.20	-13
			10/27/2023	356	<0.100 M2, R1	2	<1.00	16.20	6.95	3.105	5.10	3

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USEPA MCL				NA	10	NA		NA	NA	NA	NA	NA	
Ray Smelcer	MW-11	Downgradient	3/31/2008	2,700	0.05 U	2,000	NA	15.10	8.05	0.872	NA	129	
			9/23/2008	562	0.05 U	10 U	NA	20.20	6.69	0.913	2.00	-263	
			1/20/2009	433	0.05 U	10 U	NA	12.01	7.89	0.860	0.87	-175	
			5/14/2009	1,220	0.05 U	100 U	NA	17.65	8.11	0.902	0.64	-279	
			9/25/2009	338	0.05 U	10 U	NA	14.64	7.95	0.812	1.54	-206	
			1/5/2010	500	0.05 U	10 U	NA	11.44	7.25	0.811	3.28	-195	
			5/18/2010	436	0.06 U	10 U	NA	14.18	8.45	0.888	5.79	-251	
			8/24/2010	431	0.06 U	20	NA	21.82	8.44	0.937	2.66	-254	
			11/16/2010	388	0.06 U	10 U	NA	15.99	8.56	0.868	2.11	-243	
			5/19/2011	380	0.06 UB	10 U	NA	13.69	8.53	0.821	1.01	-210	
			9/20/2011	431	0.11 U	10 U	NA	18.29	8.57	0.942	1.11	-312	
			12/13/2011	344	0.07	10	NA	13.94	7.95	0.890	1.33	-242	
			4/19/2012	423	0.11 U	10 U	NA	13.29	6.66	0.899	6.98	-17	
			4/19/2012*	372	3.69	10 U	NA	13.29	6.66	0.899	6.98	-17	
			8/31/2012	210	0.06 U	1 U	NA	16.93	8.60	0.995	0.90	NA	
			12/5/2012	430	0.06 U	10 U	NA	16.82	8.01	0.813	0.96	-189	
			4/25/2013	279	0.01 U	1 U	NA	13.40	7.47	0.565	1.38	-42.2	
			8/7/2013	449	0.01 U	1	NA	17.50	7.51	0.698	1.38	-56.7	
			11/20/2013	447	0.01 U	1 U	NA	17.10	8.34	0.811	0.90	-172	
			5/21/2014	303	0.05	1 U	NA	13.90	8.35	0.586	1.57	157	
			9/16/2014	424	0.01	2 H	NA	17.20	8.65	0.825	0.75	-208	
			11/13/2014	443	0.06 U	40	NA	17.10	8.84	0.778	1.72	-180	
			4/16/2015	250	1.07	2	NA	13.50	7.56	0.596	2.64	391	
			8/19/2015	352	0.06 U	3	NA	15.30	8.00	0.768	1.40	NA	
			11/20/2015	229	0.21	10 U	NA	15.00	6.98	0.604	1.11	102	
			5/6/2016	252	0.06 U	1,200	NA	9.10	7.29	0.565	2.37	-26	
			8/30/2016	464	0.11 U	1	NA	12.90	7.78	0.845	1.38	-168	
			11/30/2016	483	0.04	1 U	NA	12.10	8.10	0.800	1.40	-212	
			9/7/2017	345	0.01 U M1	1 U	NA	19.70	7.70	0.747	0.86	-242	
			4/20/2018	NA	NA	NA	NA	13.20	6.77	0.619	1.80	3.0	
			8/23/2018	454	0.06 U	1 U	NA	17.10	7.57	NA	1.17	265	
			12/11/2018	312	0.0584 UH	13	NA	15.20	7.12	0.563	4.25	73	
		Nitrate re-sampled 3/20/2019 due to laboratory error	3/13/2019	299	0.600 U	3	NA	13.67	7.21	0.616	2.31	8.6	
			12/11/2019	194	0.897	15	NA	16.39	8.87	0.504	2.39	-94.4	
			9/18/2020	397	0.0113 U	1,400	0.768	17.34	8.04	1.028	18.9*	-232.6	
			11/12/2020	167	1.65	38	3.86	--	--	--	--	--	
			7/13/2021	425	0.0113 U	20	1.52	17.00	7.95	1.012	1.50	-315	
			11/30/2021	268	0.100 U	1 U	1.36	16.00	7.7	0.807	2.90	-278	
			4/19/2022	287	0.222	2	1.92	13.20	6.80	0.560	5.00	-122	
			11/2/2022	448	<0.100	2	<0.100	16.90	8.20	1.010	4.10	-355	
			12/19/2022					13.10	7.50	0.471	9.30	-187	
			4/25/2023	210	<0.100	<1	<1.00	13.90	7.40	0.590	7.00	21	
			8/9/2023	432	<0.100	<1	<1.00	18.80	8.10	0.970	3.00	-305	
			10/25/2023	402	<0.100	M1	2	<1.00	16.90	8.10	0.995	6.20	-272

Table A-2. Groundwater Sampling Results

LAS Farm Area	Sample Location	Location Designation	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	E. Coli (CFU/100mL or MPN/100mL)	Total Nitrogen ² (mg/L)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)
USEPA MCL				NA	10	NA		NA	NA	NA	NA	NA
Whaley/Hayfield	MW-12	Downgradient	4/2/2008	190	0.05 U	10 U	NA	10.50	6.90	0.357	NA	14
			9/23/2008	319	0.24	10 UH	NA	17.60	6.28	0.421	2.00	-42
			1/14/2009	199	1.88	100 U	NA	12.58	6.68	0.381	2.12	30
			5/13/2009	198	0.05 U	110	NA	15.51	7.32	0.395	2.76	122
			9/25/2009	285	0.05 U	200	NA	19.67	6.27	0.404	1.54	-31
			12/30/2009	160	0.46	290	NA	10.91	7.59	0.288	5.46	134
			5/19/2010	192	0.06 U	190	NA	19.14	7.36	0.338	3.17	-83
			8/25/2010					Dry or insufficient water present, sample not collected.				
			11/18/2010	200	0.06 U	10 U	NA	14.88	8.65	0.423	3.28	-124
			5/18/2011	182	0.06 U	430	NA	12.83	8.44	0.317	3.56	-56
			9/22/2011	182	0.11 U	10 U	NA	18.73	8.52	0.350	1.60	-104
			12/15/2011	204	0.06 U	170	NA	11.95	8.83	0.495	2.55	-79
			4/19/2012	231	0.11 UN	390	NA	12.42	6.69	0.435	2.29	-88
			8/30/2012	275	0.06 U	10 U	NA	19.13	7.40	0.357	1.30	NA
			12/7/2012	150	0.16	440	NA	13.26	6.90	0.747	3.47	70
			4/26/2013	191	0.01 U	91	NA	12.20	7.24	0.264	2.04	-47.3
			8/9/2013	200	0.01 U	14	NA	19.00	7.60	0.352	1.34	-86.8
			11/22/2013	185	0.01 U	1 U	NA	16.20	8.00	0.300	1.42	-89
			5/20/2014	215	0.01	1 U	NA	13.40	8.30	0.298	1.58	-42
			9/19/2014	187	0.01 U	1 U	NA	20.20	8.12	0.342	0.98	-62.9
			11/14/2014	198	0.13	1 U	NA	16.30	8.36	0.307	2.02	-39
			4/21/2015	194	0.06	1 U	NA	12.00	7.13	0.291	5.50	48
			8/21/2015	201	0.06 U	16	NA	19.00	7.28	0.365	2.17	NA
			12/1/2015	224	0.06 U	10 U	NA	15.60	6.89	0.352	1.70	9.2
			5/11/2016	239	0.06 U	35	NA	9.00	7.12	0.314	1.24	-57
			9/2/2016	234	0.11 U	11	NA	41.20	6.93	0.330	1.62	-60.8
			12/2/2016	215	0.04 M1	1 U	NA	10.10	7.43	0.317	1.71	-69.9
			9/27/2017	NR	NR	NR	NA	18.80	7.28	0.412	1.73	-47.7
			4/20/2018	221	0.029	17	NA	11.90	6.72	0.467	1.00	-83
			8/26/2018	119	0.035 U	1 U	NA	18.27	6.55	0.383	1.08	92.8
			12/13/2018	273	0.0173 U	52	NA	14.40	6.48	0.461	2.06	11.4
			3/14/2019	331	0.050 U	160	NA	11.61	6.89	0.590	2.18	44.8
			12/12/2019	220 H	0.226 U	52	NA	13.75	7.36	0.469	0.94	-39.8
			9/17/2020	186	0.0113 U, A12	230	NA	19.80	7.16	0.374	19.8*	33.8
			7/8/2021	158	0.0495	NR	3.61	18.80	7.3	0.401	1.30	-120
			12/1/2021	201	0.100 U	1 U	2.79	15.90	7.4	0.337	3.00	21
			3/24/2022	166	<0.100	3	2.11	10.90	6.65	0.329	2.90	-78
			11/1/2022					Sample data not provided				
			12/29/2022	162	<0.100	<1	2.29	14.20	7.80	0.355	10.10	-92
			4/26/2023	148	<0.100	<1	1.76	12.30	7.00	0.306	6.60	-65
			8/10/2023	197	<0.100	16	2.29	19.50	7.20	0.367	3.90	-96
			11/3/2023	214	<0.100 M2	1	3.15	15.10	7.70	0.361	6.00	-87

Table A-2. Groundwater Sampling Results

LAS Farm Area	Sample Location	Location Designation	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	E. Coli (CFU/100mL or MPN/100mL)	Total Nitrogen ² (mg/L)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)
USEPA MCL				NA	10	NA		NA	NA	NA	NA	NA
Whaley/Hayfield	MW-14	Downgradient	4/2/2008	400	6.30	100	NA	15.00	7.54	0.679	NA	135
			9/23/2008	383	1.26	10 U	NA	19.80	6.68	0.748	2.00	103
			1/14/2009	119	0.26	100 U	NA	NA	NA	NA	NA	NA
			5/13/2009	278	0.97	400	NA	15.51	7.32	0.395	2.76	122
			9/25/2009	250	0.05 U	10 U	NA	19.21	7.08	0.675	2.41	-18
			12/30/2009	201	0.05 U	10 U	NA	15.21	7.49	0.480	3.08	143
			5/20/2010	215	0.08	10 U	NA	19.78	8.01	0.894	4.89	51
			8/25/2010	245	2.37	100	NA	17.78	8.71	0.527	3.75	79
			11/17/2010	184	6.82	6	NA	13.85	8.36	0.491	1.28	-59
			5/18/2011	198	0.06 UB	380	NA	13.85	8.36	0.491	1.28	-59
			9/21/2011	252	1.79	30	NA	18.95	8.27	0.765	0.93	113
			12/14/2011	205	2.78 H	190	NA	15.55	8.03	0.624	2.22	88
			4/18/2012	408	5.92	630	NA	14.35	6.71	0.572	8.43	168
			8/30/2012	262	0.06 U	10 U	NA	17.81	7.80	0.908	1.49	NA
			12/7/2012	250	0.06 U	1 U	NA	17.20	6.93	1.147	2.64	211
			4/26/2013 ²	205	0.99	56	NA	14.20	7.49	0.445	1.04	99.2
			8/8/2013	264	0.01 U	13	NA	18.70	7.56	0.641	0.65	104.4
			11/21/2013 ²	325	0.01 U	1 U	NA	18.40	8.28	0.698	1.53	31
			5/19/2014	245	0.24	54	NA	15.00	8.38	0.414	1.21	158
			9/19/2014	265	0.28	1 U	NA	18.00	8.43	0.831	0.96	201.9
			11/14/2014	198	21.20 D	25	NA	16.40	8.50	0.908	2.47	253
			4/21/2015	391	2.36	41	NA	14.20	7.26	0.423	5.89	474
			8/21/2015	281	1.12	5	NA	17.20	7.00	0.568	2.38	NA
			12/1/2015	282	5.43	20	NA	17.70	7.23	0.647	1.66	212.2
			5/10/2016	320	1.46	1 U	NA	10.60	7.32	0.486	2.11	32.4
			9/1/2016	NA	NA	NA	NA	13.00	7.72	0.770	2.46	10.8
			12/1/2016				Dry or insufficient water present, sample not collected.					
			9/8/2017	172	0.69	1 U	NA	18.40	7.60	0.534	1.86	-9.6
			4/19/2018	223	3.16	7	NA	14.40	6.97	0.575	1.80	167
			8/24/2018	132	1.50	4	NA	18.04	6.75	0.713	0.92	122.5
			12/13/2018	273	0.0537 U	48	NA	17.40	6.60	0.540	2.72	238
			3/14/2019	353	2.37	1 U	NA	15.67	7.31	0.631	2.85	167.9
			12/12/2019	225 H	0.473	7	NA	16.4	6.78	0.471	3.29	28.6
			9/18/2020	244	0.0113 U	10 U	0.799	18.59	5.43	0.575	22.2*	128
			7/20/2021	266	0.0172	73	1.28	17.70	7.30	0.581	1.30	54
			11/30/2021	264	0.100 U	1 U	1.40	17.90	7.30	0.608	3.10	95
			4/19/2022	256	<0.500	>2419.6	2.73	14.20	7.00	0.445	5.20	80
			11/7/2022	264	<0.100	<1	2.26	19.40	7.70	0.586	5.30	57
			12/29/2022	173	0.311	1	2.93	16.20	7.70	0.548	11.20	-5
			4/26/2023	198	0.100	<1	2.13	14.20	7.20	0.416	7.20	55
			8/10/2023	136	NR	15.8	2.13	20.80	7.60	0.450	8.40	36
			10/31/2023	280	<0.100	3	1.43	16.70	7.70	0.530	4.90	-8

Table A-2. Groundwater Sampling Results

LAS Farm Area	Sample Location	Location Designation	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	E. Coli (CFU/100mL or MPN/100mL)	Total Nitrogen ² (mg/L)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)
USEPA MCL				NA	10	NA		NA	NA	NA	NA	NA
Whaley/Hayfield	MW-15	Side-gradient	3/31/2008	390	0.05 U	10	NA	17.80	7.15	1.435	NA	-163
			9/23/2008									
			1/15/2009	328	0.05 U	10	NA	14.80	7.04	0.529	3.62	157
			5/14/2009	304	0.93	10 U	NA	15.37	7.07	1.211	3.38	-83
			9/25/2009	316	0.05 U	10 UH	NA	17.89	6.85	1.409	2.46	-39
			12/30/2009									
			1/4/2010	308	1.55	10 U	NA	15.61	6.80	1.327	3.21	-113
			5/20/2010	317	0.12	2 U	NA	15.96	7.36	1.201	3.09	-153
			8/25/2010	329	0.15	10 U	NA	16.92	8.06	1.342	4.11	-93
			11/17/2010	310	0.35	10 U	NA	16.88	8.71	1.303	3.04	-106
			5/18/2011	275	0.70 B	10	NA	13.60	8.16	1.116	2.63	71
			9/21/2011	320	0.06 U	10 U	NA	16.65	8.28	1.249	1.48	11
			12/14/2011	289	2.60	10 U	NA	15.71	8.06	1.228	3.12	-65
			4/18/2012	298	0.06 U	NA	NA	13.75	6.61	0.996	2.11	-21
			8/30/2012	282	0.06 U	10 U	NA	15.66	7.80	1.197	3.07	NA
			12/6/2012	355	0.06 U	10 U	NA	17.14	6.94	1.063	0.90	-57
			4/26/2013	287	0.40	1 U	NA	14.60	7.41	0.880	1.27	31.6
			8/8/2013	291	0.23	1 U	NA	16.40	7.52	0.863	0.91	66.8
			11/21/2013	440	0.01 U	38	NA	17.50	7.84	0.921	0.98	67
			5/19/2014	342	0.07 M2	9	NA	14.90	7.93	0.893	0.66	41
			9/18/2014	342	0.01 U	18	NA	16.60	8.13	1.077	0.91	-67
			11/13/2014	321	0.06 U	2	NA	17.19	8.22	0.967	1.48	20
			4/20/2015	296	2.05	1 U	NA	14.50	7.20	0.872	2.73	88.7
			8/20/2015	499	0.06 U	77	NA	15.50	7.00	1.180	1.01	NA
			11/30/2015	311	0.68	36	NA	15.80	6.85	0.918	1.51	71
			5/10/2016	333	0.77	1 U	NA	10.70	7.09	0.871	1.67	-70
			9/1/2016	386	0.07	1 U	NA	11.60	6.83	0.941	1.39	-9.7
			12/1/2016	403	0.04	1 U	NA	11.60	7.18	1.271	1.35	-92.3
			9/8/2017	410	0.02	1 U	NA	17.10	7.30	1.360	1.26	-151
			4/11/2018	284	1.76	1 U	NA	14.60	6.84	1.217	1.98	0.5
			8/23/2018	560	0.09 U	1 U	NA	16.65	16.72	1.668	1.22	169.3
			12/12/2018	325	1.21	4	NA	17.12	7.22	1.295	2.75	156
			3/14/2019	342	2.97	1 U	NA	15.17	7.20	1.416	2.33	164.6
			12/12/2019	284 H	2.11	1 U	NA	17.57	7.47	1.560	2.06	-45
			4/13/2020	284	2.18	470	6.13	15.66	4.41	1.837	2.30	322.3
			9/17/2020	312	0.226 U, A12	10 U	0.226 U	17.35	8.38	1.081	33.9*	-115.7
			7/20/2021	336	0.0313	51	1.54	16.80	7.23	1.162	1.60	-122
			11/31/2021	321	0.144	1 U	1.16	17.70	7.10	1.222	2.80	-193
			4/19/2022	308	0.481	16	0.914	14.10	6.70	1.467	5.60	-102
			11/3/2022	344	0.131	3	1.58	17.50	7.20	1.470	3.20	-179
			12/29/2022	305	0.163	<1	5.07	15.20	7.50	1.713	9.70	-201
			4/26/2023	304	0.169	<1	<1.00	14.70	7.20	1.496	6.60	-117
			8/10/2023	321	<0.100	4.1	<1.00	17.40	7.30	1.228	6.00	-83
			10/31/2023	414	0.157	<1	<1.00	15.40	7.80	1.741	5.00	-110

Footnotes:

Groundwater samples have been collected by the Bush Brothers and Company sample team since 2009 with laboratory analytical reports and field data provided to Brown and Caldwell for summary and interpretation.

¹In September 2012, the Bush-subcontracted analytical laboratory switched from using method EPA 1603 for E. coli analyses to the SM 9223 B method, subsequently modifying the method for determining reported results. E. coli results analyzed from September 2012 through November 2014 are reported in units of MPN/100 mL instead of CFU/100 mL.

²Total Nitrogen analysis was added to the monitoring program following the 2019 monitoring period per the updated WMPP

LAS - Land Application System

CFU/100 mL - colony forming units per 100 milliliters of water

MPN/100 mL - most probable number per 100 milliliters of water

m/d/y - month/day/year

USEPA MCL - United States Environmental Protection Agency (USEPA) Maximum Contaminant Level (MCL) (November 2019)

NA - not applicable or not available

mg/L - milligram per liter

mS/cm - milli-Siemens per centimeter

H - constituent analyzed outside of hold-time

U - result below the laboratory detection limit

> - result greater than reported value

< - result is less than the reported value

D - Sample was diluted

M1 - Matrix spike recovery is outside of acceptance limits, biased high.

UDL - under detection limit

B - analyte detected in associated Method Blank

NR - Not Reported by Laboratory

M2 - Matrix spike recovery is outside of acceptance limits, biased low.

N - analyte acceptable matrix but matrix spike/matrix spike duplicate outside accepted recovery criteria

*C - degrees Celsius

mV - millivolts

A12 - sample was preserved with sulfuric acid to pH<2 on receipt

Table A-3. Surface Water Sampling Results

LAS Farm Area	Sample Location	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	BOD (5 day) (mg/L)	TSS (mg/L)	Total Nitrogen ^a (mg/L)	E. Coli (CFU/100mL or MPN/100mL)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)	
USEPA MCL			NA	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	
TDEC FAL Limit(s)			NA	MCL	NA	Background	NA	2,880	+/- 3° Background	6.0 - 9.0	NA	NA	NA	
AJ/CI Bush	SW-1	4/2/2008												
		9/24/2008												
		1/19/2009	187	0.20	2 U	4	NA	480	NA	8.25	0.649	15.56	226	
		5/12/2009	58	0.36	2 U	80	NA	1,800	13.48	7.99	0.128	10.96	200	
		9/22/2009												
		12/28/2009	89	0.81	2 U	18.9	NA	490	10.91	7.91	0.209	12.01	193	
		5/17/2010	95	15.2	2 U	4 U	NA	890	16.10	8.30	0.196	10.38	161	
		8/23/2010												
		11/15/2010												
		5/16/2011	82	0.338	2 U	16.4	NA	740	12.65	8.52	0.182	12.18	210	
		9/19/2011												
		12/12/2011	77	0.056 U	2 UB1	20	NA	210	10.96	7.50	0.196	13.21	236	
		4/17/2012	98	0.533	4.02	96	NA	1,100	12.86	6.80	0.224	12.05	173	
		8/27/2012												
		12/3/2012												
		4/22/2013	90	0.563	2 U	54	NA	> 2,420	14.30	7.90	0.256	8.47	100.6	
		8/6/2013												
		11/18/2013												
		5/20/2014												
		9/15/2014												
		11/10/2014												
		4/13/2015	85	0.477	2.5	37.7	NA	>2,420	13.20	9.00	0.286	8.34	185	
		8/18/2015												
		11/16/2015												
		5/4/2016	55	0.436 M2	2.5	102	NA	>2,400	8.90	8.60	0.186	9.37	-60	
		8/29/2016												
		11/28/2016												
		9/6/2017												
		4/9/2018	62	0.328	2 U	48.8	NA	1,200	11.50	7.10	0.153	8.14	220	
		8/28/2018												
		12/10/2018	100	1.15	2 U	10.4	NA	160	10.35	7.56	0.278	10.88	244	
		3/11/2019	119	1.07	2 U	7.0	NA	68	11.76	5.92	0.309	8.04	260	
		12/9/2019												
		2/12/2020	83.0	0.0247	2 U	25.0	0.296	170	11.01	7.29	0.257	7.74	115.8	
		9/21/2020												
		7/7/2021												
		11/10/2021												
		3/21/2022					No Lab Data			12.00	7.80	0.263	13.30	186
		3/29/2022	NA	NA	24.2	NA	NA	NA	NA			No field data reported; Resample BOD only		
		4/13/2022	119	0.531	<2.0	10	<1.0	>2419.6	13.40	7.80	0.347	16.70	145	
10/18/2022														
12/5/2022														
4/4/2023	102	0.573	<2.00	17	<1.00	>2419.6	13.6	7.8	0.25	16.1	180			
7/18/2023														
10/23/2023														
AJ/CI Bush	SW-2	4/2/2008												
		9/24/2008												
		1/19/2009	85	0.63	2 U	3.2	NA	790	8.69	7.76	0.175	12.78	232	
		5/12/2009	56	0.40	2 U	56	NA	520 H	12.58	6.88	0.128	11.52	271	
		9/22/2009												
		12/28/2009	67	0.35	NA	NA	NA	540	11.35	7.95	0.142	11.81	207	
		5/17/2010	94	0.30	2 U	7.1	NA	380	15.29	7.38	0.192	10.99	207	
		8/23/2010												
		11/15/2010												
		5/16/2011	80	0.337	2 U	24	NA	910	12.77	8.15	0.183	13.88	215	
		9/19/2011												
		12/12/2011	72	0.456 N	2 UB	21	NA	240	11.03	6.88	0.166	14.21	271	
		4/17/2012	94	0.38 N	2 U	204	NA	1,200	12.55	6.66	0.203	12.19	190	
		8/27/2012												
		12/3/2012												
		4/22/2013	96	0.289	2 U	95	NA	>2,420	13.80	7.83	0.235	7.94	97.2	
		8/6/2013	178	0.105	8.5	127	NA	>2,420	19.40	8.32	0.455	4.03	152.2	
		11/18/2013												
		5/20/2014	105	0.293	2 U	19.4	NA	>2,420	18.60	9.56	0.206	8.04	151	
		9/15/2014												
		11/10/2014												
		4/13/2015	73	0.337	2 U	44.3	NA	>2,420	14.30	9.50	0.171	7.05	190	
		8/18/2015												
		11/16/2015												
		5/4/2016	54	0.454	2 U	144	NA	>2,400	9.00	8.28	0.113	9.54	-38	
		8/29/2016												
		11/28/2016												
		9/6/2017												
		4/13/2018	58	0.421	2 U	36	NA	>2,400	12.48	8.15	0.169	8.55	153	
		8/28/2018												
		12/10/2018	50	0.379	2 U	26.6	NA	390	10.76	7.37	0.144	13.42	248	
		3/11/2019	87.3	0.6 U	2 U	11.6	NA	54	12.39	6.77	0.182	8.45	247	
		12/9/2019												
		2/13/2020	74.0	0.472	2 U	59.8	0.472	110	12.81	7.32	0.166	7.23	107.1	
		9/21/2020												
		7/7/2021												
		11/10/2021												
		3/21/2022					No Lab Data			12.90	8.00	0.176	17.00	196
		3/29/2022	NA	NA	25.0	NA	NA	NA	NA			No field data reported; Resample BOD only		
		4/13/2022	94	0.328	<2.0	41.8	<1.0	>2419.6	13.20	7.90	0.196	13.50	154	
10/18/2022														
12/5/2022														
4/4/2023	82	0.336	<2.00	14.8	<1.00	325.5	13.7	8.2	0.166	19.1	156			
7/19/2023														
10/23/2023														

Table A-3. Surface Water Sampling Results

LAS Farm Area	Sample Location	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	BOD (5 day) (mg/L)	TSS (mg/L)	Total Nitrogen ^a (mg/L)	E. Coli (CFU/100mL or MPN/ 100mL)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)		
USEPA MCL			NA	10	NA	NA	NA	NA	NA	NA	NA	NA	NA		
TDEC FAL Limit(s)			NA	MCL	NA	Background	NA	2,880	+/- 3° Background	6.0 - 9.0	NA	>5	NA		
AJ/Ci Bush	SW-3/SW-3R	4/2/2008	67	0.20	2 U	6.4	NA	140	13.70	8.86	0.135	8.50	145		
		9/24/2008	108	0.24	2 U	18	NA	40	23.80	10.90	0.440	7.00	212		
		5/12/2009	44	0.30	2 U	3.5	NA	6 H	12.68	7.52	0.105	11.18	203		
		9/22/2009	96	0.42	2 U	4.1	NA	46	14.32	7.38	0.194	10.84	192		
		12/28/2009	43	0.25	2 U	4 U	NA	80	11.38	8.09	0.098	11.57	163		
		5/17/2010	85	1	2 U	4 U	NA	110	13.24	8.26	0.173	11.63	148		
		8/23/2010	98	0.27	2 U	23	NA	70	15.06	8.27	0.200	11.18	106		
		11/15/2010	71	0.26	2 U	4 U	NA	13	12.38	8.80	0.148	12.13	209		
		5/16/2011	68	0.291	2 U	4 U	NA	9	12.24	8.18	0.162	12.43	141		
		9/19/2011	94	0.329	2 U	4 U	NA	28	13.13	8.70	0.189	12.41	253		
		12/12/2011	43	0.234	2 UB	4 UH	NA	76	11.16	7.39	0.105	12.82	NA		
		4/17/2012	89	0.379	2 U	5.6	NA	29	11.89	6.73	0.426	13.17	NA		
		8/27/2012													
		12/3/2012													
		4/22/2013		66	0.276	2 U	5.2	NA	390	12.80	8.01	0.248	9.05	103.5	
		8/6/2013		120	0.403	2 U	4 U	NA	580	15.30	8.74	0.398	7.57	154.1	
		11/18/2013													
		5/21/2014		107	0.414	2 U	13.8	NA	73	15.70	8.80	0.183	7.63	150	
		9/15/2014													
		11/10/2014													
		4/13/2015		71	0.36	2 U	13.6	NA	460	13.10	9.40	0.166	7.51	196	
		5/5/2016		48	0.18 M1	2 U	24.6	NA	980	8.10	8.30	0.162	9.76	-28.5	
		8/29/2016													
		11/28/2016													
		9/6/2017													
		4/13/2018		58	0.31	2 U	14.6	NA	150	12.60	8.20	0.156	8.97	148.1	
		8/28/2018													
		12/11/2018		64	0.411	2 U	10.8	NA	110	11.05	6.87	0.131	9.04	317	
		3/11/2019		87.3	0.6 U	2 U	7.4	NA	26	12.92	7.20	0.181	8.12	338	
		12/9/2019													
		2/13/2020		73.5	0.473 M1	2 U	46.8	0.473	150	12.90	7.33	0.175	7.19	104.4	
		9/21/2020													
		7/7/2021													
		11/10/2021													
		12/5/2022		160.0	<0.10	<2	6.6	<1.0	48.8			No Field Data Provided			
		4/4/2023													
		7/19/2023													
		10/23/2023													
		AJ/Ci Bush	SW-3R2	4/20/2012	192	0.158	2 U	7.2	NA	66	12.47	6.67	0.428	10.81	175
				8/27/2012	235	0.122	2 U	10	NA	370	18.13	7.50	0.499	9.70	NA
12/3/2012	200			0.056 U	2 U	4 U	NA	57	8.40	4.43	0.400	11.56	329		
4/24/2013	208			0.011 U	2 U	9.6	NA	140	13.10	8.41	0.377	6.91	99.8		
8/6/2013	285			2.11	2 U	4 U	NA	1,600	18.30	8.57	0.416	5.62	147.5		
11/18/2013	204			0.075	2 U	4 U	NA	360	11.30	8.04	0.473	6.73	199		
5/20/2014	215			0.188	4.7 U	NR	NA	410	12.50	9.20	0.361	7.17	164		
9/15/2014	235			0.118 M2	2 U	10.6	NA	610	19.10	8.53	0.524	4.52	223.6		
11/10/2014	231			0.130	2 U	5 U	NA	44	7.50	8.17	0.431	8.36	234		
4/13/2015	192			0.207	2 U	10.6	NA	690	14.70	7.88	0.423	8.23	188		
8/17/2015	220			0.079	2 U	5 U	NA	310	19.80	7.50	0.518	8.51	7		
11/16/2015	236			0.094	2 U	5.2	NA	150	6.00	8.06	0.541	11.27	55		
5/5/2016	190			0.169	2 U	8.8	NA	170	8.30	7.94	0.508	9.84	-27		
8/29/2016	220			0.101	2 U	5 U	NA	580	16.10	7.83	0.657	8.41	-11.9		
11/28/2016	119			0.494	4.7	11.8	NA	>2,400	6.00	8.00	0.622	7.40	42.8		
9/6/2017	172			0.366 D	2 U	16	NA	2,400	18.10	7.19	0.717	7.56	119		
4/9/2018	144			0.282	2 U	6.4	NA	22	9.60	7.20	0.435	9.50	206		
8/22/2018	210			0.184	2 U	52.6	NA	>2,400	20.56	7.84	0.648	4.91	147		
12/10/2018	125			0.496	2 U	17	NA	390	7.26	7.54	0.680	10.57	238.3		
3/12/2019	177			0.600 U	2 U	9.4	NA	11	9.70	8.48	0.501	NR	196		
12/9/2019	214			0.226 U	2 U	9.6	NA	340	NA	5.52	9.270*	7.50	237.1		
2/12/2020	126			0.511	2 U	23.3	0.511	61	10.34	7.43	0.441	7.13	114.4		
9/14/2020	205			0.175	2 U	14.4	0.257	730	20.77	8.20	0.735	3.70	175.9		
11/12/2020	117	0.600	2 U	23.8	1.13	1300	--	--	--	--	--				
7/6/2021	208	0.116	2.00 U	5.0 U	0.116	<1	21.00	7.00	0.727	7.50	183				
11/10/2021	230	0.100 U	30.5	5.0 U	1.00 U	16	11.70	5.35	0.767	10.80	307				
3/22/2022	213	0.143	<2.00	<8.9	<1.00	12	10.50	7.60	0.552	17.10	196				
10/26/2022	236	<0.10	<2.00	<5.0	<1.00	416	13.90	8.40	0.693	18.20	164				
12/5/2022	160	<1.00	<2.00	6.6	<1.00	48.8	7.50	8.10	0.606	14.10	61				
4/10/2023	180 H	0.139	<2.00	5.6	<1.00	275.5	11.60	8.27	0.634	17.10	164				
7/19/2023	220	0.179	<2.00	7.4	<1.00	275.5	18.90	8.10	0.697	13.20	133				
10/23/2023	245	<0.100	<2.00 K7	<5.0	<1.00	59.1	10.40	8.40	0.700	13.20	160				
AJ/Ci Bush	SW-3R3	2/12/2020	5.00 U	0.0467 M1	2 U	18.6	0.20 U	160	9.36	6.44	0.345	8.29	146.5		
		7/7/2021													
		3/22/2022													
		10/24/2022													
		12/5/2022													
		4/4/2023													
		7/19/2023													
		10/24/2023													

Table A-3. Surface Water Sampling Results																		
LAS Farm Area	Sample Location	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	BOD (5 day) (mg/L)	TSS (mg/L)	Total Nitrogen ¹ (mg/L)	E. Coli (CFU/100mL or MPN/100mL)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)					
USEPA MCL			NA	10	NA	NA	NA	NA	NA	NA	NA	NA	NA					
TDEC FAL Limit(s)			NA	MCL	NA	Background	NA	2,880	+/- 3° Background	6.0 - 9.0	NA	>5	NA					
AI/CI Bush	SW-22 ²	5/20/2014	222	0.517	2 U	5 U	NA	>2,420	15.40	9.52	0.525	8.15	169					
		9/15/2014	331	0.551	38.3	33.4	NA	10,000 D	20.20	8.40	0.968	3.89	227					
		11/10/2014	229	0.828	2 U	5 U	NA	240	6.50	8.13	0.472	8.99	231					
		4/13/2015	186	0.464	2 U	6.2	NA	1,000	13.90	9.10	0.510	8.36	186					
		8/18/2015	210	1.38	5.1	21.4	NA	>2,400	20.70	8.00	0.674	4.43	-84					
		11/16/2015	239	0.633	2 U	5 U	NA	770	7.20	8.14	0.646	11.17	66					
		5/4/2016	168	0.400	2 U	34.4	NA	>2,400	9.80	8.40	0.490	9.35	-42					
		8/29/2016	208	0.056 U	2 U	5 U	NA	75	18.70	7.78	0.868	7.17	21.3					
		11/29/2016	143	0.654	6	6.4	NA	>2,400	6.40	8.01	0.439	8.40	46.8					
		9/6/2017	160	1.80 D	2 U	5 U	NA	120	18.59	7.36	0.759	6.00	118.7					
		4/9/2018	146	0.468	2 U	5 U	NA	23	9.62	7.40	0.451	9.00	210					
		8/28/2018							Dry or insufficient water present, sample not collected.									
		12/10/2018	105	1.46	2 U	23.6	NA	340	6.96	7.57	0.588	10.65	243.2					
		3/11/2019	161	0.630	2 U	229	NA	100	11.17	7.38	0.459	8.39	186					
		12/9/2019	184	0.226 U	2 U	10.2	NA	>2,400	8.94	5.72	0.816	7.15	228.4					
		2/12/2020	134	0.976	2 U	16.6	1.22	44	10.49	7.46	0.475	7.35	113.6					
		9/18/2020	185	0.167	2 U	6.2 U	0.433	690	20.78	7.06	0.793	51.3*	145					
		7/7/2021	199	0.0135	2.00 U	6.2 U	0.0600	3	21.90	7.63	0.677	2.90	188					
		11/10/2021							Dry or insufficient water present, sample not collected.									
		3/21/2022							No Lab Data									
		3/29/2022	NA	NA	29.4	NA	NA	NA	NA	NA	No Field Data, BOD Resample							
		4/13/2022	136	0.205	<2.0	<6.2	<1.0	198.9	12.70	7.60	0.430	14.10	158					
		10/18/2022	142	<1.00	<2.0	<5.0	1.48	101	10.80	6.30	0.724	8.50	133					
		12/5/2022	155	<1.00	<2.0	<5.0	73.3	7.70	7.90	0.414	12.00	78						
		4/4/2023	202	<0.100	<2.00	<5.0	<1.00	24.6	13.10	8.10	0.583	17.40	170					
		7/18/2023	101	0.4470	4.10 K1	7.2 B	<1.00	1413.6	23.70	8.20	0.468	11.80	150					
		10/23/2023							Dry or insufficient water present, sample not collected.									
		AI/CI Bush	SW-23 ³	5/20/2014						Dry or insufficient water present, sample not collected.								
				9/15/2014						Dry or insufficient water present, sample not collected.								
				11/10/2014							Dry or insufficient water present, sample not collected.							
				4/13/2015	393	4.64	2 U	11.8	NA	>2,420	14.00	8.69	1.194	6.26	182			
				8/17/2015						Dry or insufficient water present, sample not collected.								
11/16/2015	633			0.168	2 U	5 U	NA	>2,420	12.60	7.09	1.861	4.20	11.5					
5/4/2016	549			0.234	21.3	11.4	NA	>2,400	11.10	7.67	1.668	3.40	-156					
8/29/2016								Dry or insufficient water present, sample not collected.										
11/28/2016								Dry or insufficient water present, sample not collected.										
9/5/2017	510			4.22 D	2 U	25.2	NA	>2,400	20.72	6.70	1.984	5.08	132.6					
4/9/2018	346			7.58	2 U	5.8	NA	7.0	NR	NR	NR	NR	NR					
8/22/2018	443			7.15	2.3	72.7	NA	2,400	20.66	7.25	1.923	3.95	133.3					
12/10/2018	360			19.1	2 U	5 U	NA	210	11.20	7.10	1.990	6.73	235					
3/11/2019	106			4.76	2 U	5 U	NA	310	9.62	6.08	0.367	8.63	263					
12/9/2019									Dry or insufficient water present, sample not collected.									
2/12/2020	48			0.723	2 U	14	1.34	340	9.65	6.40	0.227	8.66	145.4					
9/21/2020									Dry or insufficient water present, sample not collected.									
7/9/2021									Dry or insufficient water present, sample not collected.									
11/15/2021									Dry or insufficient water present, sample not collected.									
3/22/2022									Dry or insufficient water present, sample not collected.									
10/24/2022							Dry or insufficient water present, sample not collected.											
12/5/2022							Dry or insufficient water present, sample not collected.											
4/4/2023							Dry or insufficient water present, sample not collected.											
7/19/2023							Dry or insufficient water present, sample not collected.											
11/2/2023							Dry or insufficient water present, sample not collected.											
Eula	SW-4	4/1/2008	210	0.88	2 U	29	NA	190	18.50	9.12	0.369	7.00	181					
		9/22/2008	214	0.77	2 U	10.4	NA	310	13.90	8.54	0.370	7.00	NA					
		1/13/2009	177	1.29	2 U	14	NA	190	4.13	8.13	-0.001	16.47	149					
		5/12/2009	190	0.86	2 U	21	NA	210	14.90	8.32	0.372	10.81	175					
		9/23/2009	217	1.11	2 U	7.5	NA	500	16.63	7.74	0.418	10.02	177					
		12/28/2009	184	0.82	2 U	17	NA	30	11.33	8.19	0.358	11.91	206					
		5/17/2010	205	0.43	2 U	7.5	NA	74	15.05	8.33	0.403	10.64	158					
		8/23/2010	202	1.12	2 U	5.6	NA	260	17.63	7.72	0.413	10.29	143					
		11/15/2010	207	1.29	2 U	12.4	NA	58	12.98	8.22	0.399	11.78	145					
		5/16/2011	182	1.02	2 U	4.4	NA	45	13.51	8.25	0.379	11.92	209					
		9/20/2011	NA	1.23	2 U	4 U	NA	110	15.09	8.53	0.419	9.31	150					
		12/12/2011	176	0.95	2 UB	9	NA	23	11.59	7.57	0.363	12.92	239					
		4/17/2012	200	0.91	2 U	7.6	NA	48	13.66	6.85	0.395	11.82	179					
		8/28/2012	205	1.12	2 U	11.2	NA	690	15.69	8.00	0.422	11.96	NA					
		12/3/2012	190	1.22	2 U	10	NA	18	10.55	8.08	0.306	10.15	253					
		4/24/2013	189	0.84	2 U	4	NA	39	14.40	8.47	0.467	7.45	109.6					
		8/6/2013	231	1.24	2 U	4 U	NA	96	16.20	8.55	0.435	6.60	148.5					
		11/18/2013	204	1.19	2 U	4 U	NA	210	13.10	8.29	0.533	7.14	175					
		5/22/2014	204	1.26 M2	2 U	5 U	NA	120	16.60	8.76	0.346	7.50	187					
		9/15/2014	216	1.15 D	2 U	5 U	NA	74	17.50	9.46	0.394	6.92	214					
		11/10/2014	215	0.68 M1	2 U	5 U	NA	14	9.20	8.53	0.309	7.69	235					
		4/14/2015	201	0.936	2 U	14	NA	210	14.60	8.48	0.320	6.45	429					
		8/18/2015	214	1.19	3	46.2	NA	1,600	16.40	7.50	0.372	3.57	NA					
		11/19/2015	221	0.976	2 U	6	NA	610	14.80	7.99	0.386	8.70	229					
		5/5/2016	218	0.982	2 U	12.2	NA	270	8.70	8.21	0.377	9.54	-22					
		8/30/2016	217	0.935	2 U	12.8	NA	460	12.70	7.87	0.403	8.84	-16.7					
		11/28/2016	198	0.50 D	5	11.2	NA	1,700	6.60	8.08	0.435	7.30	47.1					
		9/6/2017	209	0.878 D	2 U	7.8	NA	2,000	16.40	7.59	0.405	7.90	87					
		4/10/2018	181	0.722	2 U	6.6	NA	130	11.80	7.82	0.372	8.55	215					
		8/22/2018	216	1.19	2 U	27.4	NA	260	18.14	7.85	0.417	7.19	140.7					
		12/11/2018	192	1.09 M1	2 U	11.6	NA	690	11.70	5.98	0.379	8.84	313					
		3/12/2019	180	0.968	2 U	6.2	NA	24	11.53	6.03	0.358	NR	NR					
		12/9/2019	204	1.19	2 U	5.0 U	NA	190	11.94	7.29	0.434	6.74	156.7					
		2/12/2020	141	0.814	2 U	11.8	0.814	100	12.62	7.58	0.305	6.70	112.2					
		9/14/2020	190	0.790	2 U	10.4	0.79	440	17.80	8.42	0.476	20.5*	173.7					
9/18/2020 (DUP)	207	0.814	2 U	5.0 U	0.814	170	17.23	5.35	0.439	55.2*	143.5							
11/12/2020	206	0.827	2 U	5.0 U	1.17	730	--	--	--	--	--							
7/7/2021	195	1.16	2.00 U	5.0 U	1.16	390	17.40	7.75	0.650	7.00	178							
11/11/2021	211	1.20	5.60	13.6	1.2	16	11.00	5.50	0.426	10.30	297							
3/23/2022	186	0.772	<2.0	<10.4	1.24	23	14.00	7.80	0.364	16.40	220							
4/13/2022	202	0.869	<2.0	<6.2	<1.0	102.2	14.10	7.60	0.387	15.00	167							
10/20/2022	216	1.17	6.90	<5.0	1.17	51.2	7.60	8.40	0.504	11.20	138							
12/6/2022							No Lab Data											
4/10/2023	186	H 1.01	M2	<2.00	6.90	1.53	17.3	12.40	8.20	0.399	19.10	201						
7/21/2023	216	1.04		<2.00	5.8	1.04	387.3	18.10	8.30	0.431	16.10	122						
10/24/2023	222	1.23		<2.00	K2 <5.0	2.56	>2419.6	11.70	8.40	0.428	14.40	130						

Table A-3. Surface Water Sampling Results

LAS Farm Area	Sample Location	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	BOD (5 day) (mg/L)	TSS (mg/L)	Total Nitrogen ^a (mg/L)	E. Coli (CFU/100mL or MPN/100mL)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)	
USEPA MCL			NA	10	NA	NA	NA	2,880	NA	NA	NA	NA	NA	
TDEC FAL Limit(s)			NA	MCL	NA	Background	NA	NA	+/- 3° Background	6.0 - 9.0	NA	>5	NA	
Eula	SW-5	4/1/2008	440	24	2 U	17	NA	2,600	14.00	8.80	2,430	7.00	172	
		9/22/2008	259	4.99	2 U	16	NA	730	0.96	8.18	NA	57.94	163	
		1/13/2009												
		5/12/2009	417	24.5	2 U	52.7	NA	15,000	14.15	8.43	2,000	10.23	192	
		9/23/2009												
		12/28/2009	438	23.5	2 U	4 U	NA	70	5.04	7.55	2,046	13.32	250	
		5/17/2010												
		8/24/2010	460	0.056 U	2 U	4 U	NA	200	19.12	8.14	2,695	9.66	89	
		11/15/2010	496	9.63	2 U	6.5	NA	310	11.25	7.61	2,638	11.10	176	
		5/16/2011	436	14.1	2 U	6	NA	700	12.29	8.25	1,912	12.44	169	
		9/20/2011												
		12/12/2011	452	0.056 UN	5.5	15	NA	1,100	8.20	7.59	2,082	12.16	218	
		4/17/2012	333	0.112 U	79.6	539	NA	>2,500	12.73	6.59	1,437	9.89	201	
		8/28/2012												
		12/3/2012												
		4/23/2013	408	11.1	2 U	13.2	NA	>2,400	10.44	7.12	1,253	7.07	119.7	
		8/6/2013												
		11/19/2013	588	7.7	49	39	NA	>2,420	7.10	8.01	1,327	6.27	90.4	
		5/22/2014												
		9/16/2014												
		11/12/2014												
		4/14/2015	422	11.7	23.2	53.6	NA	>2,420	15.70	8.45	1,435	NA	NA	
		8/17/2015												
		11/19/2015	506	5.12	6.6	5 U	NA	>2,420	15.10	7.82	1,723	NA	NA	
		5/9/2016	468	3.28	6.5	17.6	NA	>2,400	11.30	8.06	1,232	7.23	9	
		11/28/2016												
		9/6/2017												
		4/10/2018	391	10.9	2 U	9.2	NA	>2,400	11.60	7.41	1,561	7.64	220	
		8/28/2018												
		12/11/2018	380	12.5	2 U	9.8	NA	79	9.69	6.84	1,585	9.58	364	
		3/12/2019	402	4.31	2.2	59.6	NA	550	8.79	7.75	1,812	9.88	232	
		12/9/2019	340	4.30	2 U	41.2	NA	1 U	13.54	6.85	1,058	6.56	161.9	
		2/12/2020	120	1.21	2 U	23.6	1.43	130	11.44	7.42	0.362	6.51	115.1	
		9/20/2020												
		7/7/2021												
		11/11/2021												
		3/28/2022												
		10/20/2022												
		12/12/2022												
		4/11/2023												
7/21/2023														
10/25/2023														
Eula	SW-6	4/4/2008	310	4.00	2 U	4 U	NA	158	16.00	8.15	0.931	6.00	202	
		9/25/2008	317	2.09	2 U	12.8	NA	25 UH	14.60	7.67	0.696	5.00	NA	
		1/13/2009	386	38.40	2 U	8	NA	1,300	NA	8.29	NA	13.00	152	
		5/12/2009	240	2.29	2 U	13.5	NA	830	15.64	7.69	0.621	10.41	194	
		9/23/2009	280	2.74	2 U	4 U	NA	120	16.70	7.34	0.748	8.85	147	
		12/28/2009	241	2.94	2 U	11.9	NA	60	11.89	7.71	0.638	11.22	207	
		5/17/2010	260	2.44	2 U	4 U	NA	580	15.79	8.05	0.675	11.52	115	
		8/23/2010	280	3.87	2 U	8.2	NA	380	17.37	7.45	0.829	9.37	126	
		11/15/2010	304	3.89	2 U	4.1	NA	39	14.35	7.01	0.896	11.23	193	
		5/17/2011	245	2.36	NA	NA	NA	65	13.16	8.53	0.627	10.50	177	
		9/20/2011	NA	0.06 U	2 U	4 U	NA	47	15.52	7.57	0.808	10.95	202	
		12/12/2011	230	3.05	2 UB	12	NA	35	12.28	7.37	0.654	12.20	200	
		4/17/2012	253	2.22	2 U	4 U	NA	62	14.31	6.68	0.619	11.45	183	
		8/28/2012	290	2.32	2 U	9.6	NA	240	15.63	8.00	0.725	11.03	NA	
		12/3/2012	255	3.84	2 U	4.4	NA	41	15.59	7.62	0.360	10.40	254	
		4/24/2013	246	2.00	2 U	4 U	NA	120	15.00	7.66	0.561	7.29	94.2	
		8/6/2013	287	2.23	2 U	4 U	NA	66	17.10	7.89	0.660	7.23	170.2	
		11/19/2013	295	2.98	2 U	4.4	NA	>2,420	12.90	7.95	0.764	6.39	205	
		5/22/2014	254	1.93 D	2 U	5 U	NA	69	16.00	8.41	0.531	7.25	163	
		9/15/2014	283	2.12 D	2 U	5 U	NA	88	17.60	8.61	0.665	6.94	229	
		11/12/2014	313	3.79 D	2 U	5 U	NA	88	14.40	8.53	0.765	6.18	218	
		4/14/2015	254	2.26	2 U	5 U	NA	120	14.90	8.15	0.540	5.93	385	
		8/18/2015	278	2.31	2 U	5 U	NA	150	16.50	7.50	0.622	5.56	NA	
		11/19/2015	298	2.90	2 U	17.8	NA	>2,420	15.70	7.39	0.795	8.83	246	
		5/5/2016	267	1.97	NR	NR	NA	>2,400	9.50	7.16	0.636	9.41	10.7	
		8/30/2016	290	1.85	2 U	12.6	NA	200	11.90	7.60	0.657	7.92	-4.4	
		11/29/2016	279	1.67 D	2 U	30.6	NA	550	10.00	7.89	0.610	8.20	46.6	
		9/6/2017	254	1.88	2 U	10.8	NA	830	17.40	7.46	0.619	7.18	81.4	
		4/10/2018	235	2.20	2 U	5	NA	150	12.70	7.26	0.621	9.30	213	
		8/27/2018	156	3.06	2 U	99.6	NA	100	17.10	7.05	0.963	6.60	103.6	
		12/11/2018	312	4.18	2 U	21	NA	290	11.88	6.99	0.894	9.86	295	
		3/11/2019	190	2.30	2 U	8.0	NA	70	12.45	5.52	0.468	6.01	258	
		12/9/2019	303	3.80	2 U	6.8	NA	64	13.90	6.73	1.037	5.81	176.2	
		2/12/2020	136	1.28	2 U	15.8	1.74	84	--	--	--	--	--	
		9/14/2020	266	1.41	2 U	5.0 U	1.95	310	17.65	7.59	1.050	5.30	177.1	
		11/12/2020	222	1.96	2 U	9.4	2.38	390	--	--	--	--	--	
		7/6/2021	248	1.49	2.00 U	5.0 U	1.49	<1	20.30	7.60	0.630	7.30	184	
11/10/2021	278	2.37	19.1	11.0	2.37	110	15.30	6.20	0.817	8.70	260			
3/22/2022	237	1.72	<2.00	<5.0	2.14	<1	12.30	7.40	0.623	15.00	166			
4/13/2022	241	1.59	<2.00	8.8	1.59	613.1	14.50	7.40	0.590	16.20	172			
10/18/2022	270	2.15	<2.00	6.0	2.15	29.5	14.00	7.40	0.715	14.40	137			
11/30/2022	237	1.79	17.5	34.8	2.28	648.8	14.50	7.80	0.664	15.20	69			
12/5/2022	279	2.27	<2.00	5.8	2.70	119.8	13.50	8.00	0.836	18.00	62			
4/3/2023	244	1.91	<2.00	<5.0	1.91	95.9	13.40	7.80	0.737	12.80	126			
7/18/2023	231	1.55 M2	2.3 K1	5.4	1.95	365.4	18.40	7.80	0.599	13.00	165			
10/23/2023	280	2.02	<2.00	K7	11.4	2.94	9.6	14.00	8.00	0.704	14.30	139		

Table A-3. Surface Water Sampling Results

LAS Farm Area	Sample Location	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	BOD (5 day) (mg/L)	TSS (mg/L)	Total Nitrogen ^a (mg/L)	E. Coli (CFU/100mL or MPN/100mL)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)	
USEPA MCL			NA	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	
TDEC FAL Limit(s)			NA	MCL	NA	Background	NA	2,880	+/- 3° Background	6.0 - 9.0	NA	>5	NA	
Eula	SW-16 ²	4/19/2012	192	0.06 U	6.6	44	NA	1,500	13.27	6.64	0.633	12.33	170	
		8/29/2012	NA	NA	NA	NA	NA	NA	17.47	8.00	0.672	12.34	NA	
		12/7/2012	280	3.32	2 U	4.4	NA	NA	260	13.70	7.85	0.690	9.57	207
		4/24/2013	192	1.61	2 U	8	NA	NA	>2,420	14.06	8.24	0.489	7.33	119
		8/6/2013	253	0.14	2 U	4	NA	NA	270	18.30	8.56	0.416	5.48	148
		11/19/2013	263	2.38	4.1	4 U	NA	NA	>2,420	10.90	8.61	0.686	7.32	201
		5/22/2014	228	1.83 D	2 U	5 U	NA	NA	280	16.30	8.51	0.525	8.04	151
		5/22/2014*	236	1.89 DM2	2 U	5 U	NA	NA	230	16.30	8.51	0.525	8.04	151
		9/16/2014	274	2.00 D	2 U	5 U	NA	NA	49	17.40	8.89	0.762	5.78	219
		11/12/2014	283	3.50 D	2 U	5.8	NA	NA	110	14.00	8.76	0.722	7.19	206
		4/14/2015	205	1.72	2 U	6.8	NA	NA	2,000	15.20	8.50	0.465	6.70	353
		8/17/2015	277	2.21	2 U	5 U	NA	NA	61	18.00	8.00	0.690	9.41	NA
		11/19/2015	255	2.45	2 U	186	NA	NA	>2,420	15.80	7.70	0.727	9.57	221
		5/5/2016	189	1.18	2 U	8.8	NA	NA	>2,400	9.30	8.10	0.527	9.53	-7.9
		8/30/2016	281	1.60	2 U	5 U	NA	NA	110	12.90	7.70	0.686	8.15	4.9
		11/28/2016	259	1.51 D	2 U	5 U	NA	NA	>2,400	7.30	8.21	0.632	8.60	14.9
		9/6/2017	234	1.98	2 U	6	NA	NA	660	18.30	8.00	0.705	7.40	89.3
		4/10/2018	197	2.00	2 U	10.2	NA	NA	240	12.60	7.56	0.553	8.50	214
		8/22/2018	236	2.02	9.4	5 U	NA	NA	410	19.89	7.46	0.711	4.94	148.9
		12/11/2018	215	3.05	2 U	15.6	NA	NA	230	10.97	6.60	0.675	8.92	360
		3/12/2019	177	1.75	2 U	10.0	NA	NA	52	10.98	7.36	0.459	8.47	258
		12/9/2019	258	3.64	2 U	11.0	NA	NA	370	13.92	6.98	0.951	5.82	168.2
		2/12/2020	108	1.13	2 U	21.8	1.13	110	110	11.12	7.42	0.349	7.45	114.0
		9/14/2020	235	1.01	2 U	5.0 U	0.248	340	18.69	8.11	0.791	0.540	184.2	170
		7/7/2021	238	1.98	2.00 U	5.0 U	1.98	96	18.80	7.70	0.651	9.50	170	170
		11/11/2021	266	0.470	4.85	5.0 U	1.00 U	160	13.30	7.11	0.835	9.80	248	248
		3/28/2022	208	1.43	<2.00	7.8	2.02	108.1	10.60	7.30	0.564	16.20	153	153
		10/20/2022	252	1.71	<2.00	<5.0	2.82	85.7	11.90	8.10	0.721	11.40	130	130
		11/30/2022	146	1.00	28.4	59.8	1.61	>2419.6	13.60	8.10	0.479	16.70	80	80
		12/12/2022	265	2.11	<2.00	5.2	2.53	42.2	13.50	8.30	0.912	18.40	87	87
4/11/2023	198	1.55 M	<2.00	<5.0	1.55	72.3	12.00	8.00	0.599	18.30	124	124		
7/21/2023	232	1.42	<2.00	<5.0	1.42	461.1	18.40	8.10	0.639	14.80	101	101		
10/24/2023	257	1.76	<2.00 K2	<5.0	2.17	>2419.6	13.40	8.20	0.720	11.10	118	118		
Leona/Charlie Smelcer	SW-7	3/31/2008	490	0.32	5.9	4 U	NA	3,600	11.70	8.41	2.815	6.00	65	
Diy or insufficient water present, sample not collected.														
1/15/2009	431	3.81	9.4	12	NA	10,000	NA	7.94	2.922	11.69	-36	-36		
5/14/2009	440	1.22	2 U	61	NA	7,700	14.73	7.72	4.376	6.80	-58	-58		
9/24/2009	1,060	0.54	140	87.9	NA	86,000	22.02	8.07	0.748	3.25	14	14		
1/4/2010	NR	2.92	2 U	4.5	NA	400	16.70	7.34	3.142	8.85	147	147		
5/19/2010	392	0.38	2 U	7.1	NA	150	14.80	7.32	3.474	7.05	-64	-64		
8/25/2010	700	2.22	30.1	39.3	NA	2,400	19.34	8.06	2.600	6.43	7	7		
11/17/2010	428	7.15	3.7	9.3	NA	1,800	9.16	9.07	2.686	10.85	-28	-28		
5/19/2011	406	0.406 B	2.3	15	NA	890	12.84	8.00	2.886	8.26	-46	-46		
9/20/2011	395	0.25	2 U	9	NA	98	17.24	8.30	2.724	6.92	-63	-63		
12/14/2011	317	1.75	2 U	9	NA	630	6.57	7.92	2.542	12.09	-13	-13		
4/15/2012	478	5.76	130	296	NA	17,000	13.07	6.63	2.566	8.77	169	169		
8/29/2012	230	0.112 U	2 U	327	NA	230	15.51	7.40	2.699	2.65	NA	NA		
12/6/2012	420	0.056	52.6	42	NA	>2,420	7.47	6.12	2.357	7.17	196	196		
4/25/2013	307	0.506	6.2	20 U	NA	>2,420	12.90	7.81	2.161	5.85	51.1	51.1		
8/8/2013	474	0.035	3.6	20 U	NA	2,400	17.20	7.99	2.818	5.93	117	117		
11/21/2013	586	0.011 U	30.7	18	NA	>2,420	7.90	7.90	2.359	4.63	22	22		
5/23/2014	356	1.44 D	39.3	208	NA	>2,420	18.80	8.34	2.264	4.50	134	134		
9/17/2014	NR	0.075	2 U	5 U	NA	150	17.70	8.02	2.661	4.04	99.6	99.6		
11/11/2014	399	0.859	2 U	5 U	NA	370	9.00	8.00	2.177	6.76	127	127		
4/17/2015	451	0.355	46.3	65.6	NA	>2,420	15.30	8.11	1.996	4.98	226	226		
8/19/2015	443	0.60	2 U	12.8	NA	>2,420	19.50	7.50	2.987	6.40	NA	NA		
11/20/2015	542	0.097	233	9.8	NA	>2,420	8.70	7.47	2.091	3.11	149	149		
5/9/2016	418	0.16	10.5		NA	>2,400	10.40	7.51	2.104	5.93	-7.7	-7.7		
8/31/2016	Diy or insufficient water present, sample not collected.													
11/30/2016	314	9.38 D	25.7 R1	6.8	NA	>2,400	7.50	7.40	3.260	3.10	30.2	30.2		
9/8/2017	584	10.90 D	2 U	106	NA	1,300	15.90	7.34	3.020	4.01	-30.1	-30.1		
4/11/2018	402	6.01	3	106	NA	>2,400	8.18	7.61	2.490	9.00	83	83		
8/23/2018	372	0.63	2 U	5 U	NA	2,400	18.55	7.23	3.077	4.53	51.2	51.2		
12/13/2018	225	3.31	2 U	5.6 U	NA	110	16.05	5.76	2.493	7.36	269	269		
3/13/2019	304	3 U	2 U	9.6	NA	15	9.27	7.49	2.510	9.42	43.3	43.3		
12/10/2019	266	0.773	4.60	216	NA	>2,400	11.69	6.33	1.113	7.80	170.4	170.4		
2/13/2020	150	0.384	2 U	96.0	1.46	490	12.50	7.59	0.665	6.84	95.9	95.9		
9/15/2020	389	0.113 U	2 U	74.0	0.113 U	1,100	19.22	7.88	3.159	7.29	151.8	151.8		
11/12/2020	201	0.654	2.40	29.7	2.23	2,400	--	--	--	--	--	--		
7/8/2021	429	13.2	3.10 K1	23.5	16.5	1,700	22.00	7.61	2.585	4.75	-31	-31		
11/12/2021	724	0.222	17.1	130	3.65	390	10.00	7.50	2.395	7.10	174	174		
3/28/2022	369	1.40	<2.00	<5.0	2.15	261.3	6.20	7.20	2.560	11.20	58	58		
10/21/2022	908	1.51	2.1	38.3	4.58	>2419.6	7.60	8.30	3.053	17.00	115	115		
12/8/2022	367	0.517	2.1	15	1.86	770.1	13.90	7.90	1.696	15.80	58	58		
4/11/2023	370	0.378	<2.00	<5.0	<1.00	196.8	11.50	7.90	2.396	17.50	-22	-22		
7/25/2023	382	0.347	59.6 K6,K8	<5.0	<1.00	517.2	19.30	7.80	2.536	10.80	-143	-143		
10/27/2023	588	0.132 MZ,R1	<2.00 K7	27.2	1.46	1732.9	13.70	7.80	2.826	11.90	-31	-31		

Table A-3. Surface Water Sampling Results

LAS Farm Area	Sample Location	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	BOD (5 day) (mg/L)	TSS (mg/L)	Total Nitrogen ¹ (mg/L)	E. Coli (CFU/100mL or MPN/ 100mL)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)	
USEPA MCL			NA	10	NA	NA		NA	NA	NA	NA	NA	NA	
TDEC FAL Limit(s)			NA	MCL	NA	Background		2,880	+/- 3° Background	6.0 - 9.0	NA	>5	NA	
Leona/Charlie Smeicer	SW-8 ²	4/18/2012	269	1.83	2 U	10.4	NA	10	13.09	6.67	0.528	8.42	186	
		8/28/2012	230	2.04	2 U	24.8	NA	58	15.12	8.00	0.601	7.83	NA	
		8/28/2012*	294	1.76	2 U	4	NA	58	15.12	8.00	0.601	7.83	NA	
		12/5/2012	250	4.16	2 U	4 U	NA	1 U	13.90	7.02	0.463	6.80	-4	
		4/25/2013	263	1.33	2 U	22.4	NA	1 U	14.10	7.56	0.429	6.08	111	
		8/7/2013	311	0.809	2 U	4	NA	9	15.30	7.79	0.513	5.68	84.9	
		11/20/2013	293	1.93	2 U	37	NA	12	12.90	8.55	0.584	6.53	30.5	
		5/23/2014	280	0.796	2 U	14.4	NA	36	14.60	9.10	0.462	6.52	181	
		9/17/2014	300	1.84 D	2 U	11.6	NA	120	15.60	8.56	0.486	4.81	221	
		11/11/2014	290	1.84 D	2 U	188	NA	610	13.00	8.50	0.470	5.80	175	
		4/15/2015	95	0.178	4.3	1,720	NA	>2,420	15.50	8.07	0.297	5.41	297	
		8/19/2015	284	1.91 M2	2.1	11.2	NA	2.0	15.20	7.50	0.480	8.45	NA	
		11/20/2015	256	1.47	2 U	14	NA	310	12.00	7.00	0.462	3.90	238	
		5/6/2016	303	1.22	2 U	39.2	NA	5.0	9.30	7.79	0.518	7.64	11.8	
		8/31/2016	301	1.39	2 U	80.4	NA	1,100	11.10	7.86	0.524	7.53	-4	
		11/30/2016	268	1.14	2 U R1	5	NA	>2,400	9.00	7.45	0.472	7.70	15.1	
		9/7/2017	283	1.42 D	7.1	5.4	NA	>2,400	15.30	7.90	0.568	6.50	56	
		4/10/2018	256	1.31	2 U	5.4	NA	1.0 U	13.95	7.23	0.520	6.21	206	
		8/22/2018	298	1.42	5.8	149	NA	240	16.81	7.21	0.574	7.11	148.4	
		12/11/2018	234	1.62	2 U	9.2	NA	12	13.22	7.43	0.475	7.25	197.5	
3/13/2019	241	1.73	2.00 U	5 U	NA	3	13.70	7.83	0.498	6.52	94.7			
12/10/2019	300	0.937	2.00	164	NA	920	12.41	6.71	0.266	10.83	135.9			
2/13/2020	204	1.22	2.00 U	16.6	1.22	410	13.96	7.10	0.423	5.58	111.5			
9/15/2020	275	0.849	2.00 U	223	0.849	400	16.16	6.47	0.585	3.92	146.2			
7/8/2021	283	0.0113 U	1.58 U G1 K1	16.4	0.0113 U	2	17.00	7.42	0.552	6.50	140			
11/12/2021	287	1.32	15.5	42.0	1.32	1300	12.80	7.60	0.570	8.00	245			
3/28/2022	270	1.16	<2.00	<5.0	1.65	<1	12.30	7.20	0.527	12.20	171			
10/21/2022	290	1.34	<2.00	<5.0	1.34	4.1	12.80	8.00	0.572	11.00	196			
11/30/2022	164	1.34	28.5	64.0	2.46	>2419.6	13.50	8.30	0.355	15.00	66			
12/8/2022	233	1.02	2.2	26.4	1.39	52.9	15.20	7.80	0.457	17.20	114			
4/10/2023	272 H	1.12	<2.00	5.5	1.12	5.2	15.20	7.50	0.542	13.40	167			
7/25/2023	265	1.14 M	63.4 M	KG, KB	<5.0	1.14	65	19.80	8.10	0.561	12.60	72		
11/3/2023	294	1.16	<2.00	<5.0	1.25	133.3	6.80	7.70	0.552	14.00	51			
Leona/Charlie Smeicer	SW-17 ³	4/20/2012	511	0.112 UN	35.8	68	NA	2,900	13.12	6.52	2.206	4.07	54	
		8/28/2012	246	2.05	2.9	86.4	NA	>2,420	18.84	7.50	2.400	8.16	NA	
		12/6/2012	420	0.309	8.2	12	NA	>2,420	9.71	7.94	2.335	7.72	255	
		4/23/2013	326	0.843	9.2	10 UD	NA	>2,420	11.70	8.01	1.327	6.27	90.4	
		8/5/2013	382	2.60	2 U	95.2	NA	>2,420	19.70	8.43	1.837	5.19	163.7	
		11/21/2013	600	0.011 U	16.9	22.4	NA	>2,420	3.70	8.71	1.713	5.44	149	
		5/21/2014	1,040	0.272	16.1	34.6	NA	>2,420	15.30	8.44	2.241	3.81	191	
		9/17/2014	584	1.83 D	10.4	17.4	NA	>2,420	19.40	8.35	3.107	2.78	146	
		11/11/2014	375	5.60 D	2 U	12.4	NA	2,420	4.00	8.64	1.413	8.88	249	
		4/22/2015	NA	NA	NA	NA	NA	NA	13.70	7.79	1.190	9.30	269	
		8/20/2015	374	5.87 D	11.5	198	NA	>2,420	22.30	7.50	2.330	7.51	NA	
		12/2/2015	269	3.78	12	76.8	NA	>24,000	13.90	7.89	1.030	7.91	192.5	
		5/10/2016	321	0.0068	5.4	36.6	NA	180	11.60	7.57	1.140	3.03	-44.1	
		8/30/2016												
		11/28/2016												
		9/5/2017												
		4/19/2018	251	1.65	2 U	7.6	NA	100	12.80	7.29	1.490	6.83	176.1	
		8/24/2018	170	9.25	2 U	133	NA	290	20.49	6.76	2.310	3.91	10.1	
		12/12/2018	326	11	2 U	82.3	NA	1,100	2.16	7.49	1.986	15.73	122.9	
		3/13/2019	249	3.28	2.30	5.0 U	NA	15	7.10	7.89	1.269	10.03	113.3	
12/11/2019	193	4.08	2 U	21	NA	380	4.05	6.65	0.950	15.43	83.1			
2/13/2020	121	0.927	2 U	55.2	1.76	86	12.28	7.53	0.428	7.07	99.8			
9/18/2020	356	0.112	4.30	32.3	1.76	690	20.00	6.26	16.81*	54.8*	146.6			
7/16/2021														
11/17/2021	476	6.34 M2	5.35 K1, KB	5.8	8.09	78								
3/30/2022	387	3.07	2.0	56.2	5.0	2419.6	6.10	7.70	1.725	7.10	123			
10/21/2022														
12/14/2022														
4/17/2023	456	2.890 M	<2.00	6.7	4.23	133.3	11.10	8.10	1.560	12.70	133			
7/24/2023	419	0.186	<2.00	19.6	3.91	121.1	21.60	7.90	1.515	11.00	-42			
11/2/2023	604	0.475	<37.5	1220.0 H	6.51	1986.3	4.20	8.00	2.365	11.80	-27			

Table A-3. Surface Water Sampling Results

LAS Farm Area	Sample Location	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	BOD (5 day) (mg/L)	TSS (mg/L)	Total Nitrogen ^a (mg/L)	E. Coli (CFU/100mL or MPN/100mL)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)	
USEPA MCL			NA	10	NA	NA	NA	2,880	NA	NA	NA	NA	NA	
TDEC FAL Limit(s)			NA	MCL	NA	Background	NA	+/- 3* Background	NA	6.0 - 9.0	NA	>5	NA	
Ray Smelcer	SW-9	3/31/2008	130	0.05 U	1.9 U	4 U	NA	130	11.20	8.72	0.381	6.00	115	
		1/13/2009	244	2.54	7.64	64	NA	6,500	5.67	7.65	1.218	10.6	139	
		5/15/2009	122	0.05 U	2 U	19.3	NA	11,300	16.32	7.68	0.329	9.84	93	
		12/29/2009	244	0.22	2 U	6.03	NA	10	3.52	7.86	0.947	14.62	153	
		5/18/2010												
		8/24/2010												
		11/16/2010	240	0.19	2.09	10.6	NA	1,300	11.31	8.56	1.061	11.22	121	
		5/17/2011	274	0.101	2 U	6.4	NA	190	11.91	8.18	0.919	10.41	149	
		9/19/2011	215	0.465	2 U	8.8	NA	100	16.87	8.23	1.085	7.54	109	
		12/13/2011	208	0.284	2 U	11	NA	600	7.10	7.36	0.869	14.35	186	
		4/17/2012	171	0.056 U	2 U	4 U	NA	260	15.62	6.82	0.417	12.59	158	
		8/31/2012												
		12/4/2012	330	0.056 U	2 U	4 U	NA	190	7.43	7.78	0.328	11.36	218	
		4/24/2013	158	0.08	2 U	4 U	NA	310	13.5	8.19	0.336	8.13	97.1	
		8/6/2013	210	0.06	2 U	4 U	NA	260	21.2	8.44	0.492	6.38	109.7	
		11/19/2013	196	0.011 U	2 U	4 U	NA	62	6.3	8.88	0.382	8.91	206	
		5/22/2014	187	0.202	2 U	5 U	NA	580	17.6	8.69	0.395	6.08	186	
		9/16/2014	197	0.018 M2	2 U	5 U	NA	460	19.3	8.85	0.425	5.22	217	
		11/12/2014	196	0.056 U	2 U	5 U	NA	220	9.5	8.76	0.344	7.19	206	
		4/15/2015	175	0.831	2 U	28.2	NA	580	15.6	8.36	0.189	6.45	290	
		8/18/2015	169	0.056 U	2.8	20.6	NA	1,600	20.3	7.5	0.389	7.47	NA	
		11/19/2015	124	0.469	2 U	10.8	NA	2,400	12.6	7.69	0.328	9.18	223	
		8/22/2018	192	0.0666	2 U	6.2	NA	>2,400	21.54	7.83	0.503	5.57	148.4	
		12/11/2018	95	0.553	2 U	10.6	NA	520	6.56	6.92	0.233	11.8	360	
		3/12/2019	108	0.6 U	2 U	7	NA	280	7.58	7.97	0.27	10.5	233	
		12/10/2019	109	0.226 U	2 U	33.6	NA	210	11.25	5.72	0.344	7.83	188.9	
		2/12/2020	61.5	0.30	2 U	17.6	0.557	280	9.60	7.26	0.168	7.86	122.0	
		9/14/2020	170	0.0323	2 U	12.8	0.177	2,400	21.19	8.48	0.469	5.23	181.1	
		7/13/2021	192	0.166	2.00 U	5.0 U	0.166	190	20.90	8.10	0.437	4.70	-67	
		11/11/2021	196	0.100 U	5.55	5.0 U	1.00 U	20	9.10	7.40	0.483	10.20	256	
		3/23/2022	148	<0.100	<2.00	<5.0	<1.00	110	13.30	7.80	0.353	14.00	217	
		10/26/2022	200	<0.100	2.70	<5.0	<1.00	574.8	14.10	8.20	0.459	15.90	145	
12/14/2022	163	0.114	<2.00	<5.0	<1.00	191.8	10.30	8.50	0.443	16.60	193			
4/10/2023	128 H	<0.100	<2.00	6.8	<1.00	108.1	10.50	8.10	0.312	20.10	181			
7/19/2023	184	0.131 M2	<2.00	<5.0	<1.00	235.9	20.50	8.20	0.425	13.70	131			
10/25/2023	221	<0.100 M1	<2.00	35.4	1.24	148.3	9.50	8.80	0.551	9.10	108			
Ray Smelcer	SW-12 ^a	3/31/2008	140	0.05 U	2.1 U	4.4	NA	470	10.90	8.54	0.439	6.00	213	
		9/24/2008	NA	1.93	2 U	2.4	NA	620	17.80	8.91	0.700	6.00	119	
		1/13/2009	94	0.73	2 U	2	NA	270	NA	7.90	0.319	15.06	103	
		5/15/2009												
		9/23/2009	219	0.12	2 U	4 U	NA	7,900	21.89	8.00	0.527	8.13	80	
		12/29/2009	142	0.24	2 U	4 U	NA	320	12.43	8.09	0.390	17.55	153	
		5/18/2010	195	0.24	2 U	4 U	NA	370	17.19	8.14	0.430	9.77	86	
		8/24/2010	182	0.25	2 U	4 U	NA	680	20.19	8.27	0.486	8.89	96	
		11/16/2010	144	0.27	2.9	10.2	NA	670	10.61	8.67	0.411	12.27	153	
		5/19/2011	184	0.164 BN	2 U	4.4	NA	580	12.65	8.58	0.496	12.26	148	
		9/20/2011	192	0.056 U	2 U	4 U	NA	1,800	17.25	8.55	0.517	7.62	152	
		12/13/2011	128	0.212	2 U	4 U	NA	770	5.77	7.39	0.375	15.62	209	
		4/19/2012	167	1.19	2 U	14	NA	960	12.89	6.76	0.410	12.25	170	
		8/31/2012	260	2.15	2 U	4 U	NA	1,400	16.72	8.20	0.693	10.40	NA	
		12/5/2012	255	2.32	2 U	4 U	NA	2,420	13.31	7.42	0.727	10.20	259	
		4/25/2013	201	1.51	2 U	13.6	NA	1,600	11.90	8.31	0.484	7.88	120.1	
		4/25/2013*	190	1.51	2 U	6.8	NA	1,300	11.90	8.31	0.484	7.88	120.1	
		8/7/2013	286	0.942	2 U	4 U	NA	2,400	20.10	8.40	0.799	6.23	148.2	
		11/20/2013	282	2.13	2 U	4 U	NA	>2,400	8.80	8.97	0.682	8.79	175	
		5/21/2014	241	1.61 D	2 U	5.4	NA	2,000	15.00	9.05	0.511	8.25	173	
		9/16/2014	272	1.94 D	2 U	5 U	NA	>2,400	18.20	8.47	0.658	5.83	183	
		11/13/2014	289	3.28 DM1	2 U	5 U	NA	330	10.90	9.16	0.671	6.53	247	
		4/16/2015	175	1.23	2 U	16.4	NA	>2,400	14.00	8.05	0.387	6.74	549	
		8/18/2015	276	2.10	2 U	5 U	NA	170	18.50	8.00	0.730	8.52	NA	
		11/29/2015	260	1.78	21.8	6.6	NA	>24,000	12.20	7.45	0.727	8.81	282	
		5/6/2016	186	1.41	2 U	7	NA	>2,400	8.30	8.23	0.520	9.75	1.5	
		8/30/2016	275	1.46	2 U	10	NA	260	14.20	8.06	0.750	8.32	3.2	
		11/30/2016	96	0.51	7.9 R1	264	NA	>2,400	9.00	8.13	0.280	9.00	45.2	
		9/7/2017	231	1.78 D	2 U	5 U	NA	650	15.30	7.38	0.680	7.50	140	
		4/20/2018	NA	NA	NA	NA	NA	NA	11.00	7.80	0.660	9.10	165	
		8/23/2018	290	2.39	2 U	5 U	NA	140	17.78	7.08	0.843	5.76	165.8	
		12/11/2018	190	2.72	2 U	9.4	NA	330	8.84	7.56	0.659	9.38	156.5	
3/13/2019	175	1.88	2 U	8.4	NA	55	11.32	7.66	0.482	8.02	53.7			
12/10/2019	282	1.36	2.70	192	NA	>2,400	13.56	7.09	0.573	7.45	139.7			
2/13/2020	72.0	0.585	2 U	131	1.10	2,000	12.63	7.35	0.221	6.83	104.7			
9/14/2020	225	1.18	2 U	7.0	1.44	870	19.58	8.33	0.774	8.96	179.4			
11/12/2020	102	0.699	2.30	36.0	1.36	>2,400	--	--	--	--	--			
7/13/2021	252	1.59	2.00 U	5.0 U	1.59	130	18.40	7.90	0.680	5.60	149			
11/12/2021	253	1.68	14.9	5.0 U	1.68	650	12.30	7.90	0.798	9.30	208			
3/23/2022	191	1.04	<2.00	7.2	1.51	410	14.90	7.70	0.550	13.30	182			
10/21/2022	256	1.48	<2.00	<5.0	1.48	135.4	10.30	8.50	0.783	NA	125			
11/30/2022	120	0.636	19.9	58.7	1.34	>2419.6	12.60	8.30	0.378	16.50	83			
12/6/2022							11.00	8.40	0.382	21.00	100			
4/11/2023	206	1.40	<2.00	6.0	1.40	90.9	11.80	8.20	0.580	21.10	123			
7/24/2023	244	1.25	<2.00	<5.0	5.79	686.7	19.40	8.30	0.670	14.70	115			
10/25/2023	272	1.51	M1	<2.00	<5.0	2.43	344.8	12.60	8.40	0.972	11.00	-150		

Table A-3. Surface Water Sampling Results														
LAS Farm Area	Sample Location	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	BOD (5 day) (mg/L)	TSS (mg/L)	Total Nitrogen ^a (mg/L)	E. Coli (CFU/100mL or MPN/100mL)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)	
USEPA MCL			NA	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	
TDEC FAL Limit(s)			NA	MCL	NA	Background	NA	2,880	+/- 3° Background	6.0 - 9.0	NA	>5	NA	
Ray Smelcer	SW-11	3/31/2008	260	0.05 U	2 U	4 U	NA	230	13.20	8.84	0.887	8.00	132	
		9/24/2008	284	1.56	2 U	4.8	NA	710	18.60	6.48	0.729	8.00	NA	
		1/20/2009	258	5.52	3.5	12	NA	1,600	NA	NA	NA	NA	NA	
		5/14/2009	210	2.15	2 U	22	NA	1,100	15.10	8.22	0.589	11.01	88	
		9/24/2009	328	2.33	6.7	13.2	NA	7,400	19.49	7.97	1.095	8.31	133	
		12/29/2009	184	2.11	2 U	6.2	NA	40	10.84	8.15	0.502	13.74	190	
		5/18/2010	240	2.11	2 U	14.8	NA	3,500	16.16	8.43	0.675	10.55	108	
		8/24/2010	256	0.056 U	2 U	8.5	NA	840	18.85	8.25	0.915	10.29	20	
		11/16/2010	225	2.10	2.1	5.7	NA	580	13.13	8.54	0.832	13.26	83	
		5/17/2011	218	1.91	2 U	4.4	NA	480	12.72	8.47	0.599	11.89	180	
		9/20/2011	275	0.056 U	2 U	4 U	NA	600	16.52	8.38	0.820	10.24	152	
		12/13/2011	202	2.07	7.9	7	NA	1,200	11.17	7.47	0.595	13.15	89	
		4/19/2012	249	0.056 U	5.7	26	NA	1,700	13.56	6.74	0.714	11.56	86	
		8/31/2012	295	2.12	2 U	4 U	NA	NA	>2,420	17.32	8.40	0.707	10.28	NA
		12/5/2012	265	2.28	2 U	4 U	NA	2,000	13.47	8.07	0.725	11.71	-17	
		4/25/2013	205	1.54	2 U	9.2	NA	1,100	12.60	8.19	0.423	7.16	49.9	
		8/7/2013	283	0.939	2 U	4	NA	NA	>2,420	18.90	8.47	0.702	5.69	2.1
		11/20/2013	284	2.15	2 U	8	NA	NA	>2,420	9.30	8.70	0.620	9.91	-29
		5/21/2014	232	1.64 D	2 U	8	NA	NA	>2,420	15.40	8.73	0.516	8.66	166
		9/16/2014	273	1.80 D	2 U	5 U	NA	1,600	18.50	8.87	0.671	6.29	-94	
		11/13/2014	285	NR	2 U	5 U	NA	NA	>2,420	10.70	8.87	0.685	6.08	-79
		4/16/2015	195	1.35	2.8	25.4	NA	NA	>2,420	15.30	8.29	0.448	6.06	316
		8/18/2015	273	2.07	2 U	5 U	NA	260	18.20	8.00	0.733	8.26	NA	
		11/20/2015	263	1.79	17.9	8.8	NA	NA	>24,000	12.90	7.86	0.861	8.11	204.7
		5/6/2016	192	1.42	2 U	7.6	NA	NA	>2,400	8.60	8.14	0.464	9.59	-10.8
		8/30/2016	274	1.40	2 U	5 U	NA	340	14.70	7.95	0.752	8.26	-3	
		11/30/2016	92.5	0.635	6.9 R1	142	NA	NA	>2,400	9.20	8.32	0.310	8.60	-58
		9/7/2017	230	1.91 D	2 U	5.2	NA	690	15.70	7.90	0.707	9.10	31	
		4/20/2018	NA	NA	NA	NA	NA	NA	11.20	7.82	0.639	9.90	77	
		8/23/2018	299	3.56	2 U	14.4	NA	550	18.26	7.60	0.990	6.29	9.8	
		12/11/2018	190	2.48	2 U	9.8	NA	550	9.74	7.74	0.618	10.34	181	
		3/12/2019	172	1.64	2 U	10.6	NA	72	10.59	8.43	0.471	9.15	204	
		12/10/2019	266	1.21	4.00	310	NA	NA	>2,400	13.24	7.09	0.602	7.28	139.8
		2/12/2020	117	1.24	2 U	31.8	1.51	160	11.35	7.52	0.358	7.16	110.3	
		9/14/2020	229	1.0	2 U	9.4	1.37	1,000	19.66	8.63	0.780	6.42	178.3	
		11/12/2020	108	0.0113 U	2.60	50.7	0.886	NA	>2,400	--	--	--	--	--
		7/13/2021	248	1.59	2.00 U	5.0 U	1.59	210	18.90	8.00	0.697	6.00	-150	
		11/12/2021	250	0.482	12.9	5.0 U	1.00 U	460	12.10	7.80	0.833	10.10	228	
		3/23/2022	191	1.01	<2.00	16.8	1.5	770	15.00	7.80	0.574	15.10	170	
		10/20/2022	256	1.44	<2.00	<5.0	3.3	224.7	9.10	8.20	0.734	15.30	126	
		11/30/2022	125	0.653	29.2	52.1	1.36	NA	>2419.6	13.10	8.10	0.445	15.80	93
		12/6/2022					No Lab Data			10.60	8.20	0.447	17.00	136
		12/19/2022	194	1.40	2.2	254	1.50	<1				No Field Data; Resampled Location		
		4/11/2023	208	1.38	<2.00	<5.0	1.38	104.3	12.10	8.20	0.585	16.80	140.00	
		7/24/2023	242	1.21	<2.00	<5.0	1.21	816.4	20.60	8.20	0.673	14.30	108.00	
		10/25/2023	272	1.47 M1	<2.00	<5.0	2.31	161.6	12.40	8.30	0.990	13.80	-96.00	
		Ray Smelcer	SW-19 ^a	10/24/2012 ^b	NA	16	NA	NA	NA	NA	NA	NA	NA	NA
11/20/2012 ^b	NA			14.7	2 U	4 U	NA	>2,420	NA	NA	NA	NA	NA	
12/11/2012 ^b	NA			26.9 B	2 U	10 U	NA	730	NA	NA	NA	NA	NA	
1/29/2013	148			12.7	2 U	4.8	NA	43	NA	NA	NA	NA	NA	
2/26/2013	186			8.15	2 U	16.4	NA	200	NA	NA	NA	NA	NA	
3/19/2013	138			4.72	2 U	35.6	NA	750	NA	NA	NA	NA	NA	
4/16/2013	167			3.28 H	2 UB	27	NA	920	NA	NA	NA	NA	NA	
5/21/2013	228			6.97	2 UB	5.6	NA	490	NA	NA	NA	NA	NA	
6/18/2013	304			2.19 DH	49.7	38	NA	1,600	NA	NA	NA	NA	NA	
7/16/2013	318			7.56 D	2 U	18.5	NA	1,600	NA	NA	NA	NA	NA	
8/20/2013	317			0.568	2 U	11.2	NA	870	NA	NA	NA	NA	NA	
9/24/2013	286			6.03 D	2 U	20.4	NA	2,000	NA	NA	NA	NA	NA	
10/15/2013	300 B			4.14	2 U	4 U	NA	1,000	NA	NA	NA	NA	NA	
11/19/2013	249			4.12 D	2 UB	4 U	NA	23	NA	NA	NA	NA	NA	
12/17/2013	194			6.12 D	2 U	4 U	NA	140	NA	NA	NA	NA	NA	
5/22/2014	187			0.202	2 U	5 U	NA	580	NA	NA	NA	NA	NA	
9/16/2014														Dry or insufficient water present, sample not collected.
11/13/2014														Dry or insufficient water present, sample not collected.
4/16/2015														Dry or insufficient water present, sample not collected.
8/17/2015	286			3.61 D	2 U	5 U	NA	>2,420	19.90	8.00	1.204	1.90	NA	
11/21/2015														Dry or insufficient water present, sample not collected.
8/31/2016	247			0.355	2.9	474	NA	310	18.50	7.83	0.934	6.60	-1.1	
12/1/2016	174			0.247 D	2 U	8.3 U	NA	120	3.60	8.10	0.619	5.91	32	
4/20/2018														Dry or insufficient water present, sample not collected.
8/23/2018														Dry or insufficient water present, sample not collected.
12/13/2018	185			6.90	2 U	5 U	NA	410	6.03	7.54	0.918	14.30	157	
3/12/2019	164	3.04	2 U	5.4	NA	100	16.90	8.31	0.572	10.70	226			
12/9/2019	196	3.05	2 U	5.0 U	NA	74	9.19	6.57	1.179	7.48	180.3			
2/13/2020	59.0	0.42	2 U	35.5	0.900	770	11.12	7.43	0.215	7.01	102			
9/18/2020	52.5	0.0113 U	2 U	7.0	0.224	30	24.27	7.82	0.171	34.1*	52			
7/16/2021	205	2.04	2.00 U	6.6	2.33	110	20.30	7.85	3.465	5.50	175			
11/23/2021	206	3.94	2.00 U	5.0 U	3.94	110	5.90	7.90	2.705	12.40	161			
3/30/2022	223	2.93	<2.0	<6.2	3.85	686.7	7.60	7.80	2.507	10.30	53			
11/1/2022					No Lab Data			13.70	8.10	3.780	13.40	107		
12/14/2022	232	2.15	<2.0	6.0	2.67	22.6	10.40	8.50	2.980	19.70	129			
4/14/2023	194	2.09	3.4	29.8	3.8	172.3	16.60	7.90	2.901	14.40	144			
8/1/2023	248	1.76	<2.00	16.2	2.85	461.1	20.80	7.90	2.789	11.50	114			
11/2/2023	228	1.89	<2.00	<5.0 H	2.3	203.5	7.20	8.10	3.000	14.10	82			

Table A-3. Surface Water Sampling Results

LAS Farm Area	Sample Location	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	BOD (5 day) (mg/L)	TSS (mg/L)	Total Nitrogen ^a (mg/L)	E. Coli (CFU/100mL or MPN/100mL)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)		
USEPA MCL			NA	10	NA	NA	NA	NA	NA	NA	NA	NA	NA		
TDEC FAL Limit(s)			NA	MCL	NA	Background	5	2,880	+/- 3° Background	6.0 - 9.0	NA	>5	NA		
Whaley/Hayfield	SW-13	4/2/2008	190	0.94	2 U	14	NA	400	13.30	8.51	0.354	5.50	143		
		9/23/2008	208	0.94	2 U	15.6	NA	430	17.40	8.10	0.356	5.00	NA		
		1/14/2009	138	1.71	2 U	32	NA	88	7.70	7.70	0.305	11.58	139		
		5/13/2009	127	1.04	2 U	20	NA	510	14.16	8.07	0.271	11.67	105		
		9/25/2009	149	0.72	2 U	4 U	NA	830	17.03	8.13	0.300	11.61	92		
		12/30/2009	141	1.55	2 U	15.5	NA	190	10.94	7.68	0.288	13.24	156		
		5/19/2010	151	0.73	2 U	8.4	NA	290	15.90	8.12	3.050	12.57	66		
		8/25/2010													
		Dry or insufficient water present, sample not collected.													
		11/18/2010	158	0.94	2 U	4 U	NA	94	16.87	8.03	0.329	11.02	90		
		5/18/2011	148	0.952 B	2 U	16.8	NA	220	12.02	8.34	0.312	11.57	113		
		9/22/2011	164	0.888	2 U	12	NA	1,200	15.79	8.43	0.333	10.68	109		
		12/15/2011	150	1.37	10.5 B	16	NA	170	11.42	8.73	0.326	12.44	30		
		4/19/2012	160	0.056 U	2 U	4 U	NA	480	12.88	6.65	0.321	10.60	95		
		8/30/2012	210	0.642	2 U	4 U	NA	2,000	17.38	8.20	0.335	12.51	NA		
		12/7/2012	160	0.773	2 U	5.2	NA	1,400	8.37	8.00	0.226	10.21	184		
		4/26/2013	141	0.887	2 U	4.4	NA	460	13.70	8.54	0.251	8.58	24.5		
		8/9/2013	173	0.426	2 U	5.2	NA	2,400	18.10	8.63	0.325	7.03	90.4		
		11/22/2013	168	0.847	2 U	21.6	NA	870	11.70	8.46	0.255	8.40	40		
		11/22/2013*	169	0.845	2 U	4 U	NA	1,400	11.70	8.46	0.255	8.40	40		
		5/20/2014	160	0.950	2 U	7.4	NA	2,400	12.90	9.07	0.336	6.80	128		
		9/19/2014	166	0.706 D	2 U	7.8	NA	1,100	16.10	8.87	0.287	6.93	146		
		11/14/2014	157	0.872	2 U	77.8	NA	770	6.10	8.81	0.224	9.90	102		
		4/22/2015	NA	NA	NA	NA	NA	NA	13.80	8.06	0.219	8.36	268		
		8/21/2015	174	0.920	2 U	10.4	NA	1,400	16.70	7.00	0.314	8.09	NA		
		12/1/2015	233	0.800	2.4	74.4	NA	1,200	14.30	7.78	0.312	9.12	213.3		
		5/10/2016	147	0.598	2 U	5 U	NA	1,200	12.10	8.49	0.274	10.37	-4.3		
		9/2/2016	169	0.753	2 U	21.2	NA	1,700	13.20	7.94	0.319	8.52	-8.1		
		12/2/2016	172	0.660	2 U	32.8	NA	1,300	2.40	7.96	0.264	7.95	23		
		9/26/2017	NR	0.788 D	2 U	5 U	NA	610	15.70	8.30	0.474	7.40	209		
		4/20/2018	129	0.972	2 U	6.2	NA	520	11.80	7.86	0.324	9.40	110		
		8/24/2018	87	1.64	2 U	5 U	NA	770	16.40	7.61	0.333	7.84	70.9		
		12/13/2018	133	1.14	2 U	11	NA	520	11.24	7.02	0.300	7.63	123		
		3/15/2019	140	1.07	2 U	30.8	NA	140	13.92	7.51	0.301	7.37	264.2		
		12/10/2019	294	0.906	2.5	45.3	NA	>2,400	13.62	7.06	0.322	10.60	135.5		
		2/14/2020	90.0	0.662	2 U	43.8	0.662	140	10.95	7.21	0.206	7.38	76		
		9/17/2020	332	0.435 A12	2 U	8.6	0.435	>2,400	17.87	6.91	0.384	56*	150		
		7/14/2021	170	0.782	2.00 U	5.2	0.782	520	19.10	8.11	0.312	3.80	125		
		11/15/2021	172	1.11	2.00 U	5.0 U	1.11	610	9.80	7.80	0.401	9.00	211		
		3/24/2022	151	0.907	<2.00	<12.8	1.43	460	12.70	7.40	0.311	16.00	259		
		10/27/2022	184	0.682	<2.00	<5.0	1.07	770.1	13.70	8.40	0.380	13.20	183		
		12/13/2022	153	0.939	<2.00	5.2	<1.00	410.6	10.20	8.40	0.332	19.00	103		
		4/17/2023	270	0.901	<2.00	<5.0	<1.00	206.4	12.80	8.30	0.311	14.70	160		
		7/31/2023	178	1.160	<2.00	39.8	2.42	1119.9	19.70	8.20	0.366	12.20	111		
		11/3/2023	185	0.947	<2.00	<5.0	1.35	1413.6	8.90	7.80	0.360	12.40	21		
		Whaley/Hayfield	SW-14	4/2/2008	390	3.40	23	15	NA	TNTC	12.90	8.44	1.640	5.00	158
				9/24/2008	237	2.58	2 U	2.8	NA	560	NA	NA	NA	NA	NA
1/14/2009	281			7.40	2 U	6	NA	750	14.15	7.34	1.095	10.29	152		
5/13/2009	255			6.32	2 U	4	NA	140	14.57	7.33	0.946	10.05	125		
9/24/2009	274			0.05 U	2 U	10.6	NA	630	15.49	7.59	0.985	10.13	98		
12/30/2009	264			3.44	2 U	8.4	NA	10	10.70	7.38	1.148	12.83	180		
5/20/2010	287			3.37	93.3	20.9	NA	3,300	14.68	7.44	1.018	8.53	165		
8/25/2010	260			3.70	2 U	19.4	NA	2,300	16.03	7.97	0.769	10.40	51		
11/17/2010	244			3.28	2 U	21	NA	580	14.92	8.39	0.724	9.86	56		
5/18/2011	476			2.77 B	39.2	59.2	NA	20,000	14.77	8.07	1.748	9.11	159		
9/21/2011	257			3.31	2 U	5.6	NA	180	14.76	8.23	0.768	10.92	138		
12/13/2011	264			4.79	2 U	10	NA	24	14.26	7.52	0.875	9.99	131		
4/18/2012	264			0.267	4.4	68	NA	1,300	13.67	6.53	1.118	10.13	120		
8/29/2012	260			2.64	2 U	9.2	NA	>2,420	14.63	7.20	0.745	11.92	NA		
12/6/2012	292			4.05	2 U	6.8	NA	>2,420	11.39	7.91	1.362	9.65	110		
4/28/2013	288			2.13	9.6	8.8	NA	>2,420	12.00	7.98	0.957	7.04	206		
8/8/2013	295			1.00	2 U	5.6	NA	2,400	17.20	7.99	0.818	5.93	117		
8/8/2013*	292			1.11	2 U	6.4	NA	>2,400	17.20	7.99	0.818	5.93	117		
11/22/2013	416			1.97	8	5.2	NA	>2,420	12.30	8.63	1.470	7.13	184		
5/20/2014	290			2.37 D	3.2	12	NA	>2,420	13.90	8.90	0.879	7.45	170		
9/18/2014	259			1.84 D	2 U	5 U	NA	1,000	16.40	8.33	0.757	5.67	13.1		
9/18/2014*	250			1.84 D	2 U	5 U	NA	770	16.40	8.33	0.757	5.67	13.1		
11/13/2014	336			3.21 D	2 U	5 U	NA	>2,420	11.90	8.55	1.134	6.15	75		
4/20/2015	258			3.41	3.8	138	NA	>2,420	15.80	7.37	0.699	4.80	264		
8/21/2015	310			1.38 D	2 U	8.8	NA	2,400	20.60	7.00	1.818	7.50	NA		
11/30/2015	260			3.13	2.8	60	NA	>2,420	15.00	7.28	0.809	8.55	210.5		
5/10/2016	308			3.06	2 U	5 U	NA	>2,400	11.00	7.67	0.927	8.38	17.2		
9/1/2016	404			0.112 U	10.7	10.2	NA	>2,400	17.80	7.77	2.702	3.46	14.8		
12/1/2016	340			2.36 D	12	18	NA	>2,400	7.30	7.84	1.383	8.90	29.8		
9/8/2017	297			2.87 D	2 U	5.4	NA	690	16.10	7.84	1.146	8.80	64.1		
4/19/2018	321			13.1	3.2	20	NA	>2,400	13.32	7.43	1.799	7.65	161.8		
8/24/2018	131			2.32	2 U	5 U	NA	210	15.85	7.10	0.715	6.86	124.8		
12/13/2018	270			1.43	2 U	8.8	NA	310	7.42	6.87	1.586	10.25	239		
3/15/2019	256			1.20 U	2 U	9.6	NA	>2,400	13.68	7.12	1.362	5.93	255.5		
12/10/2019	270			2.0	2.20	51.0	NA	>2,400	12.92	6.57	0.530	6.46	141.3		
2/14/2020	266			4.88 E2, M6	2 U	5.6	5.19	110	10.98	6.98	1.100	6.42	88.4		
2/14/2020 (DUP)	261			5.04 E2	2 U	5.6	5.49	110	9.76	7.26	1.089	6.71	80.4		
9/15/2020	288			2.02	2 U	5.0 U	2.95	110	16.52	7.65	1.063	6.67	163		
11/12/2020	262			3.05	2 U	12.2	3.89	>2,400							
7/14/2021	452			2.50	17.4 K8	37.0 R1	5.07	1,600	20.90	8.05	2.032	3.56	75		
11/15/2021	318			2.95	2.00 U	10.0	2.95	19	13.90	8.10	1.096	9.50	203		
3/28/2022	302			3.55	<2.00	<5.0	4.66	8.4	13.50	7.40	0.976	9.20	87		
10/25/2022	472			2.20	<2.00	<5.0	3.47	160.7	8.50	8.35	2.295	16.10	126		
12/13/2022	395			0.721	3.00	6.2	1.4	980.4	8.50	8.10	1.761	NA	171		
4/17/2023	324			0.544	<2.00	1.03	613.1	11.20	8.20	1.397	16.70	154			
7/28/2023	398			1.720	<2.00	5.8	3.83	613.1	23.00	8.10	1.883	12.40	111		
10/24/2023	564			2.960	<2.00 K2,M4	15.2	4.46	>2419.6	10.40	8.20	2.045	11.80	NR		

Table A-3. Surface Water Sampling Results

LAS Farm Area	Sample Location	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	BOD (5 day) (mg/L)	TSS (mg/L)	Total Nitrogen ^a (mg/L)	E. Coli (CFU/100mL or MPN/100mL)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)		
USEPA MCL			NA	10	NA	NA	NA	NA	NA	NA	NA	NA	NA		
TDEC FAL Limit(s)			NA	MCL	NA	Background	NA	2,880	+/- 3° Background	6.0 - 9.0	NA	>5	NA		
Whaley/Hayfield	SW-15	4/2/2008	150	0.69	2 U	5.2	NA	260	12.40	8.77	0.293	7.00	98		
		9/23/2008	188	0.81	9.4	1,840	NA	2,000	17.70	8.20	0.325	NA	NA		
		1/14/2009	145	1.94	2 U	20	NA	150	NA	7.96	0.287	12.43	120		
		5/13/2009	160	1.20	2 U	41	NA	690	14.08	7.89	0.317	10.85	117		
		9/24/2009	174	1.03	2 U	7.9	NA	1,400	17.66	7.91	0.337	10.05	96		
		12/30/2009	153	1.21	2 U	20.8	NA	190	11.17	7.70	0.312	12.11	181		
		5/19/2010	165	0.92	2 U	20	NA	620	14.64	8.19	3.300	14.20	1068		
		11/18/2010	173	0.056 U	2 U	10.6	NA	170	10.88	9.32	0.379	11.57	58		
		5/18/2011	159	1.01 B	2 U	48.3	NA	260	12.28	8.73	0.345	10.55	147		
		9/22/2011	185	1.03	2.4	636	NA	2,400	16.80	8.46	0.363	8.44	141		
		12/15/2011	163	1.48	3.3 U	11	NA	140	11.97	8.53	0.359	10.88	121		
		4/18/2012	160	1.70	2 U	14.4	NA	1,200	13.29	6.68	0.336	9.70	NA		
		8/30/2012	294	0.853	2 U	1,360	NA	2,400	18.66	8.00	0.376	8.09	NA		
		12/7/2012	150	0.828	2 U	11.2	NA	1,300	10.05	7.77	0.248	8.54	158		
		4/26/2013	180	0.958	2 U	234	NA	1.0 U	13.90	8.60	0.295	7.89	63.7		
		8/9/2013	187	0.500	2 U	6	NA	1,700	17.20	8.61	0.331	7.23	67.7		
		11/22/2013	177	0.895	2 U	14.8	NA	550	12.00	8.45	0.271	7.36	76		
		5/20/2014	172	1.08	2 U	48.8	NA	1,700	13.10	8.80	0.340	6.67	83		
		9/19/2014	173	0.880 D	2 U	5.8	NA	730	15.80	8.56	0.297	5.70	100.1		
		11/14/2014	164	1.00	2 U	5 U	NA	730	6.20	8.48	0.250	8.80	49.5		
		4/22/2015	NA	NA	NA	NA	NA	NA	14.40	8.08	0.226	9.00	270		
		8/21/2015	180	1.14	2 U	9	NA	1,300	17.00	7.00	0.333	7.63	NA		
		12/1/2015	140	0.884	2 U	66.4	NA	1,100	14.40	7.71	0.240	8.95	225		
		5/11/2016	157	0.761	2 U	NR	NA	1,000	10.40	7.61	0.263	8.42	8.3		
		9/2/2016	175	0.875	2 U	10.6	NA	820	13.60	7.49	0.320	7.36	7.4		
		12/2/2016	182	0.765	2 U	5 U	NA	820	3.50	7.63	0.264	8.12	0.3		
		9/26/2017	NR	0.938 D	2 U	5 U	NA	290	16.50	8.30	0.454	7.15	210		
		4/20/2018	132	1.08	2 U	5.6	NA	54	12.30	7.69	0.325	9.20	57.5		
		8/24/2018	89	0.948	2 U	392	NA	770	16.87	7.40	0.351	6.67	50.3		
		12/13/2018	270	1.27	2 U	13.6	NA	390	11.27	6.58	0.331	7.04	120		
		3/15/2019	162	1.15	2 U	23.8	NA	140	14.35	7.66	0.351	6.99	265.5		
		12/12/2019	155 H	1.15	2 U	20.6	NA	250	9.46	6.56	0.324	7.92	27.6		
		2/14/2020	85	0.711	2 U	50.0	0.711	130	10.35	7.47	0.230	7.68	75.7		
		9/17/2020	160	0.484 A12	2.40	21.5	0.484	>2,400	18.14	6.78	0.357	55.4*	154.1		
		7/14/2021	173	0.789	2.0 U	5.0 U	0.789	440	18.80	8.20	0.342	4.25	117		
		11/15/2021	173	1.11	2.0 U	5.0 U	1.11	610	9.60	7.80	0.354	9.20	235		
		4/1/2022	NA	1.07	<2.00	NA	1.07	>2419.6	12.50	7.90	0.333	14.00	87		
		4/8/2022	167	NA	<5.0	NA	<5.0	NA	No field data reported; Resample for Alkalinity and TSS						
		10/27/2022	179	0.691	<2.00	<2.00	5.2	1.10	886.7	NA	NA	NA	NA	NA	
		12/13/2022	153	0.937	<2.00	<2.00	<5.0	<1.00	488.8	10.40	8.50	0.328	20.00	103	
4/17/2023	254	0.902	<2.00	<2.00	<5.0	<1.00	142.1	13.00	8.30	0.285	15.90	164			
7/31/2023	172	1.150	<2.00	<2.00	12.8	1.82	1119.9	19.50	8.10	0.340	13.10	116			
11/3/2023	185	0.944	<2.00	<2.00	5.2	1.35	1046.2	8.90	7.80	0.361	11.10	27			
Whaley/Hayfield	SW-18 ²	4/20/2012	323	0.06 U	8.1	18	NA	4,400	13.91	6.57	1.851	9.70	158		
		8/30/2012	294	11.00	2 U	12.8	NA	2,420	18.77	8.20	2.667	1.85	NA		
		12/4/2012	350	10.20	2 U	12.8	NA	2,420	6.78	5.77	1.520	10.51	348		
		4/23/2013	261	8.02	2 U	49.6	NA	>2,420	10.10	7.90	1.329	7.89	114		
		8/9/2013	350	3.81	2 U	5.2	NA	>2,420	19.70	8.43	1.837	5.19	163.7		
		11/19/2013	512	0.011 U	131	30.7	NA	>2,420	5.30	8.57	1.776	6.36	197		
		5/19/2014	292	6.81 D	2 U	62	NA	2,420	13.90	8.11	1.634	8.28	134		
		9/17/2014	326	4.08 D	11.9	179	NA	1,000	19.50	8.64	2.028	3.73	173		
		11/11/2014	315	13.30 D	2 U	12.4	NA	>2,420	6.30	8.59	1.436	8.26	247		
		4/16/2015	254	6.73	2 U	37.2	NA	>2,420	15.10	8.17	0.992	5.50	378		
		8/20/2015	420	7.67	2 U	83.2	NA	>2,420	22.10	8.00	2.355	7.83	NA		
		12/2/2015	215	5.28	2 U	61.2	NA	9,200	13.20	7.95	0.895	9.67	198		
		5/9/2016	298	4.71	2 U	7.4	NA	>2,400	11.10	8.00	1.374	8.05	16.9		
		8/31/2016	289	1.67	3.4	223	NA	>2,400	16.40	7.36	1.852	4.17	5.2		
		9/5/2017	274	1.89 D	2 U	5 U	NA	>2,400	18.90	6.70	1.820	4.80	60		
		4/19/2018	226	4.09	2 U	13.2	NA	1,300	12.03	7.65	1.660	8.48	170		
		8/27/2018	185	1.28	2.6	11.8	NA	>2,400	20.70	7.08	2.018	2.86	11.8		
		12/12/2018	280	6.42	2 U	5 U	NA	190	4.71	7.43	1.435	17.50	137		
		3/14/2019	248	4.72	2 U	128	NA	770	8.73	7.40	1.396	8.63	243.9		
		12/11/2019	171	4.64	2 U	142	NA	400	6.22	6.78	1.134	10.28	66		
		2/13/2020	108	1.40	2 U	126	2.06	190	12.28	7.64	0.462	7.17	94.2		
		9/15/2020	273	0.839	2 U	5.0 U	1.74	240	20.61	8.22	2.136	6.04	153		
		7/12/2021	315	0.0113 U	2 U	46.5	1.41	870	21.00	7.73	1.740	5.50	183		
		11/17/2021	337	3.39 M2	6.15 K1, K8	9.0	3.39	8	8.50	7.85	1.810	7.30	18		
		3/29/2022	279	2.72	23.6	<6.2	3.67	29.8	7.60	7.50	1.450	10.70	51		
		10/24/2022	326	1.61	<2.00	<5.0	2.34	51.2	9.90	7.90	1.855	9.50	23		
		12/14/2022	342	1.97	<2.00	39.2	2.81	31.5	9.60	8.30	1.699	15.30	161		
4/13/2023	310	2.13	<2.00	5.0	2.85	1553.1	10.00	8.10	1.334	18.40	158				
7/27/2023	328	1.55 M	<2.00	54.0	2.54	1413.6	22.00	7.90	1.674	12.40	97				
10/30/2023							Dry or insufficient water present, sample not collected.								

Table A-3. Surface Water Sampling Results														
LAS Farm Area	Sample Location	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	BOD (5 day) (mg/L)	TSS (mg/L)	Total Nitrogen ^a (mg/L)	E. Coli (CFU/100mL or MPN/ 100mL)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)	
USEPA MCL			NA	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	
TDEC FAL Limit(s)			NA	MCL	NA	Background	NA	2,880	+/- 3° Background	6.0 - 9.0	NA	>5	NA	
Whaley/Hayfield	SW-24 ³	5/23/2014	792	1.57 D	23.1	366	NA	>2,420	19.60	8.48	2.246	4.41	158	
		9/18/2014	395	0.084	2 U	16.2	NA	>2,420	17.50	8.67	2.534	4.45	208	
		11/14/2014	421	0.715	3.8	10.2 R1	NA	2,400	6.00	8.62	1.954	8.07	265	
		4/21/2015	397	1.41	9.3	17.8	NA	>2,420	12.50	7.39	1.640	9.26	443	
		8/21/2015	491	0.606 D	19.4	915	NA	>2,420	20.70	7.00	2.802	6.51	NA	
		11/30/2015	322	1.43	5.1	38.8	NA	>2,420	14.50	7.84	1.266	8.80	204.2	
		5/10/2016	429	0.063	2 U	7.2	NA	>2,400	13.10	7.79	2.364	5.80	4	
		9/1/2016	499	0.152	40.6	12.8	NA	>2,400	16.70	7.34	2.912	2.21	-47.8	
		12/1/2016	382	5.10 D	2.5	6.2	NA	>2,400	3.50	7.92	2.493	7.10	39.1	
		9/26/2017	NR	0.055 D	2 U K7	18.2	NA	1,200	16.60	7.80	2.969	4.65	193	
		4/19/2018	317	1.05	2 U	5 U	NA	250	11.96	7.47	2.567	8.50	143.2	
		8/24/2018	278	19.10	3	16.4	NA	>2,400	19.34	7.75	3.726	5.94	79.2	
		12/12/2018	295	2.45	2 U	5 U	NA	61	5.87	7.83	2.243	13.48	196	
		3/14/2019	353	2.91	2 U	7.6	NA	140	10.29	7.65	2.394	8.00	146.7	
		12/12/2019	302 H	1.57	2 U	5.0 U	NA	28	5.71	6.56	2.089	8.77	27.6	
		2/14/2020	272	0.909	2 U	7.2	2.08	110	6.66	7.11	1.640	8.18	84.3	
		9/17/2020	331	0.689 A12	100	988	8.50	>24,000	19.22	7.04	2.311	57.2*	127.7	
		7/16/2021	370	0.261	6.75 K8	9	1.51	1,000	21.40	7.90	2.366	3.60	151	
		11/23/2021	688	6.44	2.00 U	11.2	8.51	250	4.70	7.80	2.418	9.00	198	
		4/1/2022	1640	0.835	5.5	210	6.16	>2419.6	9.70	7.78	2.707	5.60	95	
		10/25/2022	740	8.97	<2.00	31.0	13.2	770.1	9.30	8.40	2.300	7.20	127	
12/12/2022	580	1.31	<2.00	11.2	2.76	1732.9	11.10	8.30	2.100	13.20	92			
4/14/2023	636	4.50	4.5	49.2	7.72	>2419.6	16.10	8.30	2.328	16.20	149			
7/28/2023	435	0.117	<2.00	48.8	4.00	113	23.60	8.10	2.393	8.70	112			
10/24/2023	653	2.92	2.1 K2	15.0	5.86	>2419.6	10.30	8.20	2.672	12.60	103			
Whaley/Hayfield	SW-25 ³	5/19/2014	292	1.19 D	2.4	15.6	NA	>2,420	15.50	8.70	1.255	5.78	133	
		4/17/2015	242	3.20	2.9	20.4	NA	>2,420	15.70	8.57	0.959	6.75	218	
		8/20/2015	282	5.04 D	4.2	27.6	NA	>2,420	22.30	7.50	2.023	7.23	NA	
		11/30/2015	248	2.26	8.4	78	NA	>2,420	15.10	7.69	0.989	9.11	205.2	
		5/9/2016	310	2.07	5.6	13.2	NA	>2,400	12.20	7.94	1.339	5.82	22	
		9/1/2016	431	0.14	16.3	22.8	NA	>2,400	18.00	7.58	2.287	1.95	-12.2	
		11/28/2016	398	0.219 D	2.2	98.3	NA	210	2.20	7.87	1.822	3.00	19.1	
		9/5/2017	296	1.71 D	5.8	11	NA	1,200	21.80	7.10	1.969	6.30	90.6	
		4/11/2018	199	3.28	2 U	12.2	NA	1,400	10.87	7.90	0.869	NR	105	
		8/24/2018	164	0.594	3.3	364	NA	>2,400	20.04	7.62	1.463	5.83	76.9	
		12/12/2018	342	7.39	2 U	5 U	NA	14	5.28	7.66	1.474	15.33	152	
		3/14/2019	234	5.17	2 U	10	NA	21	9.30	7.61	1.368	8.95	242	
		12/11/2019	170	4.78	2 U	25.8	NA	88	7.51	6.72	1.280	12.52	73.8	
		2/13/2020	119	0.550	2 U	47.7	1.32	100	12.09	7.59	0.569	6.46	96.2	
		9/15/2020	322	1.15	3.4	106	2.23	240	20.86	8.26	2.126	5.57	154.7	
		7/12/2021	426	0.0913	3.60	59.3	2.31	>2,400	21.70	7.90	1.877	4.50	159	
		11/17/2021					No Lab Data		11.20	7.00	2.023	8.90	138	
		3/29/2022	363	8.68	31.8	11.8	10.3	>2419.6	9.30	7.70	1.690	8.40	129	
		10/24/2022	378	1.04	<2.00	<5.0	1.77	38.4	10.10	8.20	1.850	9.20	130	
		12/8/2022	308	2.07	<2.00	22.0	3.10	95.9	13.80	8.20	1.300	19.00	77	
		4/12/2023	350	2.74	2.0	36.3	3.85	>2419.6	12.10	8.10	1.512	NR	137	
7/27/2023	410	2.48	7.5 G3	42.8	5.94	>2419.6	23.50	8.10	1.768	10.80	95			
10/30/2023	431	1.46 M2	<2.00	20.2	2.12	75.4	16.50	8.10	1.877	11.20	79			
Whaley/Hayfield	SW-26 ³	5/19/2014	269	0.218	5.4	14.4	NA	1,300	14.20	8.49	0.712	6.30	122	
		4/20/2015	103	0.156	2.2	68	NA	>2,420	16.20	7.66	0.214	5.08	251	
		8/20/2015	162	0.389	2.9	17.4	NA	>2,420	21.30	7.50	0.450	6.19	NA	
		11/30/2015	80	0.306	2.3	19.4	NA	>2,420	14.40	7.62	0.320	8.65	212	
		5/9/2016	269	0.067	2 U	5 U	NA	>2,400	11.90	7.84	0.766	5.91	20.5	
		4/11/2018	174	0.0805	2 U	5 U	NA	69	10.12	7.73	0.675	9.35	42.8	
		8/27/2018												
		12/12/2018	172	0.242	2 U	8.6	NA	280	5.78	7.84	0.504	15.16	147	
		3/14/2019	221	0.250	2 U	10.8	NA	100	9.39	7.81	0.767	8.25	176	
		12/12/2019	115 H	0.261	2 U	9.4	NA	230	5.64	6.26	0.348	9.74	33.7	
		2/14/2020	104	0.270	2 U	177	1.08	160	7.85	6.98	0.289	8.09	95.7	
		9/15/2020												
		7/12/2021	384	0.0440	7.25 K8	8.3 U	3.92	440	21.90	7.68	1.344	NA	152	
		11/22/2021	212	0.196	3.60 K1	23.0	1.58	920	8.70	8.40	0.761	9.00	195	
		3/30/2022	250	0.112	<2.00	NA	0.569	151.5	8.70	7.60	0.914	15.00	66	
		4/8/2022	NA	NA	NA	42.6	NA	NA						
		10/24/2022	452	0.144	<2.00	<5.0	1.76	4.1	9.80	7.95	2.040	8.00	22	
		12/12/2022	463	0.819	<2.00	5.6	1.76	57.3	11.30	7.90	1.550	12.00	101	
		4/13/2023	232	0.152	<2.00	25.6	4.00	206.4	12.10	7.85	0.764	17.70	89	
		7/27/2023	400	0.184	<2.00	32.2	2.52	110.6	22.60	7.90	1.525	7.80	103	
		10/31/2023	357	<0.100	<2.00	<5.0	<1.00	920.8	11.50	8.00	1.513	10.00	102	
Whaley/Hayfield	SW-27 ³	5/19/2014	314	0.076	2 U	5 U	NA	1,400	13.60	8.15	1.183	5.60	132	
		4/17/2015	266	0.186	2 U	24.8	NA	>2,420	17.20	8.23	0.892	4.93	198	
		8/20/2015	129	0.332	3.3	8.6	NA	690	21.80	7.50	0.597	6.92	NA	
		11/30/2015	66	0.783	4.6	63.2	NA	>2,420	11.40	7.55	0.356	6.97	196.2	
		5/10/2016	342	0.144	3.5	68.2	NA	1,200	12.60	7.71	1.175	5.57	-17.9	
		4/11/2018	374	0.170	2 U	10.6	NA	1,300	10.28	7.74	1.108	9.00	68	
		8/27/2018												
		12/12/2018	275	0.136	2 U	5 U	NA	220	7.71	7.31	1.148	12.30	116	
		3/14/2019	305	0.229	2 U	6.8	NA	44	10.97	7.42	1.231	7.33	123.1	
		12/12/2019	255 H	0.264	2 U	5.4	NA	580	6.04	7.80	1.001	7.79	-58.7	
		2/14/2020	147	0.784	2 U	26.2	1.46	270	6.08	7.01	0.666	8.03	94.2	
		9/15/2020	215	0.113 U	2 U	5.0 U	0.296	550	20.26	8.16	1.076	5.14	164.5	
		7/12/2021	475	0.0512	21.7	27.0	15.6	>2,400	22.40	7.60	1.598	1.03	-72	
		11/22/2021	149	0.656	4.80 K1	29.5	2.11	>2,400	9.00	8.10	0.723	10.10	113	
		4/1/2022	305	0.154	<2.00	NA	<1.00	214	10.50	7.40	1.253	8.30	81	
		4/8/2022	NA	NA	NA	23.6	NA	NA						
		10/24/2022	342	0.101	<2.00	<5.0	<1.00	10.9	11.60	8.02	1.510	6.70	50	
		12/8/2022	134	0.456	<2.00	24.1	1.76	1046.2	14.20	8.30	0.667	15.00	54	
		4/13/2023	356	1.460	<2.00	13.2	2.79	>2419.6	13.10	8.00	0.510	16.00	91	
		7/28/2023	310	<0.100	<2.00	8.2	<1.00	62.4	22.50	8.00	1.277	7.80	106	
		10/31/2023	315	<0.100	<2.00	12.4	<1.00	48.7	11.90	7.80	1.236	10.90	18	

Table A-3. Surface Water Sampling Results													
LAS Farm Area	Sample Location	Sample Date (m/d/y)	Alkalinity (as CaCO ₃) mg/L	Nitrate (as Nitrogen) mg/L	BOD (5 day) (mg/L)	TSS (mg/L)	Total Nitrogen ⁴ (mg/L)	E. Coli (CFU/100mL or MPN/ 100mL)	Field Temperature (°C)	Field pH (Standard Units)	Field Specific Conductivity (mS/cm)	Field Dissolved Oxygen (mg/L)	Field Oxygen-Reduction Potential (ORP) (mV)
	USEPA MCL		NA	10	NA	NA		NA	NA	NA	NA	NA	NA
	TDEC FAL Limit(s)		NA	MCL	NA	Background		2,880	+/- 3° Background	6.0 - 9.0	NA	>5	NA

Footnotes:

Surface water samples have been collected by the Bush Brothers and Company sample team since 2009 with laboratory analytical reports and field data provided to Brown and Caldwell for summary and interpretation.

¹ In September 2012, the Bush subcontracted analytical laboratory switched from using method EPA 1603 for E. coli analyses to the SM 9223 B method, subsequently modifying the method for determining reported results. E. coli results analyzed from September 2012 through November 2014 are reported in units of MPN/100mL instead of CFU/100mL.

² In 2012, the original background location SW-3 was replaced with two sampling locations (SW-3R and SW-3R2) that more accurately reflect upgradient conditions.

³ Sample locations added to the LAS Monitoring program during the 2014 monitoring period.

⁴ Total Nitrogen analysis was added to the monitoring program following the 2019 monitoring period per the updated WMPP.

*Reading considered suspect.

m/d/y - month/day/year

CFU/100 mL - colony forming units per 100 milliliters of water

MPN/100 mL - most probable number per 100 milliliters of water

USEPA MCL - United States Environmental Protection Agency Maximum Contaminant Level (November 2020)

TDEC FAL - Tennessee Department of Environment and Conservation Fish and Aquatic Life

TSS - total suspended solids

BOD - biochemical oxygen demand

mg/L - milligram per liter

mS/cm - milli-Siemens per centimeter

°C - Degrees Celsius

mV - millivolts

D - Sample was diluted.

M2 - Matrix spike recovery is outside of acceptance limits, biased low.

NR - Not Reported by Laboratory

U - Result below the laboratory detection limit

B - analyte detected in associated Method Blank

H - constituent analyzed outside of hold-time

> - result greater than reported value

< - result is less than the reported value

NA - Not applicable or not available

A12 - Sample was preserved with Sulfuric Acid to pH<2 on receipt

M1 - Matrix spike recovery is outside of acceptance limits, biased high.

DM1 - Diluted and matrix spike recovery is outside of acceptance limits, biased high.

DM2 - Diluted and matrix spike recovery is outside of acceptance limits, biased low.

M6 - Matrix spike recovery was not calculated. The analyte concentration of 4x the spiking level

E2 - Estimated result due to target analyte exceeding calibration range

K9 - Test replicates show more than 30% difference between high and low dilutions

R1 - Duplicate RPD is outside of control limits

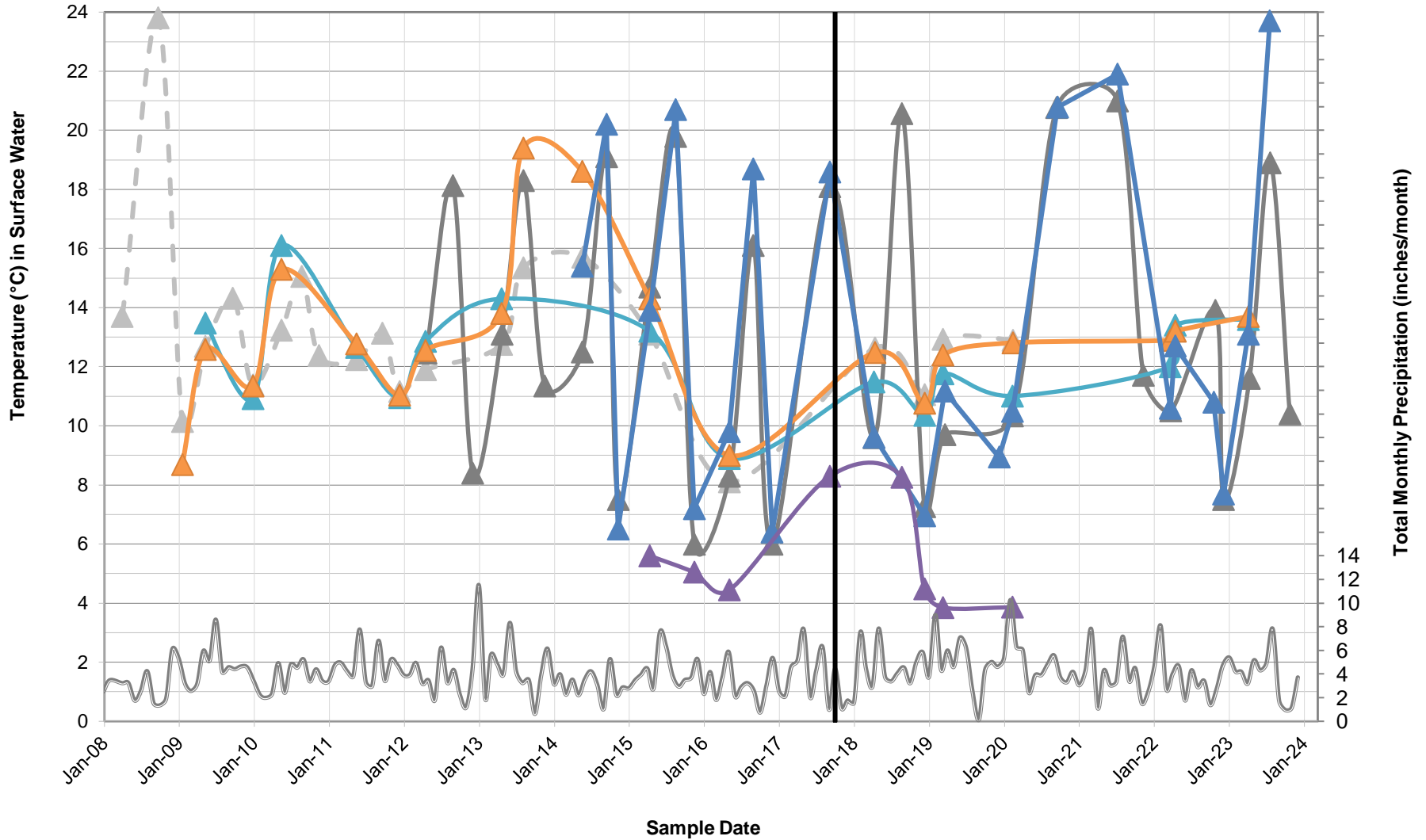
G1 - Elevated detection limit due to insufficient oxygen depletion

Appendix A-1



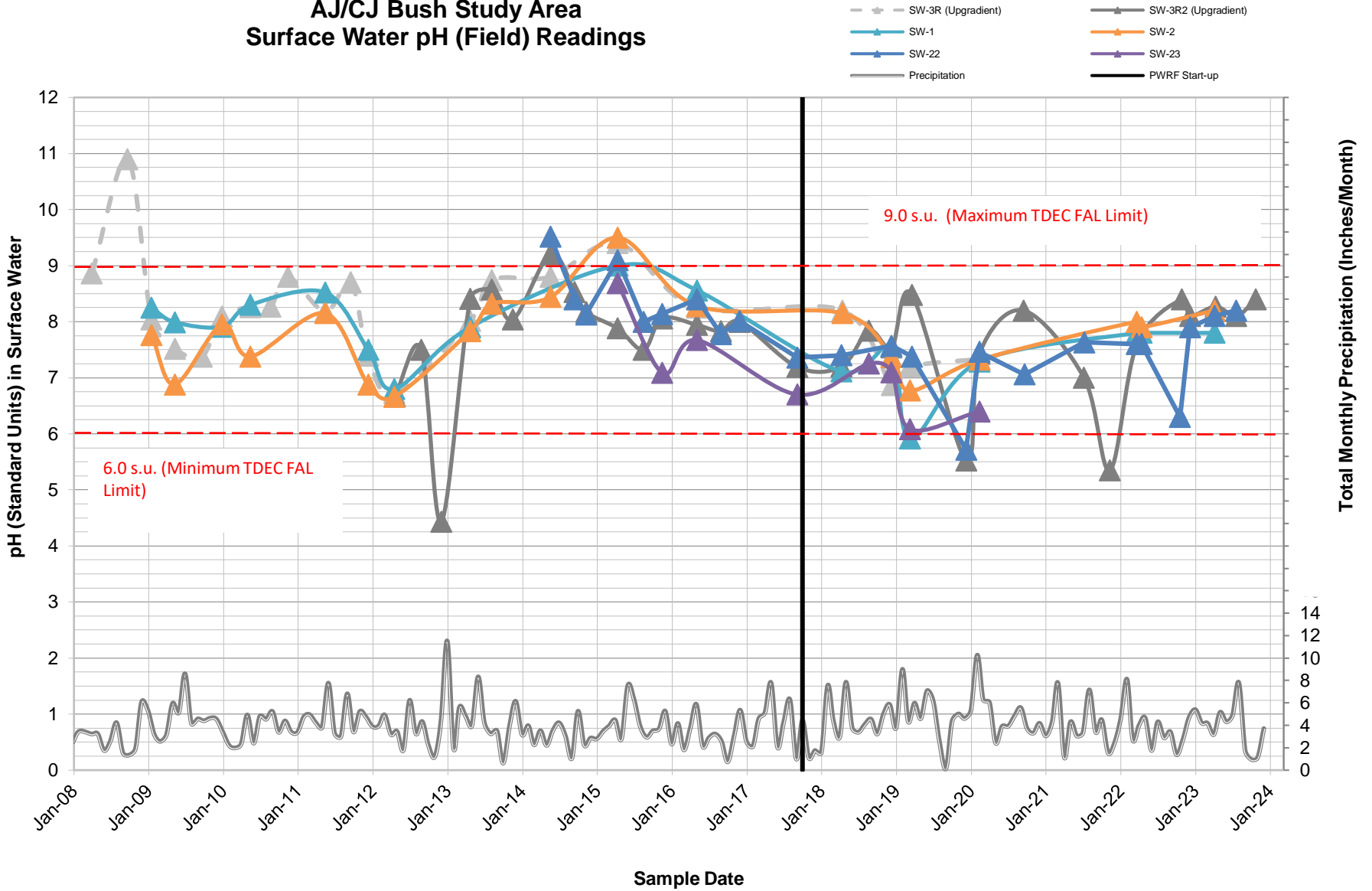
AJ/CJ Bush Study Area Surface Water Temperature (Field) Readings

- ▲— SW-3
 - ▲— SW-1
 - ▲— SW-22
 - Precipitation
- ▲— SW-3R2 (Upgradient)
 - ▲— SW-2
 - ▲— SW-23
 - PWRF Start-up



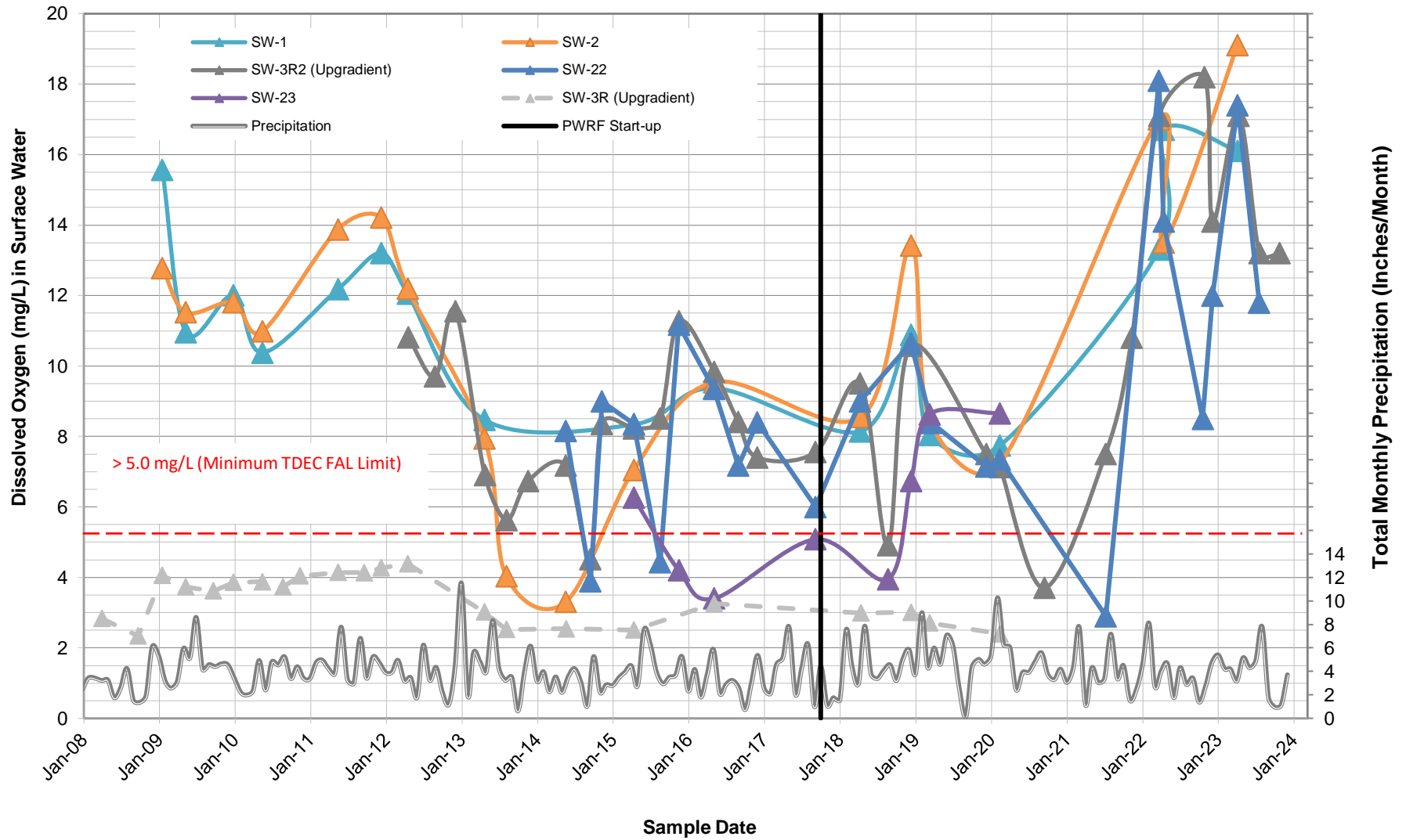
AJCJ Bush (Temp_SW)

AJ/CJ Bush Study Area Surface Water pH (Field) Readings



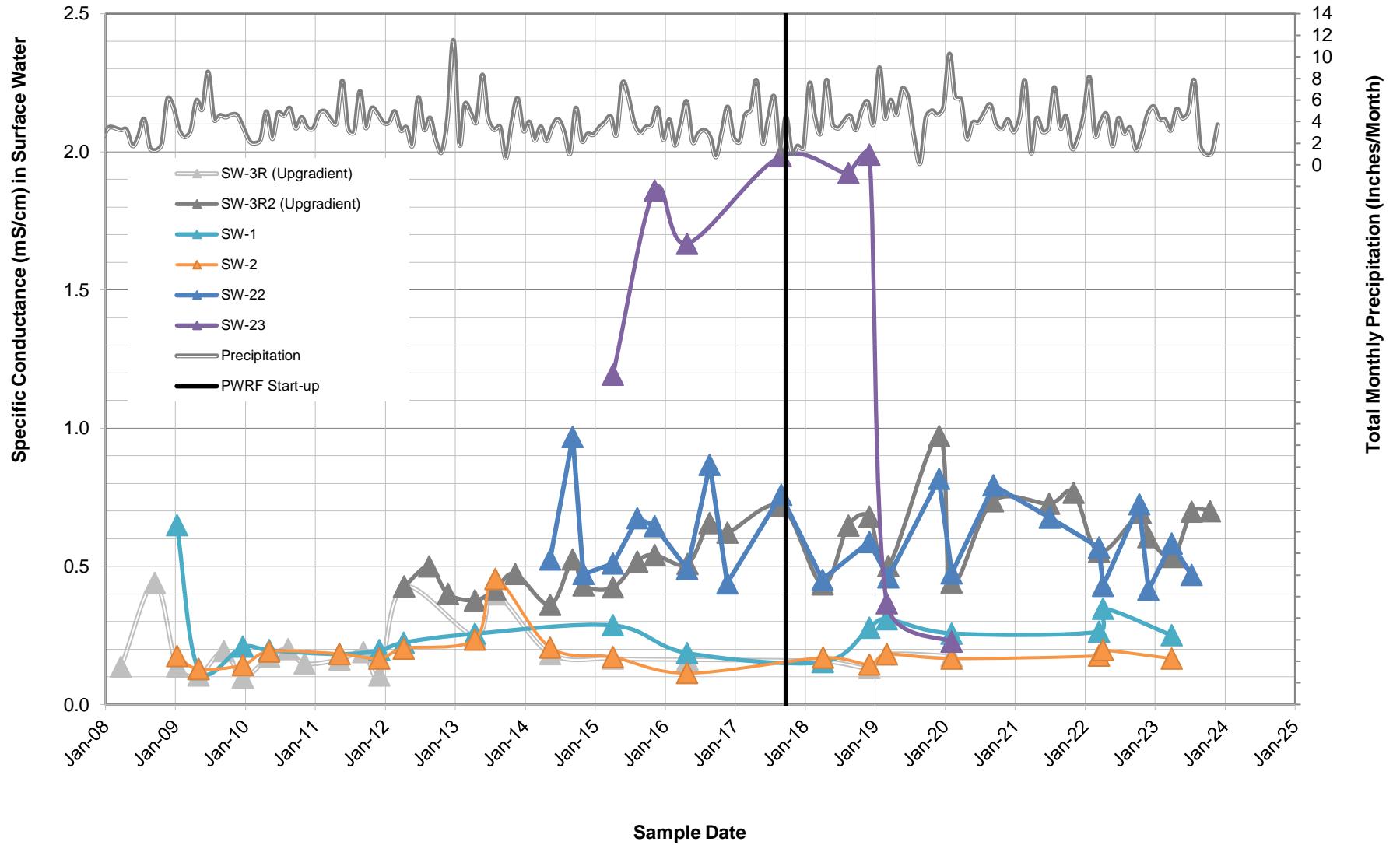
AJCJ Bush (pH_SW)

AJ/CJ Bush Study Area Surface Water DO (Field) Readings



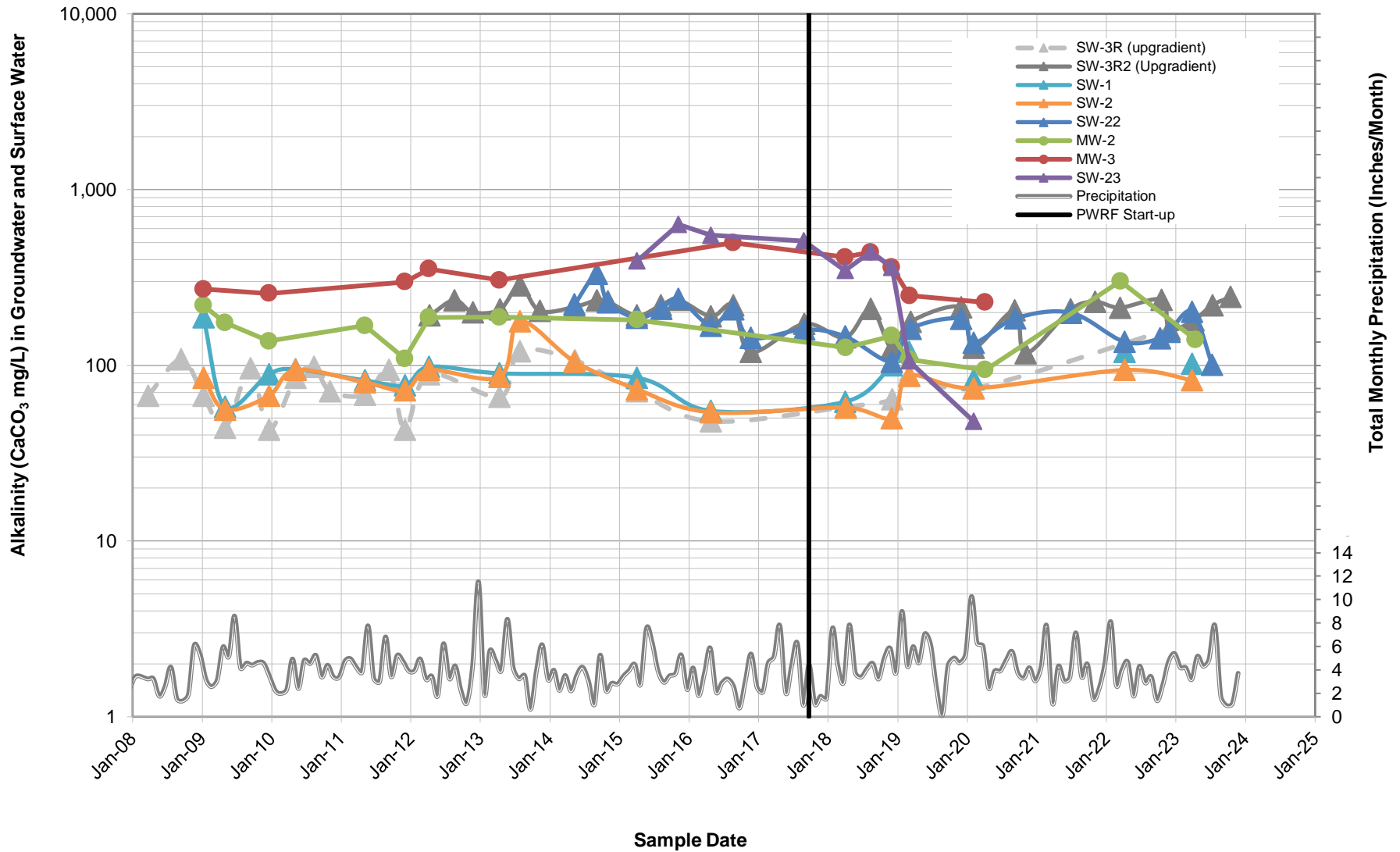
AJCJ Bush (DO_SW)

AJ/CJ Bush Study Area Surface Water Conductivity (Field) Readings



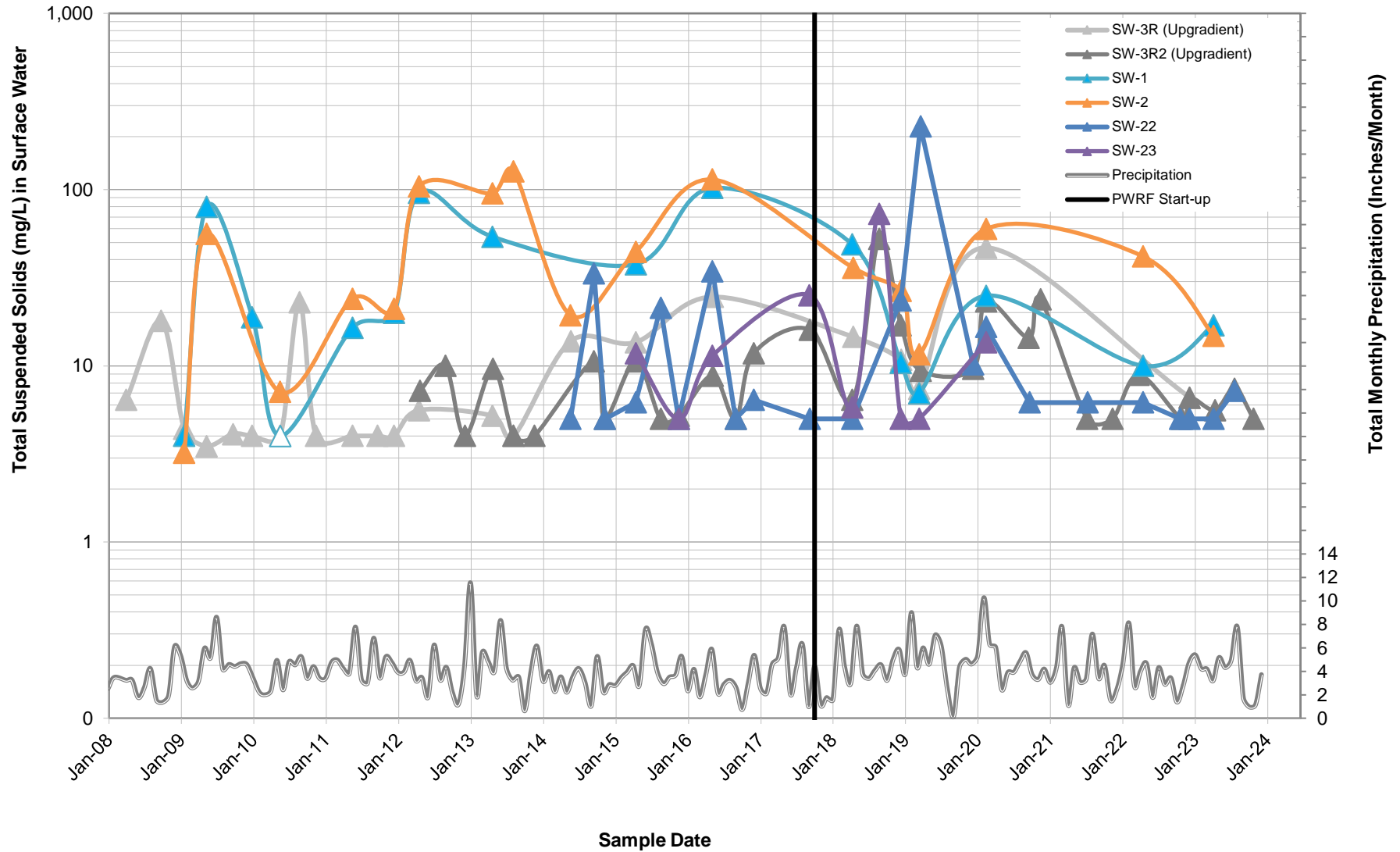
AJ/CJ Bush (Cond_SW)

AJ/CJ Bush Study Area Alkalinity Concentrations



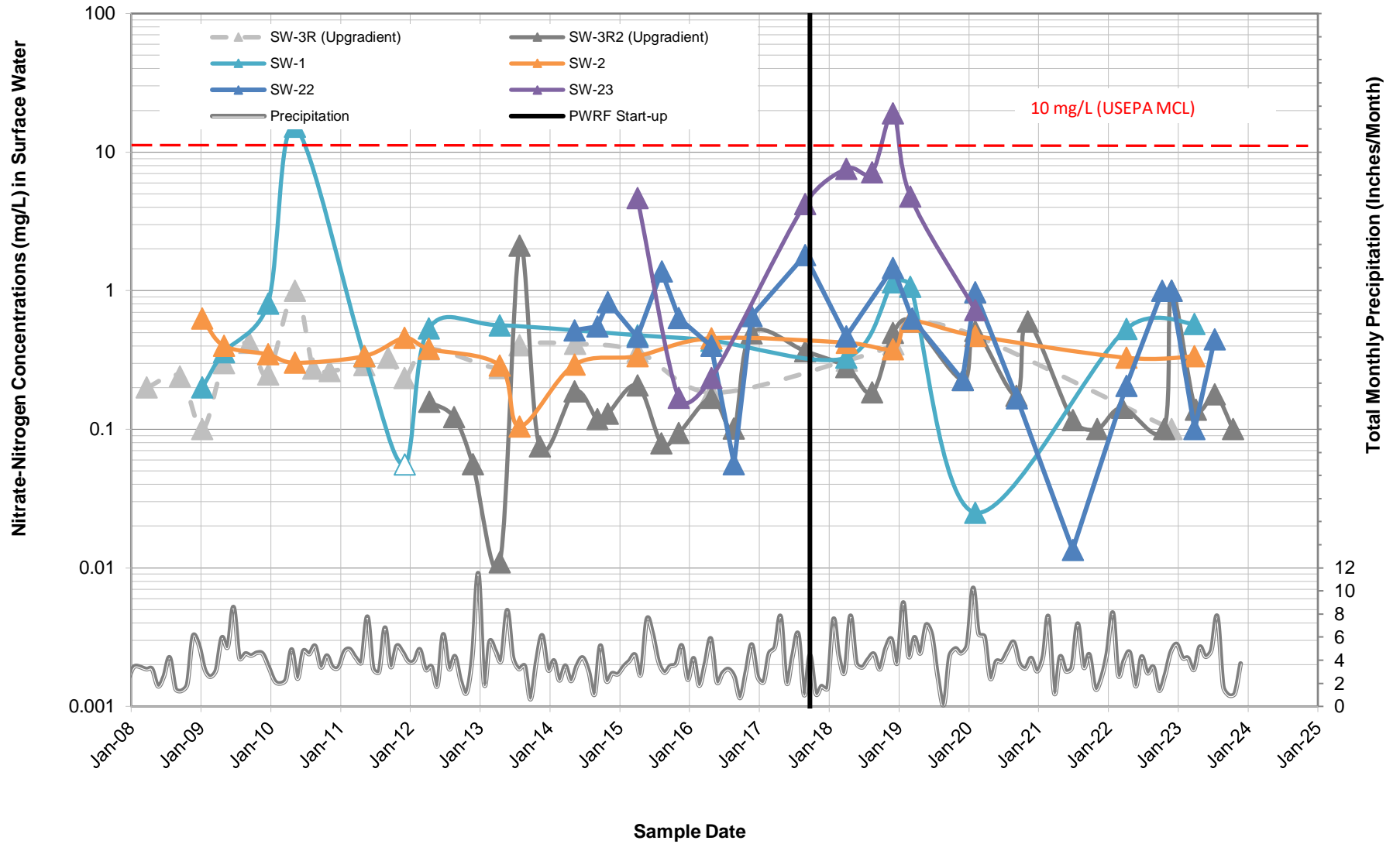
AJCJ Bush (Alk)

AJ/CJ Bush Study Area Surface Water TSS Concentrations



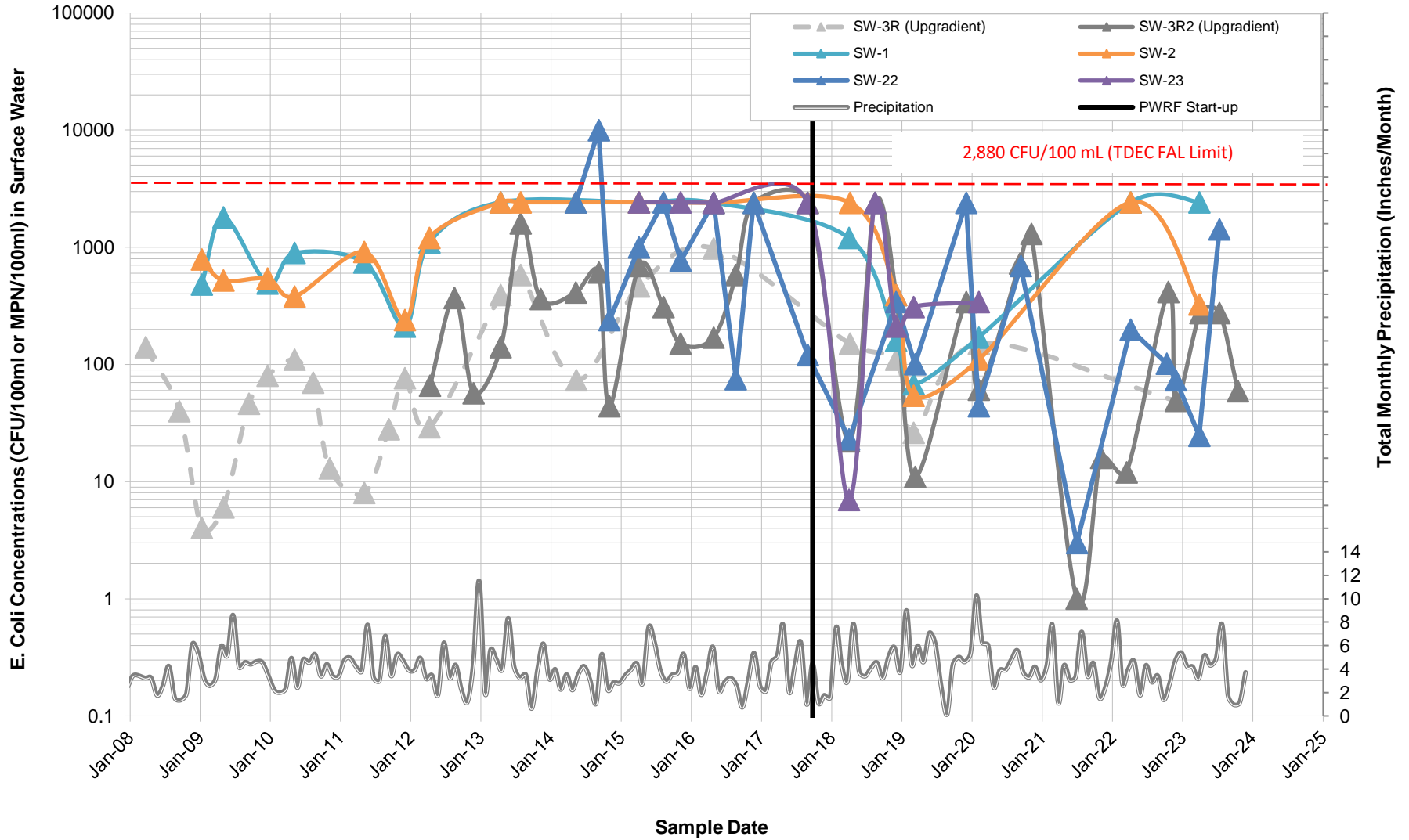
AJCJ Bush (TSS_SW)

AJ/CJ Bush Study Area Surface Water Nitrate-Nitrogen Concentrations



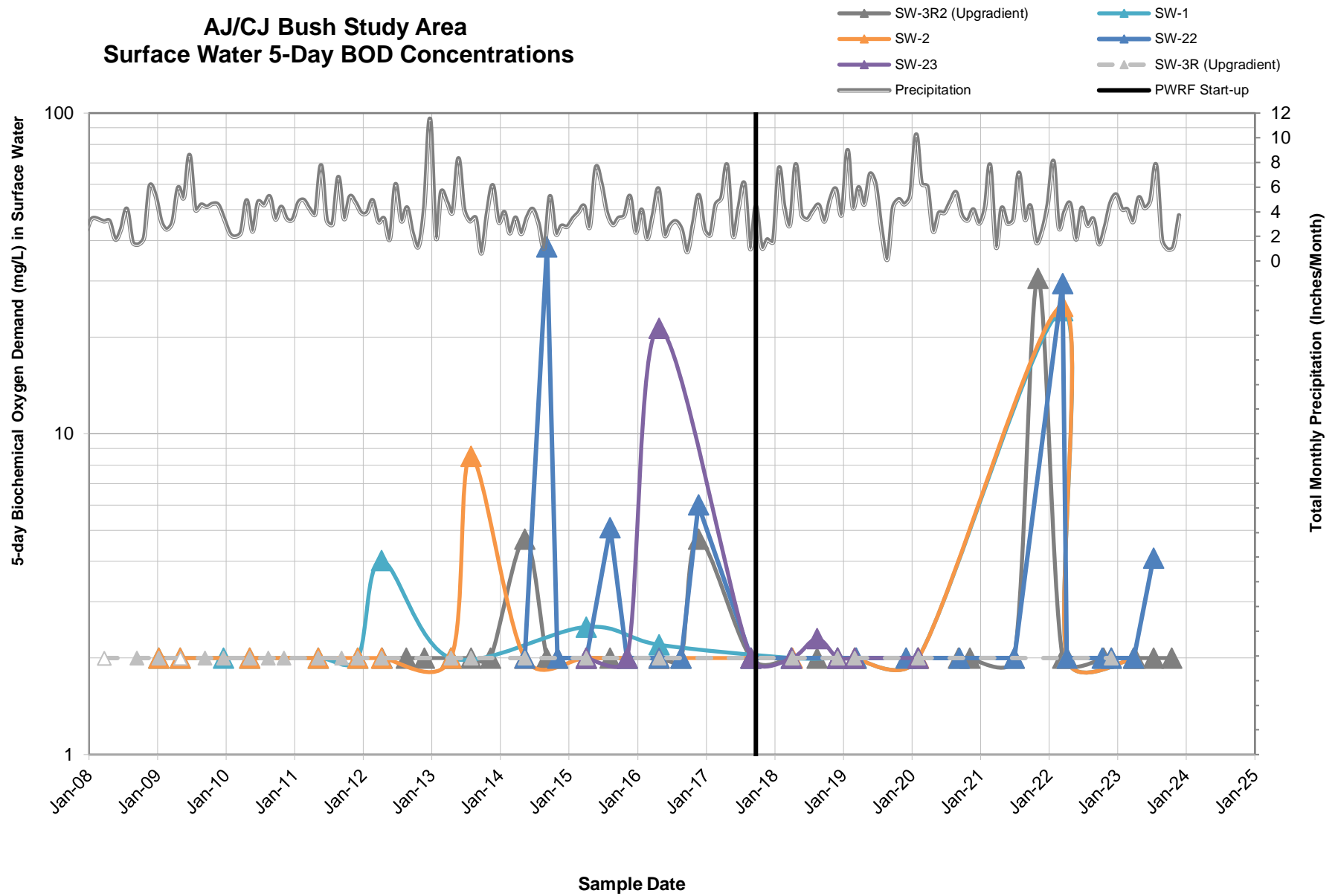
AJCJ Bush (N_SW)

AJ/CJ Bush Study Area Surface Water E. Coli Concentrations



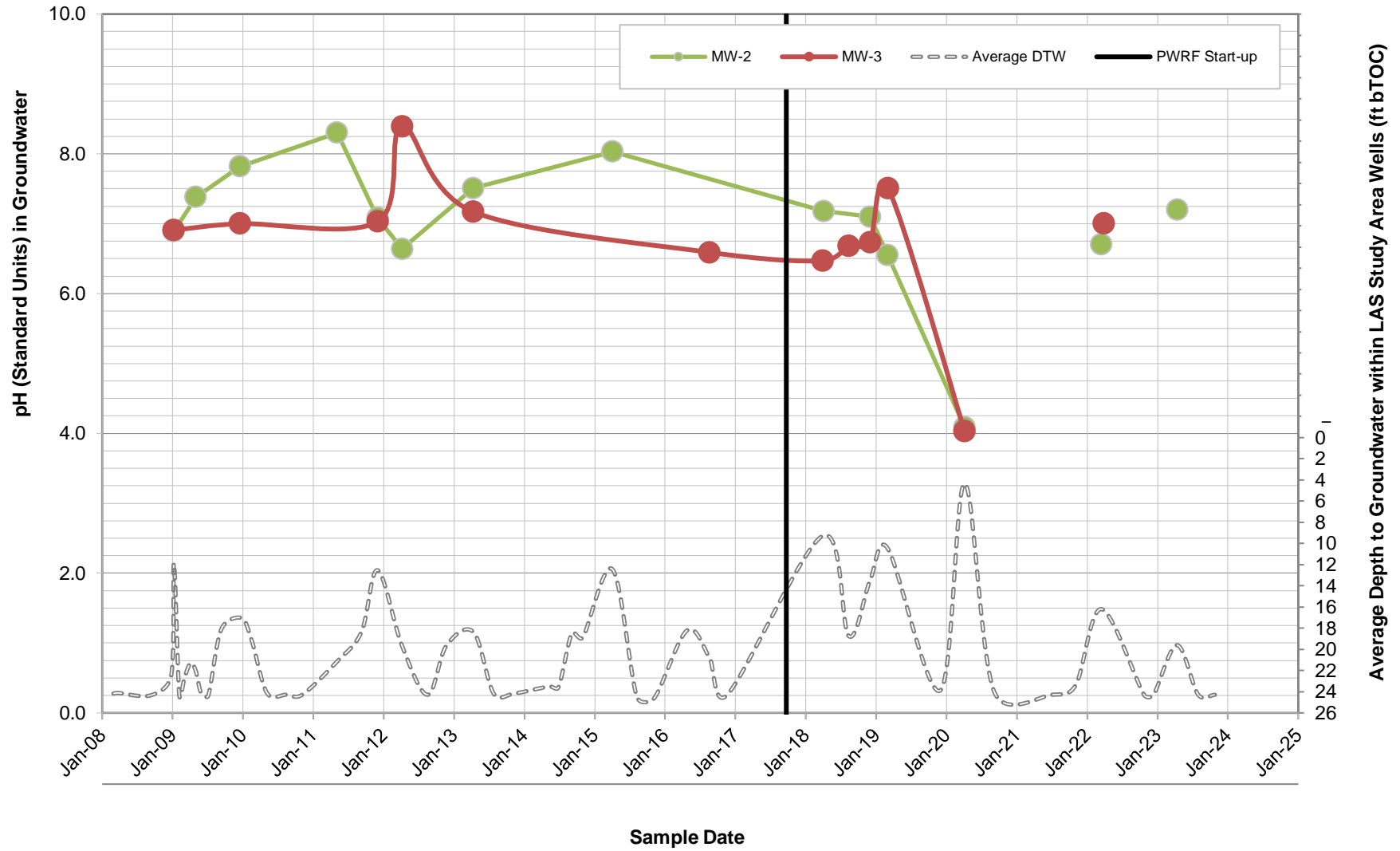
AJCJ Bush (Ecoli_SW)

AJ/CJ Bush Study Area Surface Water 5-Day BOD Concentrations



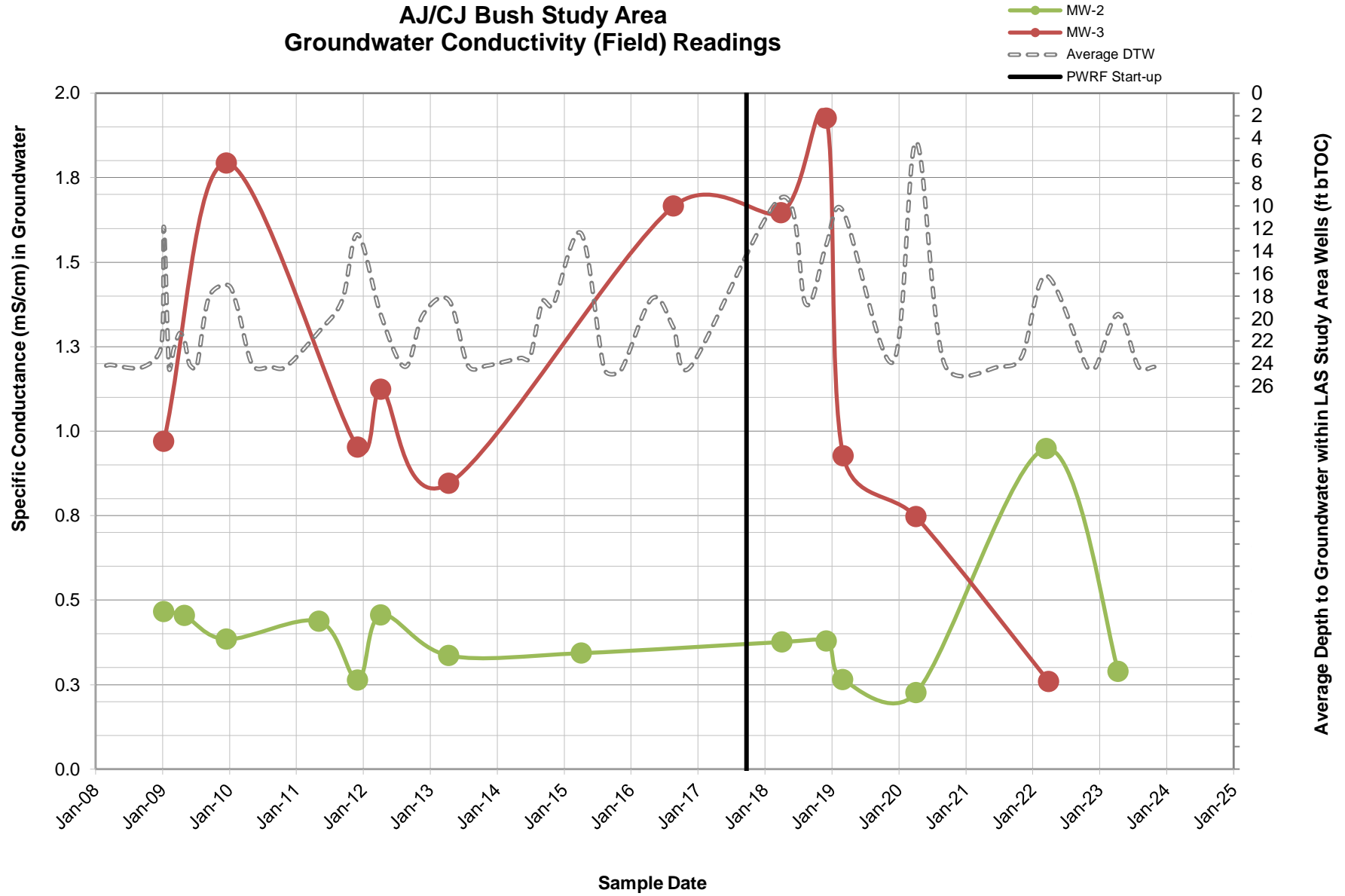
AJCJ Bush (BOD5_SW)

AJ/CJ Bush Study Area Groundwater pH (Field) Readings



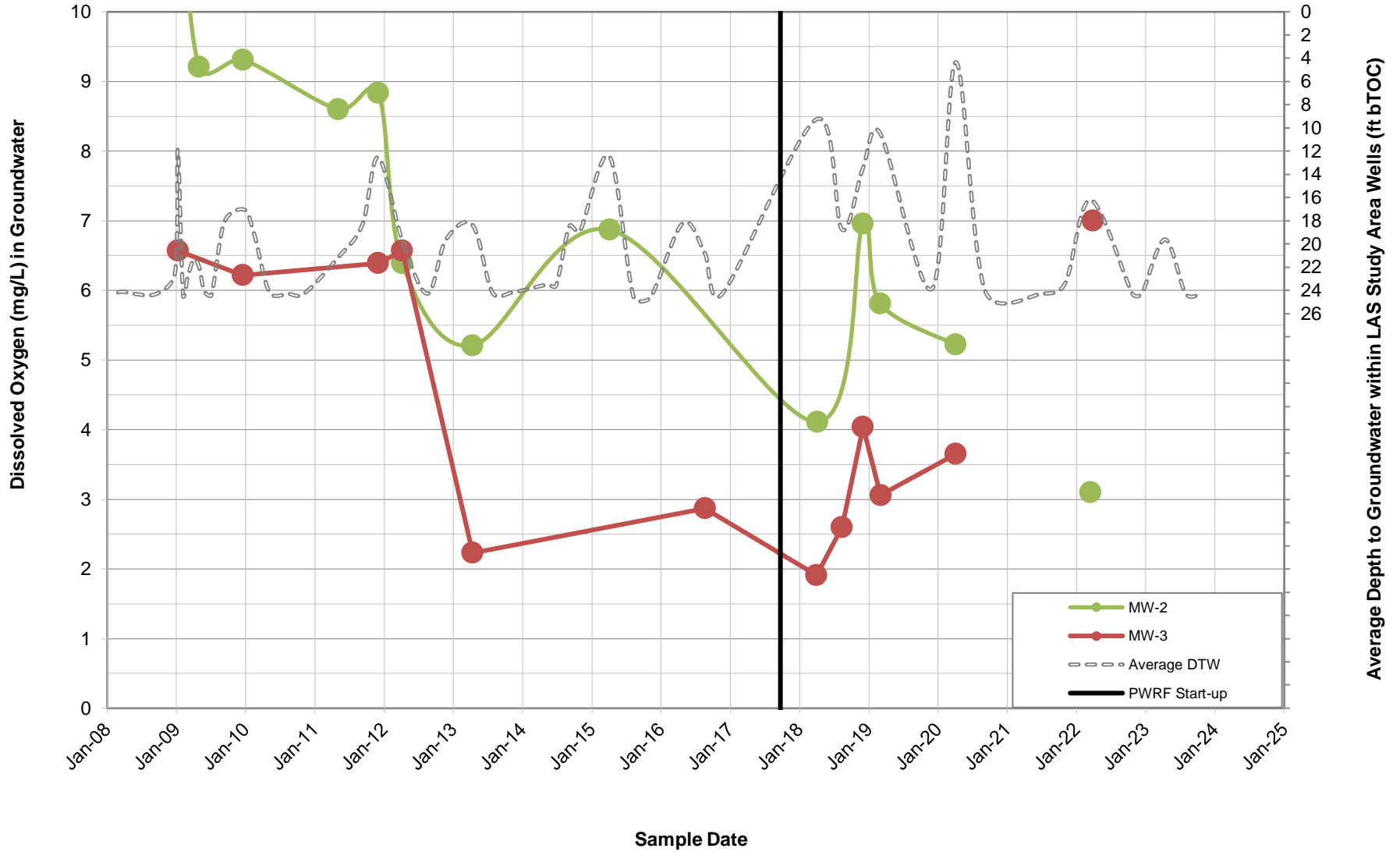
AJCJ Bush (pH_GW)

AJ/CJ Bush Study Area Groundwater Conductivity (Field) Readings



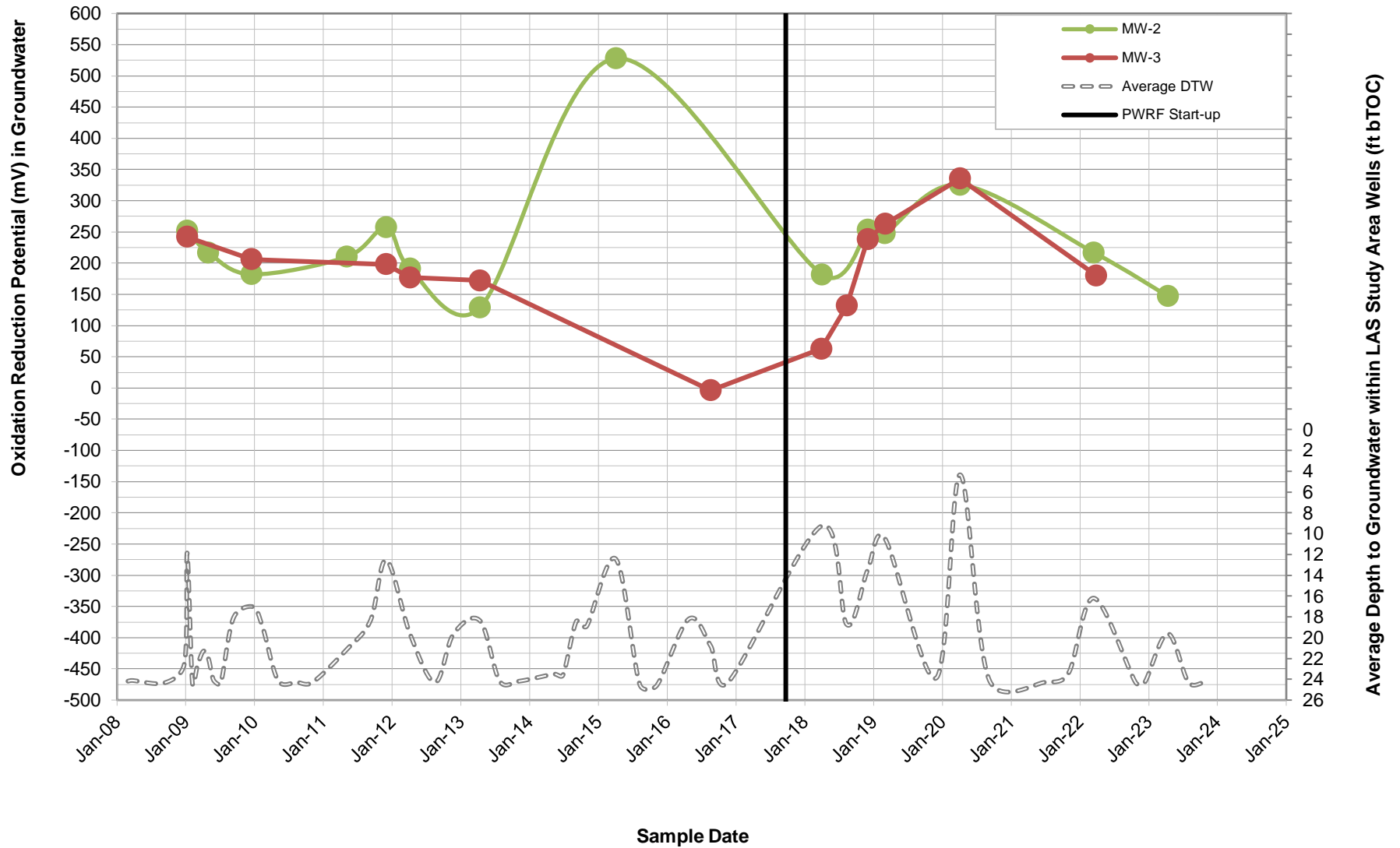
AJCJ Bush (Cond_GW)

AJ/CJ Bush Study Area Groundwater DO (Field) Readings



AJCJ Bush (DO_GW)

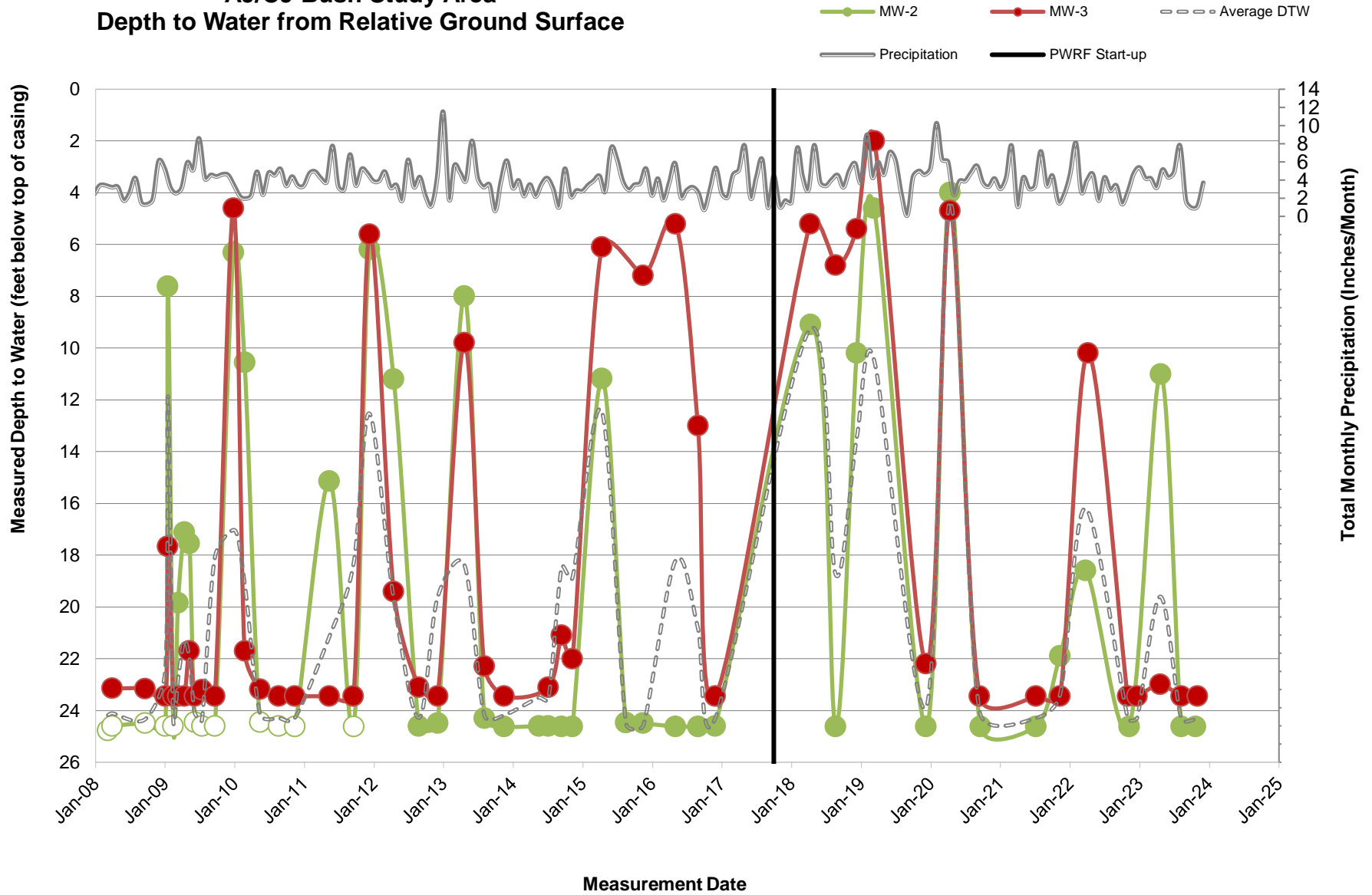
AJ/CJ Bush Study Area Groundwater ORP (Field) Readings



AJCJ Bush (ORP_GW)

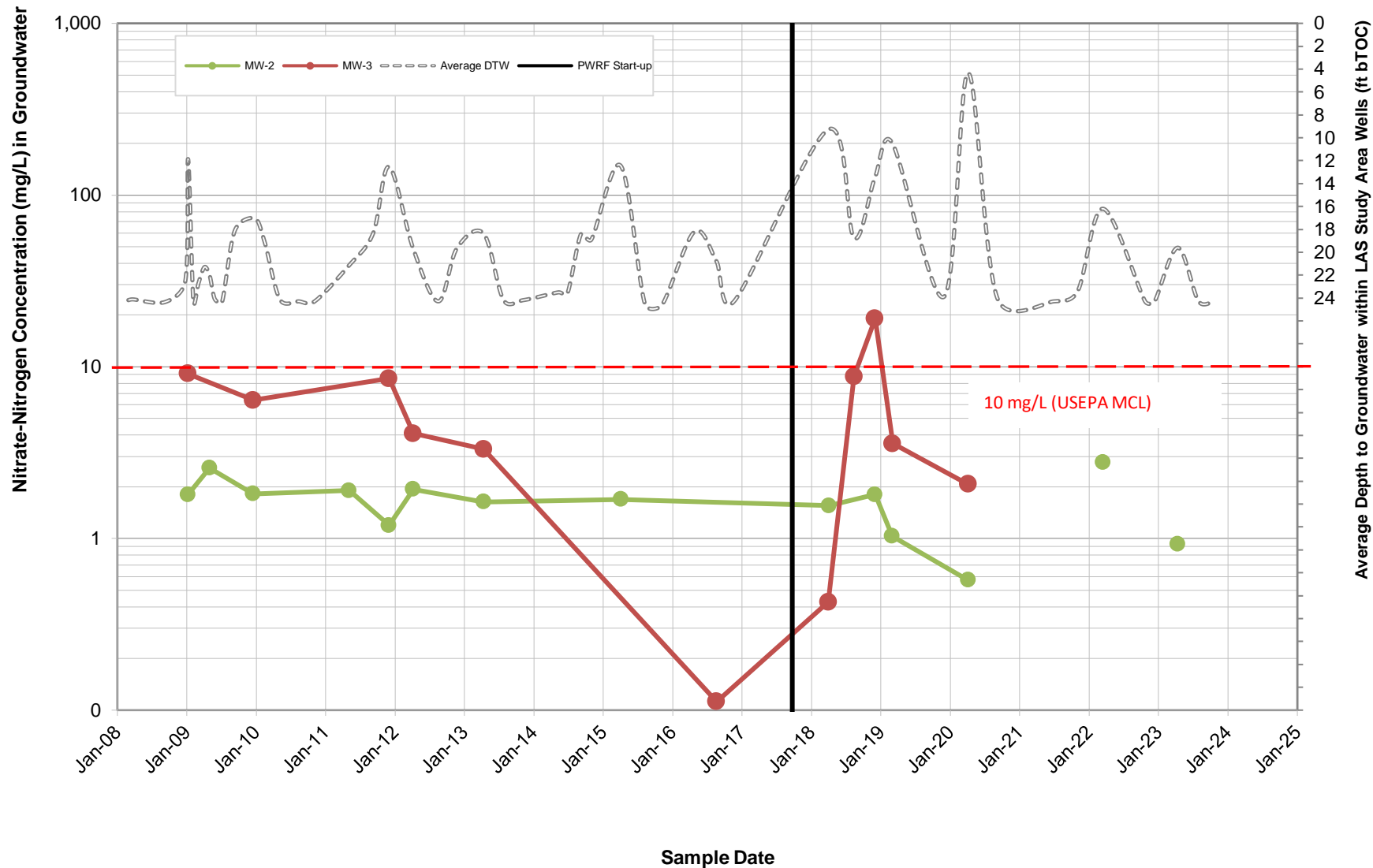
AJ/CJ Bush Study Area

Depth to Water from Relative Ground Surface



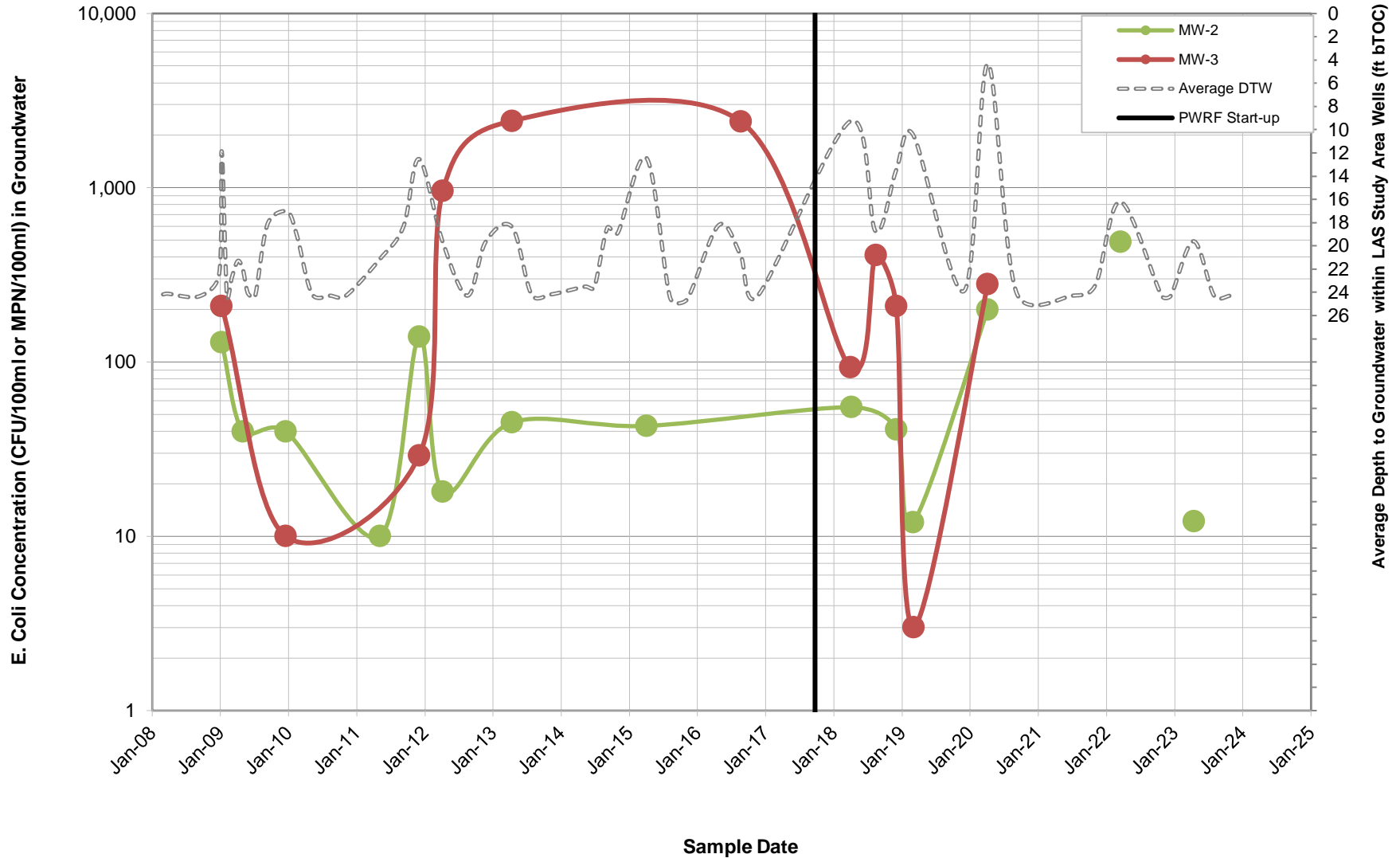
AJCJ Bush (DTW_GW)

AJ/CJ Bush Study Area Groundwater Nitrate-Nitrogen Concentrations



AJCJ Bush (N_GW)

AJ/CJ Bush Study Area Groundwater E. Coli Concentrations



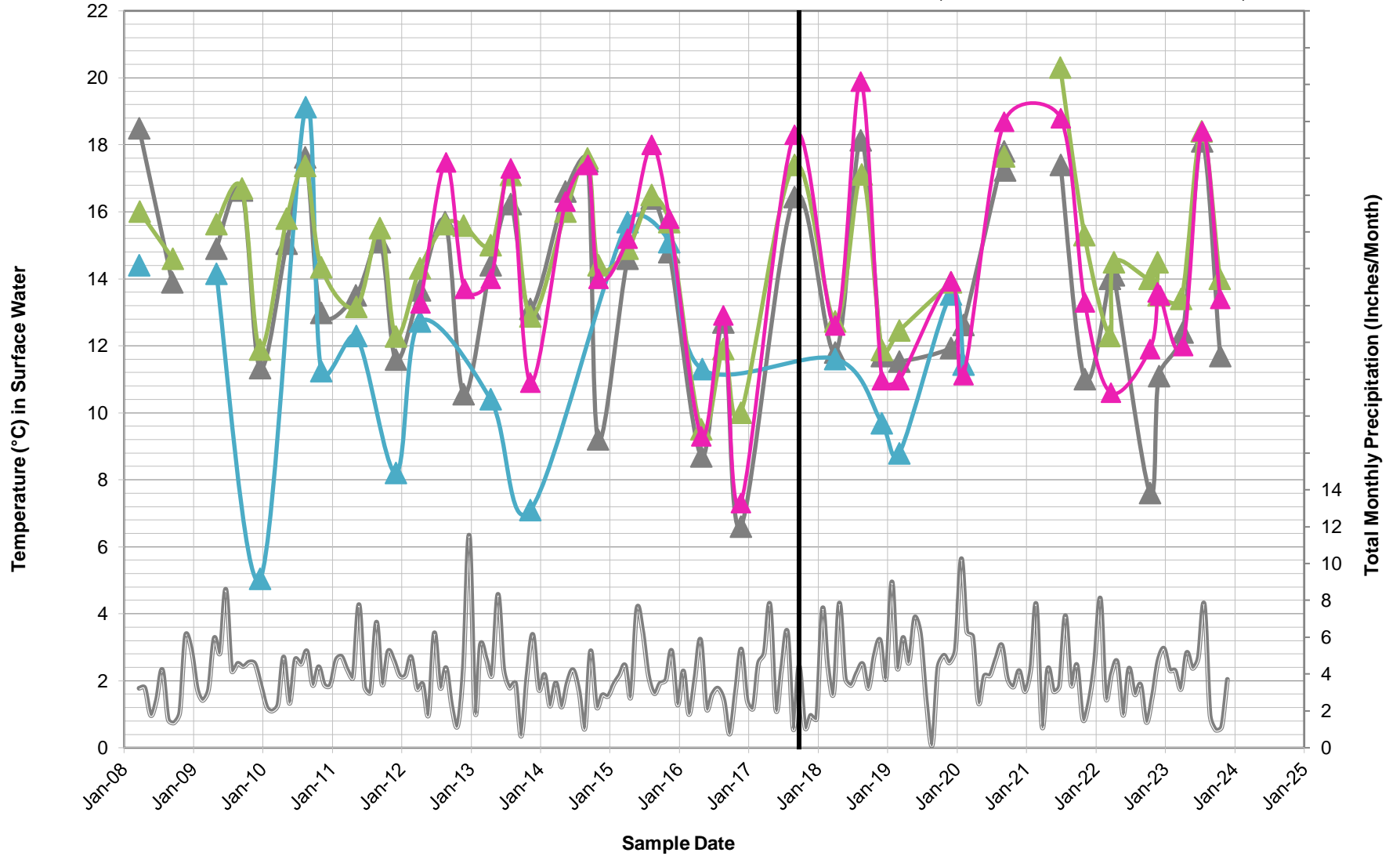
AJCJ Bush (Ecoli_GW)

Appendix A-2



Eula Study Area Temperature (Field) Readings

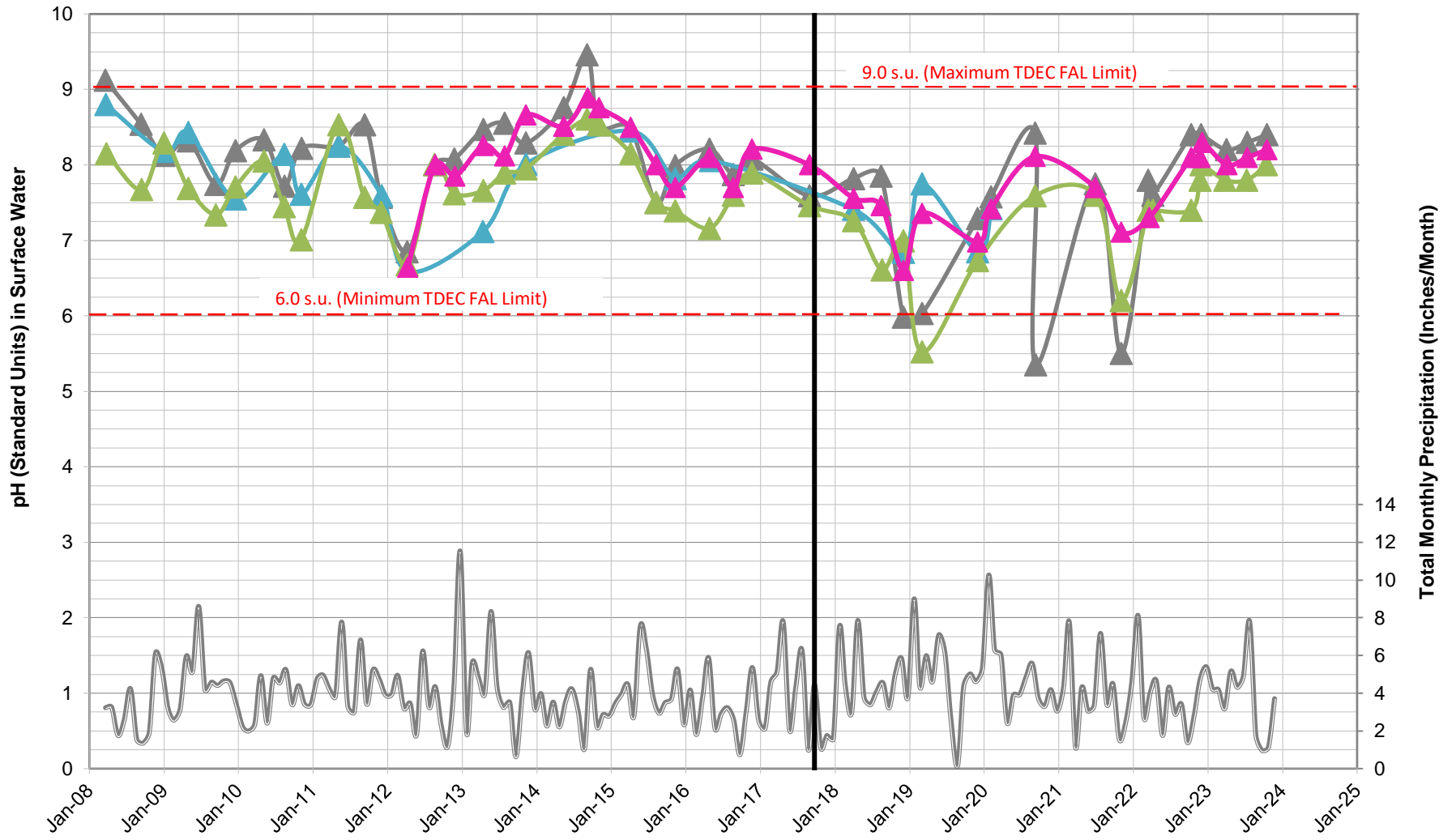
- SW-4 (Upgradient)
- SW-5
- SW-6
- SW-16
- Precipitation
- PWRF Start-up



Eula (Temp_SW)

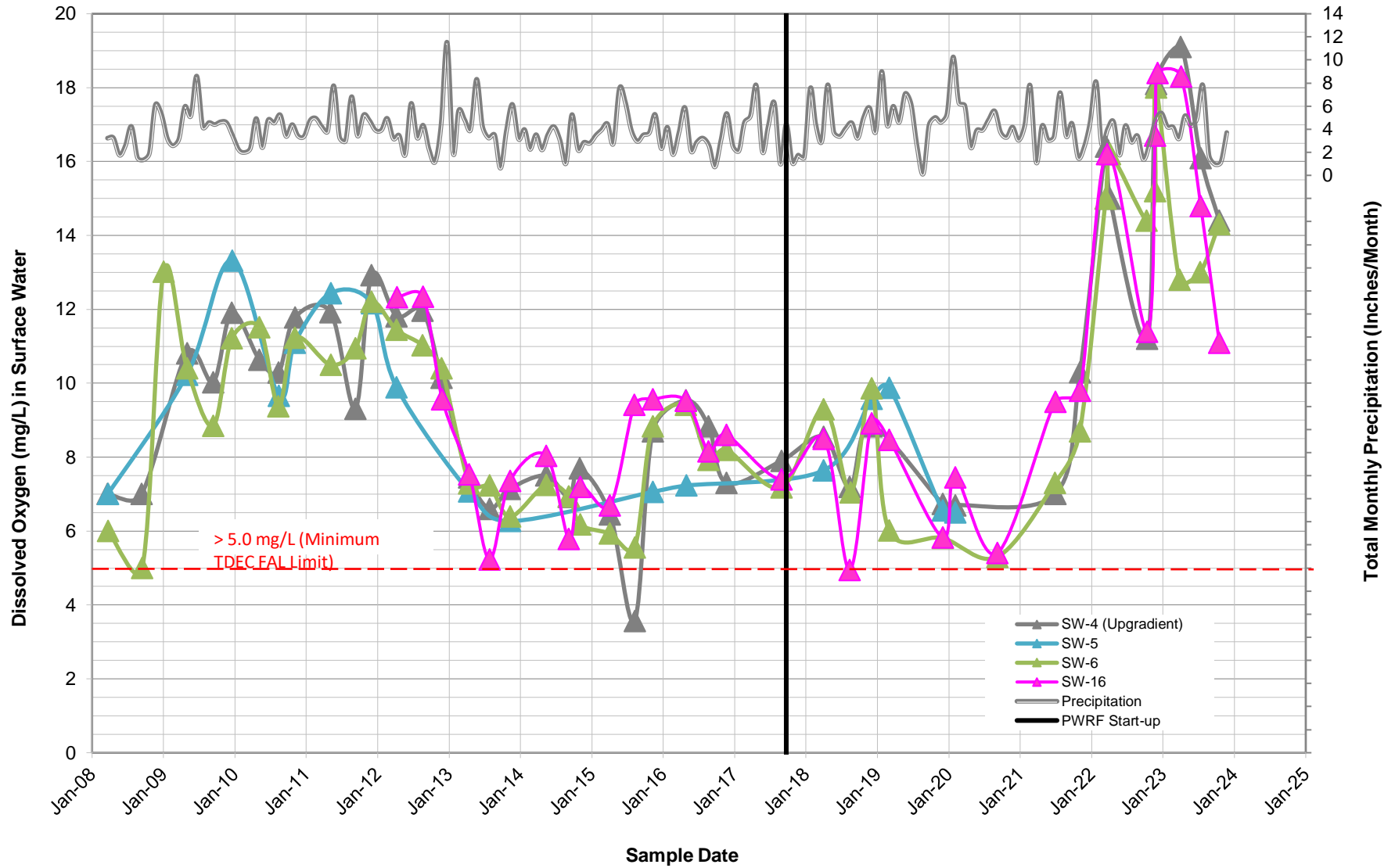
Eula Study Area Surface Water pH (Field) Readings

- SW-4 (Upgradient)
- SW-5
- SW-6
- SW-16
- Precipitation
- PWRF Start-up



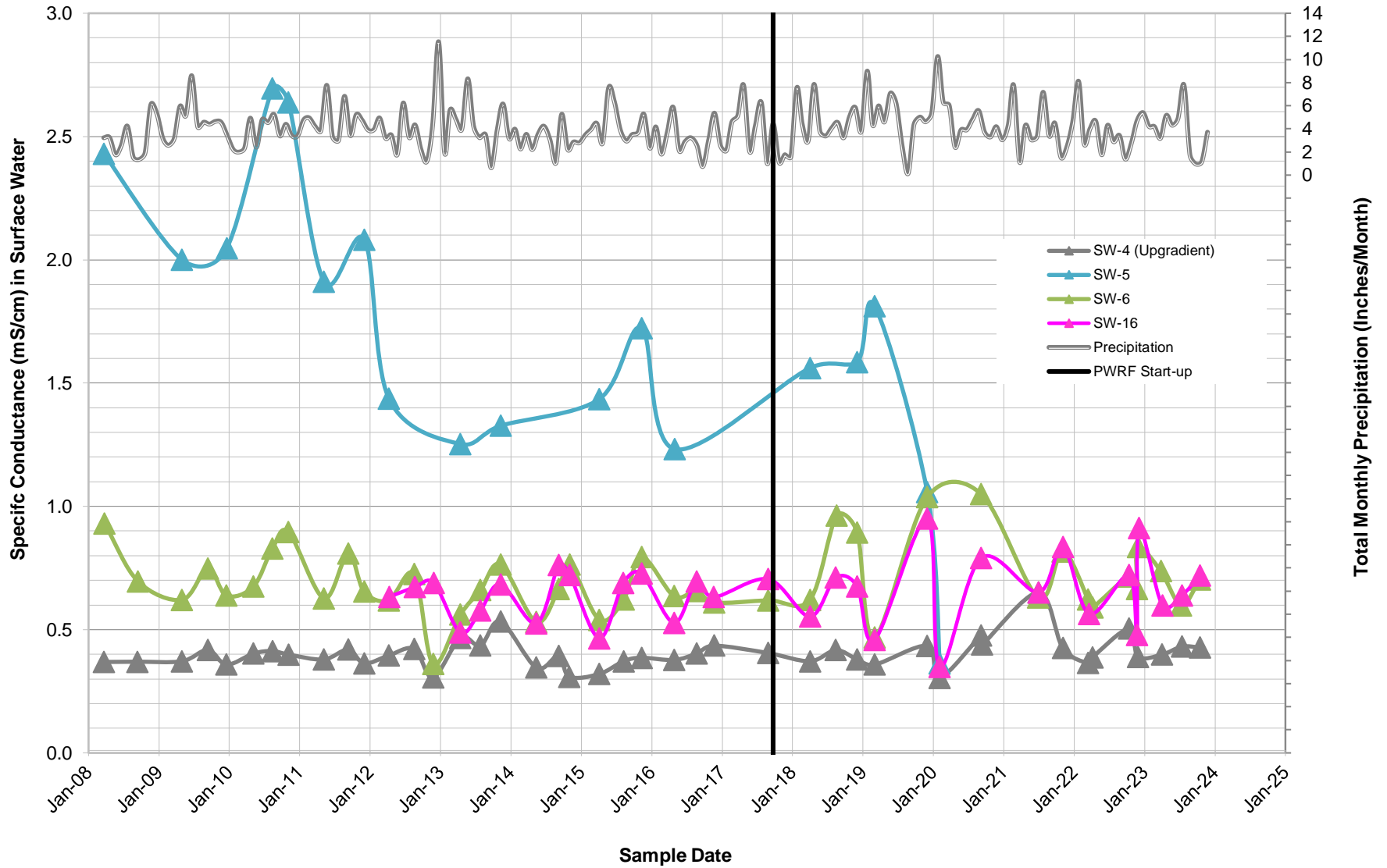
Eula (pH_SW)

Eula Study Area Surface Water DO (Field) Readings



Eula (DO_SW)

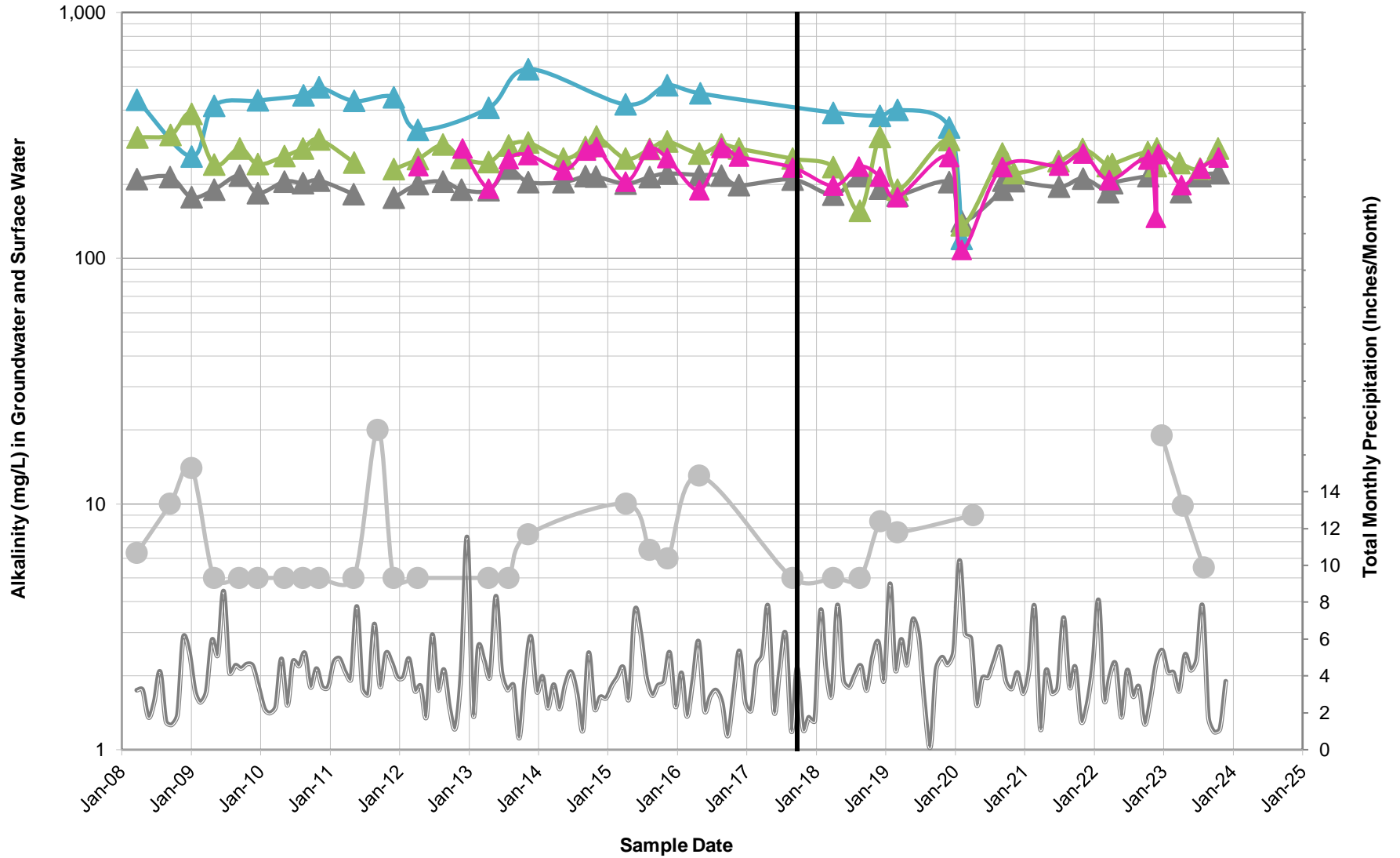
Eula Study Area Surface Water Conductivity (Field) Readings



Eula (Cond_SW)

Eula Study Area Alkalinity Concentrations

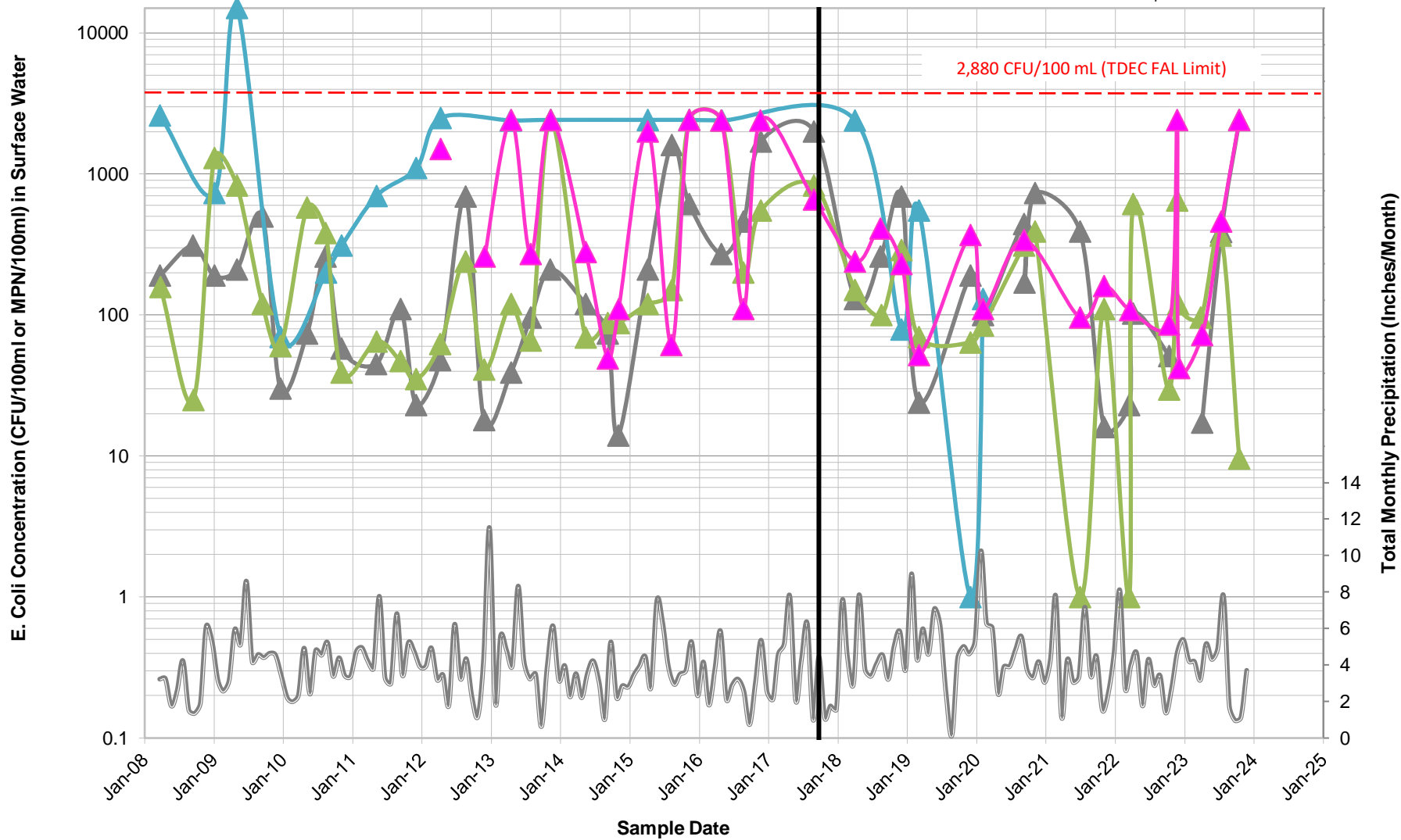
- MW-4 (Side-Gradient)
- SW-4 (Upgradient)
- SW-5
- SW-6
- SW-16
- Precipitation
- PWRF Start-up



Eula (Alk)

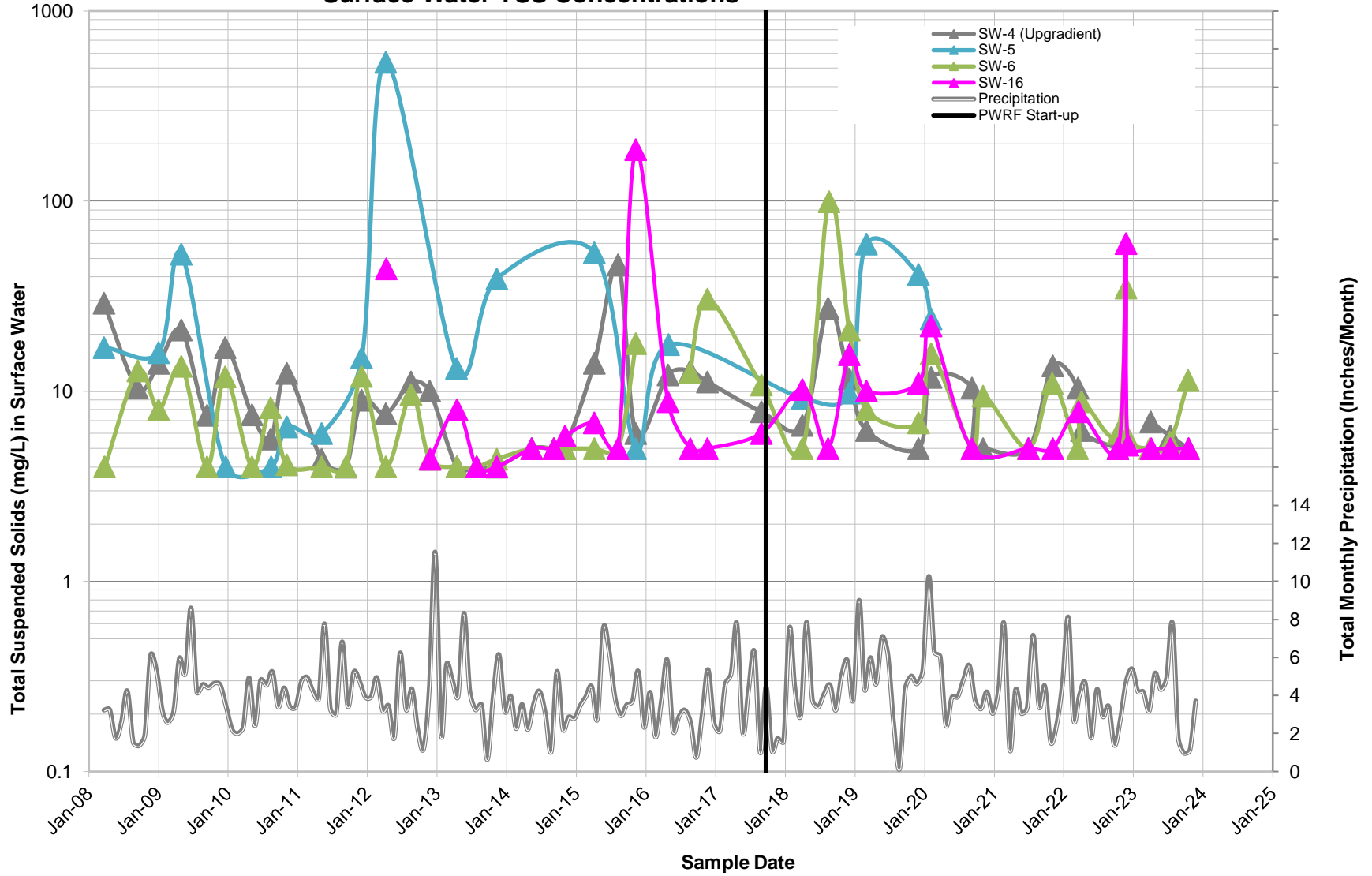
Eula Study Area Surface Water *E. Coli* Concentrations

- SW-4 (Upgradient)
- SW-5
- SW-6
- SW-16
- Precipitation
- PWRF Start-up



Eula (Ecoli_SW)

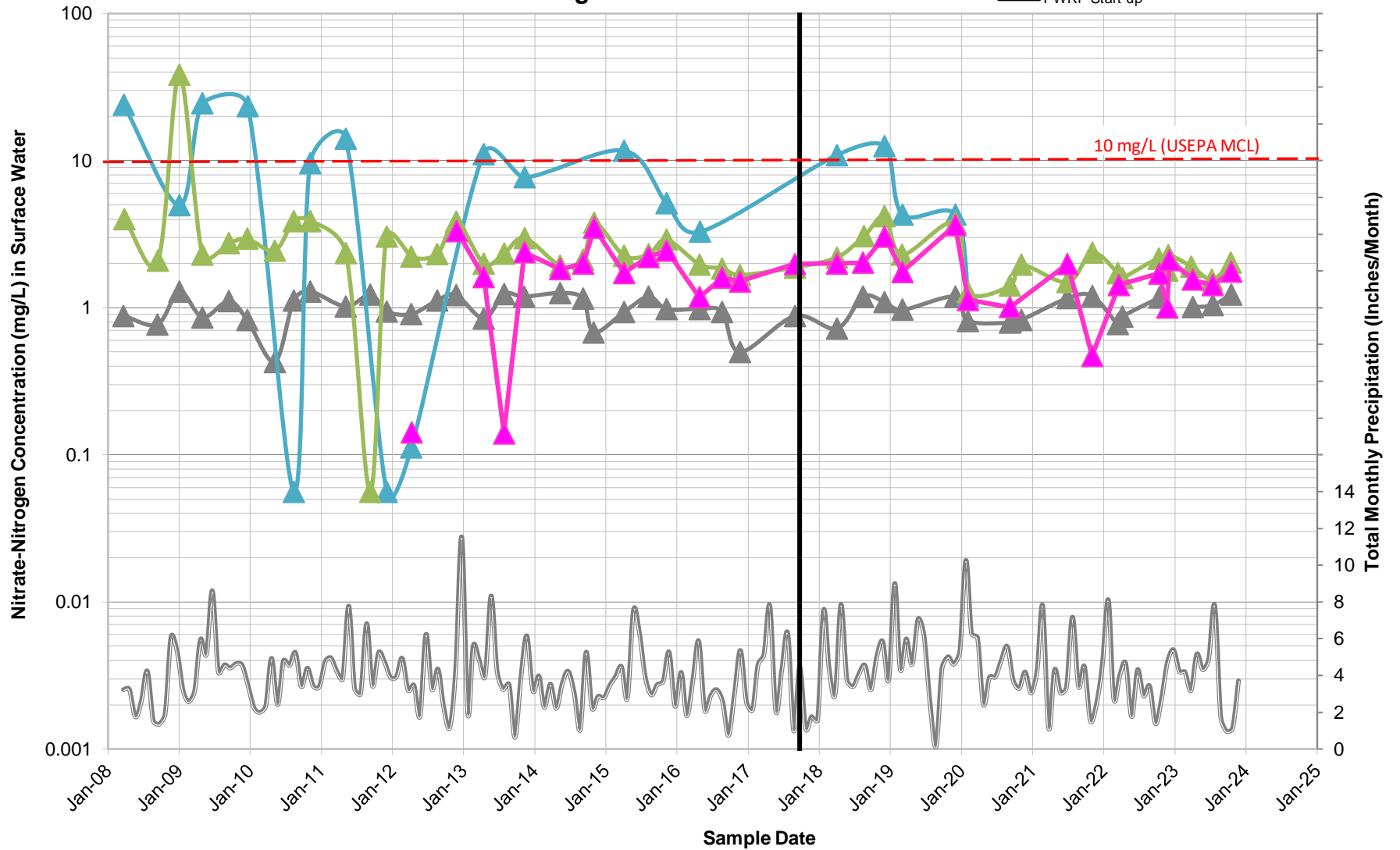
Eula Study Area Surface Water TSS Concentrations



Eula (TSS_SW)

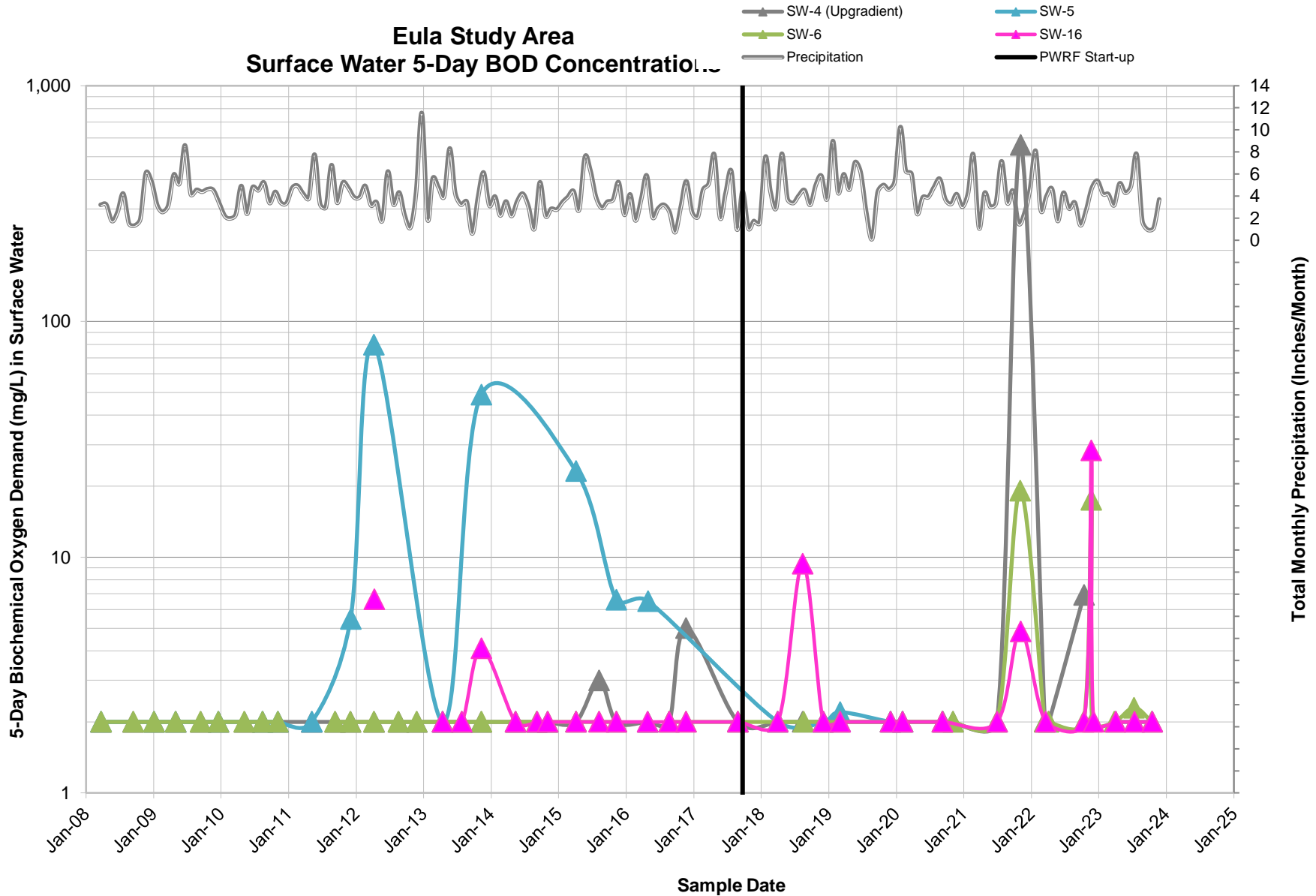
Eula Study Area Surface Water Nitrate-Nitrogen Concentrations

- SW-4 (Upgradient)
- SW-5
- SW-6
- SW-16
- Precipitation
- PWRF Start-up



Eula (N_SW)

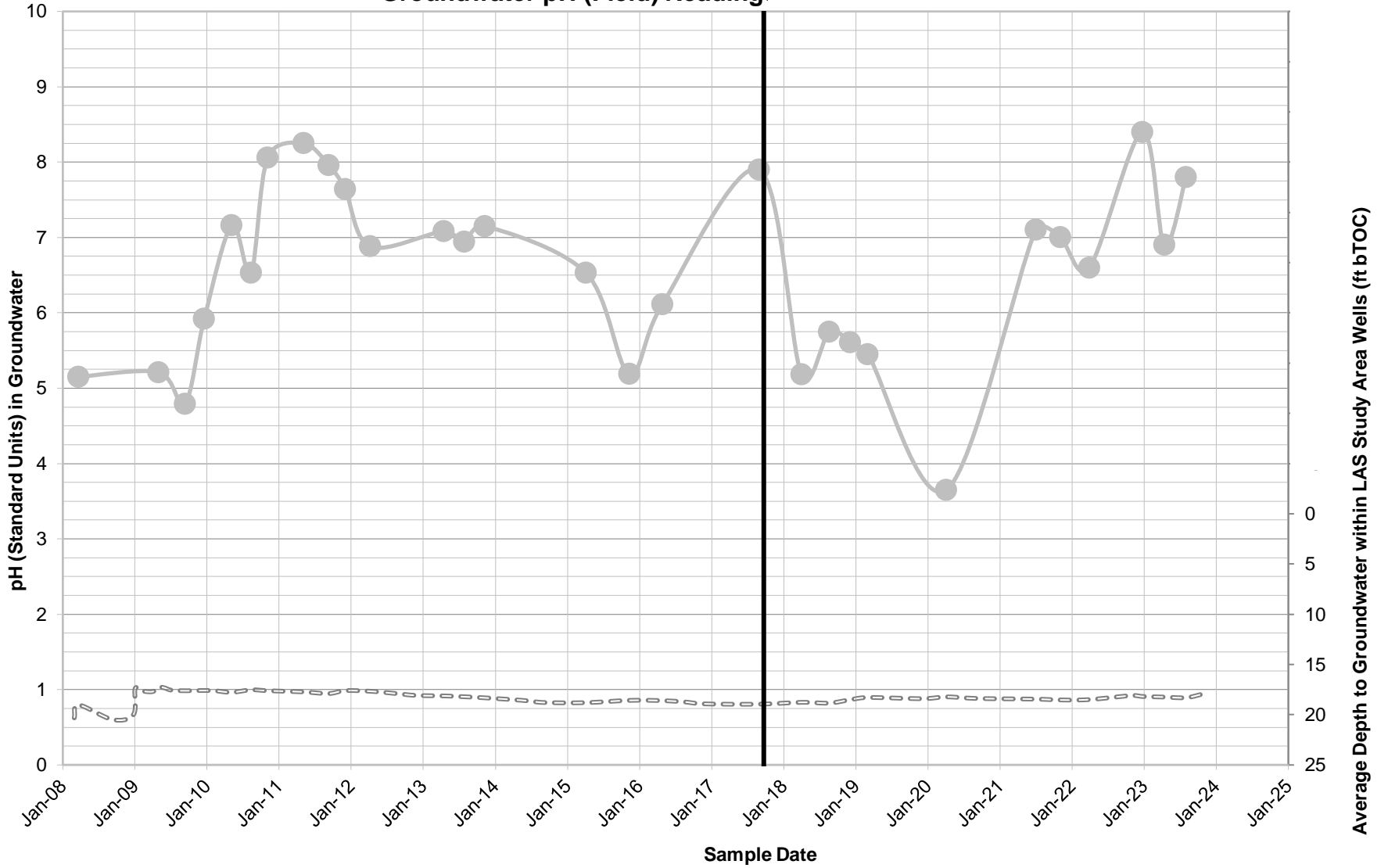
Eula Study Area Surface Water 5-Day BOD Concentration



Eula (BOD5_SW)

Eula Study Area Groundwater pH (Field) Readings

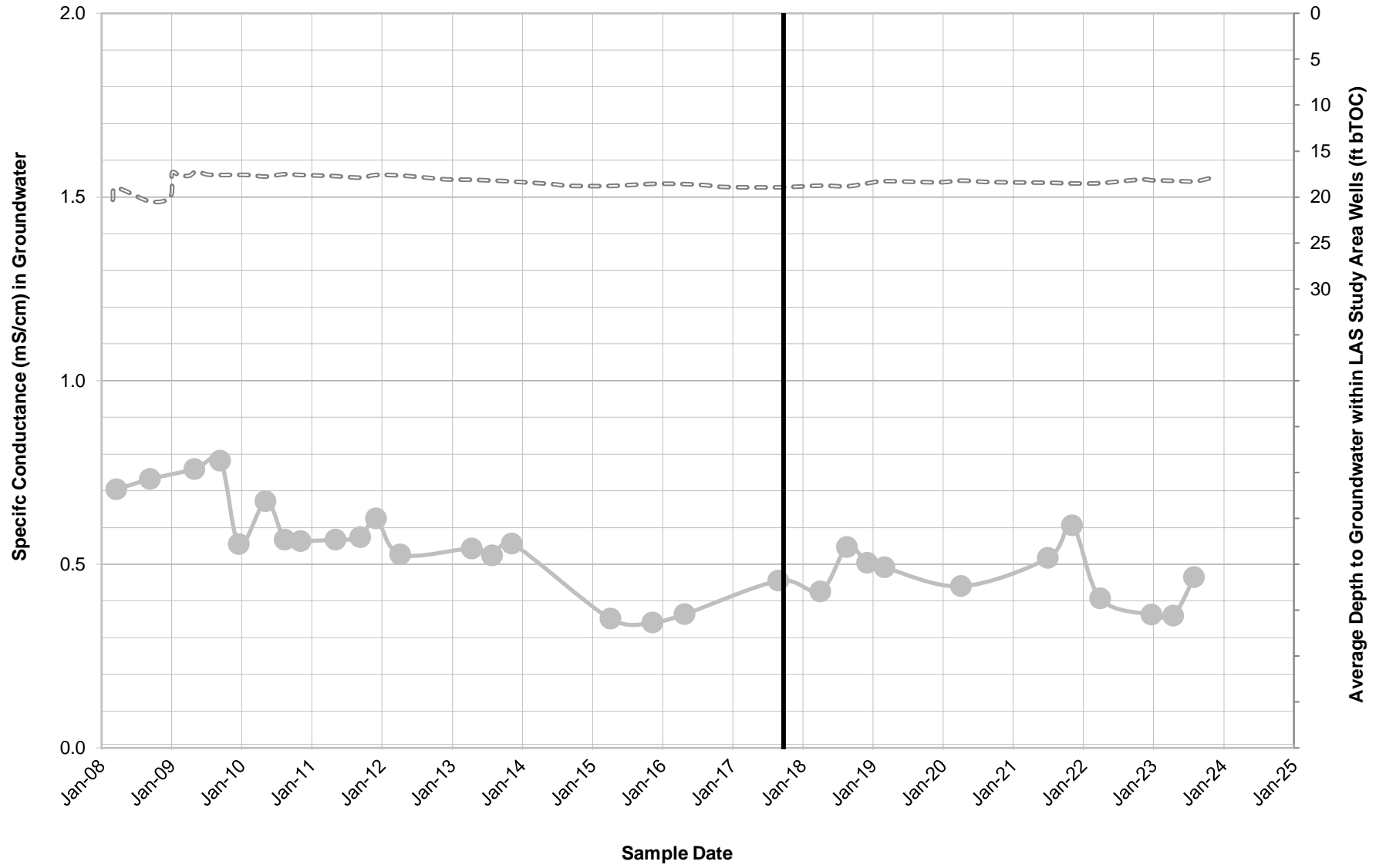
- MW-4 (Side-Gradient)
- Average DTW
- PWRF Start-up



Eula (pH_GW)

Eula Study Area Groundwater Conductivity (Field) Readings

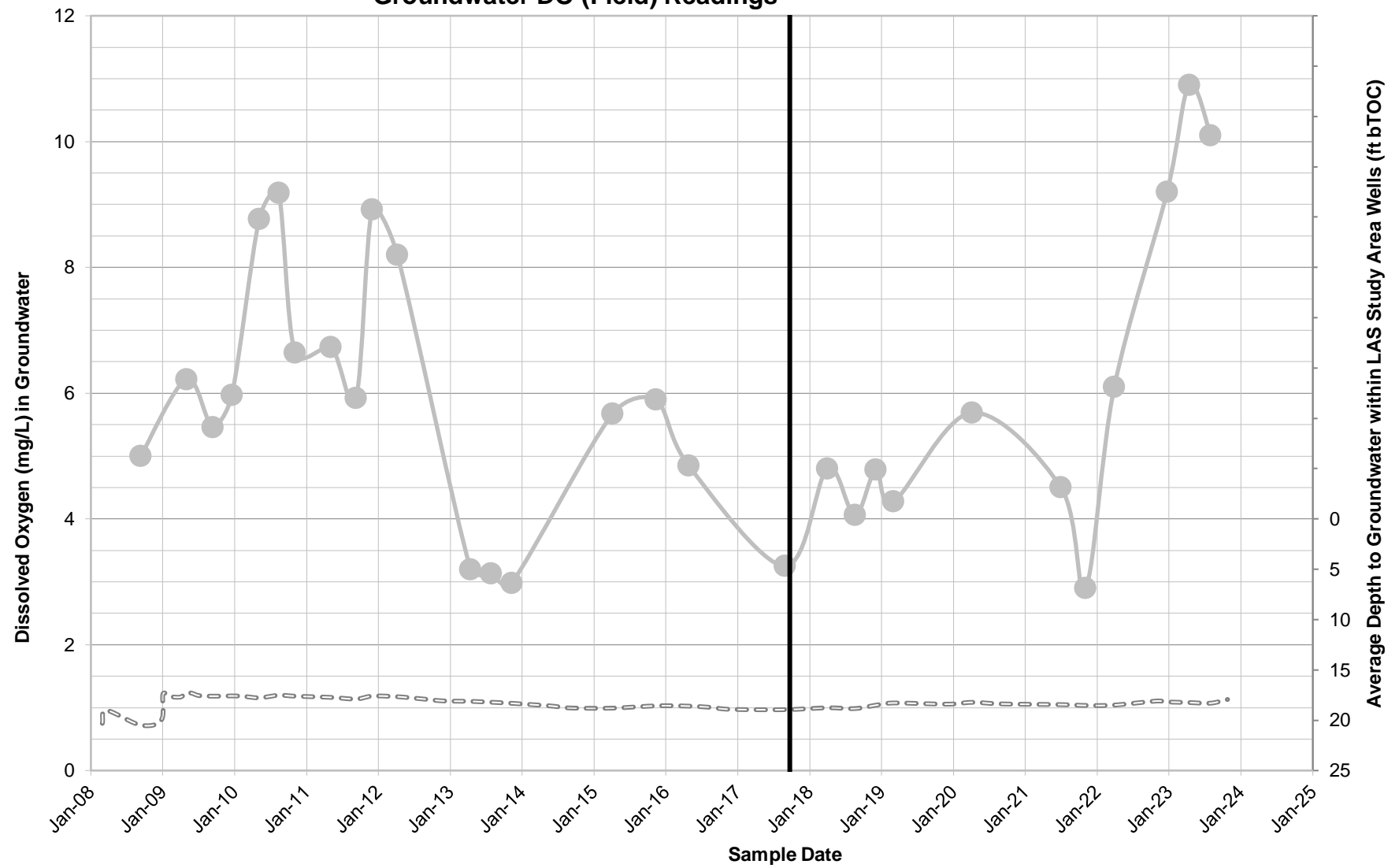
MW-4 (Side-Gradient) Average DTW
PWRF Start-up



Eula (Cond_GW)

Eula Study Area Groundwater DO (Field) Readings

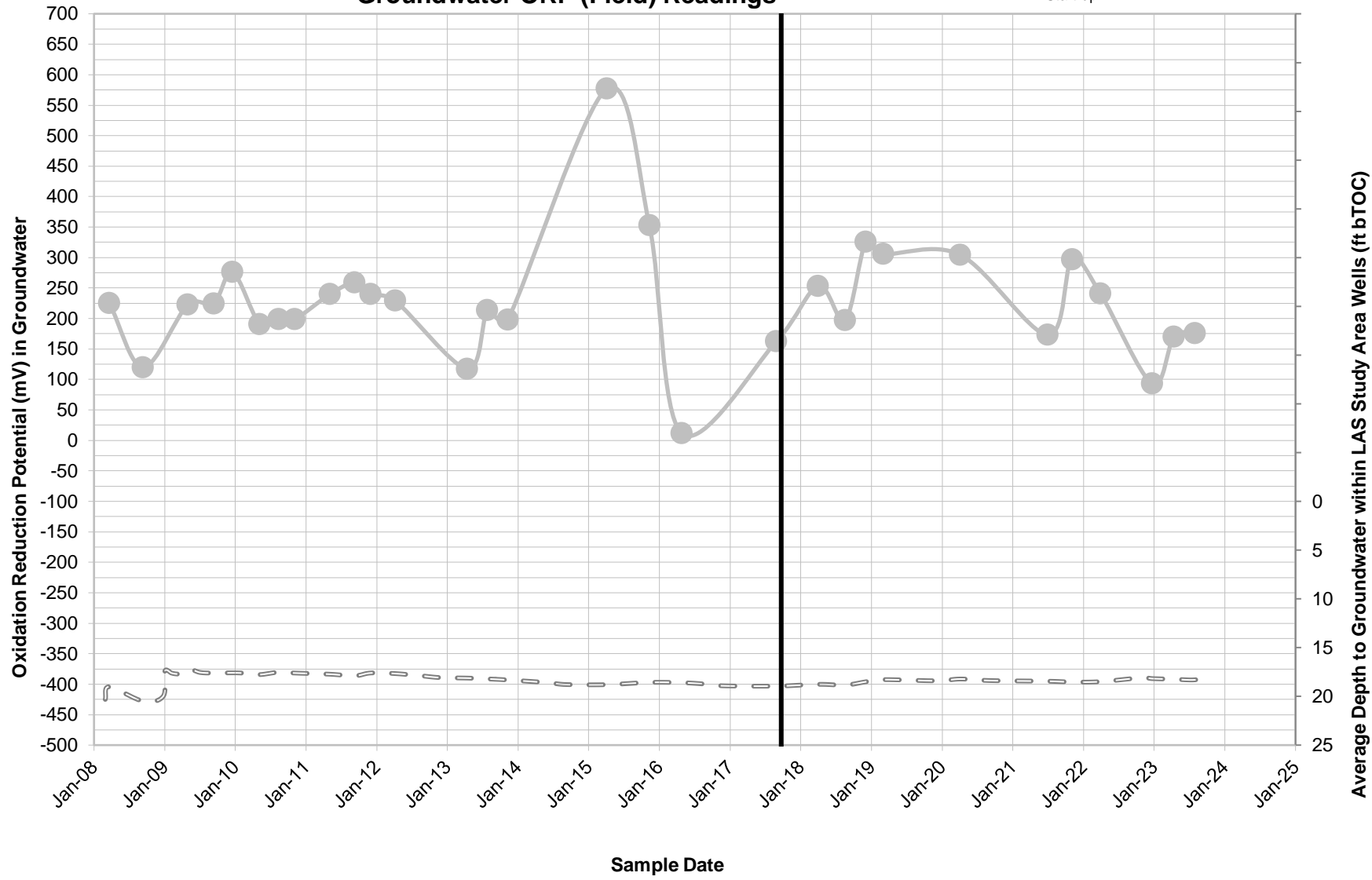
- MW-4 (Side-Gradient)
- Average DTW
- PWRF Start-up



Eula (DO_GW)

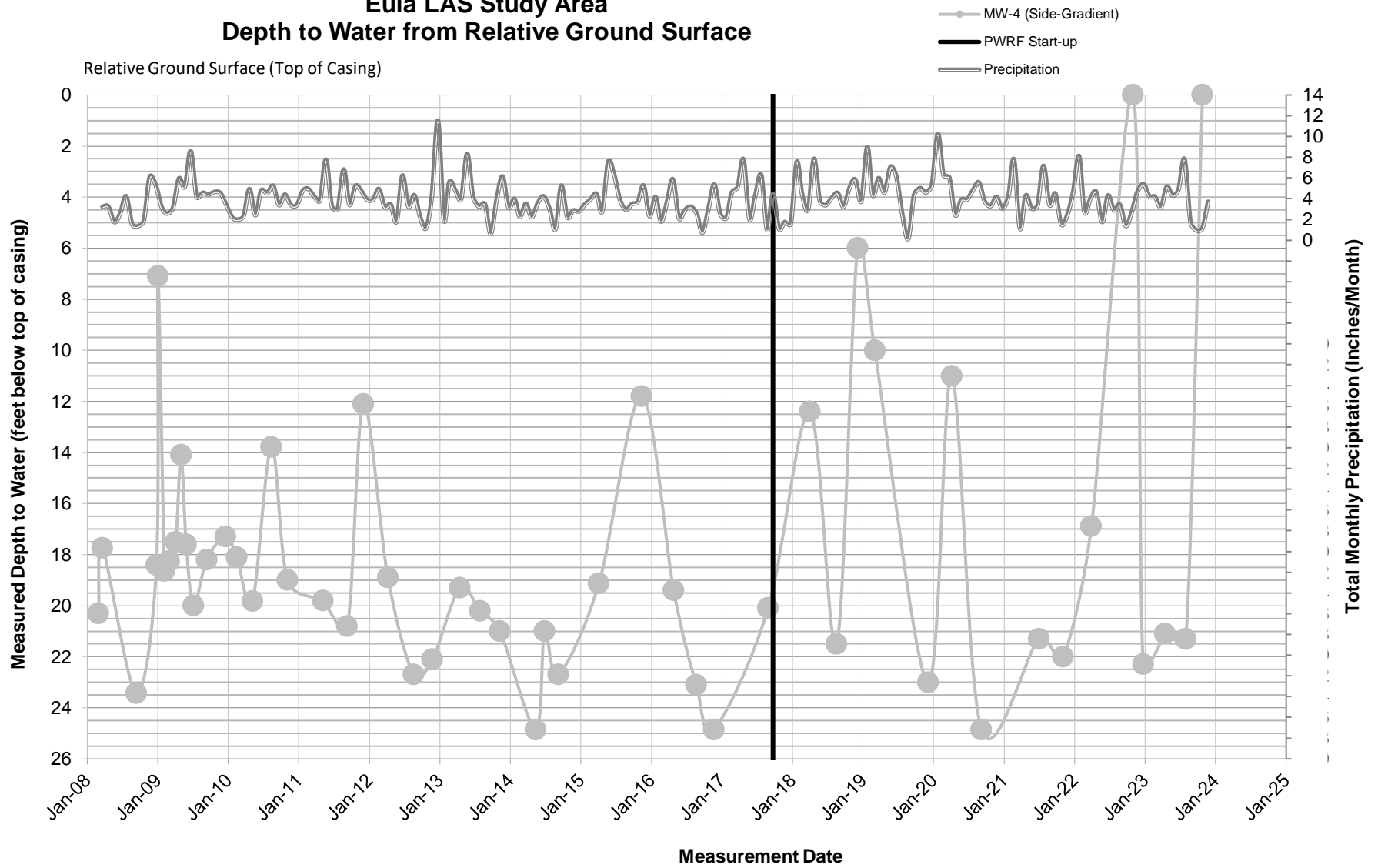
Eula Study Area Groundwater ORP (Field) Readings

- MW-4 (Side-Gradient)
- Average DTW
- PWRF Start-up

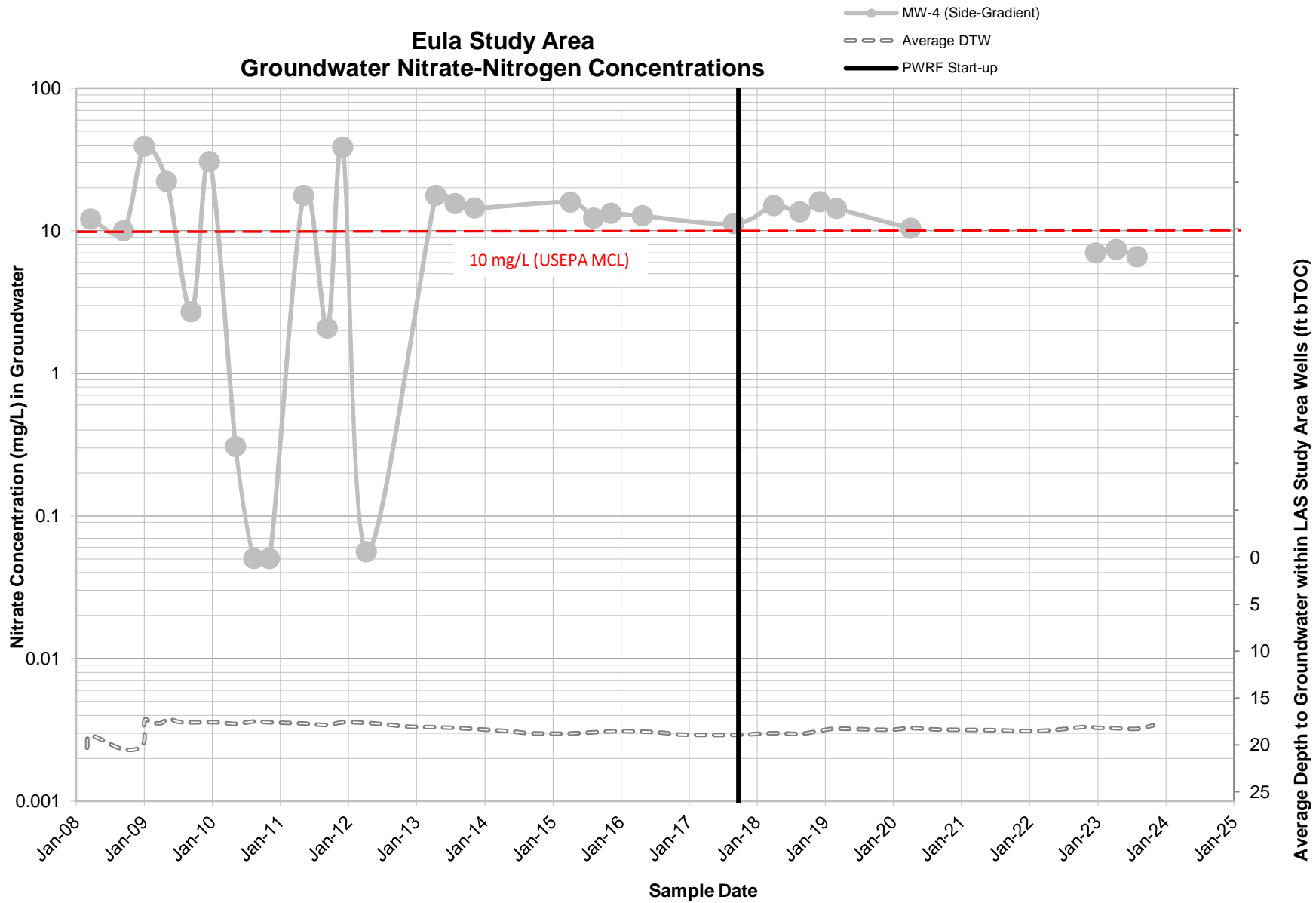


Eula (ORP_GW)

Eula LAS Study Area Depth to Water from Relative Ground Surface



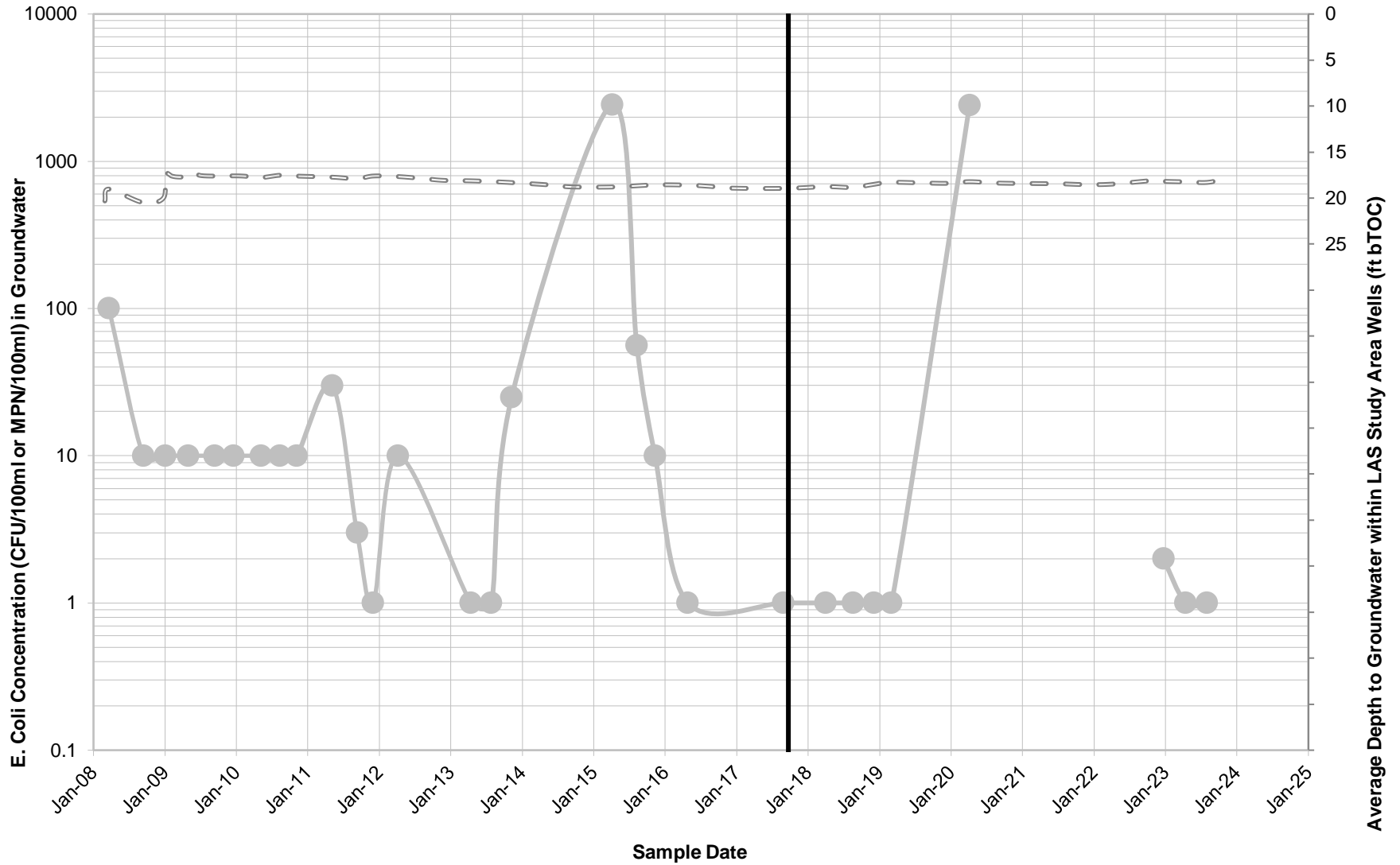
Eula Study Area Groundwater Nitrate-Nitrogen Concentrations



Eula (N_GW)

Eula Study Area Groundwater *E. Coli* Concentrations

- MW-4 (Side-Gradient)
- Average DTW
- PWRF Start-up

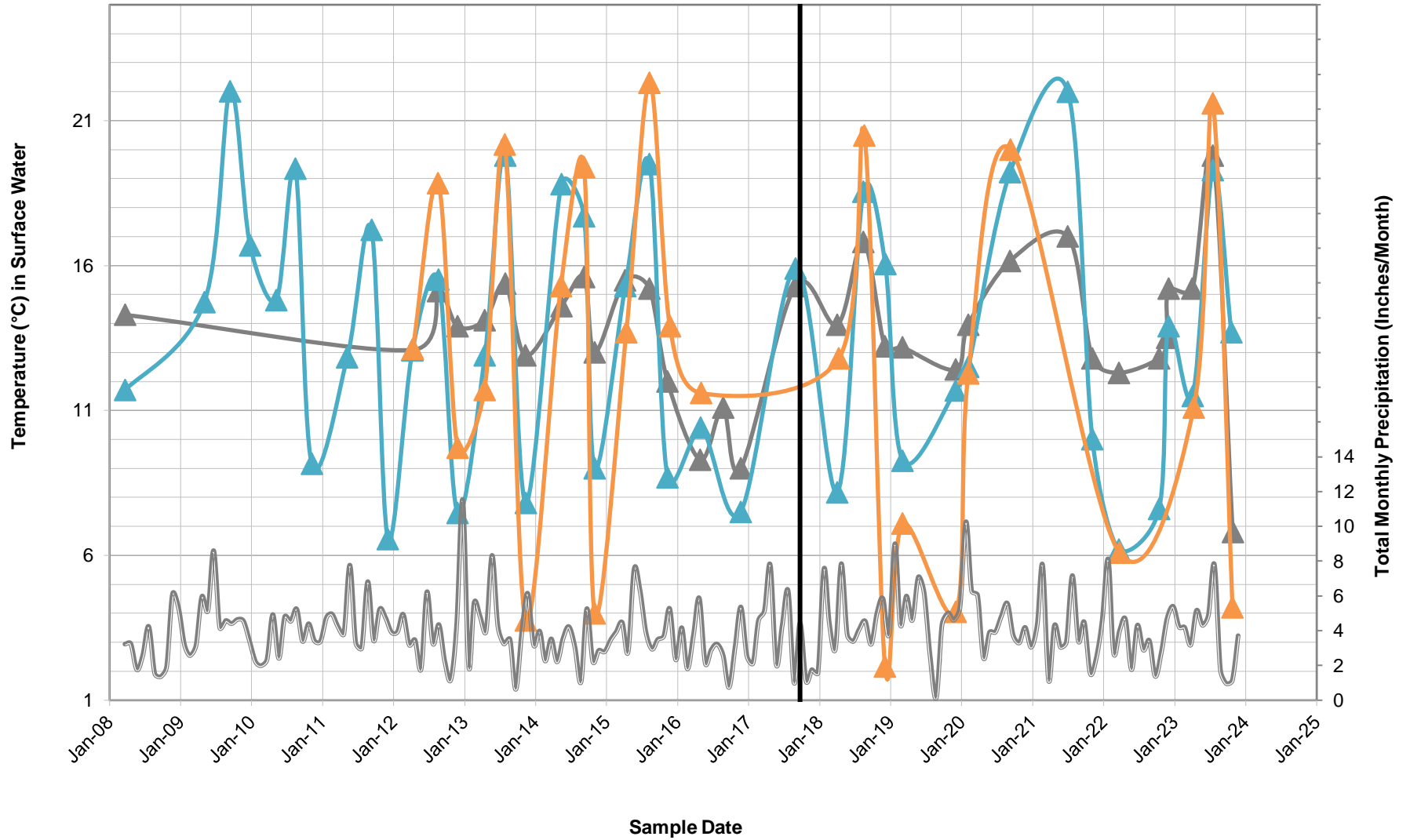


Eula (Ecoli_GW)

Appendix A-3

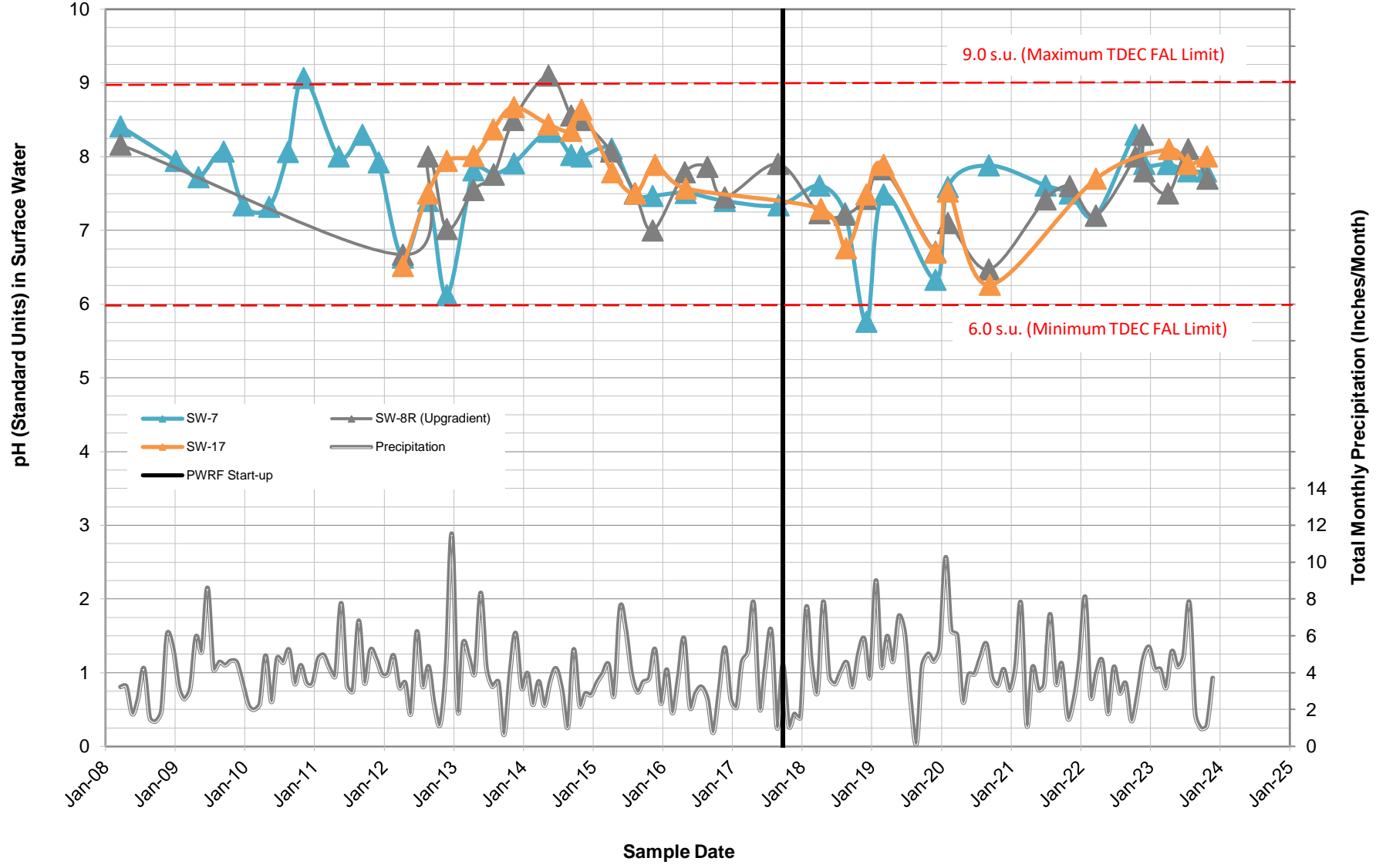
L/C Smelcer Study Area Surface Water Temperature Readings

- SW-8R (Upgradient)
- SW-7
- SW-17
- Precipitation
- PWRF Start-up



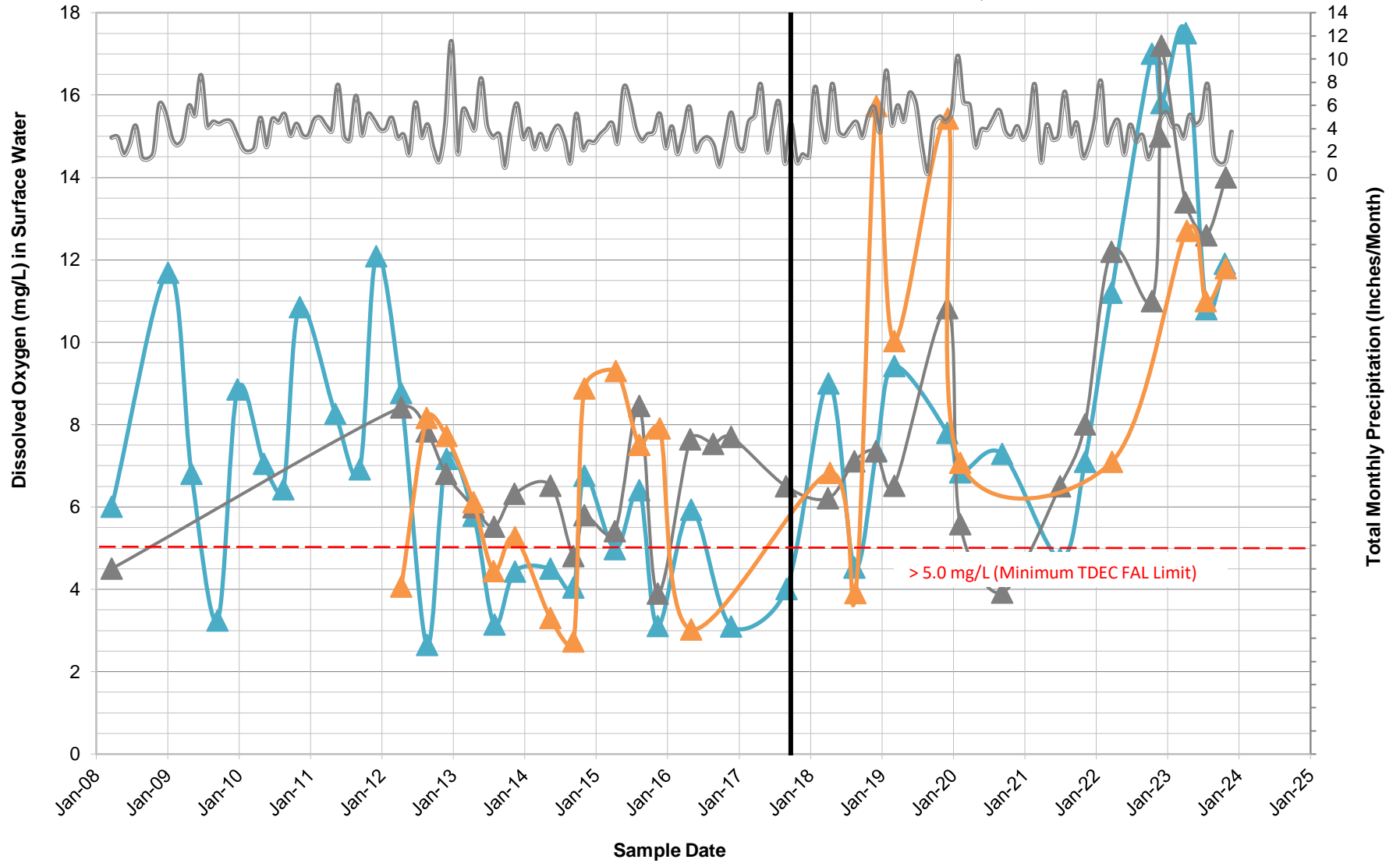
L. C Smelcer (Temp_SW)

L/C Smelcer Study Area Surface Water pH (Field) Readings



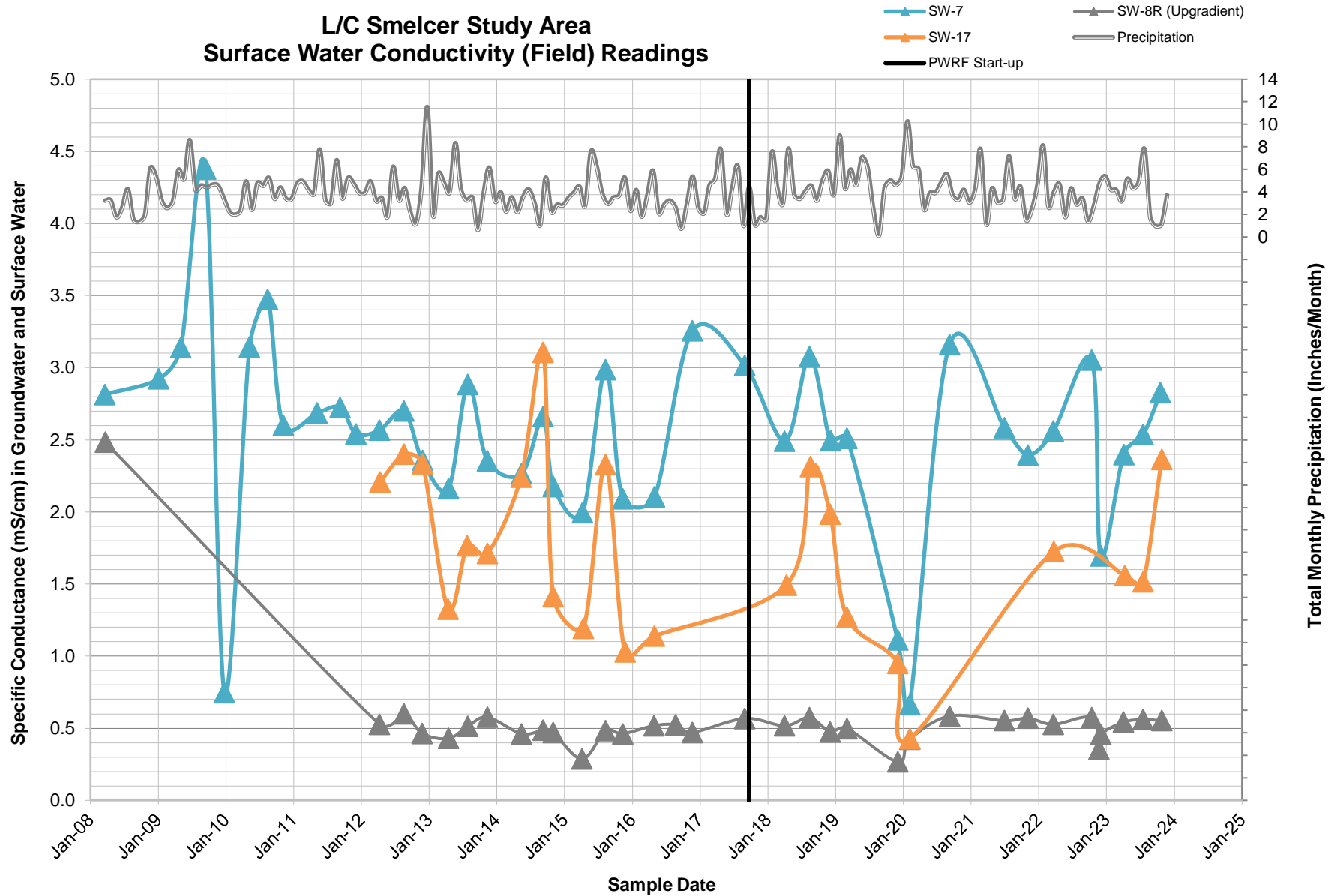
L/C Smelcer Study Area Surface Water DO (Field) Readings

- SW-7
- SW-17
- PWRF Start-up
- SW-8R (Upgradient)
- Precipitation



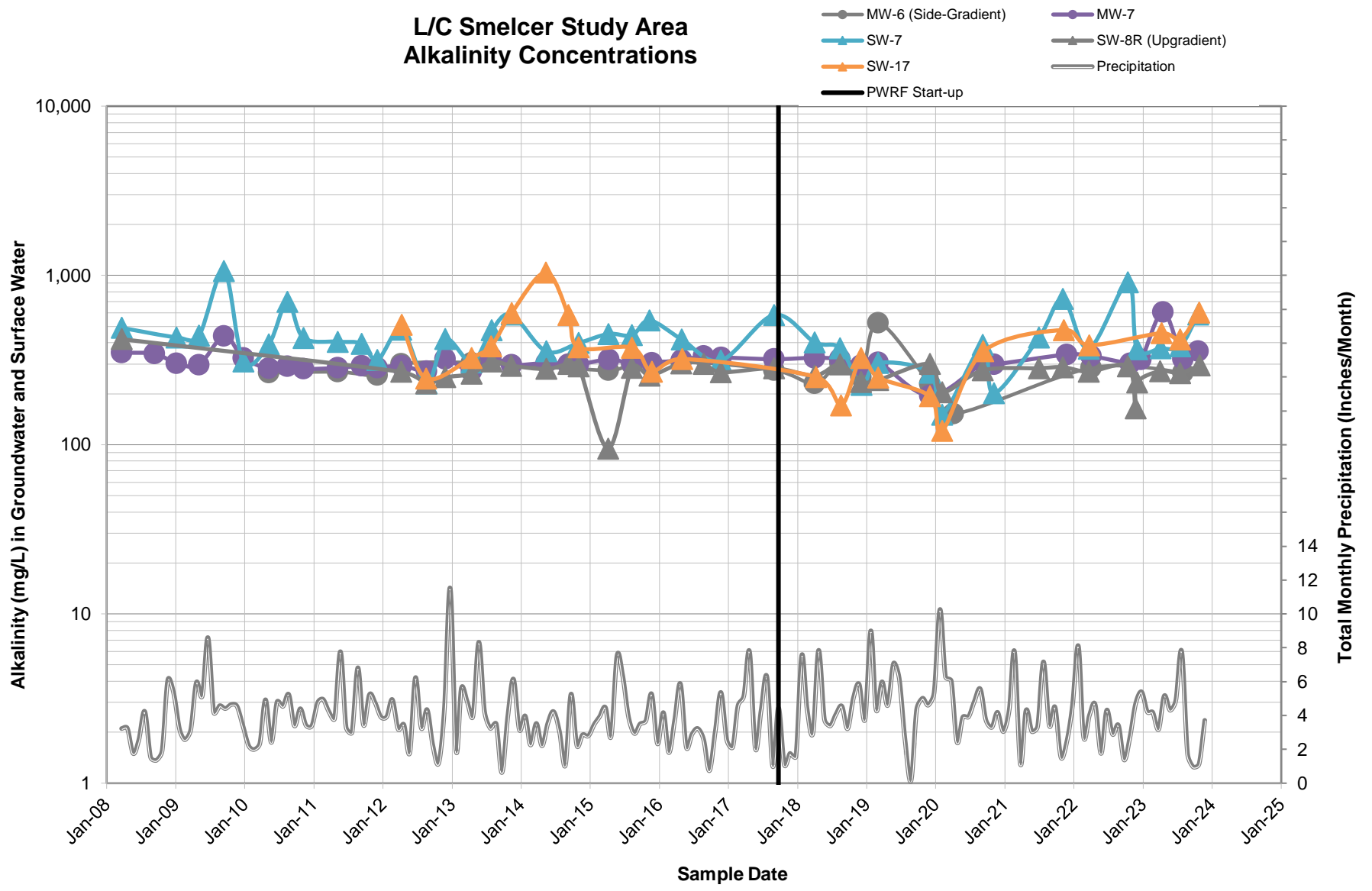
L. C Smelcer (DO_SW)

L/C Smelcer Study Area Surface Water Conductivity (Field) Readings



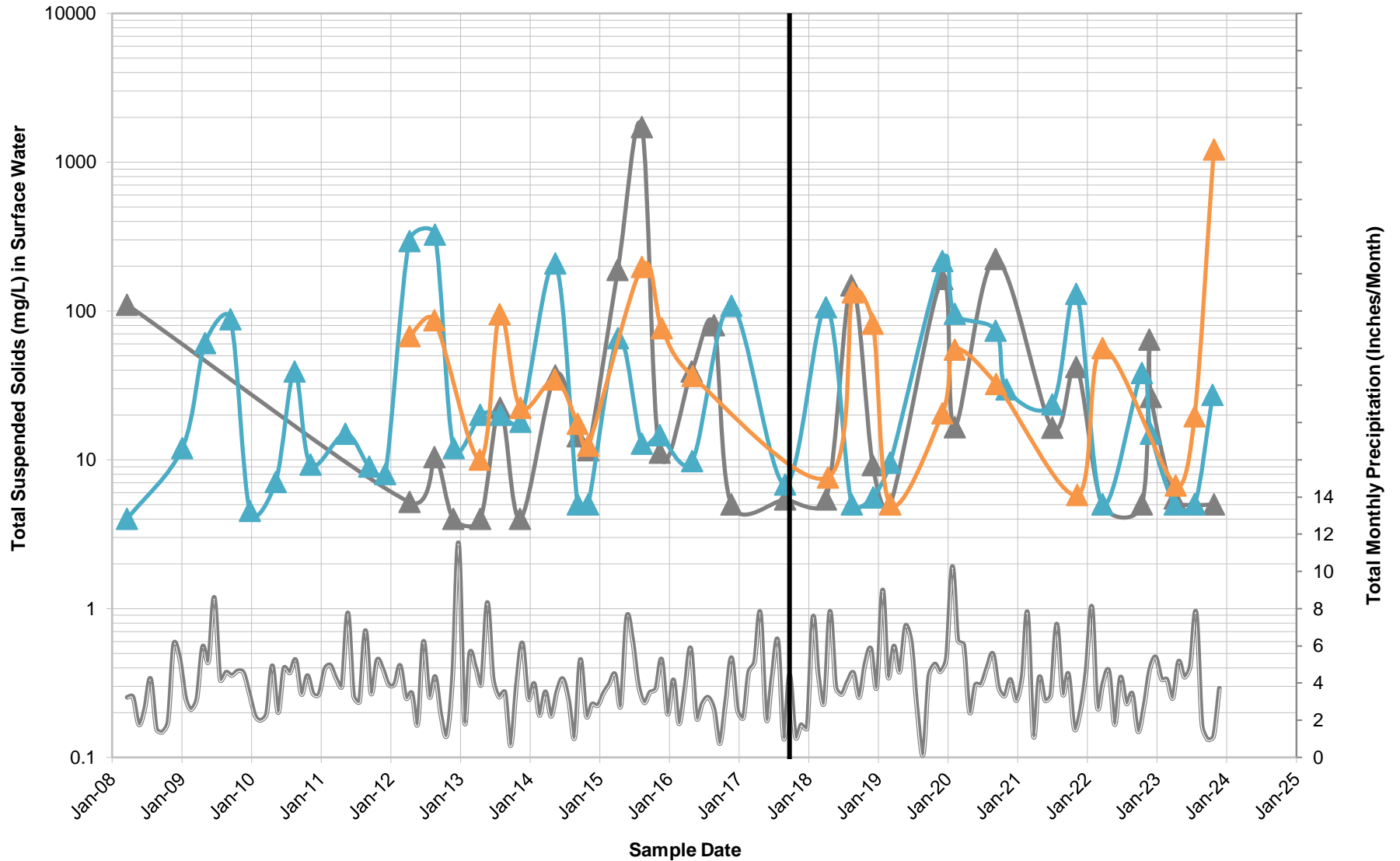
L. C Smelcer (Cond_SW)

L/C Smelcer Study Area Alkalinity Concentrations



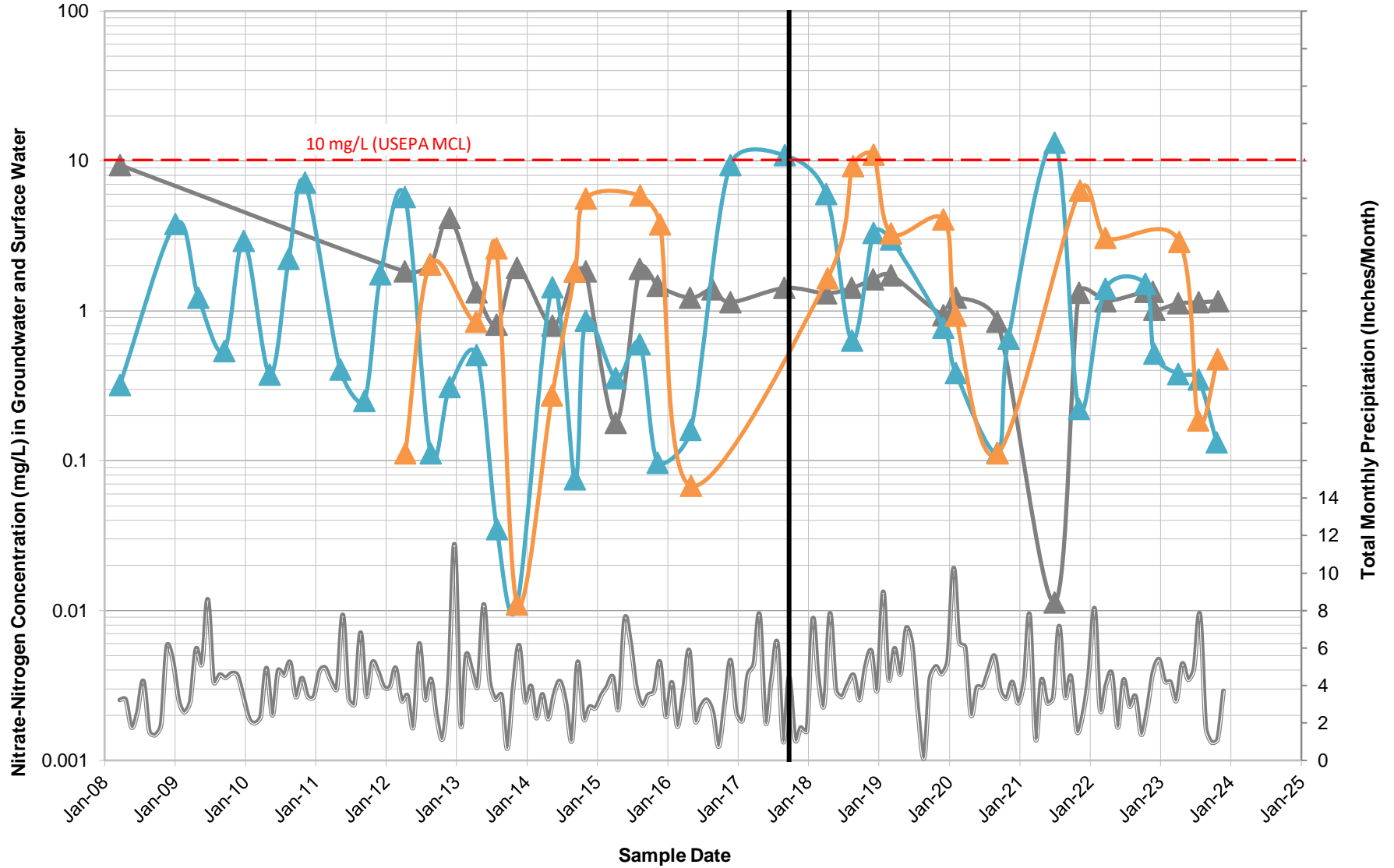
L/C Smelcer Study Area Surface Water TSS Concentrations

- SW-8R (Upgradient)
- SW-7
- SW-17
- Precipitation
- PWRF Start-up

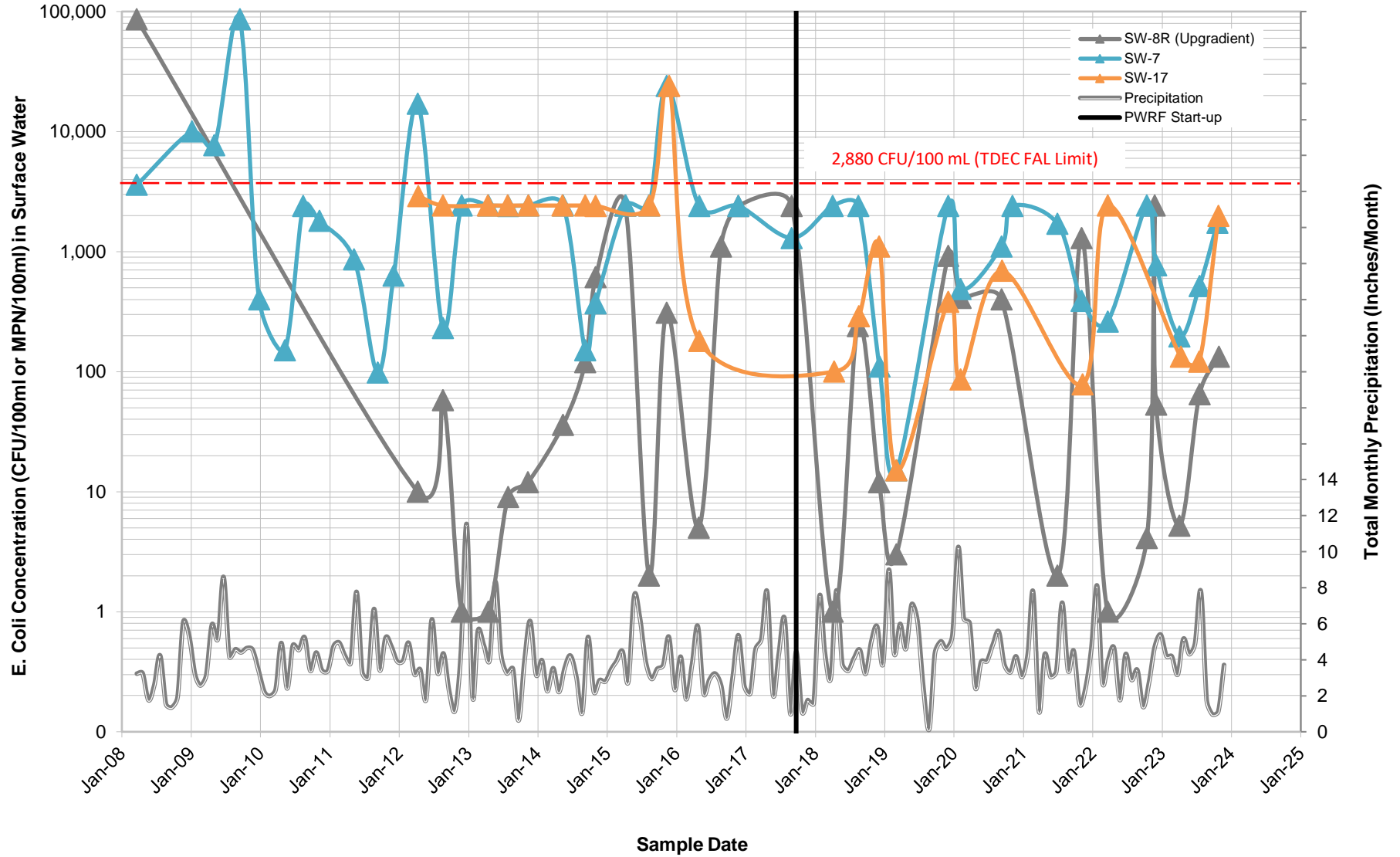


L/C Smelcer Study Area Surface Water Nitrate-Nitrogen Concentrations

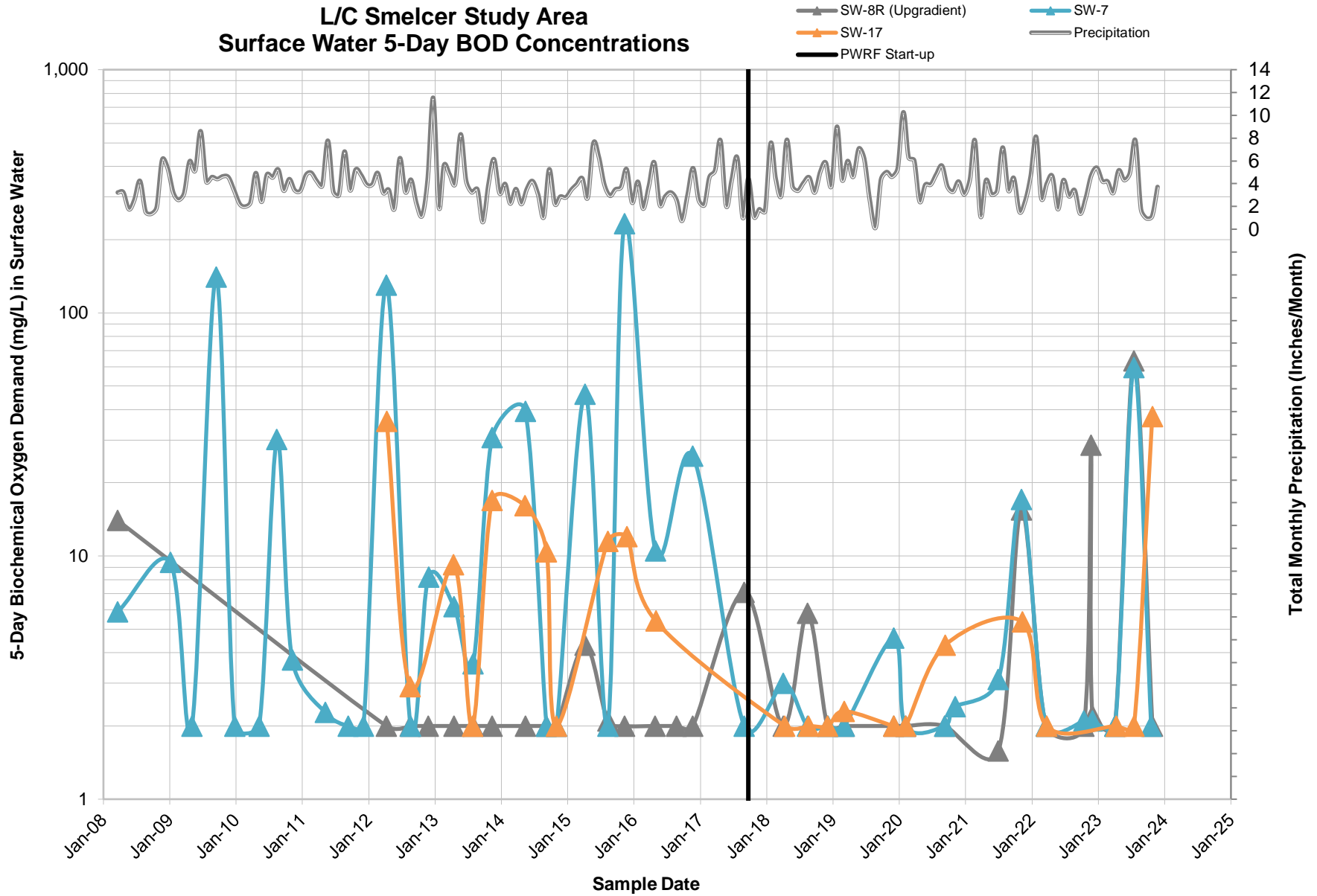
- SW-8R (Upgradient)
- SW-7
- SW-17
- Precipitation
- PWRF Start-up



L/C Smelcer Study Area Surface Water *E. Coli* Concentrations

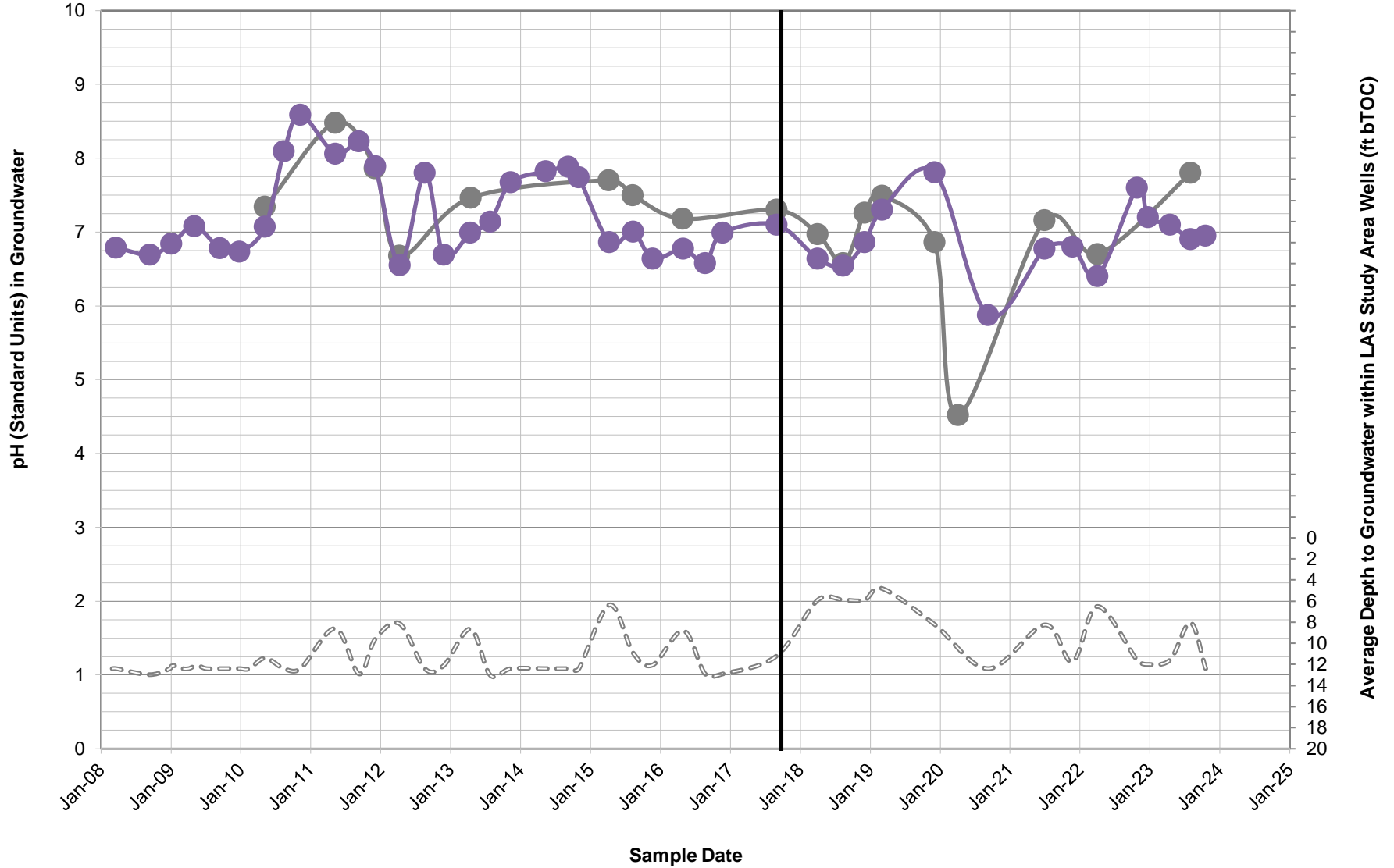


L/C Smelcer Study Area Surface Water 5-Day BOD Concentrations



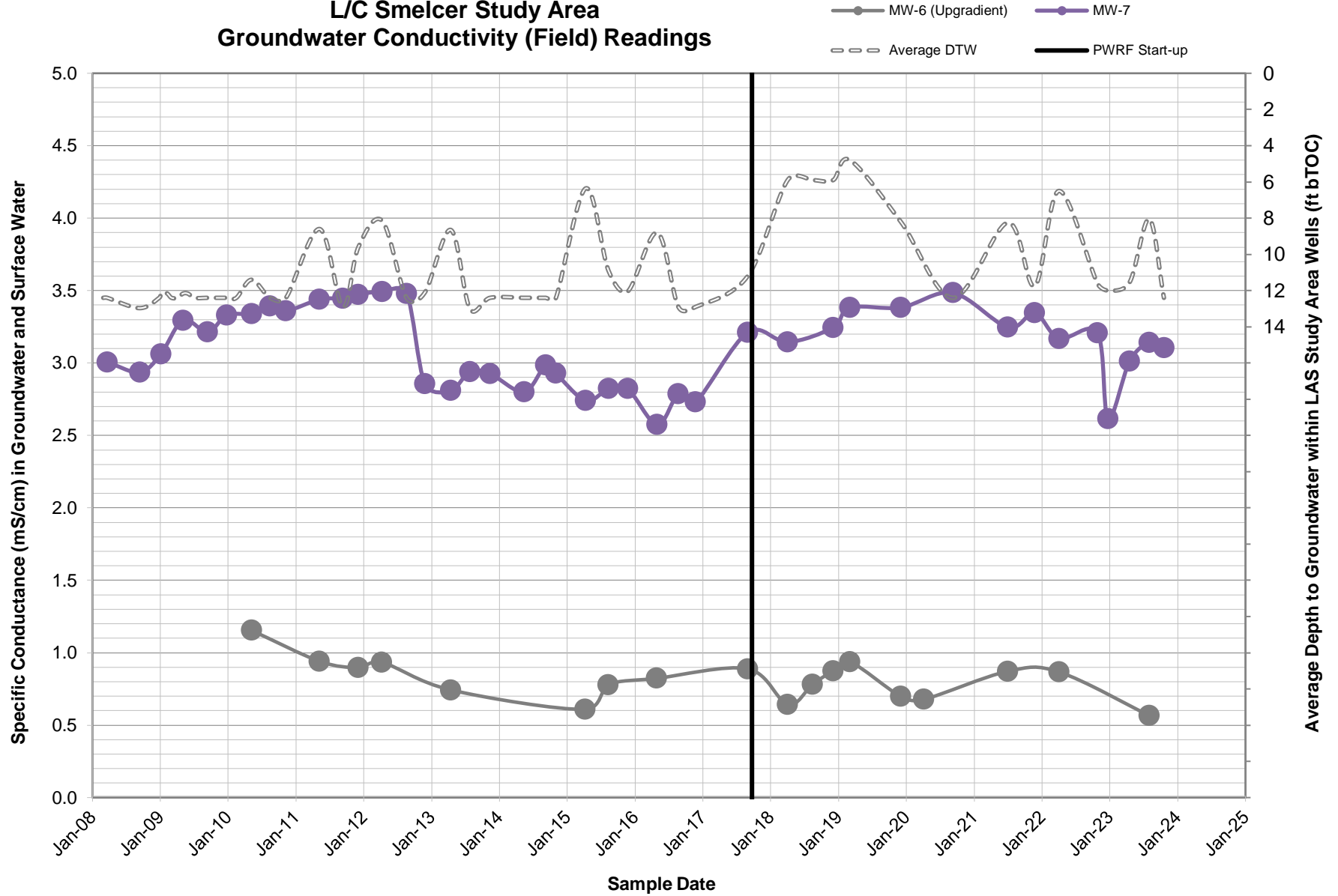
L/C Smelcer Study Area Groundwater pH (Field) Readings

MW-6 (Side-Gradient) MW-7
Average DTW PWRF Start-up

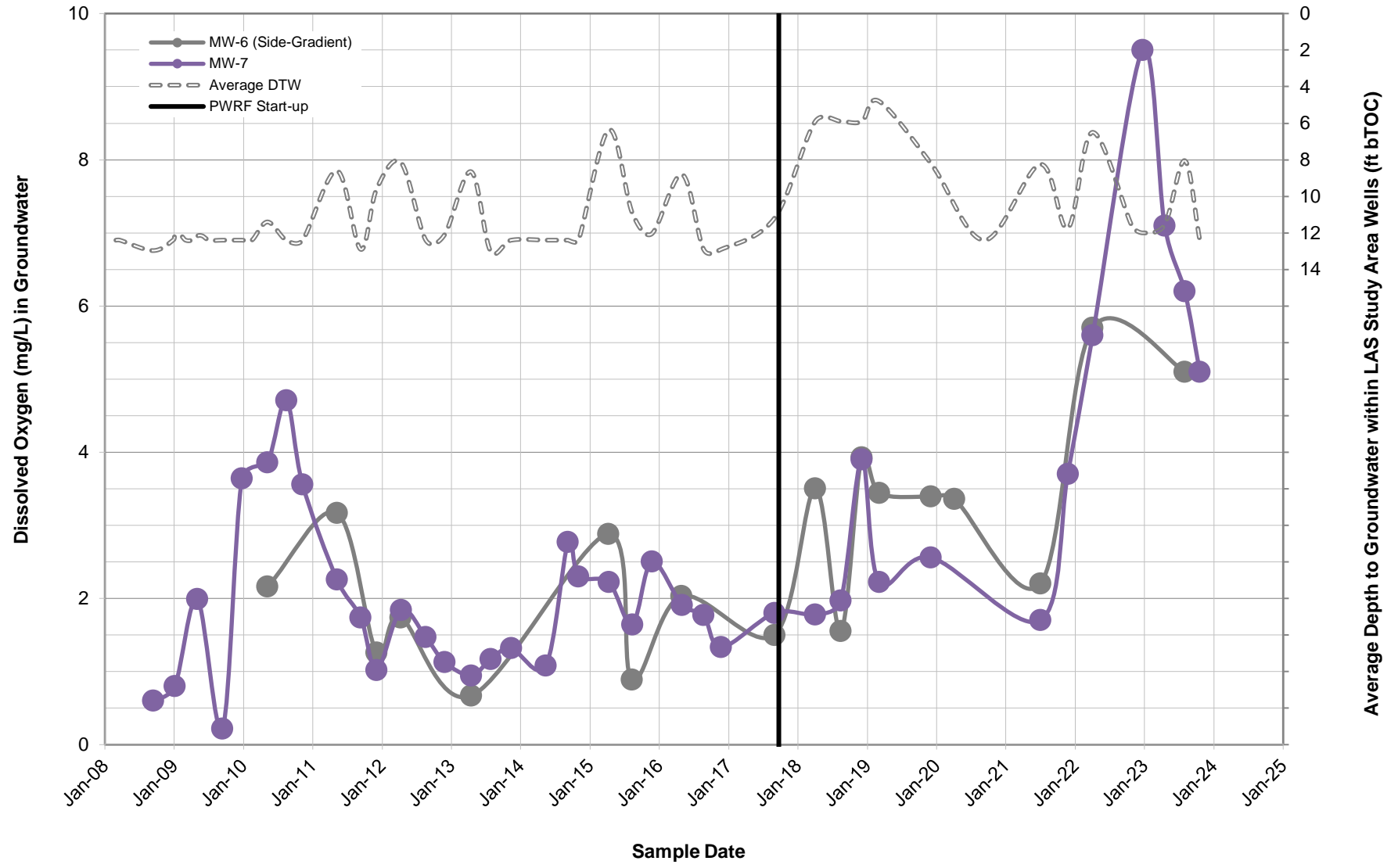


L. C Smelcer (pH_GW)

L/C Smelcer Study Area Groundwater Conductivity (Field) Readings



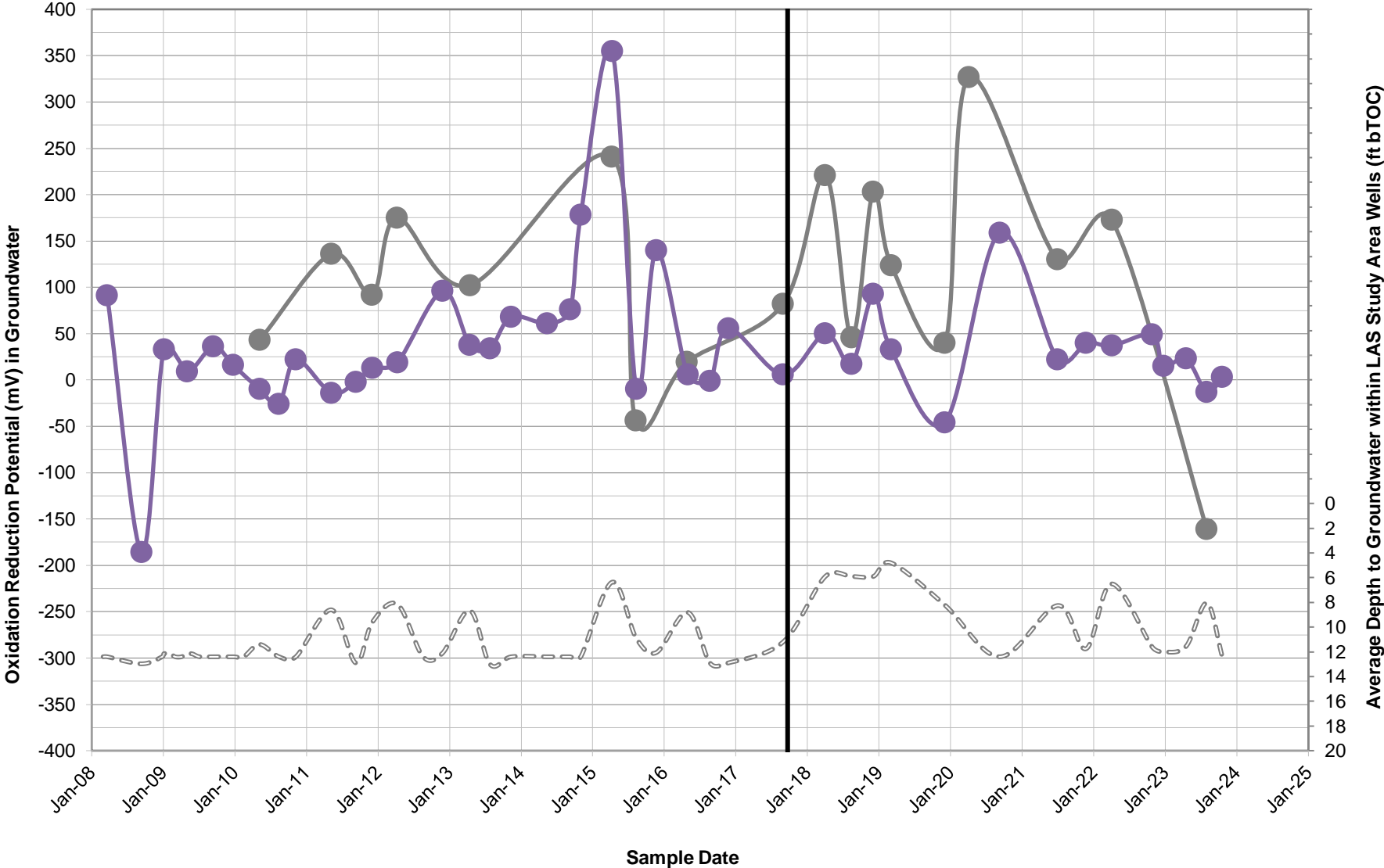
L/C Smelcer Study Area Groundwater DO (Field) Readings



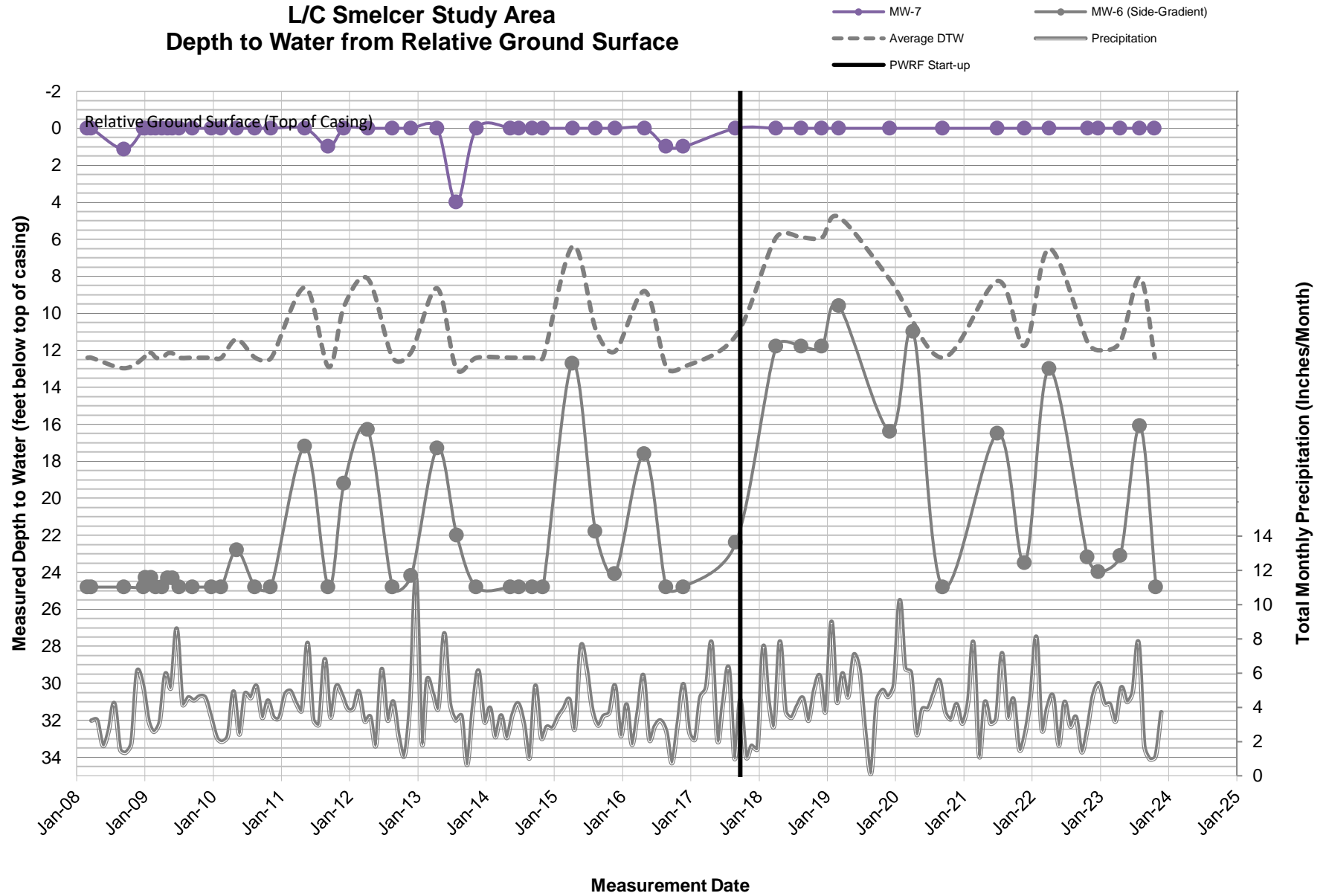
L. C Smelcer (DO_GW)

L/C Smelcer Study Area Groundwater ORP (Field) Readings

- MW-6 (Side-Gradient)
- MW-7
- - - Average DTW
- PWRF Start-up

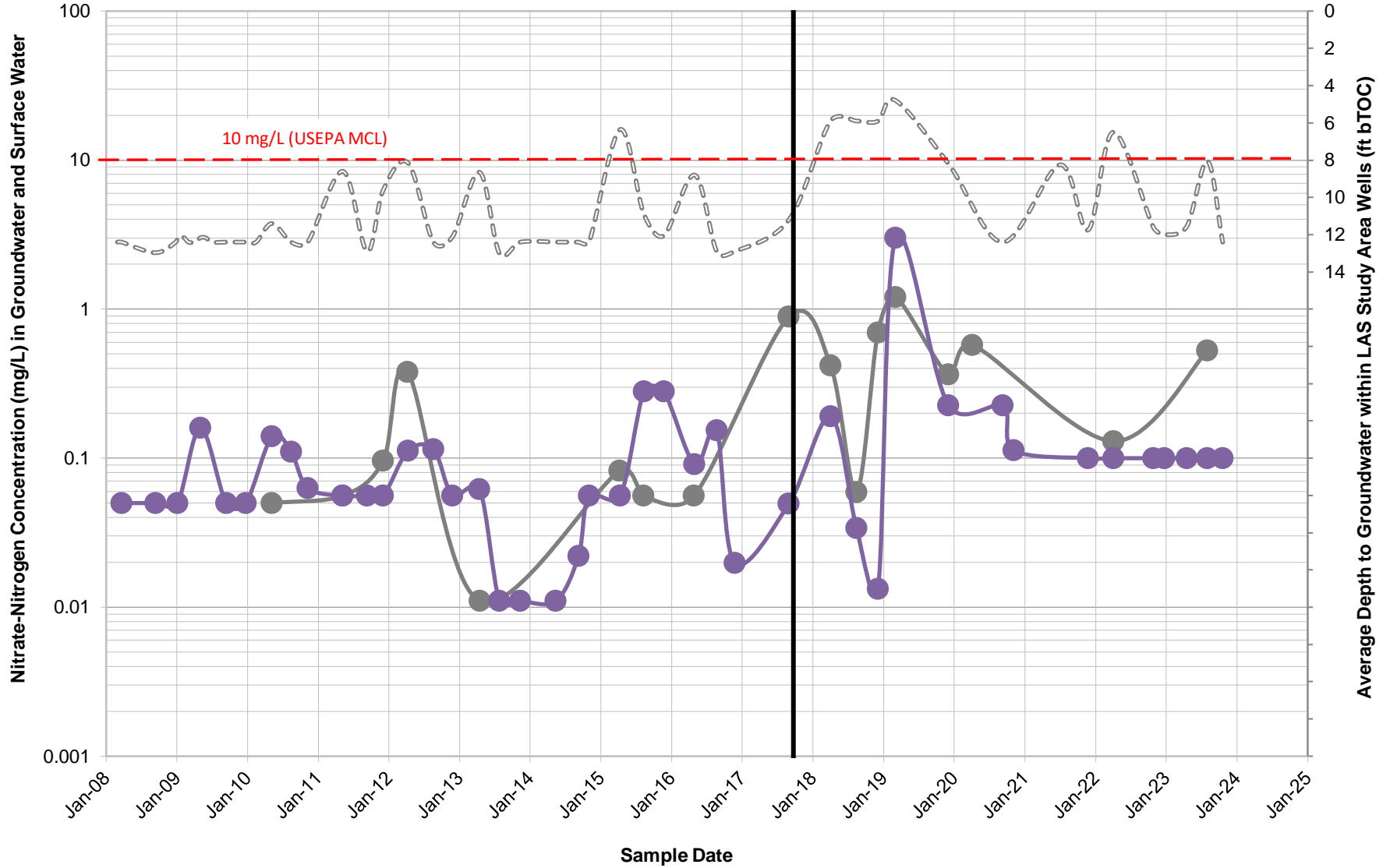


L/C Smelcer Study Area Depth to Water from Relative Ground Surface

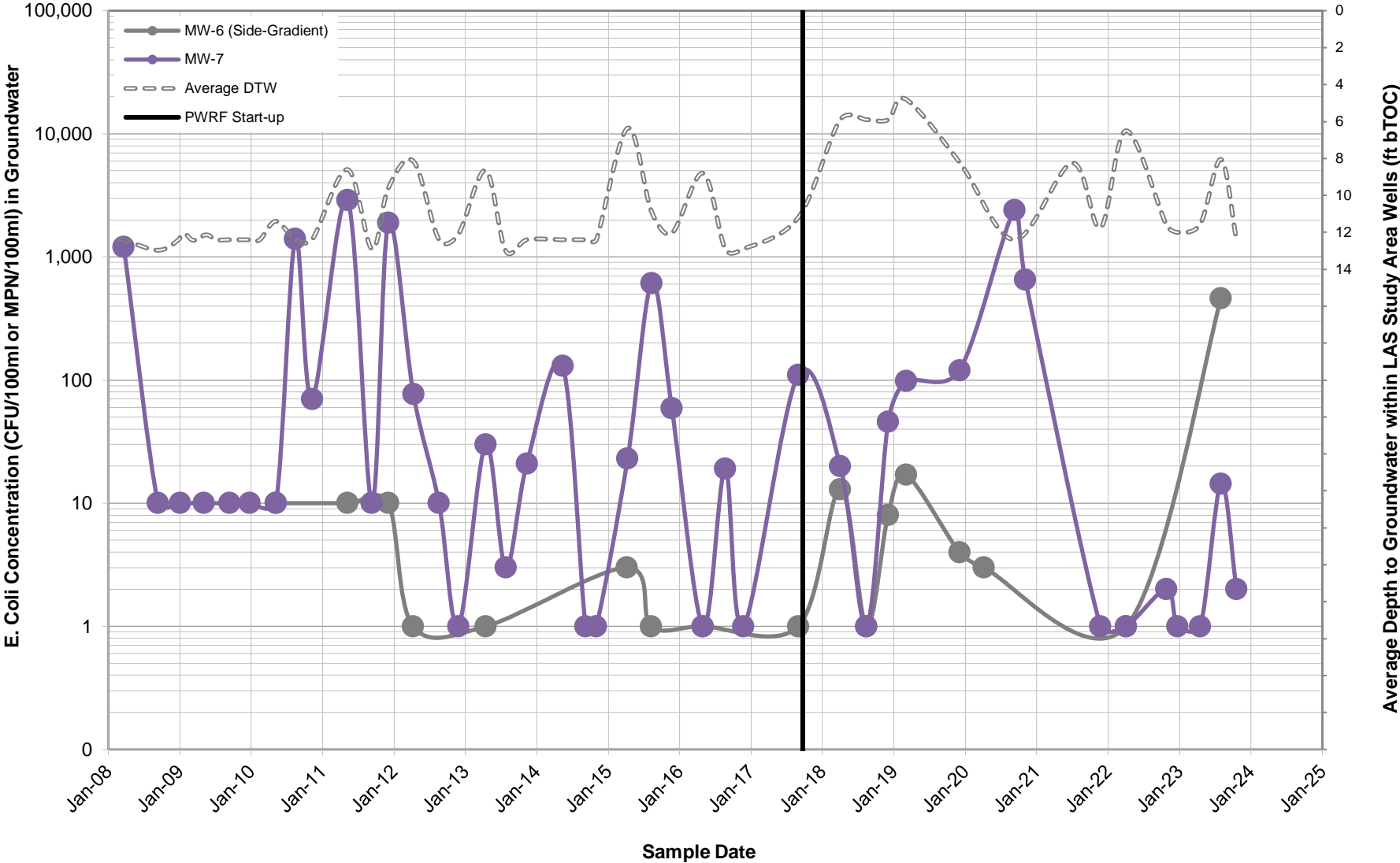


L/C Smelcer Study Area Groundwater Nitrate-Nitrogen Concentrations

- MW-6 (Side-Gradient)
- MW-7
- Average DTW
- PWRF Start-up



L/C Smelcer Study Area Groundwater *E. Coli* Concentrations

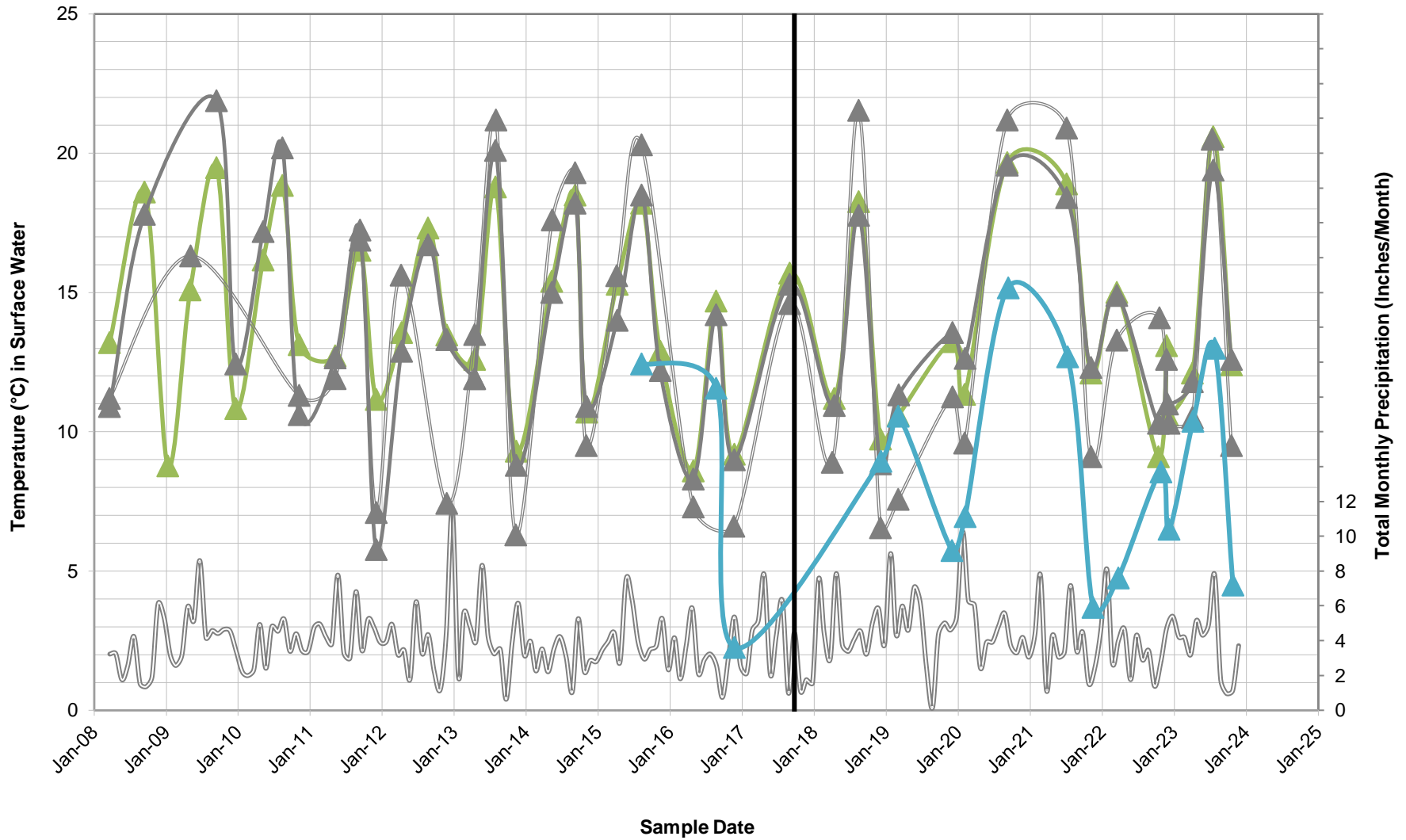


Appendix A-4



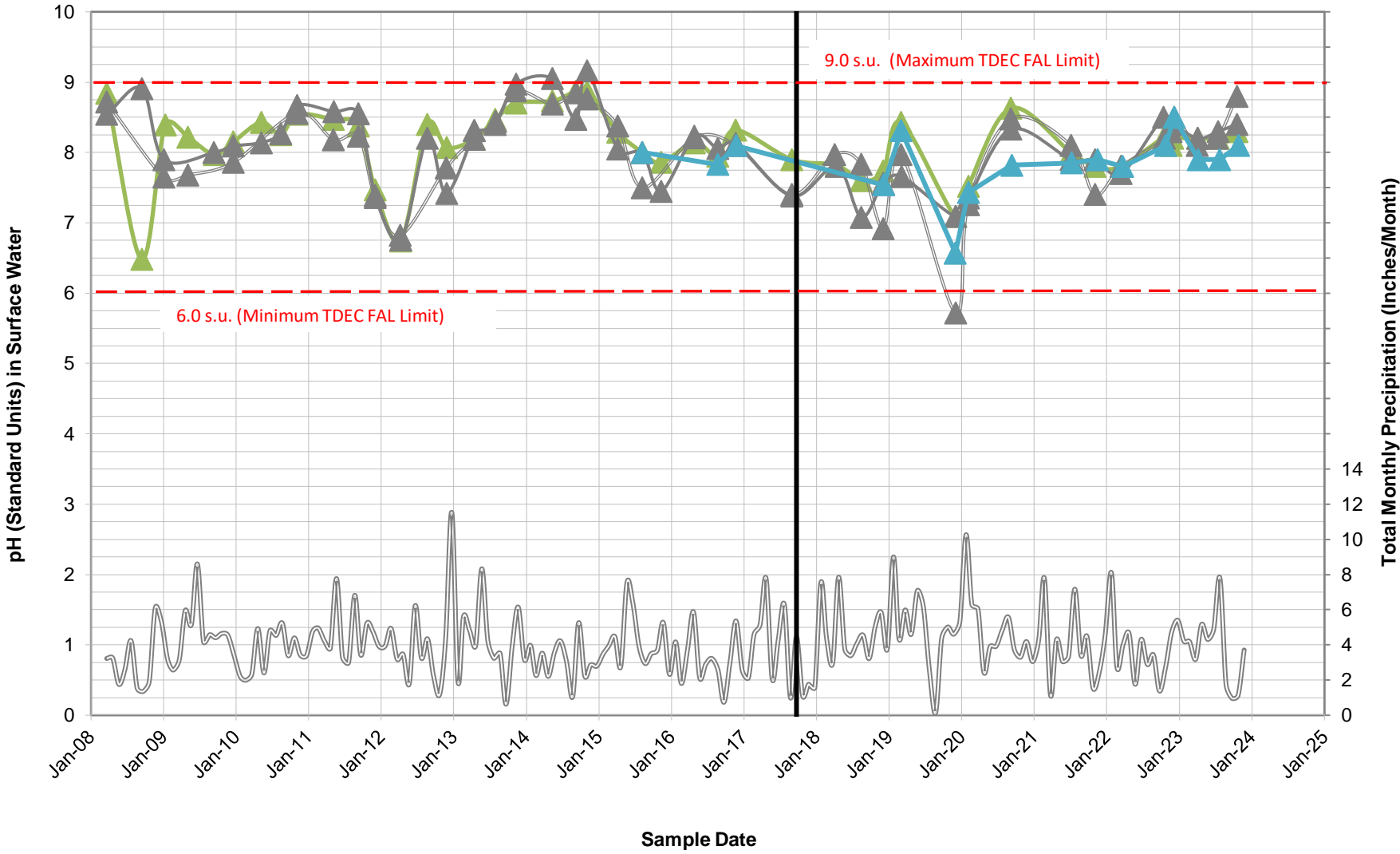
Ray Smelcer Study Area Surface Water Temperature (Field) Readings

- SW-11
- SW-9 (Upgradient)
- SW-12 (Upgradient)
- Precipitation
- SW-19
- PWRF Start-up

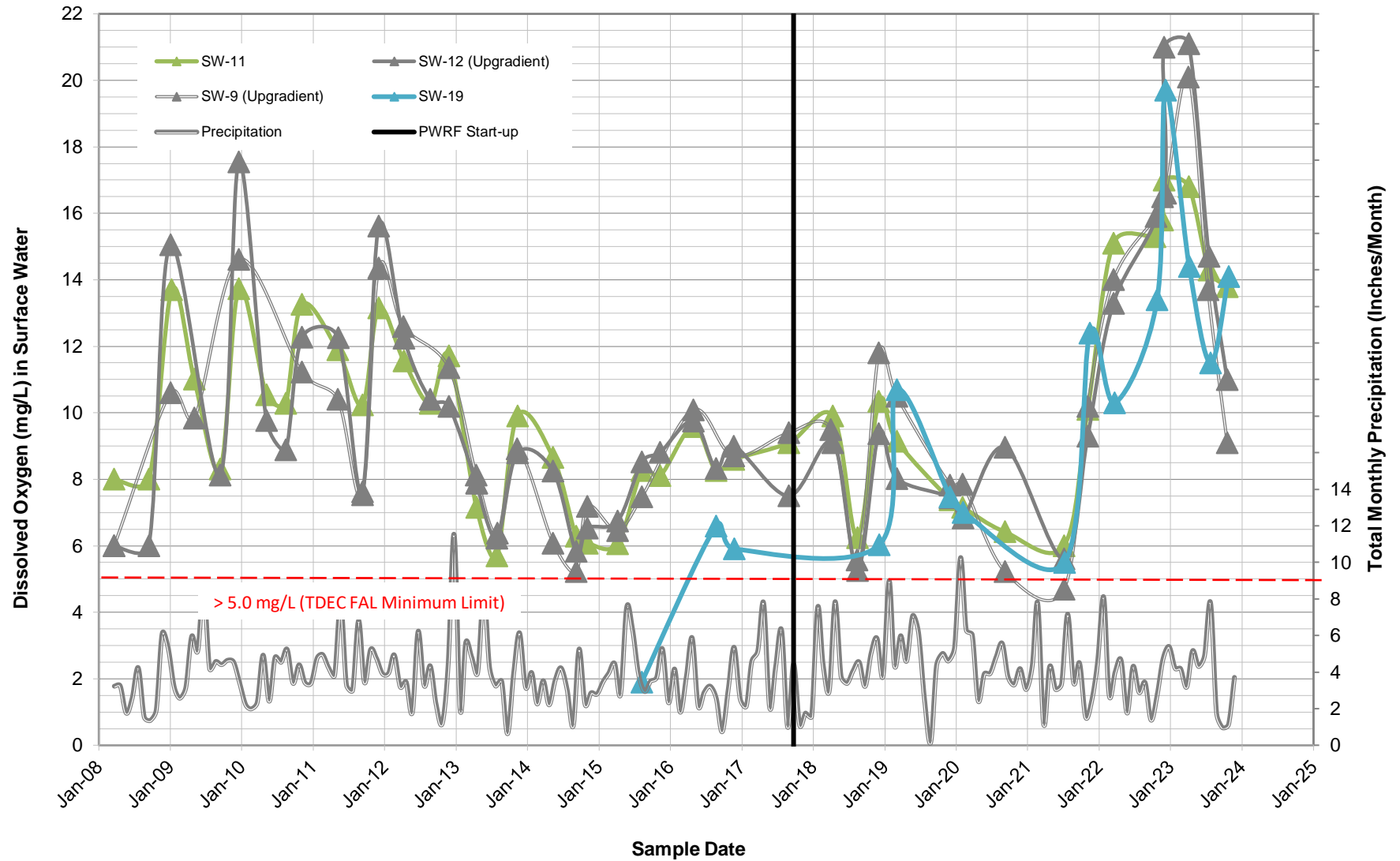


Ray Smelcer Study Area Surface Water pH (Field) Readings

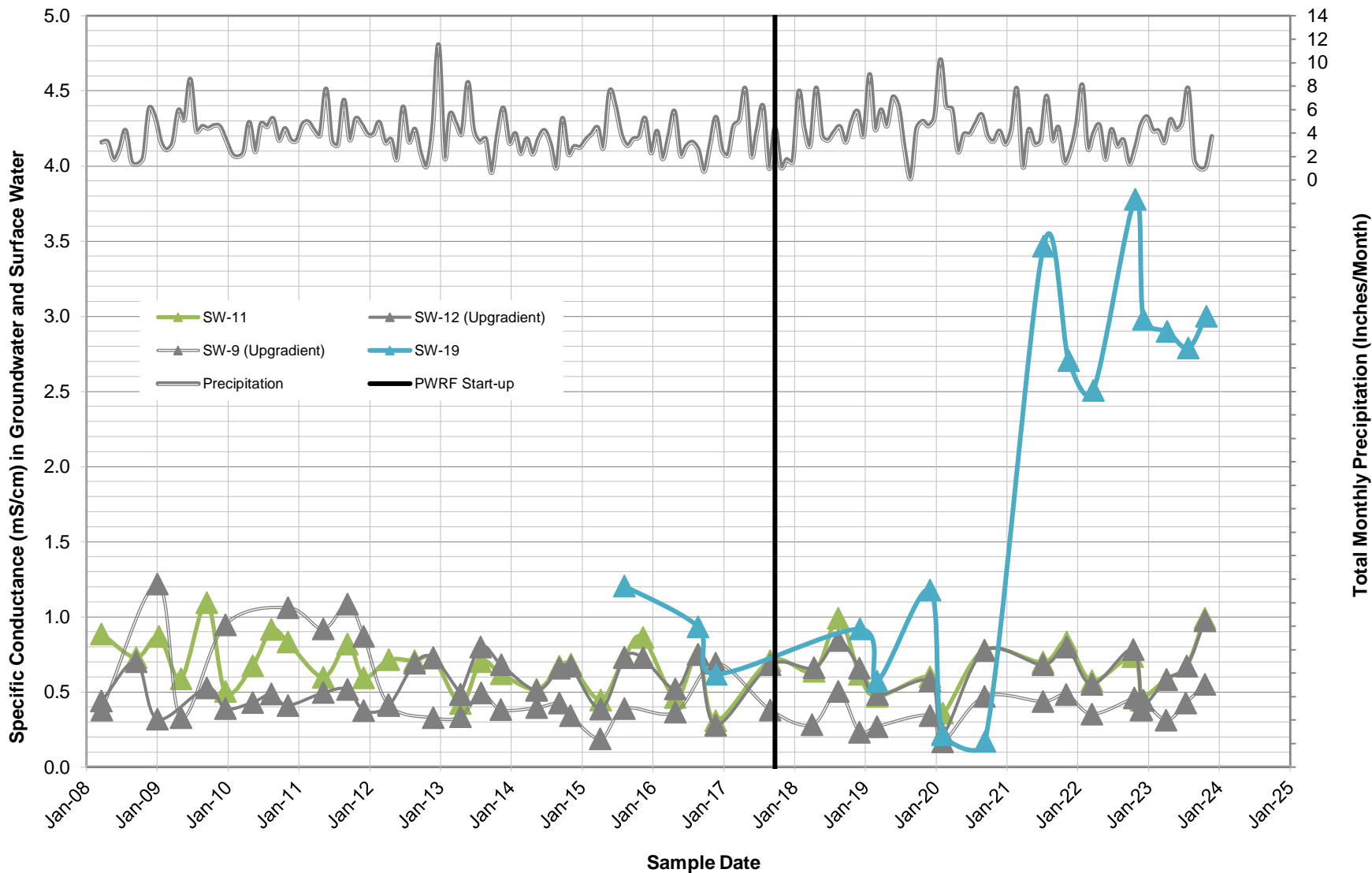
- SW-11
- SW-9 (Upgradient)
- Precipitation
- SW-12 (Upgradient)
- SW-19
- PWRF Start-up



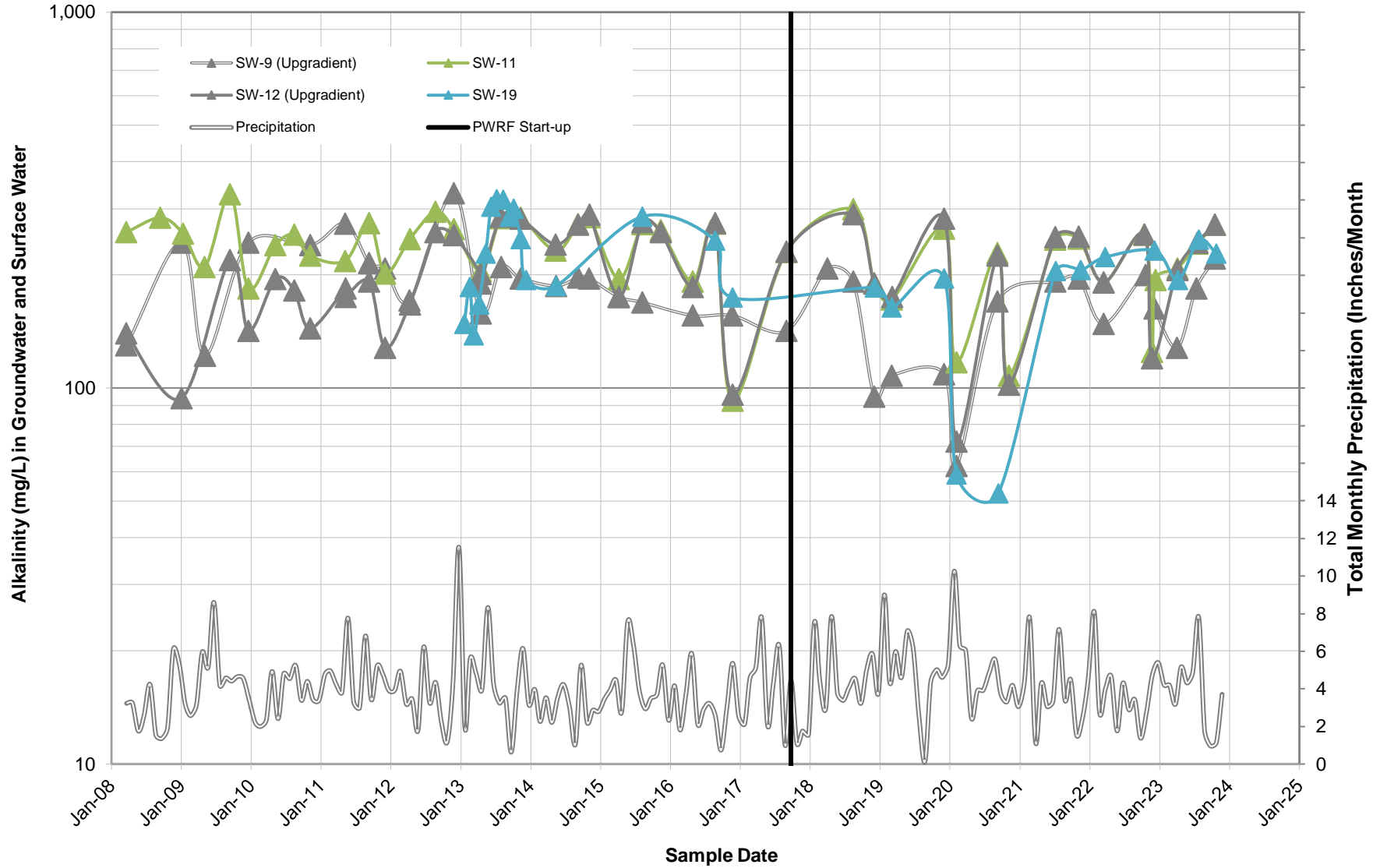
Ray Smelcer Study Area Surface Water DO (Field) Readings



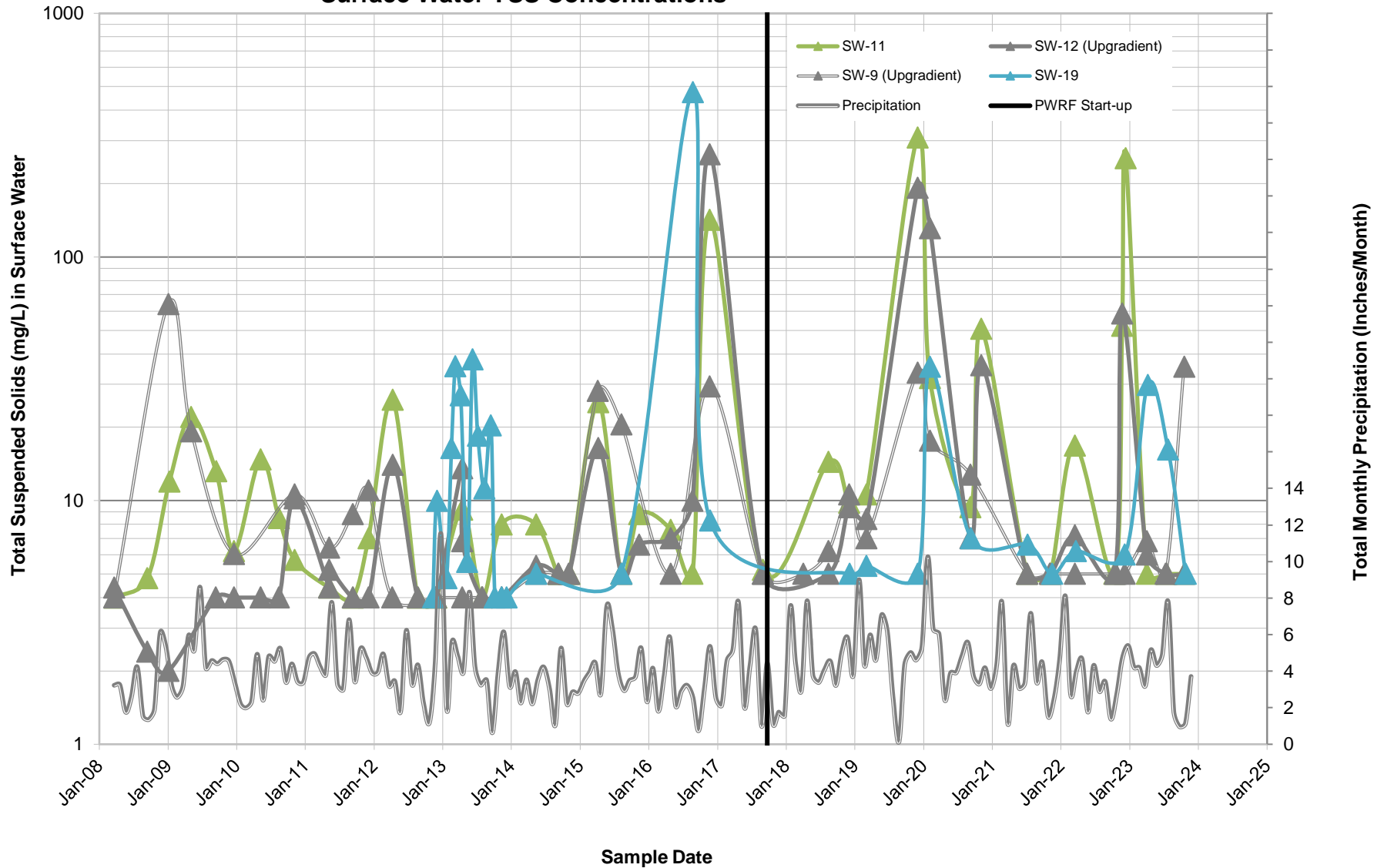
Ray Smelcer Study Area Surface Water Conductivity (Field) Readings



Ray Smelcer Study Area Alkalinity Concentrations

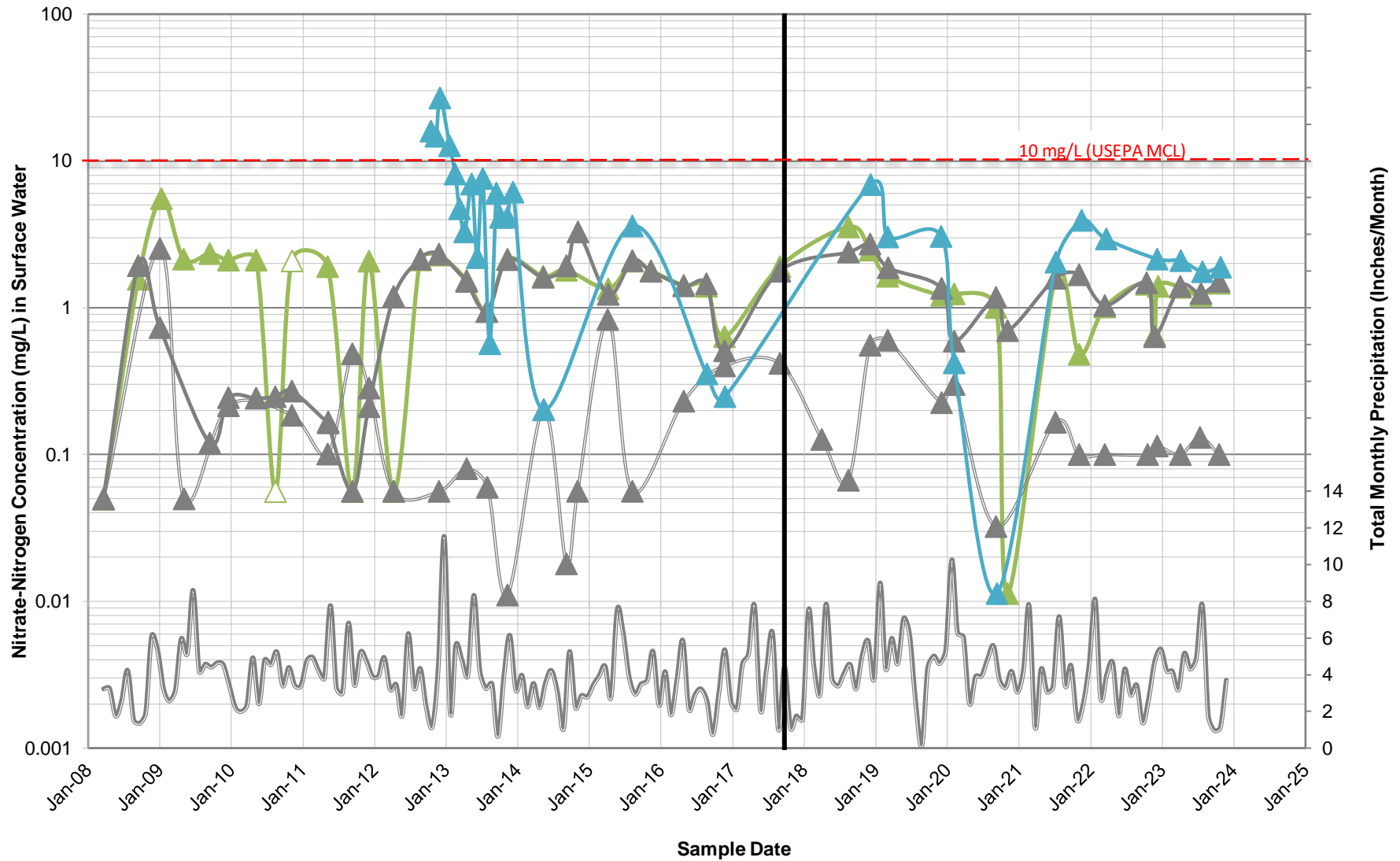


Ray Smelcer Study Area Surface Water TSS Concentrations

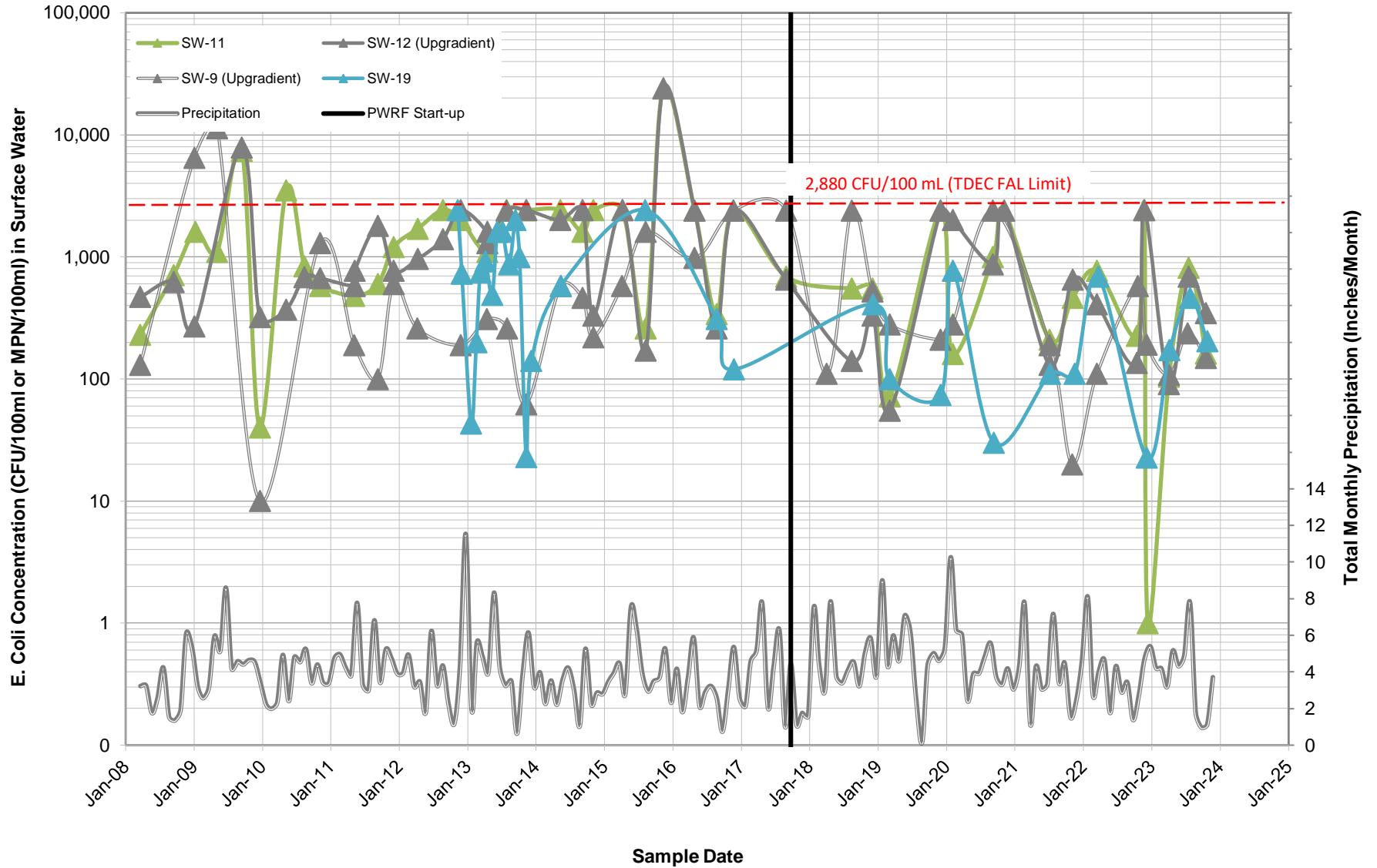


Ray Smelcer Study Area Surface Water Nitrate-Nitrogen Concentrations

- SW-11
- SW-9 (Upgradient)
- Precipitation
- SW-12 (Upgradient)
- SW-19
- PWRF Start-up

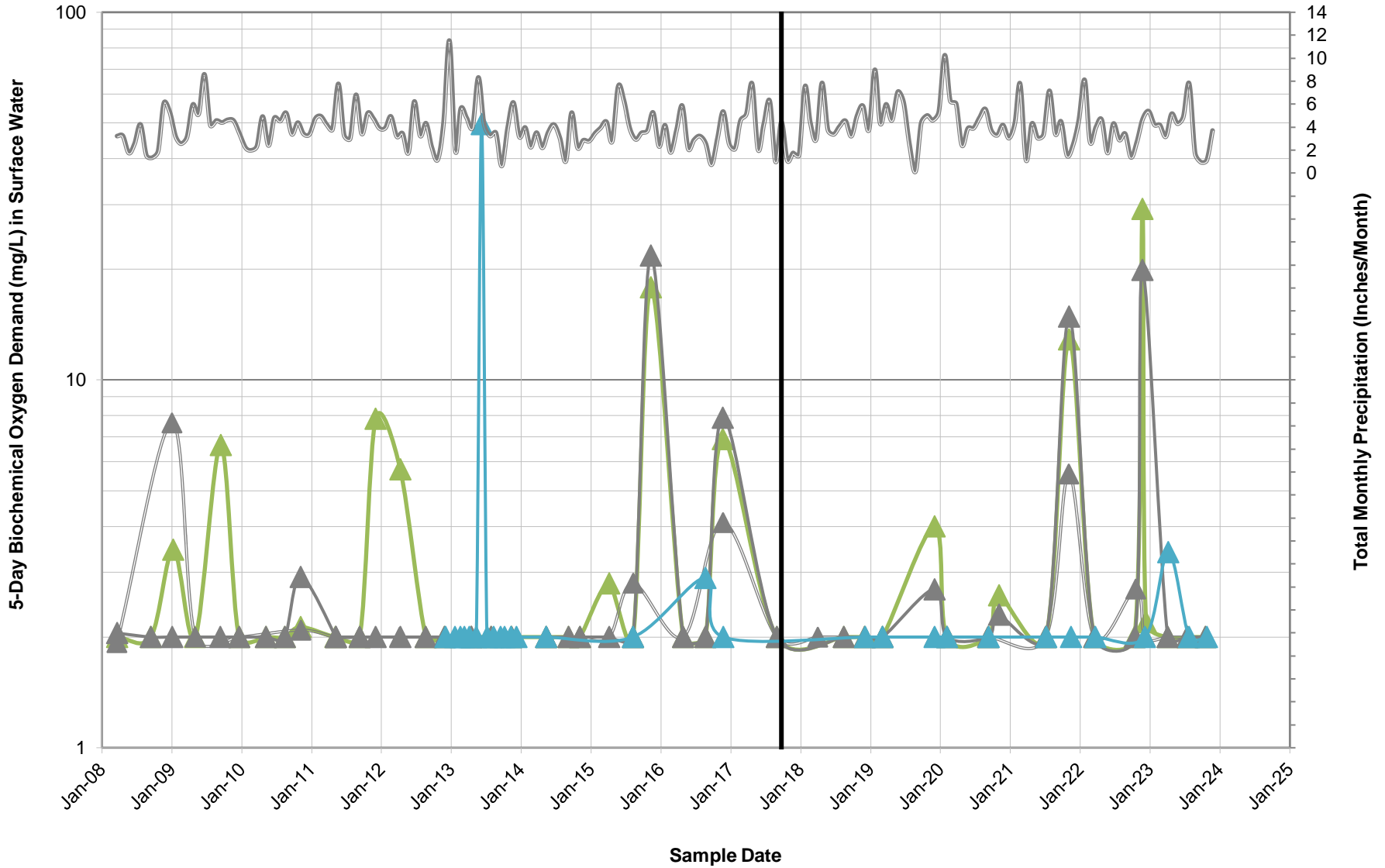


Ray Smelcer Study Area Surface Water E.Coli Concentrations

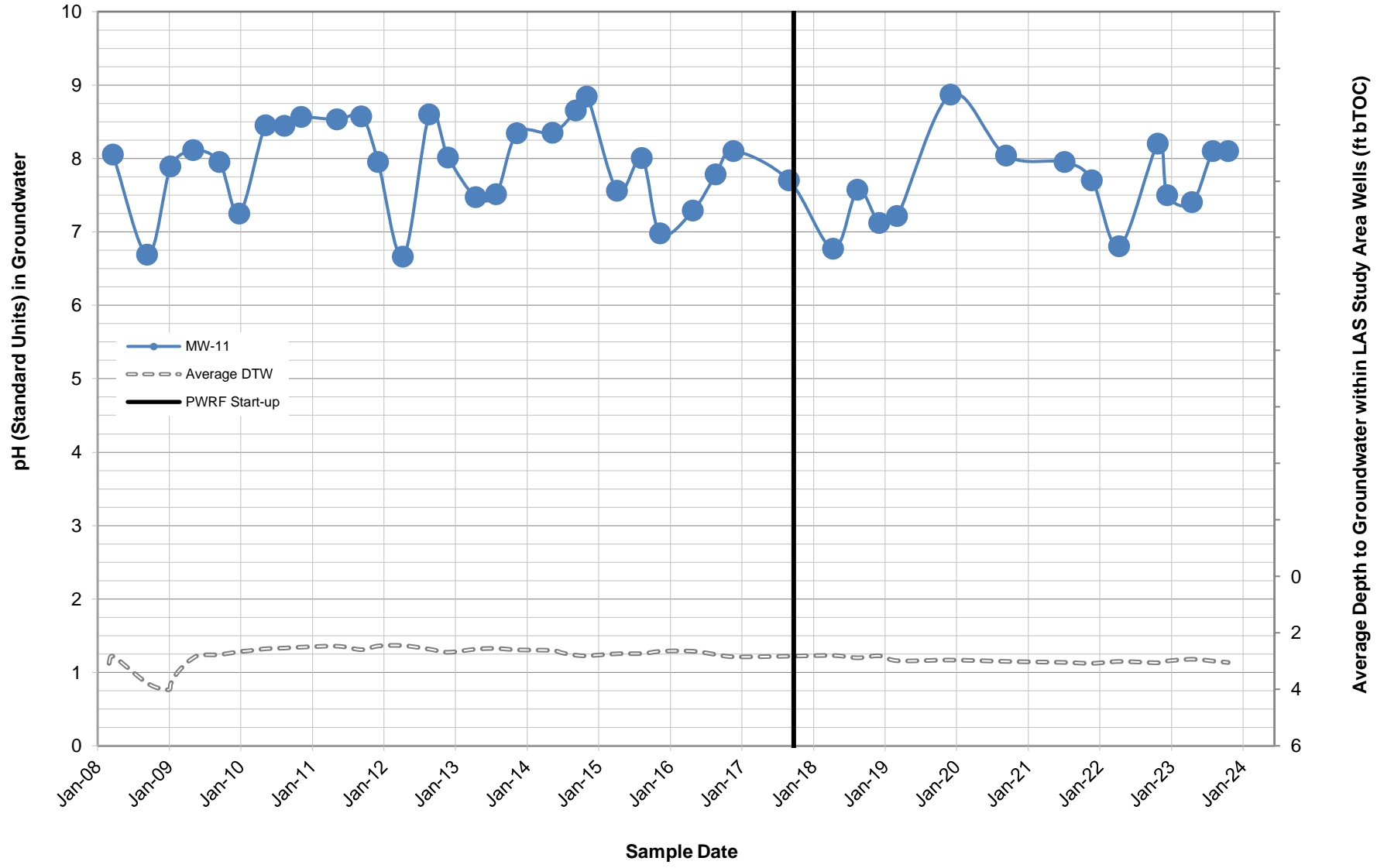


Ray Smelcer Study Area Surface Water 5-Day BOD Concentrations

- SW-11
- SW-9 (Upgradient)
- Precipitation
- SW-12 (Upgradient)
- SW-19
- PWRF Start-up

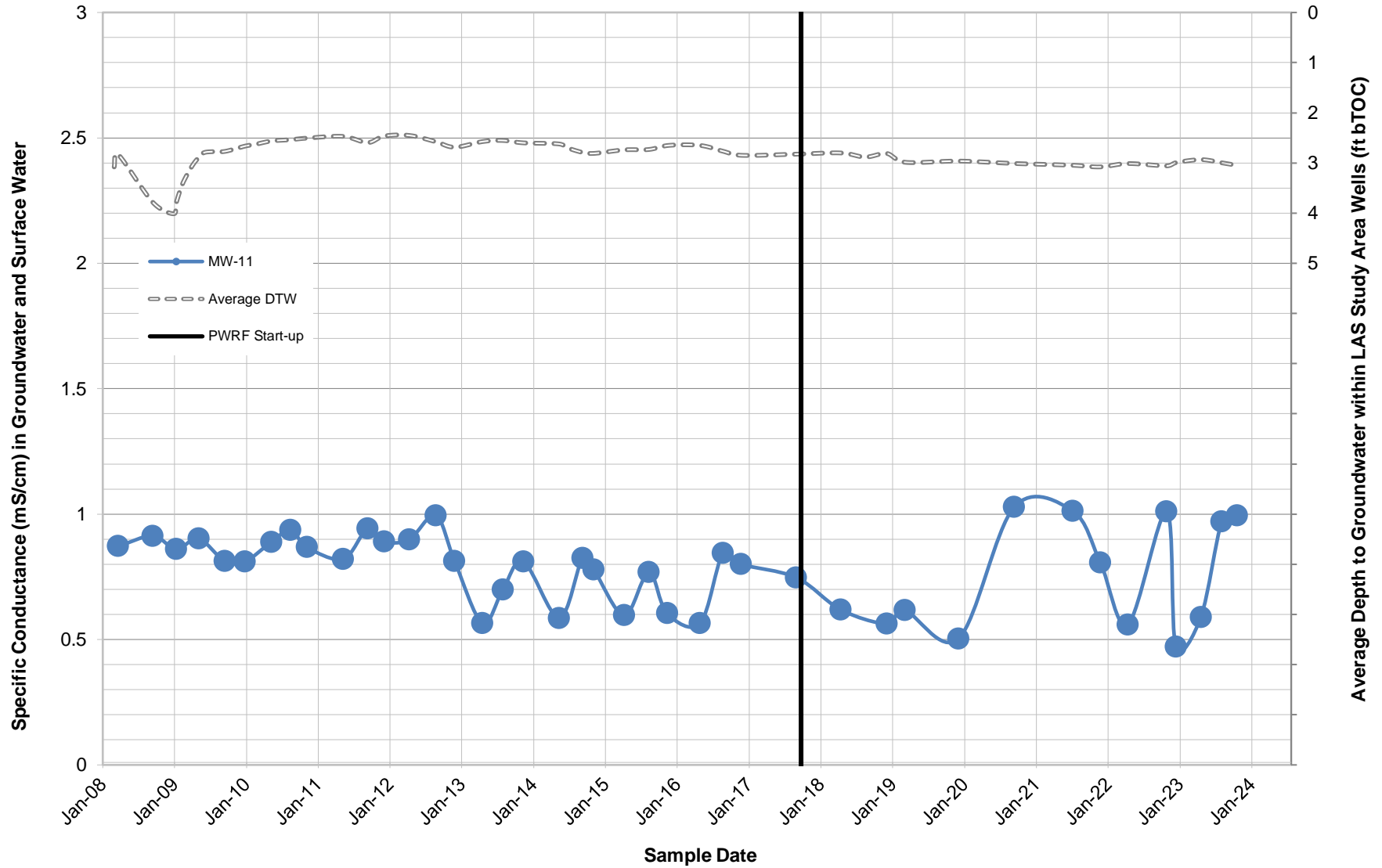


Ray Smelcer Study Area Groundwater pH (Field) Readings



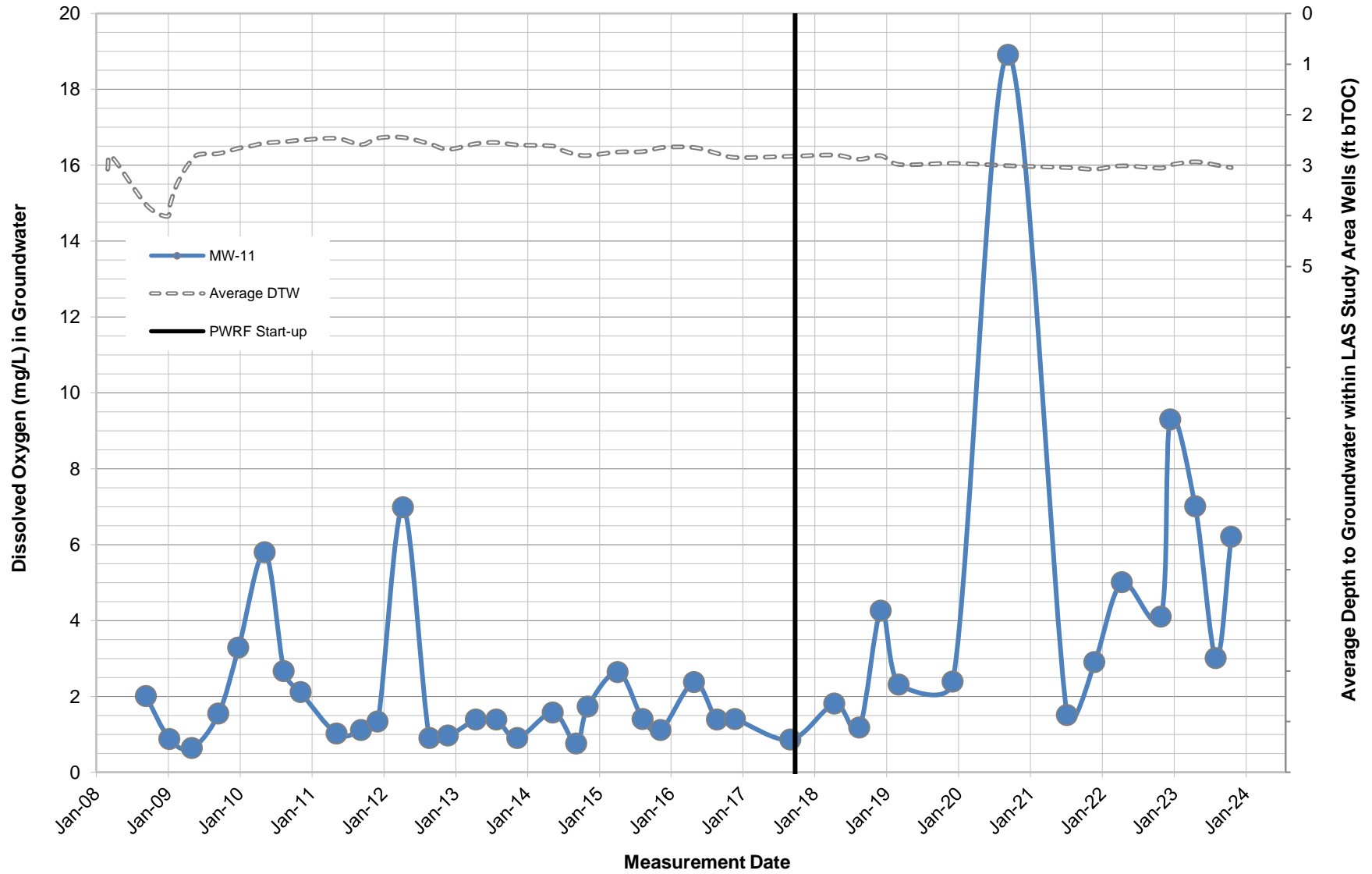
R. Smelcer (pH_GW)

Ray Smelcer Study Area Groundwater Conductivity (Field) Readings

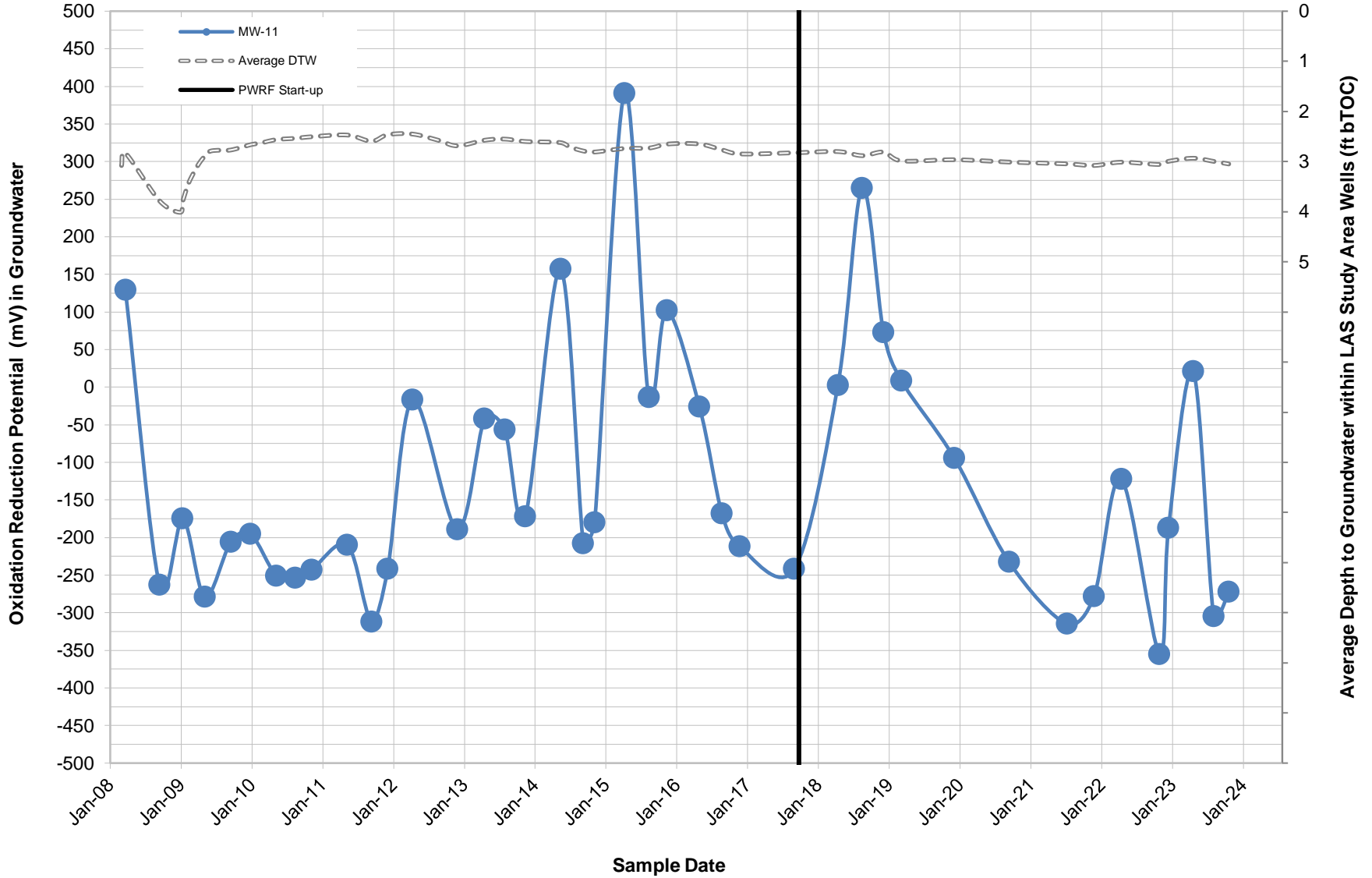


R. Smelcer (Cond_GW)

Ray Smelcer Study Area Groundwater DO (Field) Readings



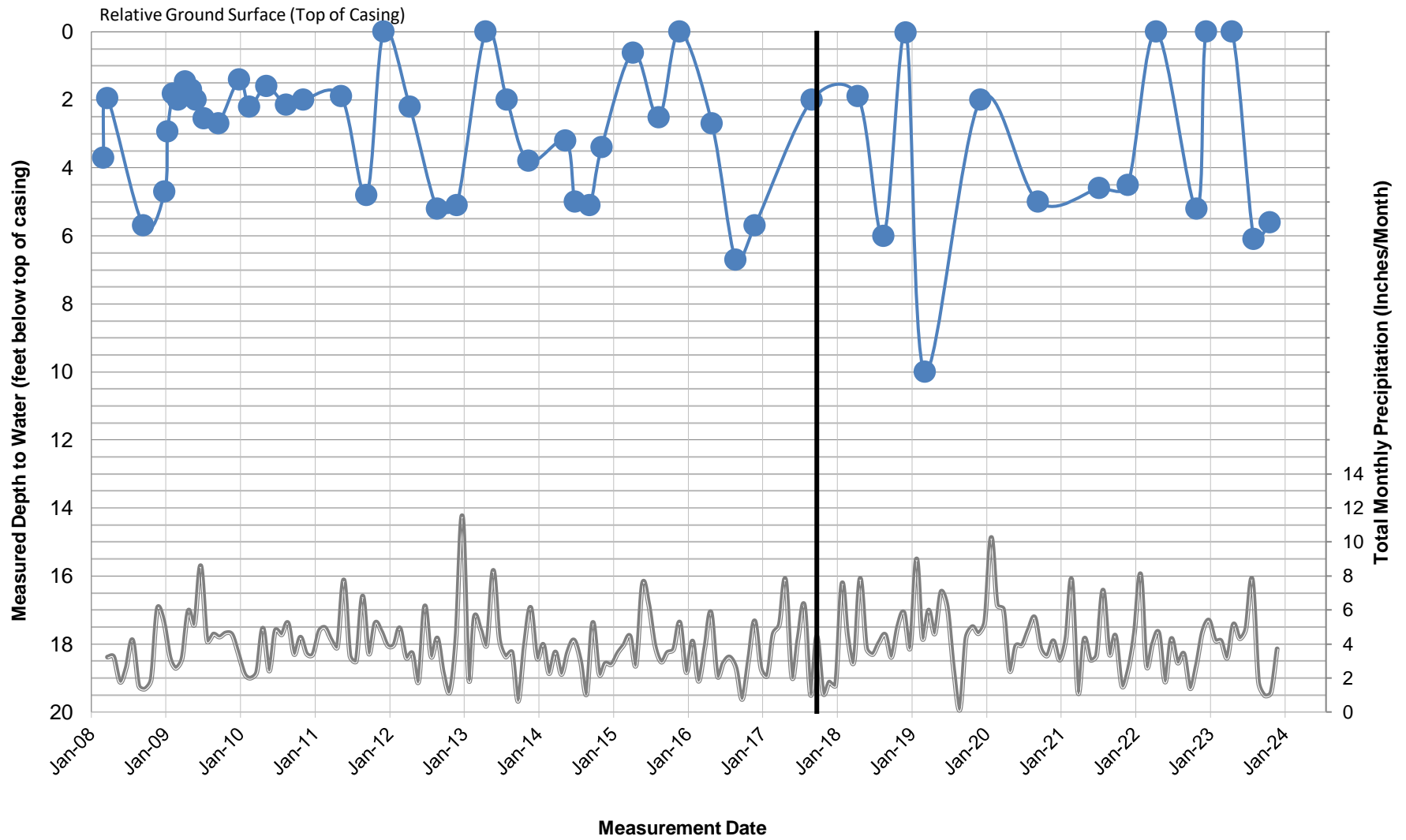
Ray Smelcer Study Area Groundwater ORP (Field) Readings



R. Smelcer (ORP_GW)

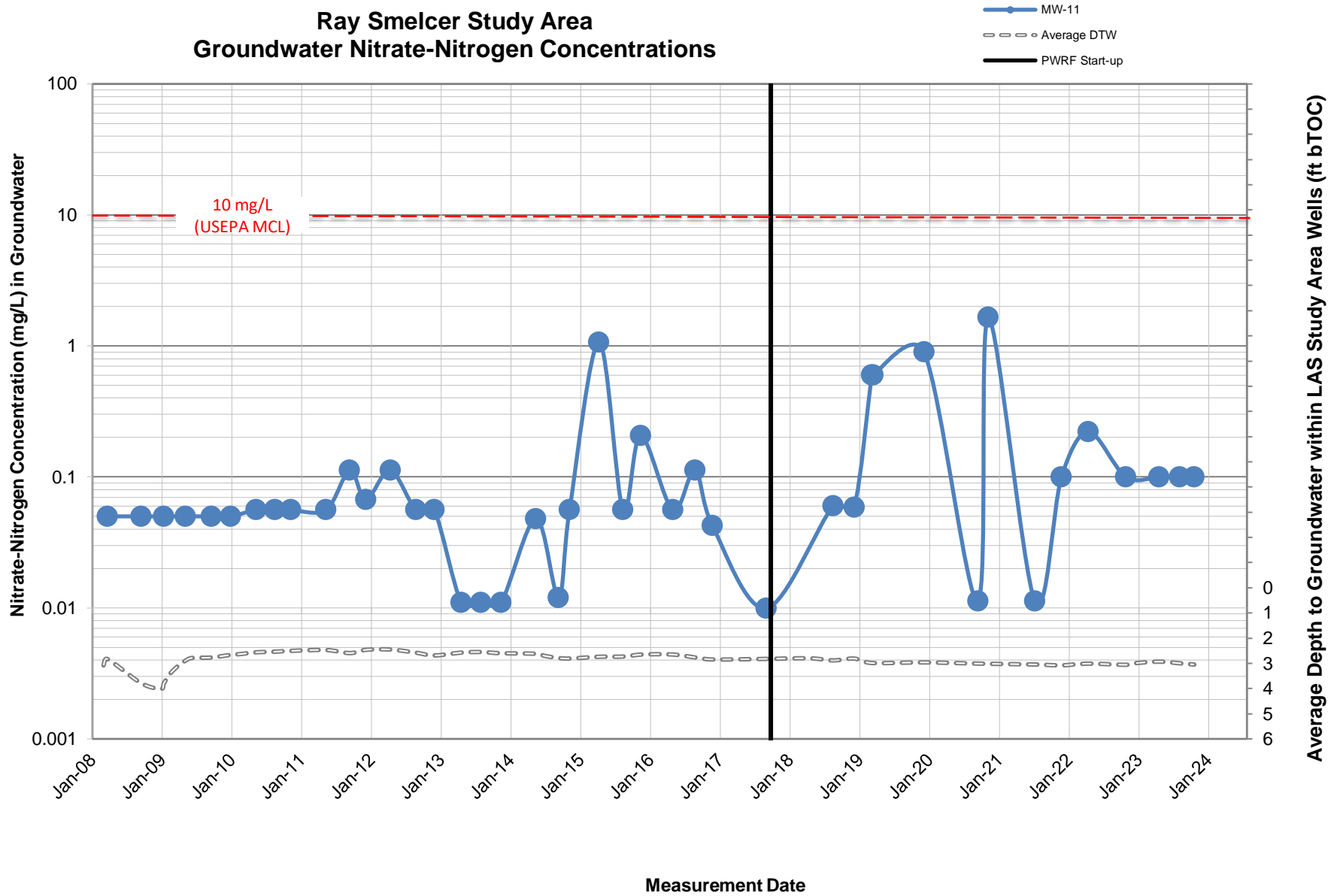
Ray Smelcer Study Area Depth to Water from Relative Ground Surface

- MW-11
- Precipitation
- PWRF Start-up



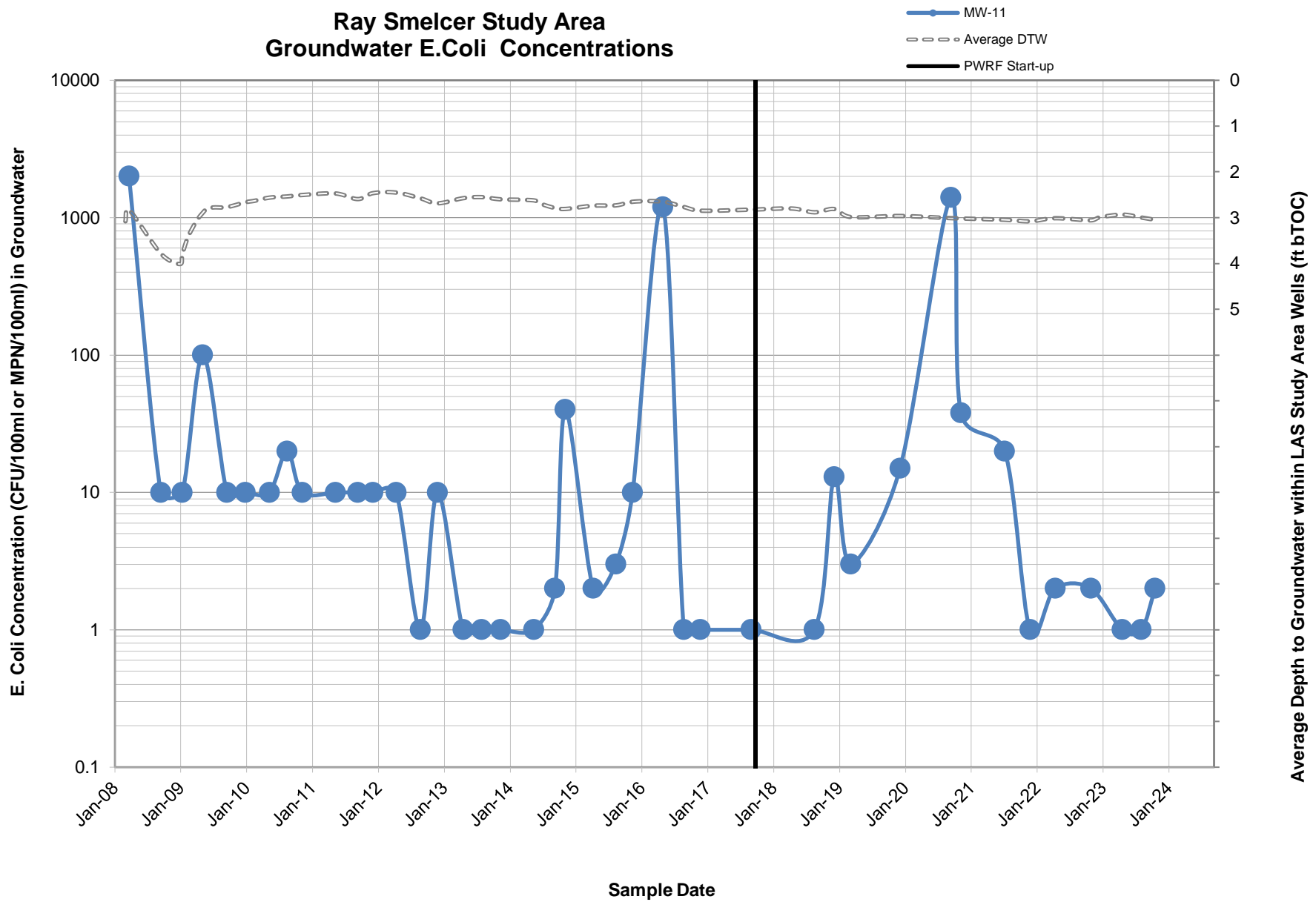
R. Smelcer (DTW_GW)

Ray Smelcer Study Area Groundwater Nitrate-Nitrogen Concentrations



R. Smelcer (N_GW)

Ray Smelcer Study Area Groundwater E.Coli Concentrations



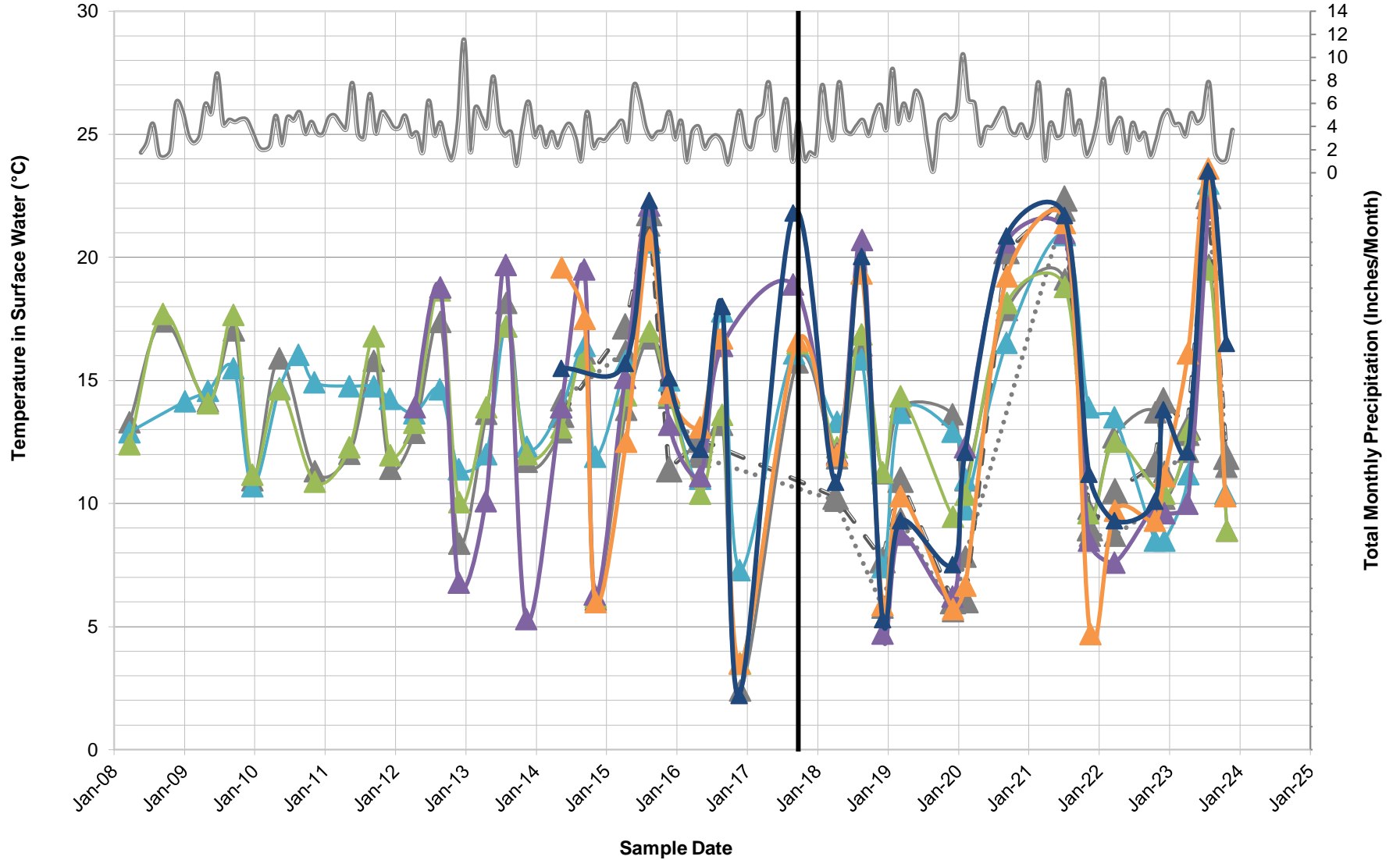
R. Smelcer (Ecoli_GW)

Appendix A-5



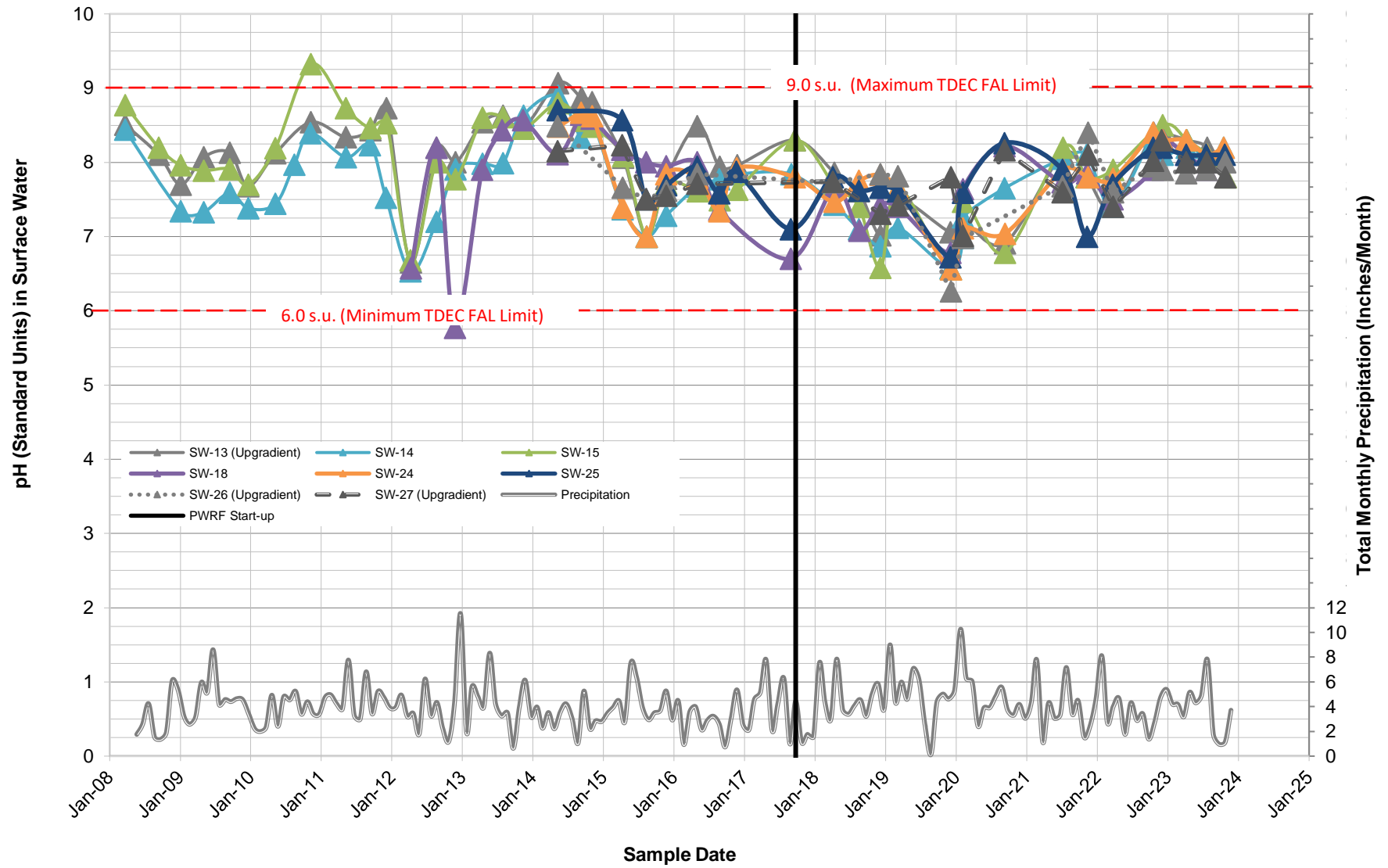
Whaley/Hayfield Study Area Surface Water Temperature Readings

- ▲ SW-13 (Upgradient)
- SW-26 (Upgradient)
- ▲ SW-27 (Upgradient)
- ▲ SW-14
- ▲ SW-15
- ▲ SW-18
- ▲ SW-24
- ▲ SW-25
- Precipitation
- PWRF Start-up

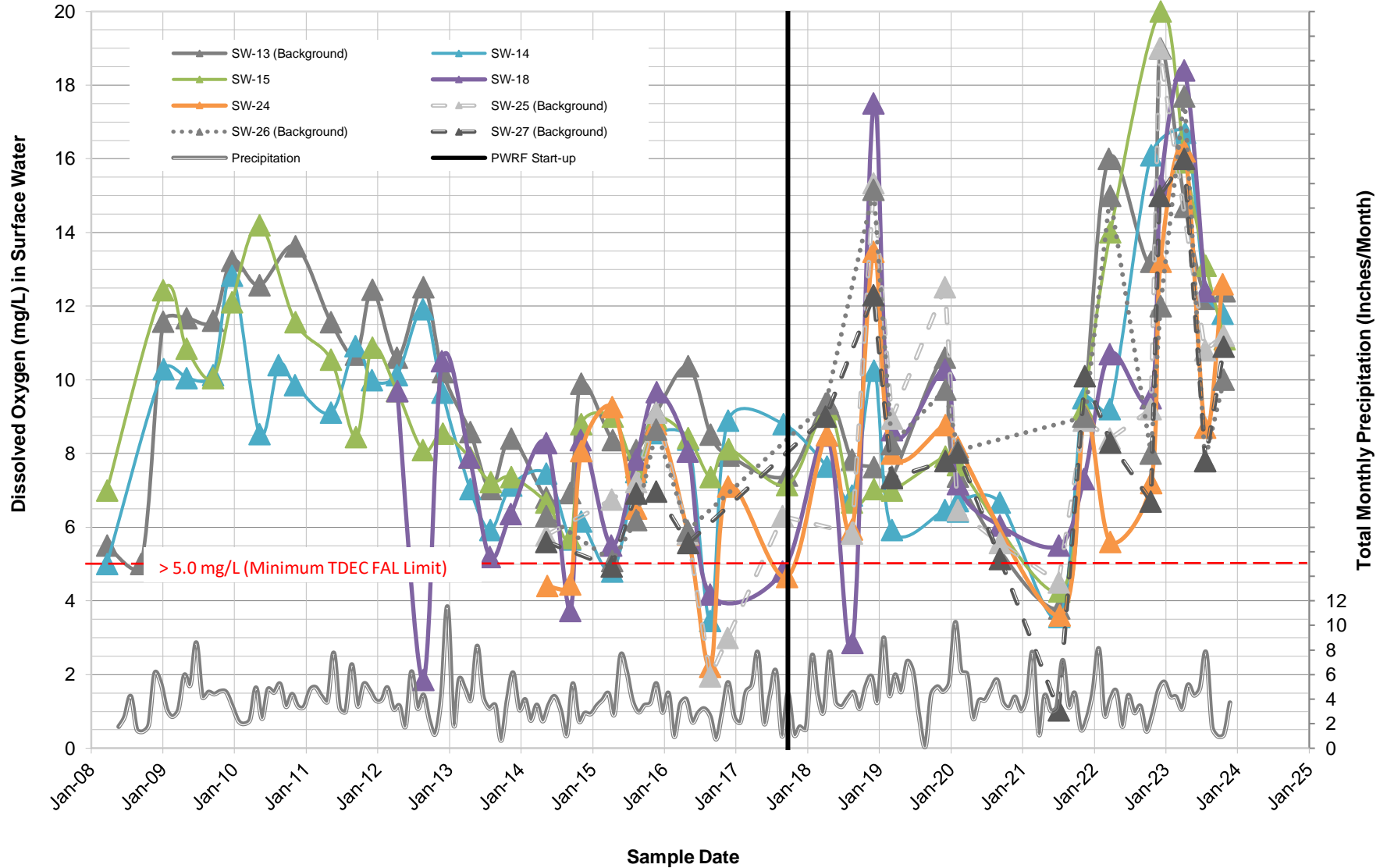


Whaley.Hay (Temp_SW)

Whaley/Hayfield Study Area Surface Water pH (Field) Readings



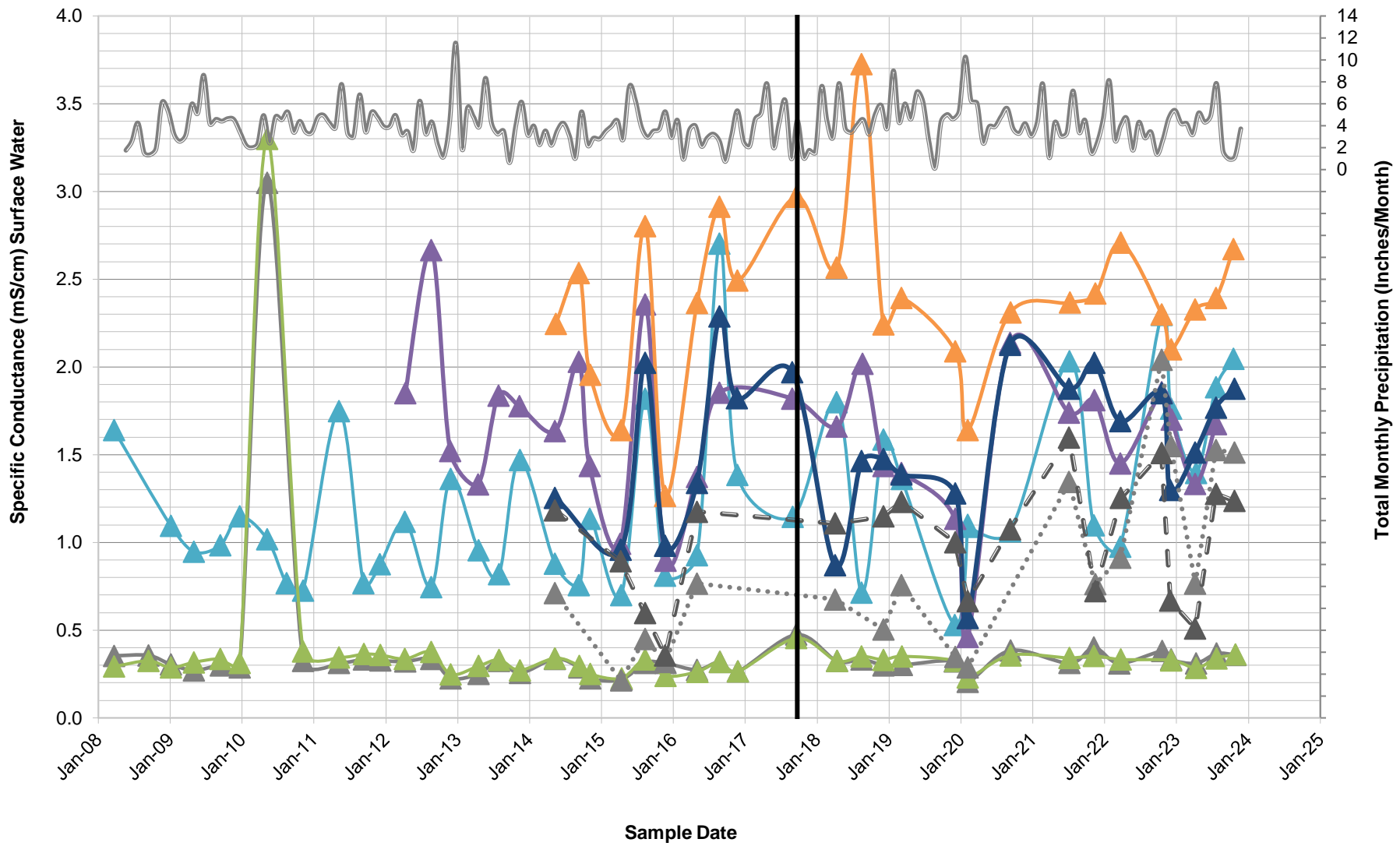
Whaley/Hayfield LAS Study Area Surface Water DO (Field) Readings



Whaley.Hay (DO_SW)

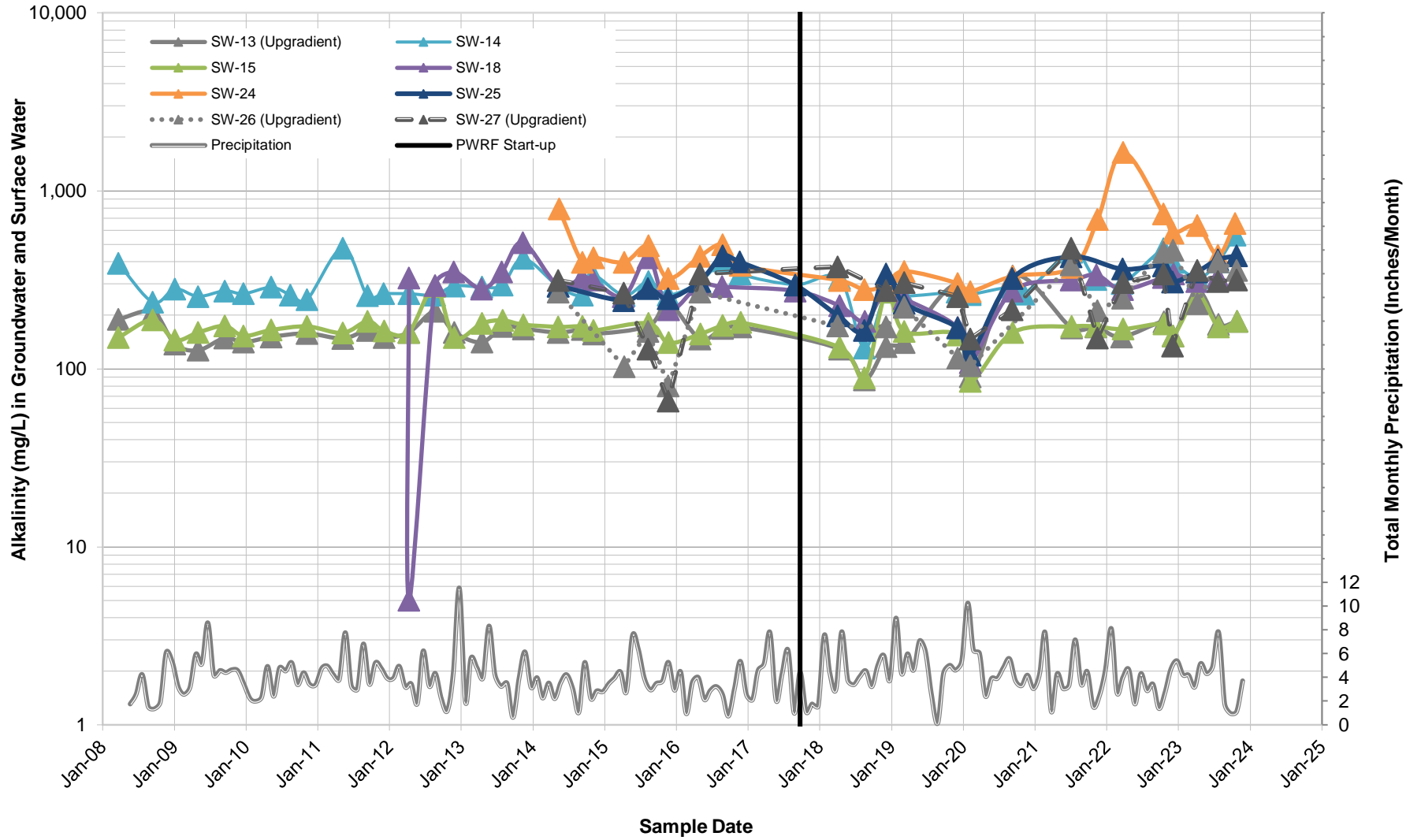
Whaley/Hayfield Study Area Surface Water Conductivity (Field) Readings

- ▲— SW-13 (Upgradient)
- ▲— SW-14
- ▲— SW-15
- ▲— SW-18
- ▲— SW-24
- ▲— SW-25
- SW-26 (Upgradient)
- ▲— SW-27 (Upgradient)
- Precipitation
- PWRF Start-up



Whaley.Hay (Cond_SW)

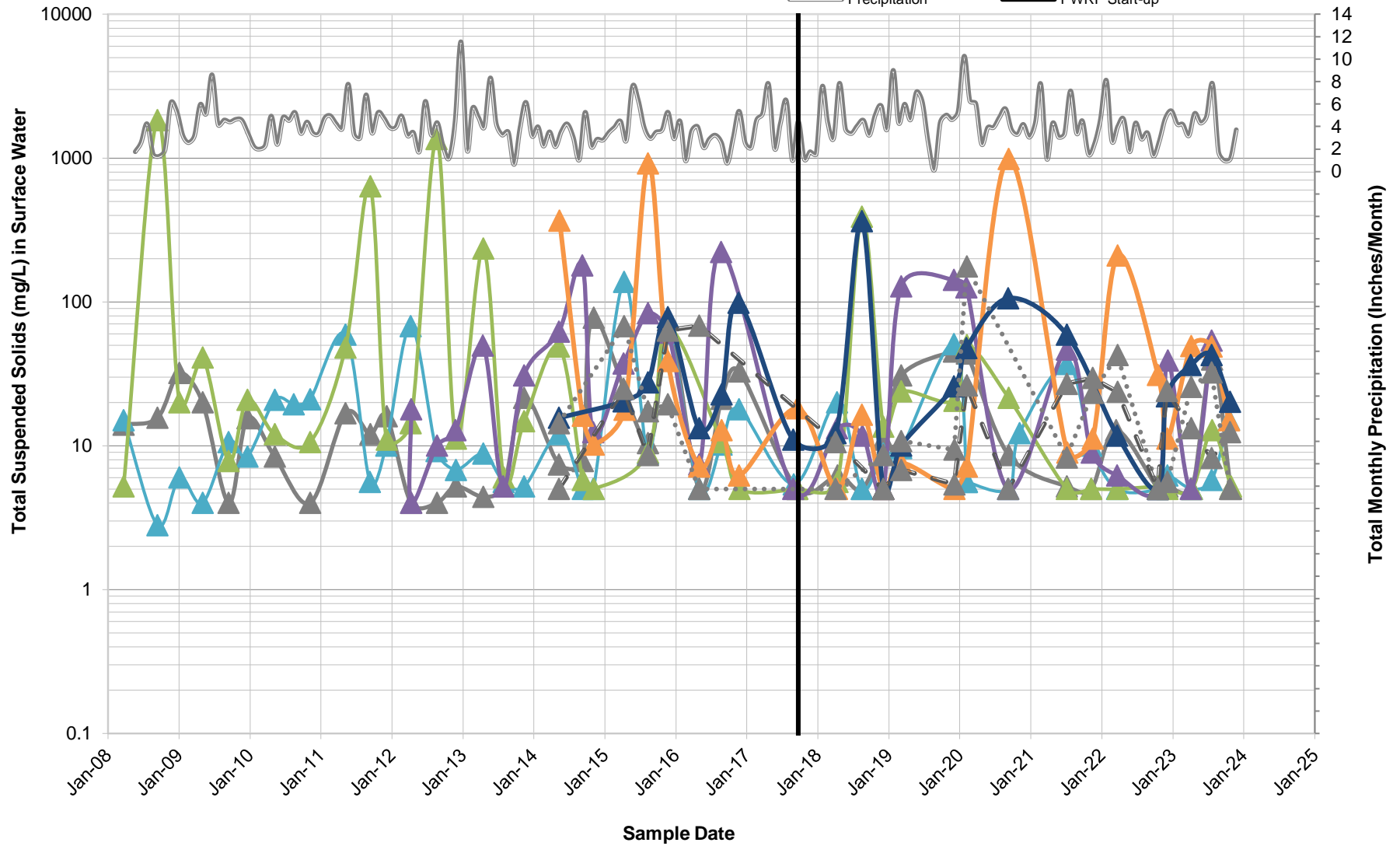
Whaley/Hayfield Study Area Alkalinity Concentrations



Whaley.Hay (Alk)

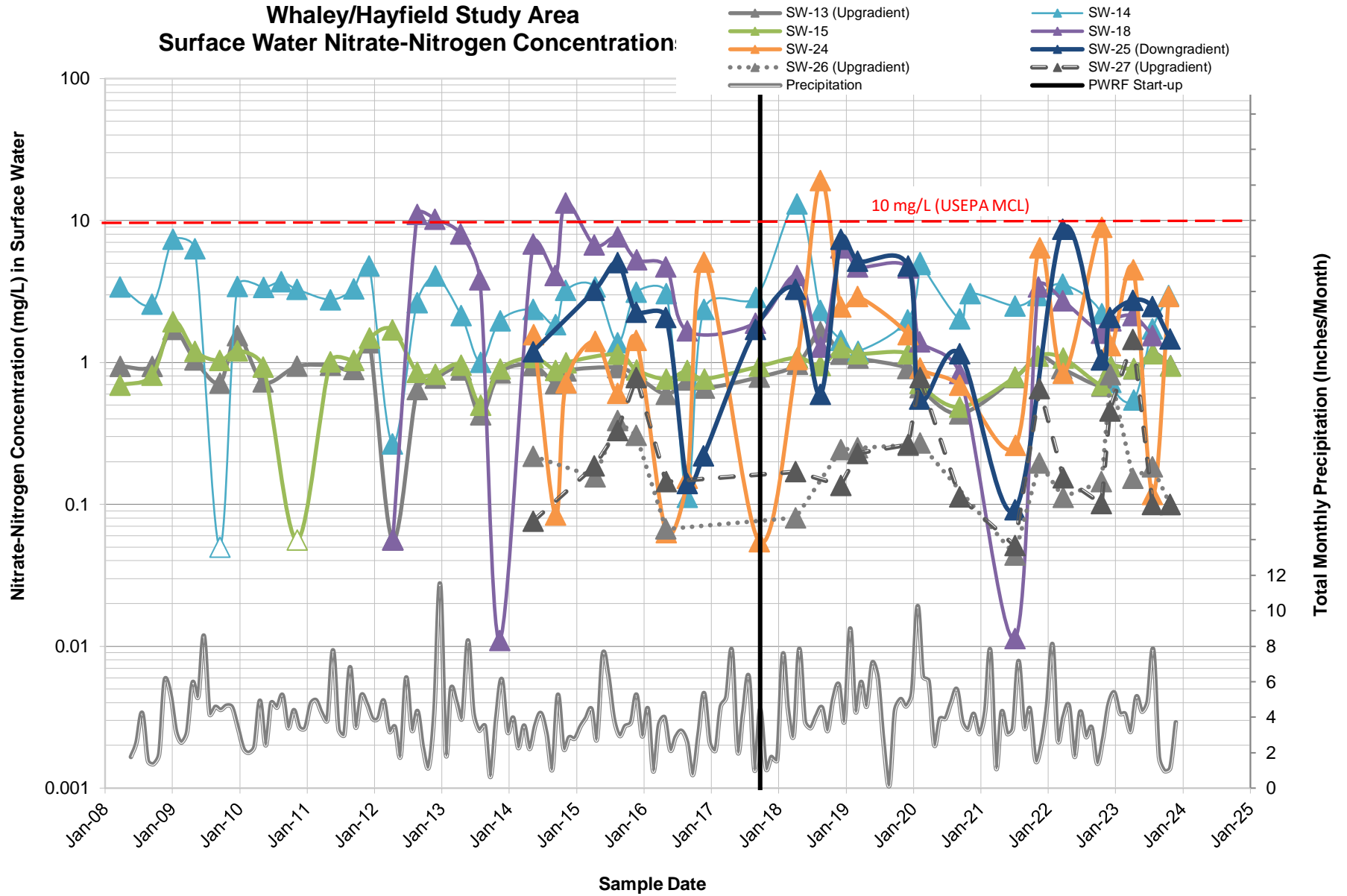
Whaley/Hayfield Study Area Surface Water TSS Concentrations

- SW-13 (Upgradient)
- SW-14
- SW-15
- SW-18
- SW-24
- SW-25
- SW-26 (Upgradient)
- SW-27 (Upgradient)
- Precipitation
- PWRF Start-up



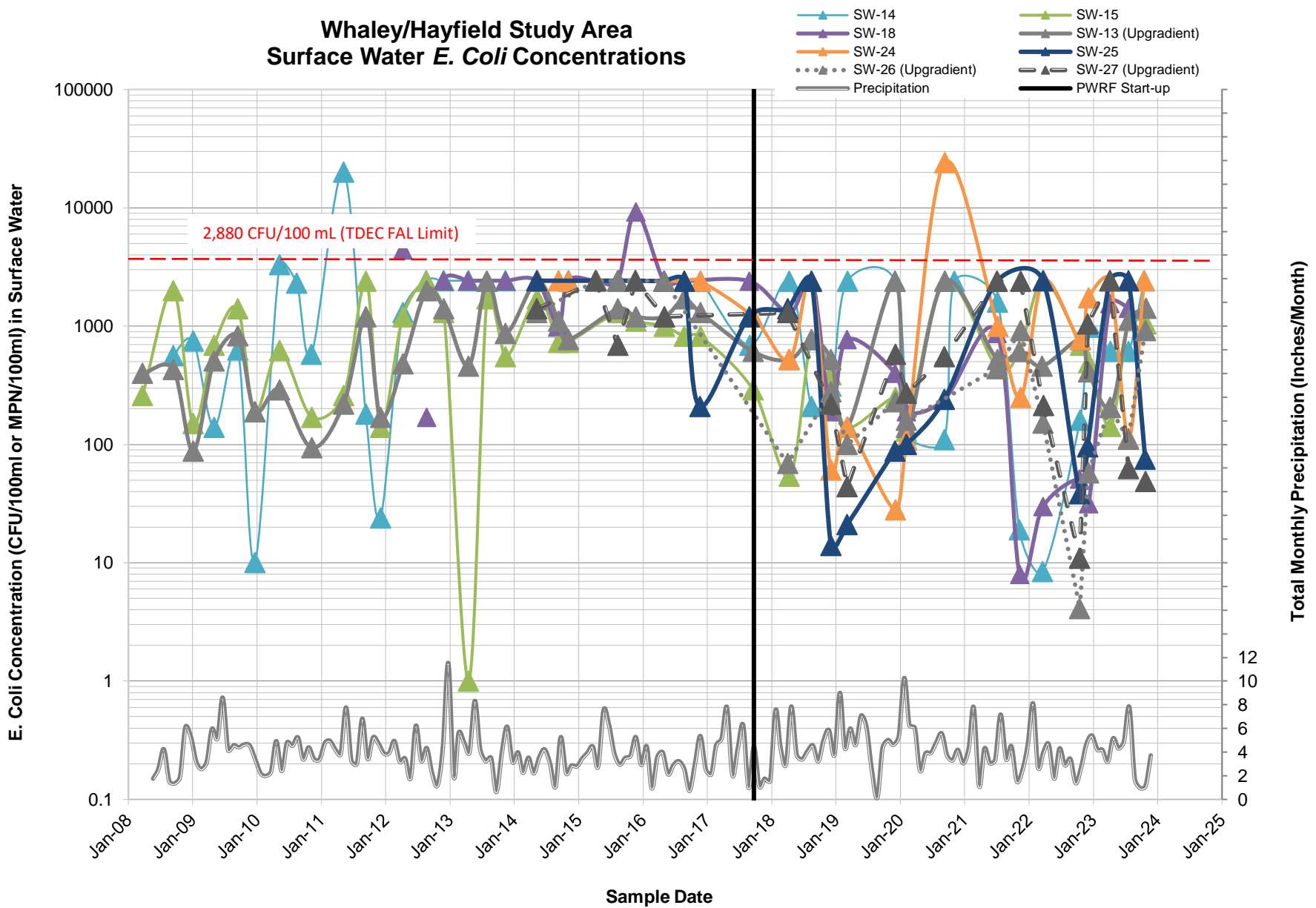
Whaley.Hay (TSS_SW)

Whaley/Hayfield Study Area Surface Water Nitrate-Nitrogen Concentration:



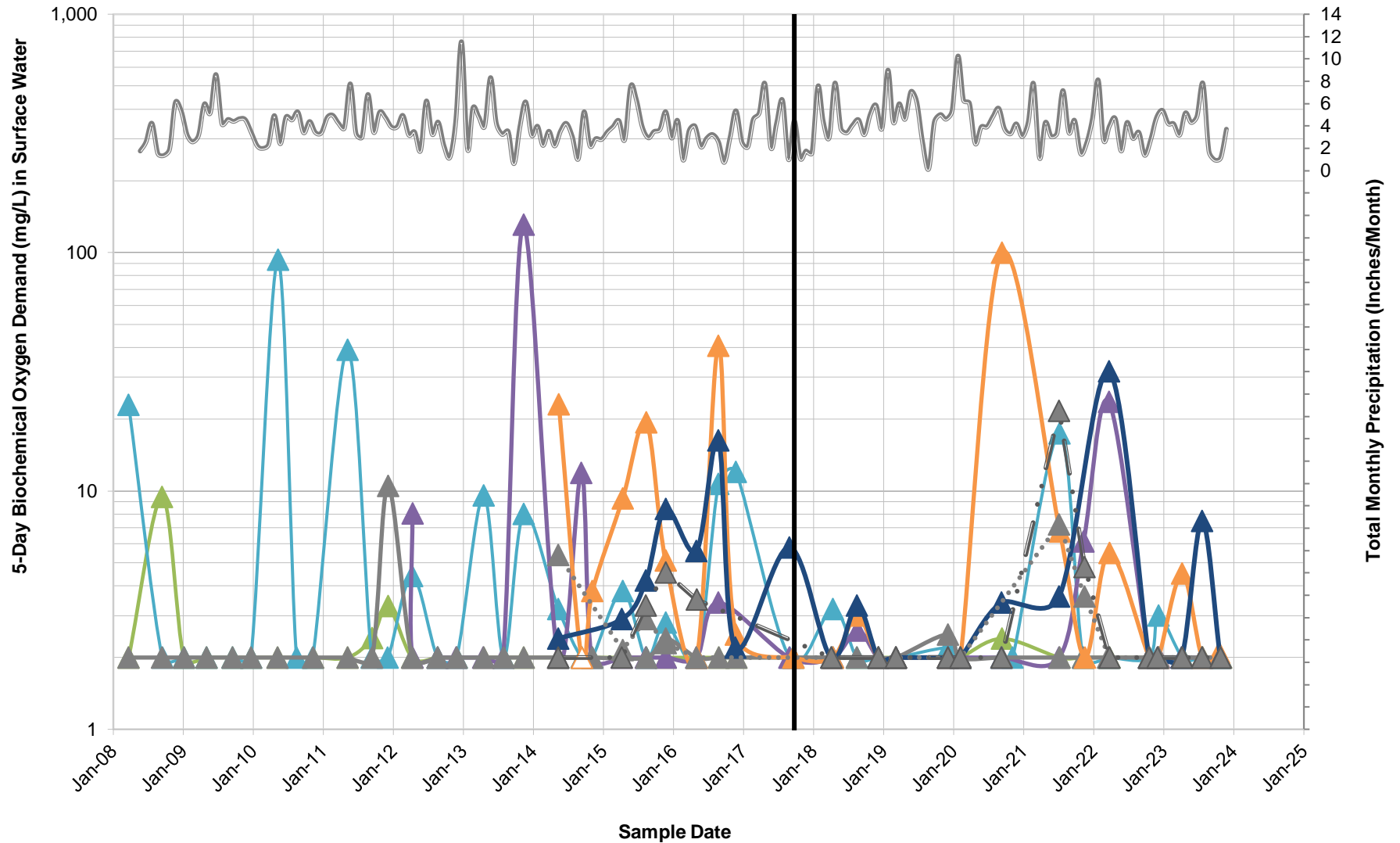
Whaley.Hay (N_SW)

Whaley/Hayfield Study Area Surface Water *E. Coli* Concentrations



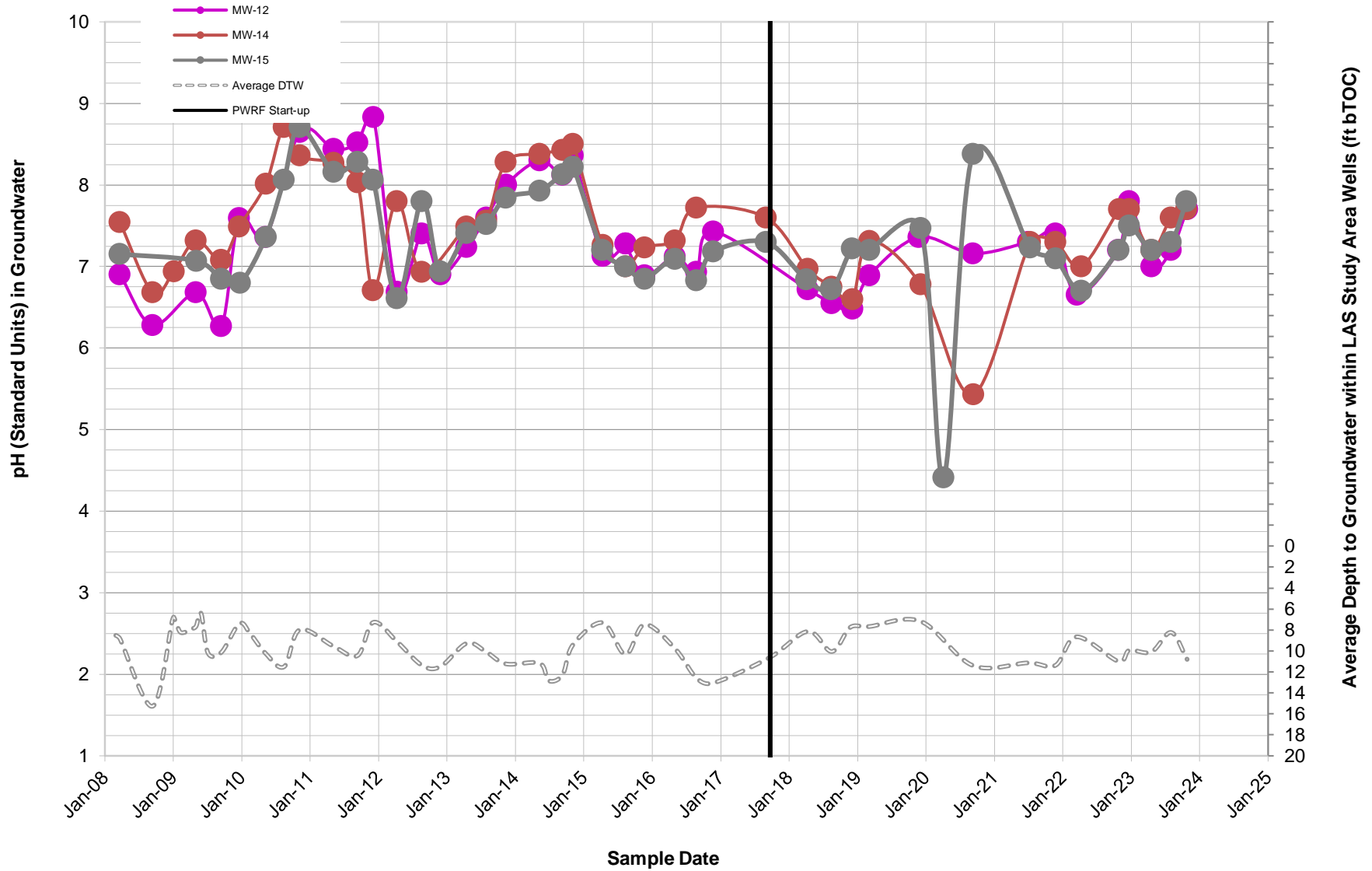
Whaley/Hayfield Study Area Surface Water 5-Day BOD Concentrations

- ▲ SW-15
 - ▲ SW-18
 - ▲ SW-24
 - ▲ SW-26 (Upgradient)
 - Precipitation
- ▲ SW-14
 - ▲ SW-13 (Upgradient)
 - ▲ SW-25
 - ▲ SW-27 (Upgradient)
 - PWRF Start-up



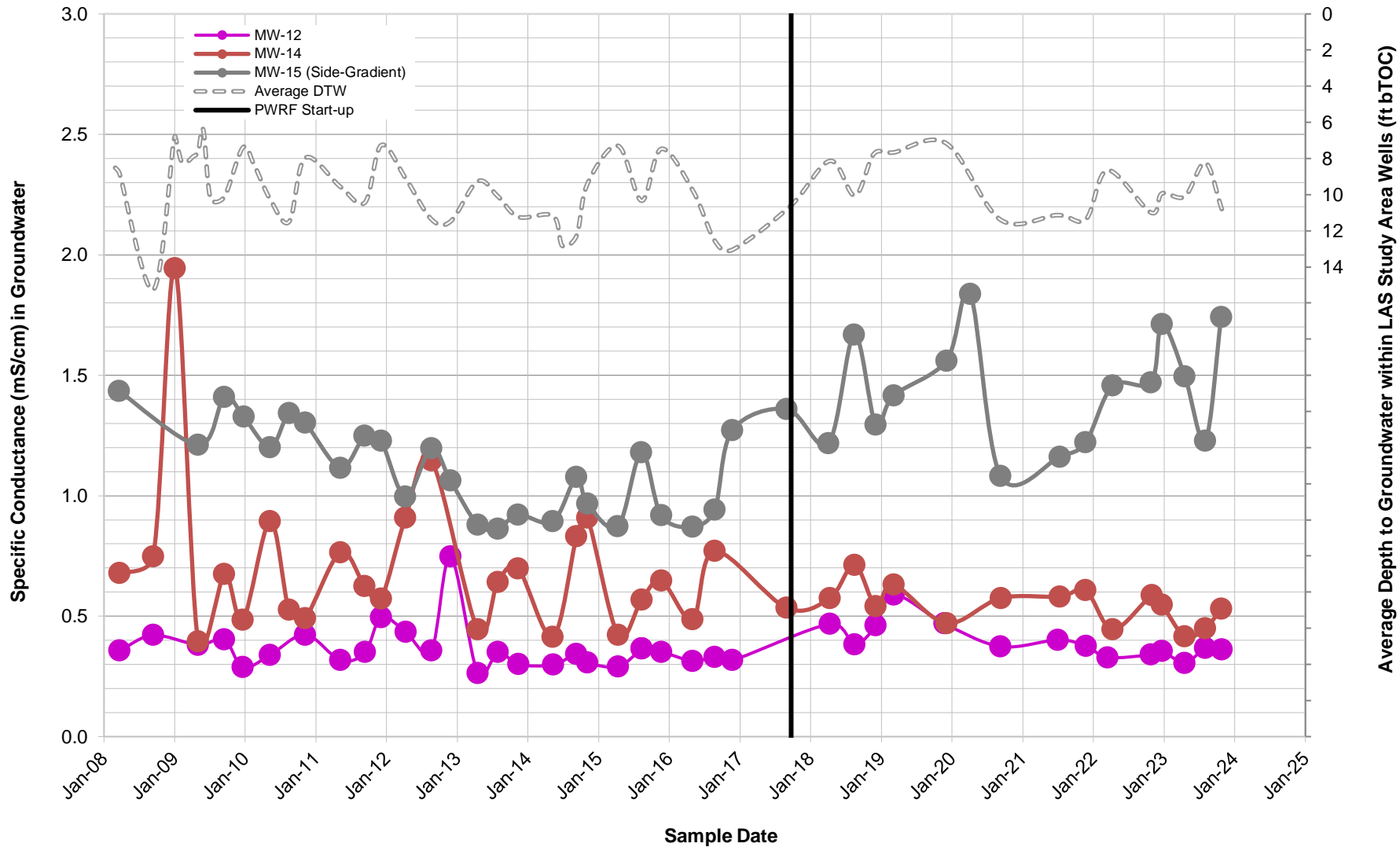
Whaley.Hay (BOD5_SW)

Whaley/Hayfield Study Area Groundwater pH (Field) Readings



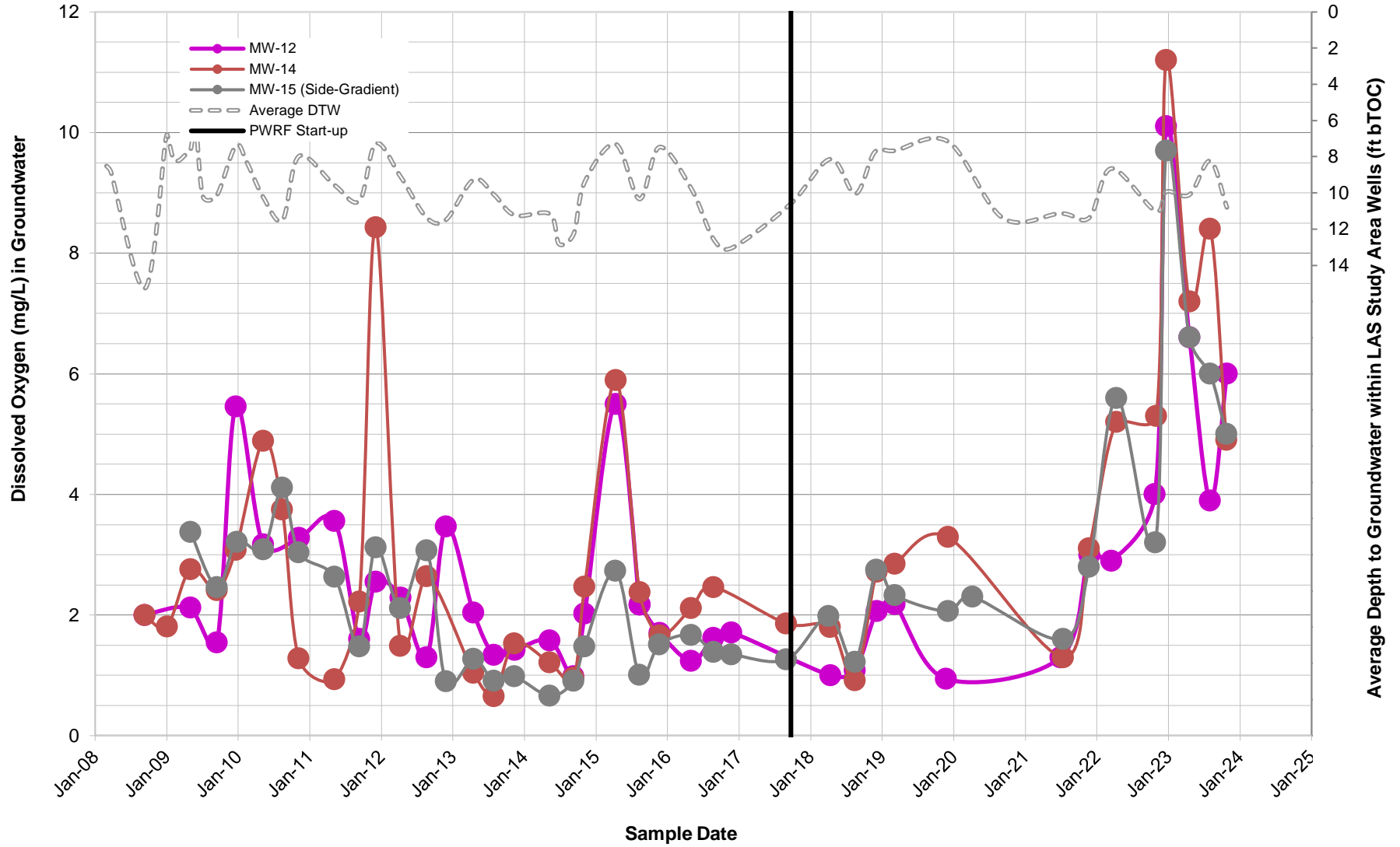
Whaley.Hay (pH_GW)

Whaley/Hayfield Study Area Groundwater Conductivity (Field) Readings



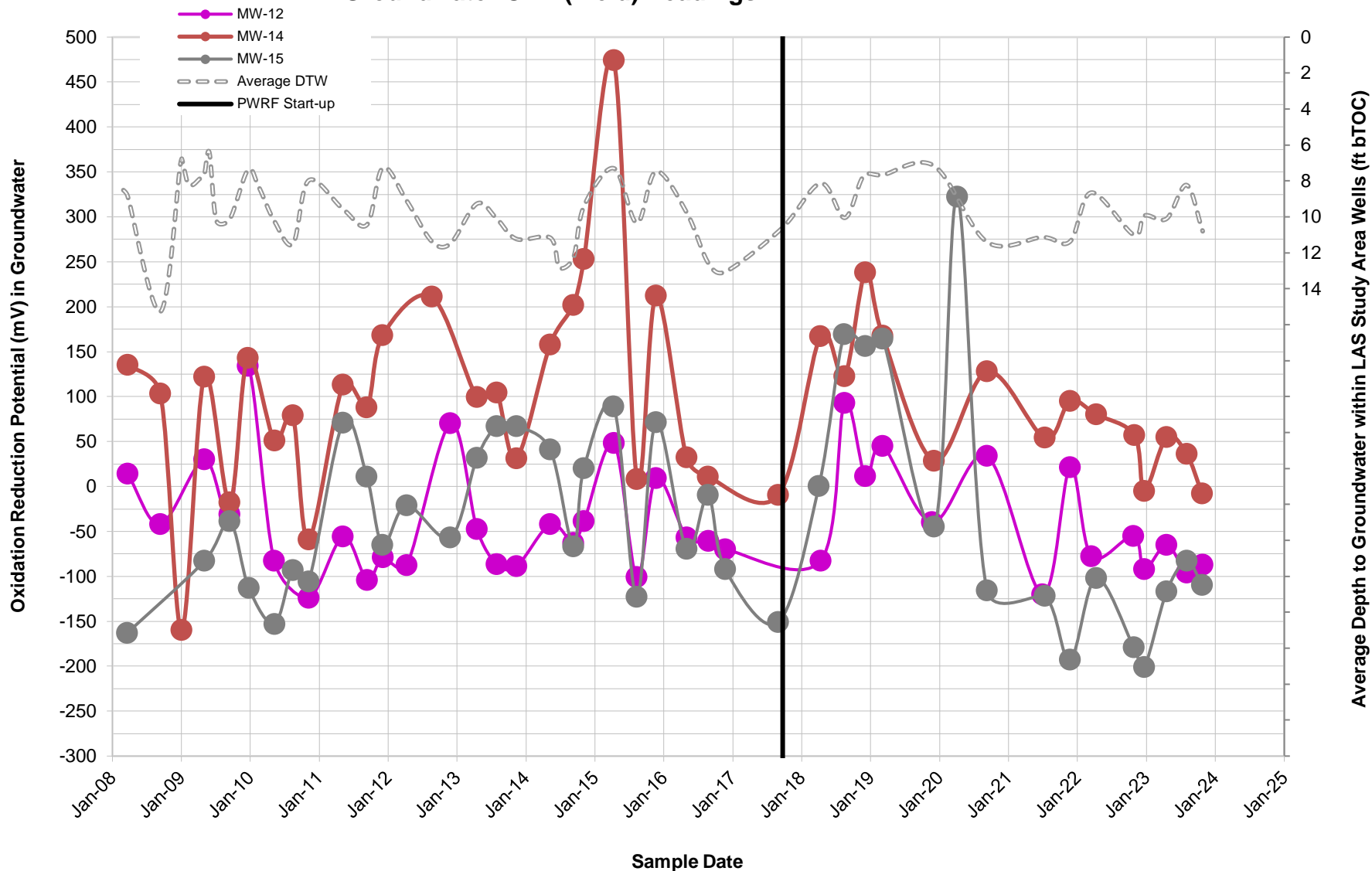
Whaley.Hay (Cond_GW)

Whaley/Hayfield Study Area Groundwater DO (Field) Readings



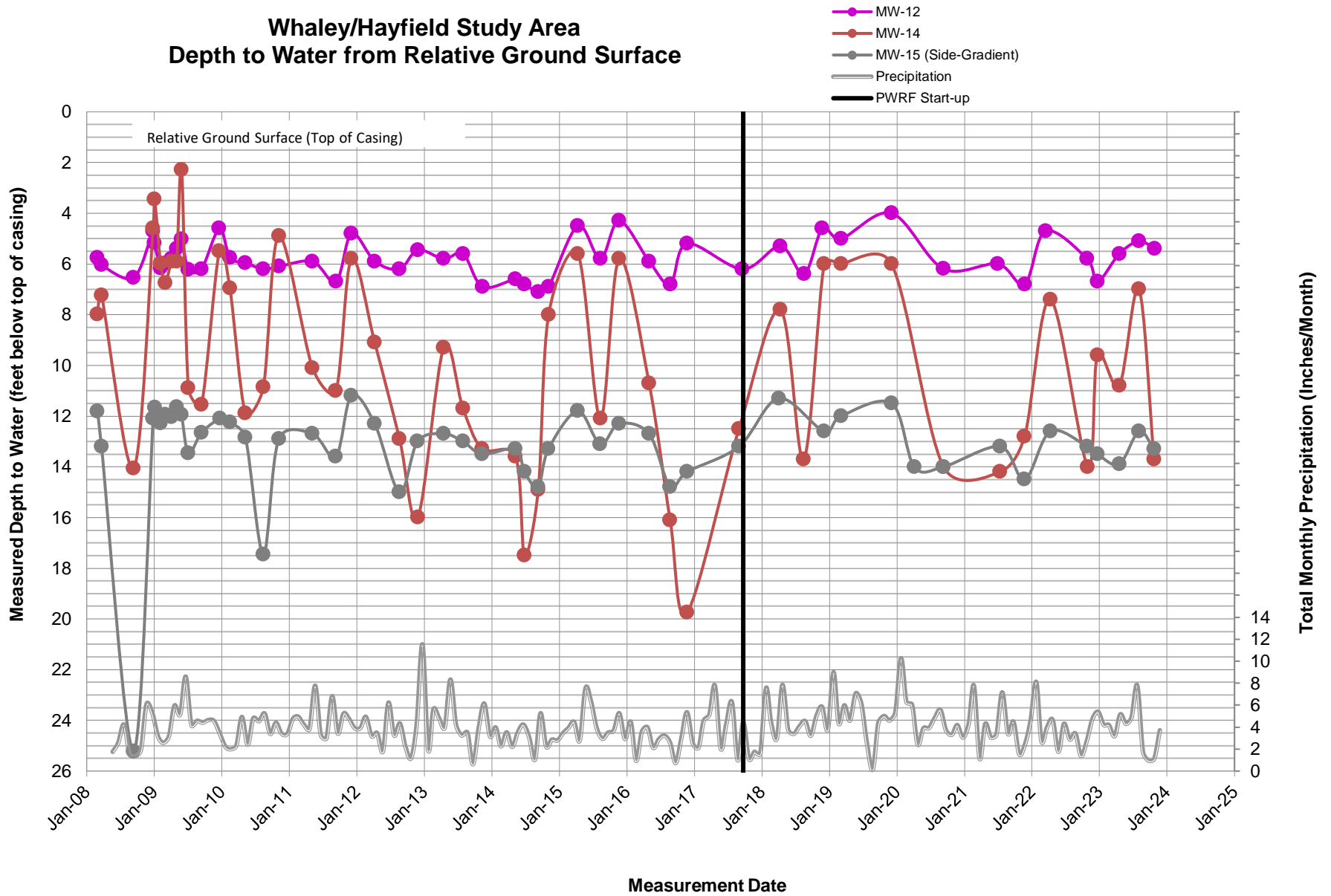
Whaley.Hay (DO_GW)

Whaley/Hayfield Study Area Groundwater ORP (Field) Readings



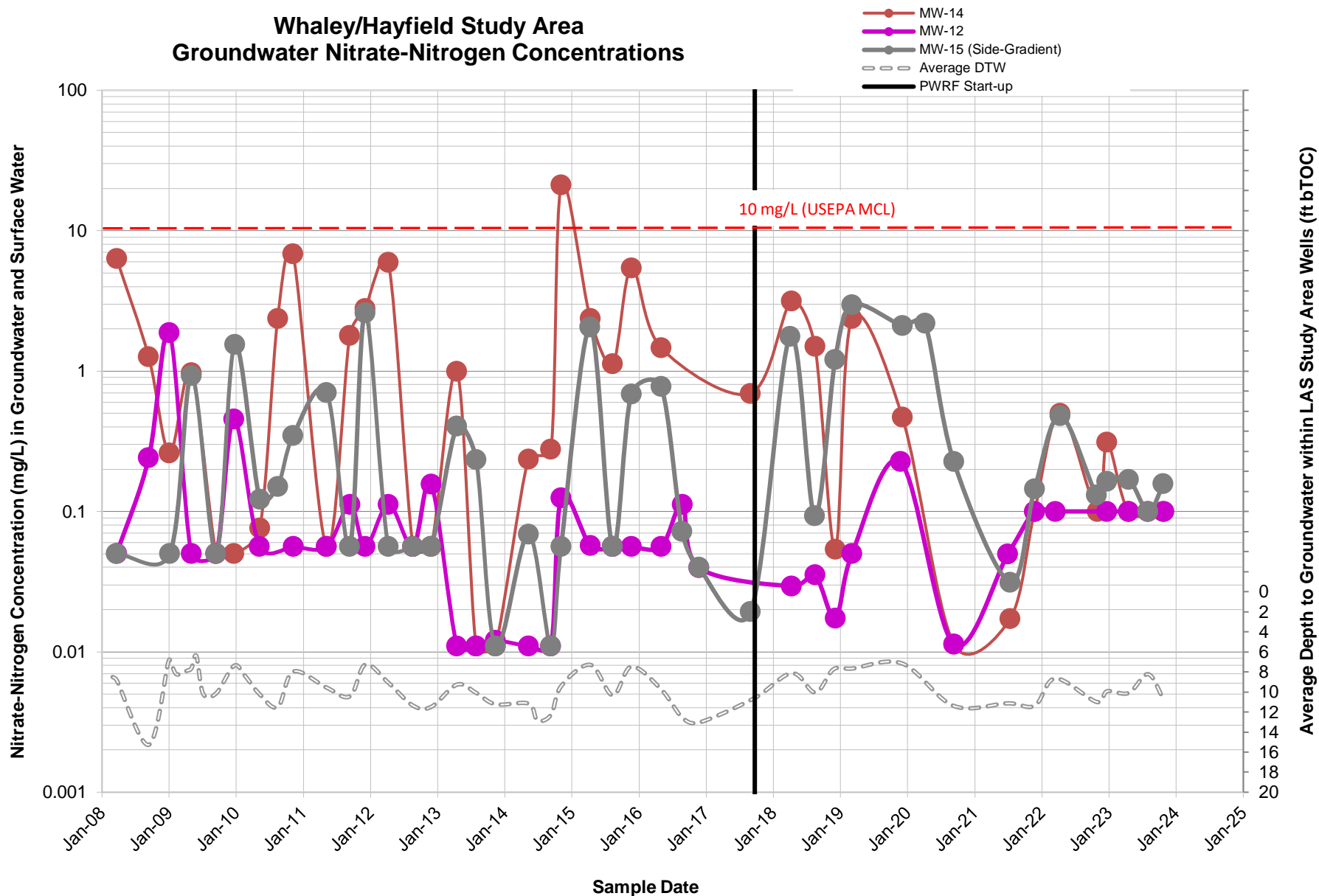
Whaley.Hay (ORP_GW)

Whaley/Hayfield Study Area Depth to Water from Relative Ground Surface



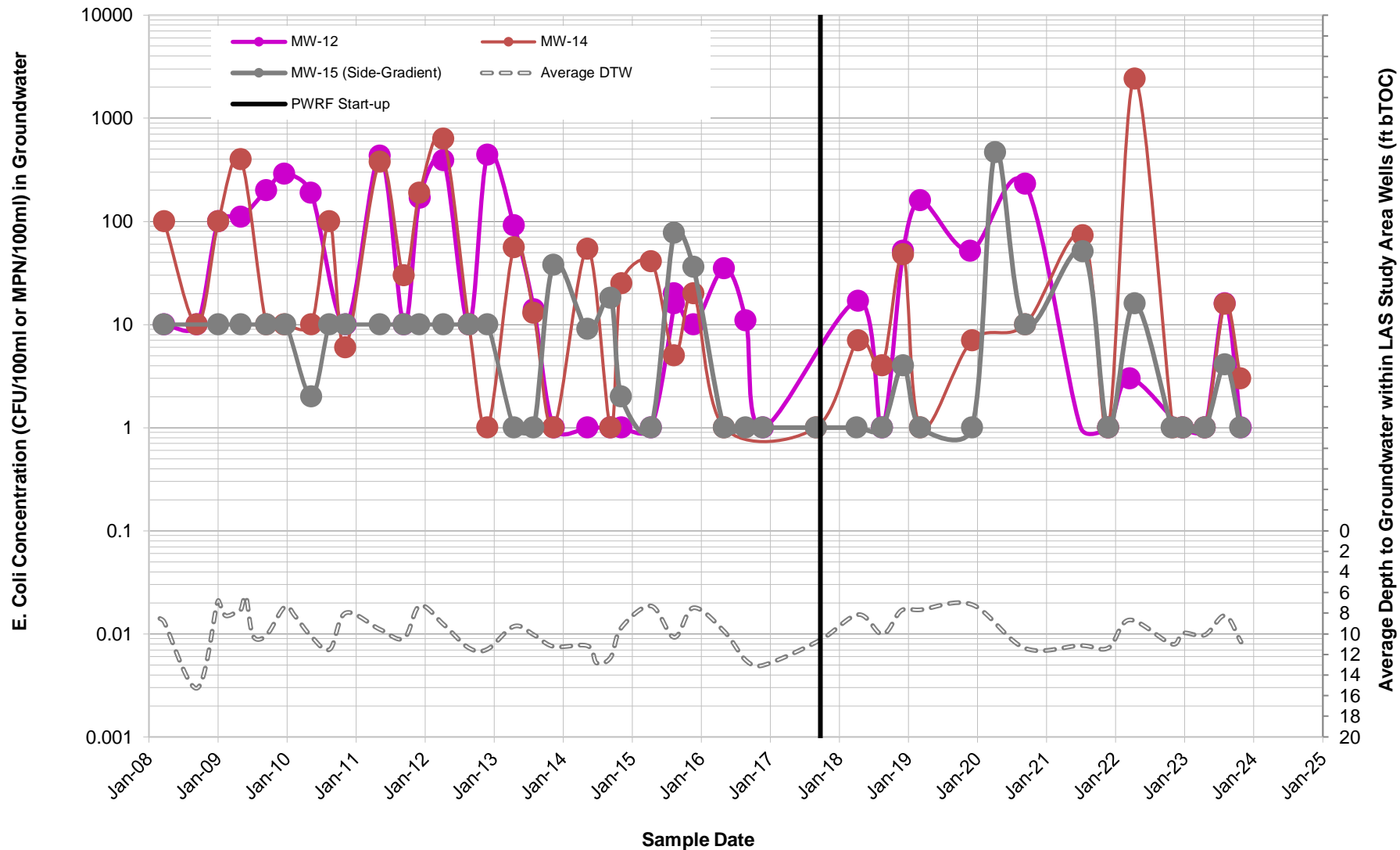
Whaley.Hay (DTW_GW)

Whaley/Hayfield Study Area Groundwater Nitrate-Nitrogen Concentrations



Whaley.Hay (N_GW)

Whaley/Hayfield Study Area Groundwater *E. Coli* Concentrations



Whaley.Hay (Ecoli_GW)

Attachment B: Field Datasheets and Laboratory Reports



B-1

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW 12 Hayfield Downgame

Sample Date: 4-26-23 Sample Time: 0945

Personnel: Tony

Weather Conditions: Cloudy
Air Temperature: 46.0

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Bailor Submersible Pump
Equipment? Dedicated Field/off-site Cleaned

Total Depth: 20.04 ft Depth to water: 5.6 ft Water Column Height: (total depth - Depth to water) = 14.44 ft

Purge Volume: (Water Column Height) * 0.163 = 2.35 gal

Purge Start Time: 0915 Purge End Time: 0945 Number of Purged Volumes: _____

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	12.5	7.2	309	-83	7.9	Cloudy
1	12.4	7.0	289	-63	6.4	cloudy
2	12.3	7.0	306	-65	6.6	cloudy
3						
Sample Data (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tony
Signature

4-26-23
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW14 Whately Downsend

Sample Date: 4-26-23 Sample Time: 0915

Personnel: Tony

Weather Conditions: cloudy
Air Temperature: 45°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Bailor Submersible Pump
Equipment? Dedicated Field/off-site Cleaned

Total Depth: 19.75 ft Depth to water: 10.8 ft Water Column Height: (total depth - Depth to water) = 8.95 ft

Purge Volume: (Water Column Height) * 0.163 = 1.46 gal

Purge Start Time: 0845 Purge End Time: 0915 Number of Purged Volumes: _____

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	14.1	7.6	442	36	8.5	clear
1	14.2	7.2	416	55	7.2	gray
2						
3						
Sample Date (if purged day)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY

REMARKS:

well would not recover after 2 volumes

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Signature

Date

4-26-23

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW15 *Whalays Upgrade*

Sample Date: 4-26-23 Sample Time: 0830

Personnel: Tony

Weather Conditions: cloudy
Air Temperature: 44.0

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Bailer Submersible Pump

Equipment? Dedicated Field/off-site Cleaned

Total Depth: 25.23 ft Depth to water: 13.9 ft

Water Column Height: (total depth - Depth to water) = 11.3 ft

Purge Volume: (Water Column Height) * 0.163 = 1.84 gal

Purge Start Time: 0800 Purge End Time: 0830

Number of Purged Volumes: 2

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	15.4	7.3	1697	-113	7.1	
1	14.7	7.2	1496	-117	6.6	Grey
2						Grey
3						
Sample Data (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tony
Signature

4-26-23
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW 6 Leans Upgrade

Sample Date: 4-25-23 Sample Time: 1000

Personnel: Tony

Weather Conditions: Clear
Air Temperature: 45°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Bailor Submersible Pump
Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.0 ft Depth to water: 23.1 ft Water Column Height: (total depth - Depth to water) = 1.7 ft

Purge Volume: (Water Column Height) * 0.163 = 2.7 gal

Purge Start Time: 1000 Purge End Time: 1030 Number of Purged Volumes: 0

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0						
1						
2						
3						
Sample Data (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

Not enough water to sample

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tony
Signature

4-25-23

Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW 7 LEAKS DOWNSEAR

Sample Date: 4-25-23 Sample Time: 0930

Personnel: Tony

Weather Conditions: Clear
Air Temperature: 44°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Sailer Submersible Pump
 Total Depth: 24.61 ft. Depth to water: Full ft. Water Column Height: (total depth - Depth to water) = 24.61 ft.
 Equipment? Dedicated Field/off-site Cleaned

Purge Volume: (Water Column Height) * 0.163 = 4.01 gal

Purge Start Time: 0900 Purge End Time: 0930 Number of Purged Volumes: 3

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	12.4	7.2	3126	55	8.1	Grey
1	12.9	7.4	2900	61	7.9	Grey
2	13.2	7.3	3030	40	7.7	Grey
3	13.2	7.1	3011	23	7.1	Grey
Sample Date (if purged day)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tony
Signature

4.25.23
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW11 RAYS

Sample Date: 4-25-23 Sample Time: 0830

Personnel: Tony

Weather Conditions: cloudy

Air Temperature: 40°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Bailor Submersible Pump

Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.57 ft. Depth to water: fill ft.

Water Column Height: (total depth - Depth to water) = 24.57 ft.

Purge Volume: (Water Column Height) * 0.163 = 4.00 gal

Purge Start Time: 0800 Purge End Time: 0830

Number of Purged Volumes: 3

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	13.6	7.3	566	22	7.8	clear
1	14.1	7.4	591	36	7.1	Grey
2	14.0	7.4	577	29	7.6	Grey
3	13.9	7.4	590	21	7.0	Grey
Sample Data (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Signature

Date

4-25-23

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW 4 Evans Upper MAC

Sample Date: 4-21-23 Sample Time: 0930

Personnel: Tomy

Weather Conditions: clear
Air Temperature: 56°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Bailor Submersible Pump
Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.85 ft Depth to water: 21.1 ft Water Column Height: (total depth - Depth to water) = 3.75 ft

Purge Volume: (Water Column Height) * 0.163 = 0.611 gal

Purge Start Time: 0930 Purge End Time: _____ Number of Purged Volumes: _____

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	17.0	6.8	335	177	12.1	cloudy
1	16.1	6.9	360	170	10.9	cloudy
2						
3						
Sample Data (if purged dry):						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

Well was very slow to recover

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tomy
Signature

4-21-23
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW2 CJ

Sample Date: 4-21-23 Sample Time: 0830

Personnel: Tony

Weather Conditions: clear

Air Temperature: 54°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Bailor Submersible Pump

Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.62 ft Depth to water: 11.0 ft

Water Column Height: (total depth - Depth to water) = 13.62 ft

Purge Volume: (Water Column Height) * 0.163 = 2.22 gal

Purge Start Time: 0830 Purge End Time: _____

Number of Purged Volumes: _____

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	13.9	7.5	313	133	12.6	clear
1	13.1	7.3	255	138	12.1	clear
2	13.5	7.2	261	146	11.6	cloudy
3	13.4	7.2	288	147	11.1	cloudy
Sample Data (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY

REMARKS:

well is slow to recover

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

4-21-23
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW 3 AS Downgrade

Sample Date: 4-20-23 Sample Time: 0900

Personnel: _____

Weather Conditions: clear
Air Temperature: 54°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Bailor Submersible Pump
Equipment? Dedicated Field/off-site Cleaned

Total Depth: 23.45 ft. Depth to water: 23.00 ft. Water Column Height: (total depth - Depth to water) = .45 ft.

Purge Volume: (Water Column Height) * 0.163 = 0.07 gal

Purge Start Time: 0850 Purge End Time: 0900 Number of Purged Volumes: 0

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0						
1						
2						
3						
Sample Date (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

well did not have enough water to sample

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

4-20-23
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW1 AJ UPGRADE

Sample Date: 4-20-23 Sample Time: 0830

Personnel: Tony

Weather Conditions: clear

Air Temperature: 53°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Bailer Submersible Pump

Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.81 ft Depth to water: 24.81 ft Water Column Height: (total depth - Depth to water) = 0 ft

Purge Volume: (Water Column Height) * 0.163 = 0 gal

Purge Start Time: 0830 Purge End Time: 0845 Number of Purged Volumes: 0

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0						
1						
2						
3						
Sample Date (if purged dry):						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

well is empty no water to sample

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Signature [Signature]

Date 4-20-23

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW-13
 Date: 4-17-23 Time: 0950 Weather Conditions: clear
 Personnel: Tony Air Temperature: 56°

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 12.8 pH: 8.3 Spec. Conductivity: 311 DO: 14.7 ORP: 160

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW-15
 Date: 4-17-23 Time: 1020 Date: _____ Time: _____
 Personnel: Tony Personnel: _____
 Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 13.0 pH: 8.3 Spec. Conductivity: 275 DO: 15.9 ORP: 164

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
 Signature

 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW14

Date: 4-17-23 Time: 0945 Weather Conditions: clear
 Personnel: Tony Air Temperature: 50°

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 11.2 pH: 8.2 Spec. Conductivity: 1397 DO: 16.7 ORP: 154

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW17

Date: 4-17-23 Time: 0920 Date: _____ Time: _____
 Personnel: Tony Personnel: clear 550

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 11.1 pH: 8.1 Spec. Conductivity: 1560 DO: 12.7 ORP: 133

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

Very low water flow

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature] Signature _____ Date _____

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW-24

Date: 4-14-23 Time: 1015 Weather Conditions: cloudy
 Personnel: TONY Air Temperature: 62°

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 16.1 pH: 8.3 Spec. Conductivity: 2328 DO: 16.2 ORP: 149

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW

Date: _____ Time: _____ Date: _____ Time: _____
 Personnel: _____ Personnel: _____

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
 Odor: Yes No
 Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
 Signature

 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW27

Date: 4-13-23 Time: 0945

Weather Conditions: clear

Personnel: Tony

Air Temperature: 55°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 13.1 pH: 8.0 Spec. Conductivity: 510 DO: 16 ORP: 91

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW19

Date: 4-14-23 Time: 0945

Date: _____ Time: _____

Personnel: Tony

Personnel: _____

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

cloudy 56°

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 16.6 pH: 7.9 Spec. Conductivity: 2901 DO: 14.4 ORP: 144

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

Ran a duplicate sample at this site located SW19D

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
 Signature

 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW25

Date: 4-12-23 Time: 1000

Weather Conditions: clear

Personnel: Tony

Air Temperature: 55°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: cloudy
 Odor: Yes No
 Temperature: 12.1 pH: 8.1 Spec. Conductivity: 1512 DO: _____ ORP: 137

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

Cows upstream

SW26

Date: 4-13-23 Time: 0915

Date: _____ Time: _____

Personnel: Tony

Personnel: _____

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

clear 50°

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 12.1 pH: 7.85 Spec. Conductivity: 764 DO: 17.7 ORP: 89

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
 Signature

 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW18

Date: 4-12-23 Time: 0830

Weather Conditions: clear

Personnel: Tony

Air Temperature: 40°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 10.0 pH: 8.1 Spec. Conductivity: 1334 DO: 18.4 ORP: 158

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

very low flow cows upstream

SW18B

Date: 4-12-23 Time: 0915

Date: _____ Time: _____

Personnel: Tony

Personnel: _____

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
 Odor: Yes No
 Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

Blank sample run in our lab unopened distilled water

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
 Signature

 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW16

Date: 4-11-23 Time: 0815

Weather Conditions: clear

Personnel: Tony

Air Temperature: 39°

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 12.0 pH: 8.0 Spec. Conductivity: 599 DO: 18.3 ORP: 124

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW12

Date: 4-11-23 Time: 0845

Date: _____ Time: _____

Personnel: Tony

Personnel: _____

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

clear 39°

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 11.8 pH: 8.2 Spec. Conductivity: 580 DO: 21.1 ORP: 123

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW11

Date: 4-11-23 Time: 0915

Weather Conditions: clear
Air Temperature: 42°

Personnel: Tony

- Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 12.1 pH: 8.2 Spec. Conductivity: 585 DO: 16.8 ORP: 140

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW7

Date: 4-11-23 Time: 1000

Date: _____ Time: _____

Personnel: Tony

Personnel: _____

- Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

49° clear

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 11.5 pH: 7.9 Spec. Conductivity: 2396 DO: 17.5 ORP: -22

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tony Byrd
Signature

Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW8R
 Date: 4-10-23 Time: 1100 Weather Conditions: clear
 Personnel: Tony Air Temperature: 60°
~~65°~~

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 15.2 pH: 7.5 Spec. Conductivity: 542 DO: 13.4 ORP: 167

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW5
 Date: 4-11-23 Time: 0815 Date: _____ Time: _____
 Personnel: Tony Personnel: _____
 Air Temperature: 39° clear

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
 Odor: Yes No
 Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

dry no water to sample

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
 Signature

 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW9

Date: 4-10-23 Time: 1000

Personnel: Tony

Weather Conditions: clear

Air Temperature: 58°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 10.5 pH: 8.1 Spec. Conductivity: 312 DO: 20.1 ORP: 181

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW3R2

Date: 4-10-23 Time: 1030

Personnel: Tony

Date: _____ Time: _____

Personnel: _____

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

clear 60°

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 11.6 pH: 8.27 Spec. Conductivity: 534 DO: 17.1 ORP: 164

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tony
 Signature

 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SWR

Date: 4-4-23 Time: 09:50

Weather Conditions: cloudy
Air Temperature: 57°

Personnel: Tony

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 13.8 pH: 8.2 Spec. Conductivity: 164 DO: 17.8 ORP: 181

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY
- 5-DAY BOD
- TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW4

Date: 4-10-23 Time: 08:15

Date: _____ Time: _____

Personnel: Tony

Personnel: _____
clear 40°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 12.4 pH: 8.2 Spec. Conductivity: 399 DO: 19.1 ORP: 201

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY
- 5-DAY BOD
- TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tony B...
Signature

Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW23
 Date: 4-4-23 Time: 0915 Weather Conditions: cloudy
 Personnel: Tony Air Temperature: 55°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
 Odor: Yes No
 Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

Dry no water to sample

SW2
 Date: 4-4-23 Time: 0930 Date: _____ Time: _____
 Personnel: Tony Personnel: cloudy 56°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 13.7 pH: 8.2 Spec. Conductivity: 166 DO: 19.1 ORP: 156

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
 Signature

 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW 22

Date: 4-4-23 Time: 0910

Weather Conditions: cloudy

Personnel: Tony

Air Temperature: 54°

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 13.1 pH: 8.1 Spec. Conductivity: 583 DO: 17.4 ORP: 170

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW 3 R 3

Date: 4-4-23 Time: 0920

Date: _____ Time: _____

Personnel: Tony

Personnel: _____

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

cloudy 55°

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
Odor: Yes No
Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

Creek is dry no water to sample

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW12

Sample Date: 8-10-23 Sample Time: 1045

Personnel: Jay Sam

Weather Conditions: Rain
Air Temperature: 70°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

24hr Rain Total
1.65"

WELL PURGING:

Purge Method? Baller Submersible Pump

Equipment? Dedicated Field/off-site Cleaned

Total Depth: 20.04 ft ~~20.04~~ 18.75 ft Depth to water: 5.1 ft

Water Column Height: (total depth - Depth to water) = 13.9 ft

Purge Volume: (Water Column Height) * 0.163 = 2.27 gal

Purge Start Time: 1045 Purge End Time: 1115 Number of Purged Volumes: 3

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	18.8	7.6	368	-110	6.0	cloudy
1	19.3	7.4	368	-98	5.3	cloudy
2	19.5	7.3	368	-99	4.8	cloudy
3	19.5	7.2	367	-96	3.9	cloudy
Sample Data (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

Well was 20.04' measures 19.0 now

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

8-10-23
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW14

Sample Date: 8-10-23 Sample Time: 1010

Personnel: Tony SAM

Weather Conditions: RAIN
Air Temperature: 72°

24 hr RAIN total
1.65"

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Baller Submersible Pump
Equipment? Dedicated Field/off-site Cleaned

Total Depth: 19.75 ft Depth to water: 7.0 ft Water Column Height: (total depth - Depth to water) = 12.75 ft

Purge Volume: (Water Column Height) * 0.163 = 2.08 gal

Purge Start Time: 1010 Purge End Time: 1030 Number of Purged Volumes: 1

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	20.8	7.6	450	36	8.4	cloudy
1						
2						
3						
Sample Data (if purged day)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

well would not recover

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

8-10-23
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW15

Sample Date: 8-10-23 Sample Time: 0915

Personnel: Tony SAM

Weather Conditions: RAIN
Air Temperature: 70°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

24 hr rain total
1.65"

WELL PURGING:

Purge Method? Sucker Submersible Pump

Equipment? Dedicated Field/off-site Cleaned

Total Depth: 25.23 ft Depth to water: 12.6 ft

Water Column Height: (total depth - Depth to water) = 12.63 ft

Purge Volume: (Water Column Height) * 0.163 = 2.06 gal

Purge Start Time: 0915 Purge End Time: 0945 Number of Purged Volumes: 3

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	17.7	7.6	1565	-197	6.1	clear
1	17.6	7.5	1242	-145	6.0	Grey
2	17.4	7.4	1225	-102	5.9	Grey
3	17.4	7.3	1228	-83	6.0	Grey
Sample Data (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

8-10-23

Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW 7

Sample Date: 8-9-23 Sample Time: 1030

Personnel: Tony SAM

Weather Conditions: clear
Air Temperature: 74°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Baller Submersible Pump
Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.6 ft Depth to water: Full ft Water Column Height: (total depth - Depth to water) = _____ ft

Purge Volume: (Water Column Height) * 0.163 = 4.01 gal

Purge Start Time: 1030 Purge End Time: 1100 Number of Purged Volumes: 3

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	21.3	7.2	2991	-47		
1	18.3	7.0	3106	-26	6.6	cloudy
2	17.1	7.0	3142	-16	5.8	cloudy
3	16.6	6.9	3143	-13	6.2	cloudy
Sample Data (if purged day)						cloudy

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

well is over flowing

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Signature

8-9-23

Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW6

Sample Date: 8-9-23 Sample Time: 0915

Personnel: Tony SAM

Weather Conditions: clear
Air Temperature: 72°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Baller Submersible Pump
Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.80 ft Depth to water: 16.1 ft Water Column Height: (total depth - Depth to water) = 8.8 ft

Purge Volume: (Water Column Height) * 0.163 = 1.43 gal

Purge Start Time: 0915 Purge End Time: 0945 Number of Purged Volumes: 1

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	18.2	7.8	565	-161	5.1	Turbid
1						
2						
3						
Sample Date (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

Well did not recover after one volume

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

8-9-23
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW11

Sample Date: 8-9-23 Sample Time: 0830

Personnel: Tony SAM

Weather Conditions: clear
Air Temperature: 71°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Baller Submersible Pump

Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.57 ft Depth to water: 6.1 ft

Water Column Height: (total depth - Depth to water) = 18.47 ft

Purge Volume: (Water Column Height) * 0.163 = 3.01 gal

Purge Start Time: 0830 Purge End Time: 0900

Number of Purged Volumes: 3

Volume	Temperature	pH TB	Specific Conductivity	ORP	DO	Color
0	17.8	8.0	1030	-309	10.5	light grey
1	18.7	7.9	963	-302	4.3	clear
2	18.8	8.0	962	-304	5.0	clear
3	18.8	8.1	970	-305	3.0	Grey
Sample Data (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tony SAM
Signature

8-9-23
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW4
 Sample Date: 8-8-23 Sample Time: 0945
 Personnel: Tony Sam

Weather Conditions: cloudy
 Air Temperature: 71°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Baller Submersible Pump
 Equipment? Dedicated Field/off-site Cleaned
 Total Depth: 24.85 ft Depth to water: 21.3 ft Water Column Height: (total depth - Depth to water) = 3.55 ft
 Purge Volume: (Water Column Height) * 0.163 = 0.59 gal
 Purge Start Time: 0930 Purge End Time: 1000 Number of Purged Volumes: 1

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	17.5	7.8	465	176	10.1	clear
1						
2						
3						
Sample Date (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY

REMARKS:

well very slow to recover. Pulled one volume and collected samples
 I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

T. Sam
 Signature

8-8-23
 Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW2

Sample Date: 8-8-23 Sample Time: 0930

Personnel: Tony Sam

Weather Conditions: cloudy

Air Temperature: _____

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Baller Submersible Pump

Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.62 ft Depth to water: 21.90 ft

Water Column Height: (total depth - Depth to water) = 0 ft

Purge Volume: (Water Column Height) * 0.163 = 0 gal

Purge Start Time: 0915 Purge End Time: 0930 Number of Purged Volumes: 0

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0						
1						
2						
3						
Sample Date (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

well was dry also total depth changed from 24.62 to 21.90 feet

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

8-8-23
Date

Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW1

Sample Date: 8-8-23 Sample Time: 0915

Personnel: Tony SAM

Weather Conditions: cloudy
Air Temperature: 70°

24 hr rain total
.42"

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Baller Submersible Pump

Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.81 ft Depth to water: 24.81 ft

Water Column Height: (total depth - Depth to water) = 0 ft

Purge Volume: (Water Column Height) * 0.163 = 0 gal

Purge Start Time: 0845 Purge End Time: 0900 Number of Purged Volumes: 0

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0						
1						
2						
3						
Sample Data (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY

REMARKS:

Req no water to sample

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tony SAM
Signature

8-8-23

Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW19

Date: 8-1-23 Time: 0900 Weather Conditions: clear
 Personnel: Tomy Air Temperature: 68°

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 20.8 pH: 7.9 Spec. Conductivity: 2789 DO: 11.5 ORP: 114

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

Date: _____ Time: _____ Date: _____ Time: _____
 Personnel: _____ Personnel: _____

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
 Odor: Yes No
 Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
 Signature

8-1-23
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW13

Date: 7-31-23 Time: 0830

Weather Conditions: cloudy

Personnel: Tony

Air Temperature: 73°

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 19.7 pH: 8.2 Spec. Conductivity: 366 DO: 12.2 ORP: 111

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW15

Date: 7-31-23 Time: 0915

Date: _____ Time: _____

Personnel: Tony

Personnel: _____

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 19.5 pH: 8.1 Spec. Conductivity: 340 DO: 13.1 ORP: 116

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

7-31-23
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW24

Date: 7-28-23 Time: 0915 Weather Conditions: clear
 Personnel: Tony Air Temperature: 77°

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:
 Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:
 Appearance: clear
 Odor: Yes No
 Temperature: 23.6 pH: 8.1 Spec. Conductivity: 2393 DO: 8.7 ORP: 112

LABORATORY ANALYSES
 NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:
Low Flow

SW14

Date: 7-28-23 Time: 0945 Date: _____ Time: _____
 Personnel: Tony Personnel: _____

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:
 Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:
 Appearance: clear
 Odor: Yes No
 Temperature: 23.0 pH: 8.1 Spec. Conductivity: 1883 DO: 12.4 ORP: 111

LABORATORY ANALYSES
 NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:
Raw Duplicate sample at this location labeled SW99

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature] Signature 7-28-23 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW26

Date: 7-27-23 Time: 1000

Weather Conditions: cloudy

Personnel: Tomy

Air Temperature: 73°

- Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: cloudy
 Odor: Yes No
 Temperature: 22.6 pH: 7.9 Spec. Conductivity: 1525 DO: 7.8 ORP: 103

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

Low Flow

SW27

Date: 7-28-23 Time: 0845

Date: _____ Time: _____

Personnel: Tomy

Personnel: _____

- Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: CLEAR
 Odor: Yes No
 Temperature: 22.5 pH: 8.0 Spec. Conductivity: 1277 DO: 7.8 ORP: 106

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

Low Flow

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
 Signature

7-27-23
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW18

Date: 7-27-23 Time: 0900

Weather Conditions: cloudy

Personnel: Tony

Air Temperature: 73°

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: cloudy
Odor: Yes No
Temperature: 22.0 pH: 7.9 Spec. Conductivity: 1674 DO: 12.4 ORP: 97

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

Very low Flow cows upstream

SW25

Date: 7-27-23 Time: 0930

Date: _____ Time: _____

Personnel: Tony

Personnel: _____

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: cloudy
Odor: Yes No
Temperature: 23.5 pH: 8.1 Spec. Conductivity: 1768 DO: 10.8 ORP: 95

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

Low Flow

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

7-27-23
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

Date: 7-27-23 Time: 0815

Weather Conditions: clear

Personnel: Tony

Air Temperature: 71°

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 19.0 pH: 8.1 Spec. Conductivity: 708 DO: 12.7 ORP: 71

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

*LAB instrument malfunction this is a resample at the request of
* Nitrate as N resample * MICROBAC*

Date: _____ Time: _____

Date: _____ Time: _____

Personnel: _____

Personnel: _____

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
Odor: Yes No
Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.


Signature

7-27-23
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW8R

Date: 7-25-23 Time: 1000

Weather Conditions: clear

Personnel: Tony

Air Temperature: 76°

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 19.8 pH: 8.1 Spec. Conductivity: 561 DO: 12.6 ORP: 72

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

New road construction at this site may lose this one when the road is completed

Date: _____ Time: _____

Date: _____ Time: _____

Personnel: _____

Personnel: _____

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
Odor: Yes No
Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

7-25-23
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW17

Date: 7-24-23 Time: 1000 Weather Conditions: clear
 Personnel: Tony Air Temperature: 74°

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 21.6 pH: 7.9 Spec. Conductivity: 1515 DO: 11.0 ORP: -42

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS: very low water flow

SW7

Date: 7-25-23 Time: 0830 Date: _____ Time: _____
 Personnel: Tony Personnel: _____

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes slight sulphur odor No
 Temperature: 19.3 pH: 7.8 Spec. Conductivity: 2536 DO: 10.8 ORP: -143

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
 Signature

7-24-23
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW12

Date: 7-24-23 Time: 0845

Weather Conditions: clear

Personnel: Tony

Air Temperature: 66°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 19.4 pH: 8.3 Spec. Conductivity: 670 DO: 14.7 ORP: 115

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY
- 5-DAY BOD
- TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW11

Date: 7-24-23 Time: 0930

Date: _____ Time: _____

Personnel: Tony

Personnel: _____

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 20.6 pH: 8.2 Spec. Conductivity: 673 DO: 14.3 ORP: 108

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY
- 5-DAY BOD
- TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

7-24-23
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW16

Date: 7-21-23 Time: 0830 Weather Conditions: cloudy
 Personnel: Tony Air Temperature: 67°
 Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

0.87 24 hr
RAIN total

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 18.4 pH: 8.1 Spec. Conductivity: 639 DO: 14.8 ORP: 101

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW4

Date: 7-21-23 Time: 0930 Date: _____ Time: _____
 Personnel: Tony Personnel: _____

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

0.87" 24 hr
RAIN total

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 18.1 pH: 8.3 Spec. Conductivity: 431 DO: 16.1 ORP: 122

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature] Signature 7-21-23 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW23

Date: 7-19-23 Time: 1000

Weather Conditions: cloudy

Personnel: Tony

Air Temperature: 73°

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
Odor: Yes _____ No
Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

Dry no water to sample

SW5

Date: 7-21-23 Time: 0800

Date: _____ Time: _____

Personnel: Tony

Personnel: _____

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

0.87" 24 hour rain
Total

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
Odor: Yes _____ No
Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

Dry no water to sample

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

7-19-23
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW9

Date: 7-19-23 Time: 0910 Weather Conditions: cloudy
 Personnel: Tony Air Temperature: 71°

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

24 hr RAIN total
0.48 inch

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 20.5 pH: 8.2 Spec. Conductivity: 425 DO: 13.7 ORP: 131

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW3R3

Date: 7-19-23 Time: 0930 Date: _____ Time: _____
 Personnel: Tony Personnel: _____

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
 Odor: Yes No
 Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

dry no water to sample

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

LB
Signature

7-19-23
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SWR

Date: 7-19-23 Time: 0815

Personnel: Tony

Weather Conditions: cloudy

Air Temperature: 70°

- Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

24 hr RAIN total
0.48 inch

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
 Odor: Yes No
 Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

crack is dry no water to sample

SW3R2

Date: 7-19-23 Time: 0845

Personnel: Tony

Date: _____ Time: _____

Personnel: _____

- Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

cloudy 71°
24 hour RAIN total
0.48 inch

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
 Odor: Yes No
 Temperature: 18.9 pH: 8.1 Spec. Conductivity: 697 DO: 13.2 ORP: 133

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

7-19-23
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW 22

Date: 7-18-23 Time: 0930 Weather Conditions: cloudy
 Personnel: Tony Air Temperature: 70°

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
 Odor: Yes No
 Temperature: 23.7 pH: 8.2 Spec. Conductivity: 468 DO: 11.8 ORP: 150

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW 2

Date: 7-19-23 Time: 0805 Date: _____ Time: _____
 Personnel: Tony Personnel: _____

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
 Odor: Yes No
 Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

creek is dry no water to sample

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Signature: [Signature] Date: 7-19-23

SURFACE WATER SAMPLE - FIELD DATA SHEET

SWG

Date: 7-18-23 Time: 0830

Weather Conditions: RAIN

Personnel: Tony

Air Temperature: 68°

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 18.4 pH: 7.8 Spec. Conductivity: 599 DO: 13.0 ORP: 165

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW1

Date: 7-18-23 Time: 0915

Date: _____ Time: _____

Personnel: Tony

Personnel: _____

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

RAIN 70°

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
Odor: Yes No
Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

creek is dry no water to sample

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

7-18-23
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SWR

Date: 11-3-23 Time: 1030
 Personnel: Jay SAM

Weather Conditions: clear
 Air Temperature: 29°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 6.8 pH: 7.7 Spec. Conductivity: 552 DO: 14.0 ORP: 51

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY
- 5-DAY BOD
- TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

new road construction at this site

Date: _____ Time: _____
 Personnel: _____

Date: _____ Time: _____
 Personnel: _____

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
 Odor: Yes No
 Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY
- 5-DAY BOD
- TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Signature _____

Date _____

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW 15

Date: 11-3-23 Time: 1000

Weather Conditions: clear

Personnel: Tony SAN

Air Temperature: 28°

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 8.9 pH: 7.8 Spec. Conductivity: 361 DO: 11.1 ORP: 27

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW 13

Date: 11-3-23 Time: 1020

Date: _____ Time: _____

Personnel: Tony SAN

Personnel: _____

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

clear
28°

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 8.9 pH: 7.8 Spec. Conductivity: 360 DO: 12.4 ORP: 21

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

11-3-23
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW12

Sample Date: 11-3-23 Sample Time: 0915

Personnel: Tony Sam

Weather Conditions: clear
Air Temperature: 29°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Baller Submersible Pump
Equipment? Dedicated Field/off-site Cleaned

Total Depth: 20.04 ft Depth to water: 5.4 ft Water Column Height: (total depth - Depth to water) = 14.64 ft

Purge Volume: (Water Column Height) * 0.163 = 2.39 gal

Purge Start Time: 0900 Purge End Time: 0930 Number of Purged Volumes: 3

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	14.7	8.2	380	-95	8.7	TURBID
1	14.9	7.8	350	-70	6.1	TURBID
2	15.1	7.7	367	-87	6.0	TURBID
3						
Sample Date (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY

REMARKS:

Ran duplicate sample on this well labeled MW12 D

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

11-3-23

Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW6

Sample Date: 11-3-23 Sample Time: 0830

Personnel: Tony Sam

Weather Conditions: clear
Air Temperature: 23°

Does location have water present? Yes No

Is water depth sufficient for sampling? Yes No

Is well in good condition? Yes No

Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Baller Submersible Pump

Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.80 ft Depth to water: 0 ft

Water Column Height: (total depth - Depth to water) = 0 ft

Purge Volume: (Water Column Height) * 0.163 = 0 gal

Purge Start Time: 0830 Purge End Time: _____ Number of Purged Volumes: _____

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0						
1						
2						
3						
Sample Date (if purged div)						

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No

Has equipment been prepared off site prior to sampling? Yes No

Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

well was empty no water to sample

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tony Sam
Signature

11-3-23
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW4

Sample Date: 11-2-23 Sample Time: 1015

Personnel: Tony Sam

Weather Conditions: clear
Air Temperature: 26°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Baller Submersible Pump Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.85 ft Depth to water: 0 ft Water Column Height: (total depth - Depth to water) = 0 ft

Purge Volume: (Water Column Height) * 0.163 = 0 gal

Purge Start Time: _____ Purge End Time: _____ Number of Purged Volumes: _____

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0						
1						
2						
3						
Sample Date (if purged day)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

well was empty

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Signature _____

11-2-23
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW17

Date: 11-2-23 Time: 0945 Weather Conditions: clear
 Personnel: Tony Sam Air Temperature: 25°

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: ~~clear~~ murky
 Odor: Yes No
 Temperature: 4.2 pH: 8.0 Spec. Conductivity: 2365 DO: 11.8 ORP: -27

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

very low water flow almost standing water

SW31

Date: 11-2-23 Time: 1030 Date: _____ Time: _____
 Personnel: Tony Sam Personnel: _____

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
 Odor: Yes No
 Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

sample run with unopened distilled water for blank sample

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

11.2.23
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW 3

Sample Date: 11-2-23 Sample Time: 0845

Personnel: Tony Sam

Weather Conditions: clear
Air Temperature: 23°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Bailor Submersible Pump
Equipment? Dedicated Field/off-site Cleaned

Total Depth: 23.45 ft Depth to water: 0 ft Water Column Height: (total depth - Depth to water) = 0 ft

Purge Volume: (Water Column Height) * 0.163 = _____ gal

Purge Start Time: _____ Purge End Time: _____ Number of Purged Volumes: _____

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0						
1						
2						
3						
Sample Data (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Signature _____

11-2-23
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW1

Sample Date: 11-2-23 Sample Time: 0830

Personnel: Tony SAM

Weather Conditions: clear
Air Temperature: 23°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Baller Submersible Pump
Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.81 ft Depth to water: 0 ft Water Column Height: (total depth - Depth to water) = 0 ft

Purge Volume: (Water Column Height) * 0.163 = _____ gal

Purge Start Time: _____ Purge End Time: _____ Number of Purged Volumes: _____

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0						
1						
2						
3						
Sample Date (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

well was empty no water to sample

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Signature _____

11-2-23

Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW14

Sample Date: 10-31-23 Sample Time: 1015

Personnel: Tory SAM

Weather Conditions: _____
Air Temperature: _____

Light Rain
420

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Baller Submersible Pump

Equipment? Dedicated Field/off-site Cleaned

Total Depth: 19.75 ft Depth to water: 13.7 ft

Water Column Height: (total depth - Depth to water) = 6.05 ft

Purge Volume: (Water Column Height) * 0.163 = 0.98 gal

Purge Start Time: 1015 Purge End Time: 1030 Number of Purged Volumes: 1

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0						
1	<u>16.7</u>	<u>7.7</u>	<u>530</u>	<u>-8</u>	<u>4.9</u>	<u>6eq</u>
2						
3						
Sample Date (if purged day)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

well very slow to recover

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tory SAM
Signature

10-31-23

Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW23
 Date: 11-2-23 Time: 0800 Weather Conditions: clear
 Personnel: Tony SAM Air Temperature: 24°

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
 Odor: Yes No
 Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:
creek is dry no water to sample

SW19
 Date: 11-2-23 Time: 0900 Date: _____ Time: _____
 Personnel: Tony SAM Personnel: _____
 Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 7.2 pH: 8.1 Spec. Conductivity: 3900 DO: 14.1 ORP: 82

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tony SAM
 Signature

11.2.23
 Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW15

Sample Date: 10-31-23 Sample Time: 0930

Personnel: Tony SAN

Weather Conditions: Light Rain
Air Temperature: 42°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Bailer Submersible Pump
Equipment? Dedicated Field/off-site Cleaned

Total Depth: 25.23 ft Depth to water: 13.3 ft Water Column Height: (total depth - Depth to water) = 11.93 ft

Purge Volume: (Water Column Height) * 0.163 = 1.94 gal

Purge Start Time: 0930 Purge End Time: 0949 Number of Purged Volumes: 2

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	14.7	7.6	1625	-109	5.5	
1	15.4	7.8	1741	-110	5.0	Grey
2						Grey
3						
Sample Data (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

Well was very slow to recover

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

10-31-23
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW26

Date: 10-31-23 Time: 0900 Weather Conditions: Light Rain
 Personnel: Tony SAM Air Temperature: 40°

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 11.5 pH: 8.0 Spec. Conductivity: 1513 DO: 10.0 ORP: 102

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW27

Date: 10-31-23 Time: 0950 Date: _____ Time: _____
 Personnel: Tony SAM Personnel: _____

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

Weather Conditions: Light Rain
 Air Temperature: 41°

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 11.9 pH: 7.8 Spec. Conductivity: 1236 DO: 10.9 ORP: 18

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
 Signature

10-31-23
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW18

Date: 10-30-23 Time: 0915

Weather Conditions: cloudy

Personnel: Tony

Air Temperature: 59°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
 Odor: Yes No
 Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

CRICK IS DRY NO WATER TO SAMPLE

SW25

Date: 10-30-23 Time: 0930

Date: _____ Time: _____

Personnel: Tony

Personnel: _____

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

*cloudy
60°*

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 16.5 pH: 8.1 Spec. Conductivity: 1877 DO: 11.2 ORP: 79

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

Low water flow

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
 Signature

10-30-23
 Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW-7

Sample Date: 10-27-23 Sample Time: 0930

Personnel: Tony Sam

Weather Conditions: clear
Air Temperature: 50°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Baller Submersible Pump
Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.61 ft Depth to water: Full ft Water Column Height: (total depth - Depth to water) = Full ft

Purge Volume: (Water Column Height) * 0.163 = 4.01 gal

Purge Start Time: 0930 Purge End Time: 1000 Number of Purged Volumes: 3

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	16.5	7.2	3100	11	5.1	Turbid
1	16.4	7.0	3104	15	5.0	cloudy
2	16.3	7.0	3101	11	5.6	Grey
3	16.2	6.95	3105	3	5.1	Grey
Sample Data (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tony Sam
Signature

10-27-23
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW5

Date: 10-25-23 Time: 1015

Weather Conditions: _____

Personnel: Tony Sam

Air Temperature: _____

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

clear 41°

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
Odor: Yes _____ No
Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

crack is empty no water to sample

SW7

Date: 10-27-23 Time: 0900

Date: _____ Time: _____

Personnel: Tony Sam

Personnel: _____

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

clear 43°

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes _____ No
Temperature: 13.7 pH: 7.8 Spec. Conductivity: 2826 DO: 11.9 ORP: -31

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tony Sam
Signature

10-27-23

Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW12

Date: 10-25-23 Time: 0930

Weather Conditions: clear

Personnel: Tony SAM

Air Temperature: 43°

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear

Odor: Yes No

Temperature: 12.6 pH: 8.4 Spec. Conductivity: 972 DO: 11.0 ORP: -150

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW11

Date: 10-25-23 Time: 1000

Date: _____ Time: _____

Personnel: Tony SAM

Personnel: _____

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

clear
44°

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear

Odor: Yes No

Temperature: 12.4 pH: 8.3 Spec. Conductivity: 990 DO: 13.8 ORP: -96

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.


Signature

10-25-23
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW11

Sample Date: 10-25-23 Sample Time: 0845

Personnel: Jay SAM

Weather Conditions: clear
Air Temperature: 42°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Baller Submersible Pump
Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.5 ft Depth to water: 5.6 ft Water Column Height: (total depth - Depth to water) = 18.9 ft

Purge Volume: (Water Column Height) * 0.163 = 3.08 gal

Purge Start Time: 0845 Purge End Time: 0910 Number of Purged Volumes: 3

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	13.5	8.3	1040	-275	5.5	
1	16.5	8.1	958	-258	4.9	Grey
2	17.3	8.1	988	-271	4.3	Grey
3	16.9	8.1	995	-272	6.2	Grey
Sample Date (if purged day)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

- NITRATE-NITROGEN
- E. COLI
- ALKALINITY

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Jay SAM
Signature

10-25-23
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW24
Date: 10-24-23 Time: 1000 Weather Conditions: clear
Personnel: Tom SAM Air Temperature: 43°

Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:
Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:
Appearance: Turbid
Odor: Yes No
Temperature: 10.3 pH: 8.2 Spec. Conductivity: 2672 DO: 12.6 ORP: 103

LABORATORY ANALYSES
 NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW9
Date: 10-25-23 Time: 0830 Date: _____ Time: _____
Personnel: Tom SAM Personnel: clear
Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:
Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:
Appearance: clear
Odor: Yes No
Temperature: 9.5 pH: 8.8 Spec. Conductivity: 551 DO: 9.1 ORP: 108

LABORATORY ANALYSES
 NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

10-24-23
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW16

Date: 10-24-23 Time: 0850 Weather Conditions: clear
 Personnel: Tony SAM Air Temperature: 41°

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 13.4 pH: 8.2 Spec. Conductivity: 720 DO: 11.1 ORP: 118

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW14

Date: 10-24-23 Time: 0930 Date: _____ Time: _____
 Personnel: Tony SAM Personnel: _____

Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
 Has equipment been prepared off site prior to sampling? Yes No
 Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
 Odor: Yes No
 Temperature: 10.4 pH: 8.2 Spec. Conductivity: 2045 DO: 11.8 ORP: _____

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
 Signature

10-24-23
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW323

Date: 10-24-23 Time: 0800

Weather Conditions: clear

Personnel: Tony Sam

Air Temperature: 40°

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
Odor: Yes No
Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

crack is dry no water to sample

SW4

Date: 10-24-23 Time: 0830

Date: _____ Time: _____

Personnel: Tony Sam

Personnel: _____

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

clear
40°

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 11.7 pH: 8.4 Spec. Conductivity: 428 DO: 14.4 ORP: 130

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

10-24-23
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW3R2

Date: 10-23-23 Time: 1000

Weather Conditions: clear

Personnel: Tony Sam

Air Temperature: 39°

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear

Odor: Yes No

Temperature: 10.4 pH: 8.4 Spec. Conductivity: 700 DO: 13.2 ORP: 160

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW6

Date: 10-23-23 Time: 1630

Date: _____ Time: _____

Personnel: Tony Sam

Personnel: _____

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

clear 40°

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear

Odor: Yes No

Temperature: 14.0 pH: 8.0 Spec. Conductivity: 704 DO: 14.3 ORP: 139

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.


Signature

10-23-23

Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW2

Sample Date: 10-23-23 Sample Time: 0940

Personnel: Tony Sam

Weather Conditions: clear
Air Temperature: 39°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Is well in good condition? Yes No
- Are irrigation fields active within area? Yes No

WELL PURGING:

Purge Method? Baller Submersible Pump
Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.62 ft. Depth to water: 0 ft. Water Column Height: (total depth - Depth to water) = 0 ft.

Purge Volume: (Water Column Height) * 0.163 = 0 gal

Purge Start Time: 0940 Purge End Time: _____ Number of Purged Volumes: _____

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0						
1						
2						
3						
Sample Data (if purged dry)						

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY

REMARKS:

well is empty no water to sample

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Signature

10-23-23
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW2

Date: 10-23-23 Time: 0945

Weather Conditions: clear

Personnel: Tony Sam

Air Temperature: 39°

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
Odor: Yes No
Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

creek is dry no water to sample

SWR

Date: 10-23-23 Time: 1000

Date: _____ Time: _____

Personnel: Tony Sam

Personnel: _____

- Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

clear 39°

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
Odor: Yes No
Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

creek is dry no water to sample

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tony Sam
Signature

10-23-23

Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW1

Date: 10-23-23 Time: 0910

Weather Conditions: clear

Personnel: Tony SAM

Air Temperature: 38°

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
 Odor: Yes _____ No
 Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

creek is empty no water to sample

SW22

Date: 10-23-23 Time: 0930

Date: _____ Time: _____

Personnel: Tony SAM

Personnel: _____

- Does location have water present? Yes No
- Is water depth sufficient for sampling? Yes No
- Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

- Has equipment been dedicated to sample location? Yes No
- Has equipment been prepared off site prior to sampling? Yes No
- Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: _____
 Odor: Yes _____ No
 Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

- NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

creek is empty no water to sample

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
 Signature

10-23-23
 Date



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0172

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: N/A
Received: 04/03/2023
Reported: 04/14/2023

Analytical Testing Parameters

Table with 4 columns: Client Sample ID, Sample Matrix, Lab Sample ID, Collected By, Collection Date. Values include SW6, Wastewater, R3D0172-01, Tony Bryant, 04/03/2023 9:00.

Microbiology Result RL Units DF Note Prepared Analyzed Analyst

SM 9223 B (Colilert Quanti-Tray)-2004

Table with 10 columns: Parameter, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows for Total coliforms and Escherichia coli.

Inorganics Total Result RL Units DF Note Prepared Analyzed Analyst

BOD Preparation/SM 5210 B-2011

Table with 10 columns: Parameter, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for Biochemical Oxygen Demand (BOD5).

Calculation

Table with 10 columns: Parameter, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for Total Nitrogen.

EPA 300.0, Rv. 2.1 (1993)

Table with 10 columns: Parameter, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows for Nitrate as N and Nitrite as N.

EPA 350.1, Rv. 2 (1993)

Table with 10 columns: Parameter, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for Ammonia as N.

SM 2320 B-2011

Table with 10 columns: Parameter, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for Alkalinity to pH 4.5, Total.

SM 2540 D-2011

Table with 10 columns: Parameter, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for Total Suspended Solids (TSS).

General Parameters Result RL Units DF Note Prepared Analyzed Analyst

EPA 351.2, Rv. 2 (1993)

Table with 10 columns: Parameter, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for Total Kjeldahl Nitrogen (TKN).

Definitions

- MDL: Minimum Detection Limit
mg CaCO3/L: Milligrams Calcium Carbonate per Liter
mg/L: Milligrams per Liter
MPN/100mL: Most Probable Number per 100 Milliliters
RL: Reporting Limit



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0172

Report Comments

*The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. **The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.***

Reviewed and Approved By:

A handwritten signature in black ink, appearing to read "Joe Sloan".

Joe Sloan

Business Development Specialist

Reported: 04/14/2023 19:18



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



Company
 Brothers & Company
 PM: Chris Sammons
 2 2 1 0 0 3 R

Project ID: _____
 Permit #: _____
 If drinking water, State Reported? Yes No
 Sampler: *Terry Beaufort*
 Sample Hazards: None

Report To: *Terry Dockery*
 Bush Brothers and Company
 3304 Chestnut Hill Rd
 Dandridge, TN 37725
 Phone: 865-776-4804 Fax: 865-509-0288
 E-mail: tdockery@bushbro.com

Invoice To: *SAME*
 P.O. #: _____
 Quote #: _____

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts.	ANALYSIS REQUIRED
<i>SW6</i>	<i>4-3-23</i>	<i>0900</i>	<i>CEMB</i>	<i>5</i>	<i>EColi</i> <i>Nitrate AS N</i> <i>Alkalinity</i> <i>TSS</i> <i>BOD⁵</i> <i>Total Nitrogen</i> <i>Nitrate Nitrite</i>

Please Mark Testing Required (X)

FOR LAB CHECK-IN ONLY

Temp Rec'd *68* C
 Property Preserved: Yes No
 Remarks: _____

Priority Standard Next Day 2-3 Day

Special Instructions / Comments...

Relinquished By: *[Signature]* Date: *4-3-23* Time: *1200* Received By: *[Signature]*

Relinquished By: _____ Date: _____ Time: _____ Received By: _____

Customer #: _____ Job Temp.: _____ Project: _____

Relinquished By: _____ Date: _____ Time: _____ Received By: _____



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0209

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: N/A
Received: 04/04/2023
Reported: 04/14/2023

Analytical Testing Parameters

Table with client and sample information: Client Sample ID: SW1, Sample Matrix: Aqueous, Lab Sample ID: R3D0209-01, Collected By: Tony Bryant, Collection Date: 04/04/2023 8:30

Microbiology

SM 9223 B (Colilert Quanti-Tray)-2004

Table with 10 columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows for Total coliforms and Escherichia coli.

Inorganics Total

BOD Preparation/SM 5210 B-2011

Table with 10 columns: Inorganics Total, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for Biochemical Oxygen Demand (BOD5).

Calculation

Table with 10 columns: Inorganics Total, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for Total Nitrogen.

EPA 300.0, Rv. 2.1 (1993)

Table with 10 columns: Inorganics Total, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows for Nitrate as N and Nitrite as N.

EPA 350.1, Rv. 2 (1993)

Table with 10 columns: Inorganics Total, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for Ammonia as N.

SM 2320 B-2011

Table with 10 columns: Inorganics Total, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for Alkalinity to pH 4.5, Total.

SM 2540 D-2011

Table with 10 columns: Inorganics Total, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for Total Suspended Solids (TSS).

General Parameters

EPA 351.2, Rv. 2 (1993)

Table with 10 columns: General Parameters, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for Total Kjeldahl Nitrogen (TKN).



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0209

Client Sample ID:	SW22	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	04/04/2023 9:10
Lab Sample ID:	R3D0209-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	2419.6	1	MPN/100mL	1		04/04/23 1415	04/05/23 0856	TMW
Escherichia coli	24.6	1	MPN/100mL	1		04/04/23 1415	04/05/23 0856	TMW
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		04/05/23 2018	04/10/23 1421	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		04/12/23 1842	04/12/23 1842	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		04/04/23 1731	04/04/23 1731	AMG
Nitrite as N	<0.100	0.100	mg/L	1		04/04/23 1731	04/04/23 1731	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		04/13/23 1938	04/14/23 1209	CWS
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	202	5.00	mg CaCO3/L	1			04/05/23 1623	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			04/04/23 1907	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		04/12/23 1842	04/12/23 1842	AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0209

Client Sample ID:	SW2	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	04/04/2023 9:30
Lab Sample ID:	R3D0209-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		04/04/23 1415	04/05/23 0856	TMW
Escherichia coli	325.5	1	MPN/100mL	1		04/04/23 1415	04/05/23 0856	TMW
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		04/05/23 2018	04/10/23 1421	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		04/12/23 1848	04/12/23 1848	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.336	0.100	mg/L	1			04/04/23 1747	AMG
Nitrite as N	<0.100	0.100	mg/L	1			04/04/23 1747	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		04/13/23 1938	04/14/23 1212	CWS
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	82.0	5.00	mg CaCO3/L	1			04/05/23 1623	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	14.8	5.0	mg/L	1			04/04/23 1907	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		04/12/23 1848	04/12/23 1848	AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0209

Client Sample ID:	SWR	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	04/04/2023 9:50
Lab Sample ID:	R3D0209-04		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		04/04/23 1415	04/05/23 0856	TMW
Escherichia coli	816.4	1	MPN/100mL	1		04/04/23 1415	04/05/23 0856	TMW
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		04/05/23 2018	04/10/23 1421	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		04/12/23 1850	04/12/23 1850	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.338	0.100	mg/L	1		04/04/23 1802	04/04/23 1802	AMG
Nitrite as N	<0.100	0.100	mg/L	1		04/04/23 1802	04/04/23 1802	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		04/13/23 1938	04/14/23 1214	CWS
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	80.0	5.00	mg CaCO3/L	1			04/05/23 1623	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	37.2	5.0	mg/L	1			04/10/23 1307	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		04/12/23 1850	04/12/23 1850	AMG

Definitions

- MDL: Minimum Detection Limit
- mg CaCO3/L: Milligrams Calcium Carbonate per Liter
- mg/L: Milligrams per Liter
- MPN/100mL: Most Probable Number per 100 Milliliters
- RL: Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 04/14/2023 19:18



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



Paul Brothers & Company
 PM: Chris Sammons

Project ID: _____
 Permit #: _____
 If drinking water, State Reported? Yes No
 Sampler: Tony Bergant
 Sample Hazards: None

Report To: Terry Dockery
Bush Brothers and Company
 3304 Chestnut Hill Rd
 Dandridge, TN 37725
 Phone: 865-776-4804 Fax: 865-509-0288
 E-mail: tdockery@bushbro.com

P.O. #: _____
 Quote #: _____

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts.
SW1	4-4-23	0830	BEARS	5
SW22	4-4-23	0910	BEARS	5
SW2	4-4-23	0930	BEARS	5
SWR	4-4-23	0950	BEARS	5

ANALYSIS REQUIRED

EColi	
Nitrate AS N	
ALKALINITY	
TSS	
BOD ⁵	
Total Nitrogen	
Nitrate Nitrite	

Please Mark Testing Required (X)

Priority	Standard	Next Day	2-3 Day	Special Instructions / Comments...

FOR LAB CHECK-IN ONLY
 Temp Recd 7.4 C
 Properly Preserved: Yes No
 Remarks: _____

Relinquished By: [Signature] Date: 4-4-23 Time: 1146
 Received By: _____
 Relinquished By: _____
 Date: 4/4/23 Time: 11:47
 Received By: [Signature]
 Customer #: _____
 Job Temp.: _____
 Project: _____



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0421

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: N/A
Received: 04/11/2023
Reported: 04/30/2023

Analytical Testing Parameters

Table with 4 columns: Client Sample ID (SW16), Sample Matrix (Wastewater), Lab Sample ID (R3D0421-01), Collected By (Tony Bryant), and Collection Date (04/11/2023 8:15).

Microbiology

Table with 10 columns: Method (SM 9223 B), Test Name (Escherichia coli), Result (72.3), RL (1), Units (MPN/100mL), DF (1), Note, Prepared (04/11/23 1443), Analyzed (04/12/23 1013), Analyst (TMW).

Inorganics Total

Table with 10 columns: Method (BOD Preparation/SM 5210 B-2011), Test Name (Biochemical Oxygen Demand (BOD5)), Result (<2.00), RL (2.00), Units (mg/L), DF (1), Note, Prepared (04/12/23 1914), Analyzed (04/17/23 1356), Analyst (JPA).

Table with 10 columns: Section (Calculation), Test Name (Total Nitrogen), Result (1.55), RL (1.00), Units (mg/L), DF (1), Note, Prepared (04/12/23 2212), Analyzed (04/12/23 2212), Analyst (AMG).

Table with 10 columns: Method (EPA 300.0, Rv. 2.1 (1993)), Test Name (Nitrate as N), Result (1.55), RL (0.100), Units (mg/L), DF (1), Note (M), Prepared (04/12/23 2212), Analyzed (04/12/23 2212), Analyst (AMG).

Table with 10 columns: Method (SM 2320 B-2011), Test Name (Alkalinity to pH 4.5, Total), Result (198), RL (5.00), Units (mg CaCO3/L), DF (1), Note, Prepared, Analyzed (04/25/23 2145), Analyst (AMG).

Table with 10 columns: Method (SM 2540 D-2011), Test Name (Total Suspended Solids (TSS)), Result (<5.0), RL (5.0), Units (mg/L), DF (1), Note, Prepared, Analyzed (04/13/23 1210), Analyst (TIH).

General Parameters

Table with 10 columns: Method (EPA 351.2, Rv. 2 (1993)), Test Name (Total Kjeldahl Nitrogen (TKN)), Result (<1.00), RL (1.00), Units (mg/L), DF (1), Note, Prepared (04/12/23 1902), Analyzed (04/12/23 1902), Analyst (AMG).



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0421

Client Sample ID:	SW12	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	04/11/2023 8:45
Lab Sample ID:	R3D0421-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	90.9	1	MPN/100mL	1		04/11/23 1443	04/12/23 1013	TMW
Inorganics Total								
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		04/12/23 1914	04/17/23 1356	JPA
Calculation								
Total Nitrogen	1.40	1.00	mg/L	1		04/12/23 2259	04/12/23 2259	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.40	0.100	mg/L	1		04/12/23 2259	04/12/23 2259	AMG
Nitrite as N	<0.100	0.100	mg/L	1		04/12/23 2259	04/12/23 2259	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	206	5.00	mg CaCO3/L	1			04/25/23 2145	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	6.0	5.0	mg/L	1			04/13/23 1210	TIH
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		04/12/23 1904	04/12/23 1904	AMG

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CERTIFICATE OF ANALYSIS

R3D0421

Client Sample ID:	SW11	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	04/11/2023 9:15
Lab Sample ID:	R3D0421-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	104.3	1	MPN/100mL	1		04/11/23 1443	04/12/23 1013	TMW
Inorganics Total								
BOD Preparation/SM 5210 B-2011	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		04/12/23 1914	04/17/23 1356	JPA
Calculation								
Total Nitrogen	1.38	1.00	mg/L	1		04/12/23 2314	04/12/23 2314	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.38	0.100	mg/L	1		04/12/23 2314	04/12/23 2314	AMG
Nitrite as N	<0.100	0.100	mg/L	1		04/12/23 2314	04/12/23 2314	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	208	5.00	mg CaCO3/L	1			04/25/23 2145	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			04/13/23 1210	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		04/12/23 1906	04/12/23 1906	AMG

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CERTIFICATE OF ANALYSIS

R3D0421

Client Sample ID: SW7	Collected By: Tony Bryant
Sample Matrix: Wastewater	Collection Date: 04/11/2023 10:00
Lab Sample ID: R3D0421-04	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	196.8	1	MPN/100mL	1		04/11/23 1443	04/12/23 1013	TMW
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		04/12/23 1914	04/17/23 1356	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		04/12/23 2330	04/12/23 2330	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.378	0.100	mg/L	1		04/12/23 2330	04/12/23 2330	AMG
Nitrite as N	<0.100	0.100	mg/L	1		04/12/23 2330	04/12/23 2330	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	370	5.00	mg CaCO3/L	1			04/25/23 2145	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			04/13/23 1210	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		04/12/23 1911	04/12/23 1911	AMG

Definitions

- M:** Matrix interference is present.
- MDL:** Minimum Detection Limit
- mg CaCO3/L** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 04/30/2023 11:49



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0387

Bush Brothers & Company

Project Name: SW 4-10-23

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: N/A
Received: 04/10/2023
Reported: 04/30/2023

Analytical Testing Parameters

Table with 4 columns: Client Sample ID, Sample Matrix, Lab Sample ID, Collected By, Collection Date. Values include SW4, Aqueous, R3D0387-01, Tony Bryant, 04/10/2023 8:15.

Microbiology Result RL Units DF Note Prepared Analyzed Analyst

SM 9223 B (Colilert Quanti-Tray)-2016

Table row for Escherichia coli with result 17.3, RL 1, Units MPN/100mL, DF 1, Note, Prepared 04/10/23 1519, Analyzed 04/11/23 1156, Analyst TMW.

Inorganics Total Result RL Units DF Note Prepared Analyzed Analyst

BOD Preparation/SM 5210 B-2011

Table row for Biochemical Oxygen Demand (BOD5) with result <2.00, RL 2.00, Units mg/L, DF 1, Note, Prepared 04/11/23 1904, Analyzed 04/16/23 1507, Analyst JPA.

Calculation

Table row for Total Nitrogen with result 1.53, RL 1.00, Units mg/L, DF 1, Note, Prepared 04/12/23 1852, Analyzed 04/12/23 1852, Analyst AMG.

EPA 300.0, Rv. 2.1 (1993)

Table row for Nitrate as N with result 1.01, RL 0.100, Units mg/L, DF 1, Note M2, Prepared 04/11/23 1338, Analyzed 04/11/23 1338, Analyst AMG.

Table row for Nitrite as N with result <0.100, RL 0.100, Units mg/L, DF 1, Note M2, Prepared 04/11/23 1338, Analyzed 04/11/23 1338, Analyst AMG.

SM 2320 B-2011

Table row for Alkalinity to pH 4.5, Total with result 186, RL 5.00, Units mg CaCO3/L, DF 1, Note H, Prepared, Analyzed 04/25/23 2145, Analyst AMG.

SM 2540 D-2011

Table row for Total Suspended Solids (TSS) with result 6.9, RL 5.0, Units mg/L, DF 1, Note, Prepared, Analyzed 04/12/23 1245, Analyst TIH.

General Parameters Result RL Units DF Note Prepared Analyzed Analyst

EPA 351.2, Rv. 2 (1993)

Table row for Total Kjeldahl Nitrogen (TKN) with result <1.00, RL 1.00, Units mg/L, DF 1, Note, Prepared 04/12/23 1852, Analyzed 04/12/23 1852, Analyst AMG.



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0387

Client Sample ID:	SW9	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	04/10/2023 10:00
Lab Sample ID:	R3D0387-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	108.1	1	MPN/100mL	1		04/10/23 1519	04/11/23 1156	TMW
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		04/11/23 1904	04/16/23 1507	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		04/12/23 1854	04/12/23 1854	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		04/11/23 1456	04/11/23 1456	AMG
Nitrite as N	<0.100	0.100	mg/L	1		04/11/23 1456	04/11/23 1456	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	128	5.00	mg CaCO3/L	1	H		04/25/23 2145	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	6.8	5.0	mg/L	1			04/12/23 1245	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		04/12/23 1854	04/12/23 1854	AMG

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CERTIFICATE OF ANALYSIS

R3D0387

Client Sample ID:	SW3R2	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	04/10/2023 10:30
Lab Sample ID:	R3D0387-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	275.5	1	MPN/100mL	1		04/10/23 1519	04/11/23 1156	TMW
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		04/11/23 1904	04/16/23 1507	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		04/12/23 1856	04/12/23 1856	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.139	0.100	mg/L	1		04/11/23 1512	04/11/23 1512	AMG
Nitrite as N	<0.100	0.100	mg/L	1		04/11/23 1512	04/11/23 1512	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	180	5.00	mg CaCO3/L	1	H		04/25/23 2145	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	5.6	5.0	mg/L	1			04/12/23 1245	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		04/12/23 1856	04/12/23 1856	AMG

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0387

Client Sample ID: SW8R	Collected By: Tony Bryant
Sample Matrix: Aqueous	Collection Date: 04/10/2023 11:00
Lab Sample ID: R3D0387-04	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	5.2	1	MPN/100mL	1		04/10/23 1519	04/11/23 1156	TMW
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		04/11/23 1904	04/16/23 1507	JPA
Calculation								
Total Nitrogen	1.12	1.00	mg/L	1		04/12/23 1858	04/12/23 1858	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.12	0.100	mg/L	1		04/11/23 1614	04/11/23 1614	AMG
Nitrite as N	<0.100	0.100	mg/L	1		04/11/23 1614	04/11/23 1614	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	272	5.00	mg CaCO3/L	1	H		04/25/23 2145	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	5.5	5.0	mg/L	1			04/12/23 1245	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		04/12/23 1858	04/12/23 1858	AMG

Definitions

- H:** Sample was analyzed past holding time.
- M2:** Matrix spike recovery is outside of acceptance limits, biased low.
- MDL:** Minimum Detection Limit
- mg CaCO3/L:** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL:** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 04/30/2023 11:49



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 3 D 0 3 8 7
 Bush Brothers & Company
 PM: Chris Sammons

Project ID: _____
 Permit #: _____
 If drinking water, State Reported? Yes No

Sampler: Louy Bryant
 Sample Hazards: None

Report To: Terry Dockery
Bush Brothers and Company
 3304 Chestnut Hill Rd
 Dandridge, TN 37725
 Phone: 865-776-4804 Fax: 865-509-0288
 E-mail: tdockery@bushbros.com

Invoice To: SAME
 P.O. #: _____
 Quote #: _____

- ANALYSIS REQUIRED
- E.Coli
 - Nitrate AS N
 - ALKALINITY
 - TSS
 - BOD⁵
 - Total Nitrogen
 - Nitrate Nitrite

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts	Special Instructions / Comments...
SW4	4-10-23	0815	GAAS	5	
SW9	4-10-23	1000	GAAS	5	
SW3R2	4-10-23	1030	GAAS	5	
SW8R	4-10-23	1100	GAAS	5	

Please Mark Testing Required (X)

FOR LAB CHECK-IN ONLY
 Temp Rec'd 5.3 C
 Property Preserved: Yes No
 Remarks: _____

Priority Standard Next Day 2-3 Day

Relinquished By: [Signature] Date: 4-10-23 Time: 1236
 Received By: Alison Brackhoff

Relinquished By: _____ Date: _____ Time: _____
 Received By: _____

Customer #: _____
 Job Temp.: _____
 Project: _____



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0535

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: N/A
Received: 04/14/2023
Reported: 04/30/2023

Analytical Testing Parameters

Table with client sample details: Client Sample ID: SW19, Sample Matrix: Aqueous, Lab Sample ID: R3D0535-01, Collection Date: 04/14/2023 8:45

Microbiology

Table row for SM 9223 B (Colilert Quanti-Tray)-2016, Escherichia coli, Result: 172.3, RL: 1, Units: MPN/100mL, DF: 1, Prepared: 04/14/23 1521, Analyzed: 04/15/23 1240, Analyst: AMG

Inorganics Total

Table row for BOD Preparation/SM 5210 B-2011, Biochemical Oxygen Demand (BOD5), Result: 3.40, RL: 2.00, Units: mg/L, DF: 1, Prepared: 04/14/23 1904, Analyzed: 04/19/23 1514, Analyst: JPA

Table row for Calculation, Total Nitrogen, Result: 3.80, RL: 1.00, Units: mg/L, DF: 1, Prepared: 04/27/23 1039, Analyzed: 04/28/23 1047, Analyst: AMG

Table rows for EPA 300.0, Rv. 2.1 (1993), Nitrate as N (Result: 2.09) and Nitrite as N (Result: <1.00), RL: 1.00, Units: mg/L, DF: 1, Prepared: 04/19/23 0554, Analyzed: 04/19/23 0554, Analyst: AMG

Table row for SM 2320 B-2011, Alkalinity to pH 4.5, Total, Result: 194, RL: 5.00, Units: mg CaCO3/L, DF: 1, Prepared: 04/26/23 2250, Analyst: AMG

Table row for SM 2540 D-2011, Total Suspended Solids (TSS), Result: 29.8, RL: 5.0, Units: mg/L, DF: 1, Prepared: 04/18/23 1020, Analyst: TIH

General Parameters

Table row for EPA 351.2, Rv. 2 (1993), Total Kjeldahl Nitrogen (TKN), Result: 1.71, RL: 1.00, Units: mg/L, DF: 1, Prepared: 04/27/23 1039, Analyzed: 04/28/23 1047, Analyst: AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0535

Client Sample ID:	SW19D	Collection Date:	04/14/2023 9:00
Sample Matrix:	Aqueous		
Lab Sample ID:	R3D0535-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	328.2	1	MPN/100mL	1		04/14/23 1521	04/15/23 1240	AMG
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	3.10	2.00	mg/L	1		04/14/23 1904	04/19/23 1514	JPA
Calculation								
Total Nitrogen	3.63	1.00	mg/L	1		04/27/23 1039	04/28/23 1053	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	2.24	1.00	mg/L	1		04/19/23 0625	04/19/23 0625	AMG
Nitrite as N	<1.00	1.00	mg/L	1		04/19/23 0625	04/19/23 0625	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	196	5.00	mg CaCO3/L	1			04/26/23 2250	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	15.6	5.0	mg/L	1			04/18/23 1020	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.39	1.00	mg/L	1		04/27/23 1039	04/28/23 1053	AMG

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CERTIFICATE OF ANALYSIS

R3D0535

Client Sample ID: SW24	Collection Date: 04/14/2023 10:15
Sample Matrix: Aqueous	
Lab Sample ID: R3D0535-03	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	>2419.6	1	MPN/100mL	1		04/14/23 1521	04/15/23 1240	AMG
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	4.50	2.00	mg/L	1		04/14/23 1904	04/19/23 1514	JPA
Calculation								
Total Nitrogen	7.72	1.00	mg/L	1		04/28/23 1703	04/29/23 0056	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	4.50	1.00	mg/L	1		04/19/23 0743	04/19/23 0743	AMG
Nitrite as N	<1.00	1.00	mg/L	1		04/19/23 0743	04/19/23 0743	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	636	5.00	mg CaCO3/L	1			04/26/23 2250	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	49.2	6.2	mg/L	1			04/18/23 1020	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	3.22	1.00	mg/L	1		04/28/23 1703	04/29/23 0056	AMG

Definitions

- MDL:** Minimum Detection Limit
- mg CaCO3/L** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit

Report Comments

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Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 04/30/2023 22:22

MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616



CHAIN OF CUSTODY

Bush Brothers & Company
 PM: Joe Sloan

Project ID--
 Permit #--
 If drinking water, State Reported? Yes No

Report To: Terry Dockery
 Bush Brothers and Company
 3304 Chestnut Hill Rd
 Dandridge, TN 37725
 Phone: 865-776-4804 Fax: 865-509-0288
 E-mail: tdockery@bushbros.com

Invoice To: SAME
 P.O. #:
 Quote #:

Sampler: *Tony Bryant*
 Sample Hazards: None

ANALYSIS REQUIRED

ECOL	Nitrate as N	ALKALINITY	TSS	BOD5	Total Nitrogen	Nitrate Nitrite
------	--------------	------------	-----	------	----------------	-----------------

FOR LAB CHECK-IN ONLY
 Temp Rec'd 5.9 C
 Properly Preserved: Yes No
 Remarks:

Sample ID	Sample Date	Sample Time	Sample Type	# of Cont's.
SW 19	4-14-23	0845	GEARS	5
SW 19 D	4-14-23	0900	GEARS	5
SW 24	4-14-23	1015	GEARS	5

ANALYSIS REQUIRED

Sample ID	Sample Date	Sample Time	Sample Type	# of Cont's.	Analysis Results
SW 19	4-14-23	0845	GEARS	5	X X X X X X X X
SW 19 D	4-14-23	0900	GEARS	5	X X X X X X X X
SW 24	4-14-23	1015	GEARS	5	X X X X X X X X

Priority
 Standard
 Next Day
 2-3 Day

Special Instructions / Comments...

Customer #:
 Job Temp.:
 Project:

Relinquished By: *[Signature]*
 Date: 4-14-23
 Time: 12:18

Received By: *[Signature]*
 Date: 4-14-23
 Time: 05:4-14-23

Relinquished By:
 Date:
 Time:

Received By:
 Date:
 Time:



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0513

Bush Brothers & Company

Project Name: Permit Irrigation Water SW

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: N/A
Received: 04/13/2023
Reported: 04/30/2023

Analytical Testing Parameters

Table with 2 columns: Parameter Name and Value. Includes Client Sample ID (SW26), Sample Matrix (Aqueous), Lab Sample ID (R3D0513-01), and Collection Date (04/13/2023 9:15).

Microbiology

Table with 9 columns: Method, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: SM 9223 B (Colilert Quanti-Tray)-2016, Escherichia coli, 206.4, 1 MPN/100mL, 1, 04/13/23 1534, 04/14/23 1030, TMW.

Inorganics Total

Table with 9 columns: Method, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: BOD Preparation/SM 5210 B-2011, Biochemical Oxygen Demand (BOD5), <2.00, 2.00 mg/L, 1, 04/14/23 1904, 04/19/23 1514, JPA.

Table with 9 columns: Method, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: Calculation, Total Nitrogen, <1.00, 1.00 mg/L, 1, 04/28/23 1703, 04/29/23 0044, AMG.

Table with 9 columns: Method, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows: EPA 300.0, Rv. 2.1 (1993), Nitrate as N (0.152), Nitrite as N (<0.100).

Table with 9 columns: Method, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: SM 2320 B-2011, Alkalinity to pH 4.5, Total, 232, 5.00 mg CaCO3/L, 1, 04/25/23 2145, AMG.

Table with 9 columns: Method, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: SM 2540 D-2011, Total Suspended Solids (TSS), 25.6, 5.0 mg/L, 1, 04/18/23 1020, TIH.

General Parameters

Table with 9 columns: Method, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: EPA 351.2, Rv. 2 (1993), Total Kjeldahl Nitrogen (TKN), <1.00, 1.00 mg/L, 1, 04/28/23 1703, 04/29/23 0044, AMG.



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0513

Client Sample ID: SW27	Collection Date: 04/13/2023 9:45
Sample Matrix: Aqueous	
Lab Sample ID: R3D0513-02	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	>2419.6	1	MPN/100mL	1		04/13/23 1534	04/14/23 1030	TMW
Inorganics Total								
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		04/14/23 1904	04/19/23 1514	JPA
Calculation								
Total Nitrogen	2.79	1.00	mg/L	1		04/28/23 1703	04/29/23 0054	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.45	0.100	mg/L	1		04/14/23 0417	04/14/23 0417	AMG
Nitrite as N	<0.100	0.100	mg/L	1		04/14/23 0417	04/14/23 0417	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	356	5.00	mg CaCO3/L	1			04/26/23 2250	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	13.2	5.0	mg/L	1			04/18/23 1020	TIH
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.35	1.00	mg/L	1		04/28/23 1703	04/29/23 0054	AMG

Definitions

- MDL:** Minimum Detection Limit
- mg CaCO3/L** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit

Report Comments

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Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 04/30/2023 22:45



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0463

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: N/A
Received: 04/12/2023
Reported: 04/30/2023

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: SW18, Sample Matrix: Wastewater, Lab Sample ID: R3D0463-01, Collected By: Tony Bryant, Collection Date: 04/12/2023 8:30

Main analytical results table with columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows include SM 9223 B (Colilert Quanti-Tray)-2016, Inorganics Total, BOD Preparation/SM 5210 B-2011, Calculation, EPA 300.0, Rv. 2.1 (1993), SM 2320 B-2011, SM 2540 D-2011, and General Parameters.



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0463

Client Sample ID:	SW18B	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	04/12/2023 9:15
Lab Sample ID:	R3D0463-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	<1	1	MPN/100mL	1		04/12/23 1444	04/13/23 1157	TMW
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		04/13/23 1838	04/18/23 1328	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		04/28/23 1703	04/29/23 0040	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		04/12/23 1732	04/12/23 1732	AMG
Nitrite as N	<0.100	0.100	mg/L	1		04/12/23 1732	04/12/23 1732	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	<5.00	5.00	mg CaCO3/L	1			04/26/23 2250	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			04/17/23 0951	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		04/28/23 1703	04/29/23 0040	AMG

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0463

Client Sample ID:	SW25	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	04/12/2023 10:00
Lab Sample ID:	R3D0463-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	>2419.6	1	MPN/100mL	1		04/12/23 1444	04/13/23 1157	TMW
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	2.00	2.00	mg/L	1		04/13/23 1838	04/18/23 1328	JPA
Calculation								
Total Nitrogen	3.85	1.00	mg/L	1		04/28/23 1703	04/29/23 0042	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	2.74	0.100	mg/L	1		04/12/23 1834	04/12/23 1834	AMG
Nitrite as N	<0.100	0.100	mg/L	1		04/12/23 1834	04/12/23 1834	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	350	5.00	mg CaCO3/L	1			04/25/23 2145	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	36.3	5.0	mg/L	1			04/17/23 0951	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.11	1.00	mg/L	1		04/28/23 1703	04/29/23 0042	AMG

Definitions

- MDL:** Minimum Detection Limit
- mg CaCO3/L** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit

Report Comments

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Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 04/30/2023 22:45



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0875

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: N/A
Received: 04/26/2023
Reported: 04/30/2023

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: MW15, Sample Matrix: Wastewater, Lab Sample ID: R3D0875-01, Collected By: Tony Bryant, Collection Date: 04/26/2023 8:30

Microbiology table row: SM 9223 B (Colilert Quanti-Tray)-2016, Escherichia coli, Result: <1, RL: 1, Units: MPN/100mL, DF: 1, Prepared: 04/26/23 1406, Analyzed: 04/27/23 1013, Analyst: NPB

Inorganics Total

Calculation

Table row: Total Nitrogen, Result: <1.00, RL: 1.00, Units: mg/L, DF: 1, Prepared: 04/28/23 1703, Analyzed: 04/29/23 0125, Analyst: AMG

EPA 300.0, Rv. 2.1 (1993)

Table row: Nitrate as N, Result: 0.169, RL: 0.100, Units: mg/L, DF: 1, Prepared: 04/26/23 1732, Analyzed: 04/26/23 1732, Analyst: AMG

Table row: Nitrite as N, Result: <0.100, RL: 0.100, Units: mg/L, DF: 1, Prepared: 04/26/23 1732, Analyzed: 04/26/23 1732, Analyst: AMG

SM 2320 B-2011

Table row: Alkalinity to pH 4.5, Total, Result: 304, RL: 5.00, Units: mg CaCO3/L, DF: 1, Prepared: 04/26/23 2250, Analyst: AMG

General Parameters

EPA 351.2, Rv. 2 (1993)

Table row: Total Kjeldahl Nitrogen (TKN), Result: <1.00, RL: 1.00, Units: mg/L, DF: 1, Prepared: 04/28/23 1703, Analyzed: 04/29/23 0125, Analyst: AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0875

Client Sample ID: MW14	Collected By: Tony Bryant
Sample Matrix: Wastewater	Collection Date: 04/26/2023 9:15
Lab Sample ID: R3D0875-02	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	<1	1	MPN/100mL	1		04/26/23 1406	04/27/23 1013	NPB
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Calculation								
Total Nitrogen	2.13	1.00	mg/L	1		04/28/23 1703	04/29/23 0127	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.100	0.100	mg/L	1		04/26/23 1748	04/26/23 1748	AMG
Nitrite as N	<0.100	0.100	mg/L	1		04/26/23 1748	04/26/23 1748	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	198	5.00	mg CaCO3/L	1			04/26/23 2250	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	2.03	1.00	mg/L	1		04/28/23 1703	04/29/23 0127	AMG

Client Sample ID: MW12	Collected By: Tony Bryant
Sample Matrix: Wastewater	Collection Date: 04/26/2023 9:45
Lab Sample ID: R3D0875-03	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	<1	1	MPN/100mL	1		04/26/23 1406	04/27/23 1013	NPB
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Calculation								
Total Nitrogen	1.76	1.00	mg/L	1		04/28/23 1703	04/29/23 0129	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		04/26/23 1804	04/26/23 1804	AMG
Nitrite as N	<0.100	0.100	mg/L	1		04/26/23 1804	04/26/23 1804	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	148	5.00	mg CaCO3/L	1			04/26/23 2250	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.70	1.00	mg/L	1		04/28/23 1703	04/29/23 0129	AMG

Definitions

- MDL:** Minimum Detection Limit
- mg CaCO3/L:** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL:** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0875

Report Comments

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Reviewed and Approved By:

A handwritten signature in black ink, appearing to read "Joe Sloan", is written over a white background.

Joe Sloan
Business Development Specialist
Reported: 04/30/2023 22:44



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 3 D 0 8 7 5

Bush Brothers & Company
 PM: Joe Sloan

Project ID: _____
 Permit #: _____
 Drinking water, State Reported? Yes No
 Sampler: Tony Bryant
 Sample Hazards: None

Report To: Terry Dockery
Bush Brothers and Company
3304 Chestnut Hill Rd
Dandridge, TN 37725
 Phone: 865-776-4804 Fax: 865-509-0288
 E-mail: tdockery@bushbros.com

Invoice To: SAME
 P.O. #: _____
 Quote #: _____

FOR LAB CHECK-IN ONLY
 Temp Rec'd 7.0 C
 Properly Preserved: Yes No
 Remarks: _____

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts.	ANALYSIS REQUIRED	Please Mark Testing Required (X)	Sample #
MW15	4-26-23	0830	GENS	5	ECOL Nitrates AS N ALKALINITY TSS BOD5 Total Nitrogen Nitrate Nitrite	X X X X X	
MW14	4-26-23	0915	GENS	5		X X X X X	
MW12	4-26-23	0945	GENS	5		X X X X X	

Priority Standard Next Day 2-3 Day
 Special Instructions / Comments...

Relinquished By: [Signature] Date: 4-26-23 Time: 1109
 Received By: [Signature] Date: _____ Time: _____
 Relinquished By: _____ Date: _____ Time: _____
 Received By: _____ Date: _____ Time: _____



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0846

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: N/A
Received: 04/25/2023
Reported: 05/02/2023

Analytical Testing Parameters

Table with 4 columns: Client Sample ID, Sample Matrix, Lab Sample ID, Collected By, Collection Date. Values include MW11, Wastewater, R3D0846-01, Tony Bryant, 04/25/2023 8:30.

Main analytical results table for MW11. Columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows include SM 9223 B (Colilert Quanti-Tray)-2016, Inorganics Total, Calculation, EPA 300.0, Rv. 2.1 (1993), SM 2320 B-2011, General Parameters, EPA 351.2, Rv. 2 (1993).

Table with 4 columns: Client Sample ID, Sample Matrix, Lab Sample ID, Collected By, Collection Date. Values include MW7, Wastewater, R3D0846-02, Tony Bryant, 04/25/2023 9:30.

Main analytical results table for MW7. Columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows include SM 9223 B (Colilert Quanti-Tray)-2016, Inorganics Total, Calculation, EPA 300.0, Rv. 2.1 (1993), SM 2320 B-2011, General Parameters, EPA 351.2, Rv. 2 (1993).



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0846

Definitions

MDL: Minimum Detection Limit
mg CaCO3/L Milligrams Calcium Carbonate per Liter
mg/L: Milligrams per Liter
MPN/100mL Most Probable Number per 100 Milliliters
RL: Reporting Limit

Report Comments

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Reviewed and Approved By:

Joe Sloan
Business Development Specialist
Reported: 05/02/2023 11:43



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 3 D 0 8 4 6
 Bush Brothers & Company
 PM: Joe Sloan

Project ID--
 Permit #--
 If drinking water, State Reported? Yes No
 Sampler: Tony Bryant
 Sample Hazards: None

Report To: Terry Dockery
 Bush Brothers and Company
 3304 Chestnut Hill Rd
 Dandridge, TN 37725
 Phone: 865-776-4804 Fax: 865-509-0288
 E-mail: tdockery@bushbros.com

Invoice To: SAME
 P.O. #:
 Quote #:

ANALYSIS REQUIRED

ECOL	NIKROK AS N	ALKALINITY	TSS	BOD5	TOTAL NITROGEN	NIKROK NITRITE
------	-------------	------------	-----	------	----------------	----------------

FOR LAB CHECK-IN ONLY
 Temp Rec'd 2.8 C
 Properly Preserved: Yes No
 Remarks:

Sample ID	Sample Date	Sample Time	Sample Type	# of Cont's	Special Instructions / Comments
MW 11	4-25-23	0830	LEAK	5	
MW 7	4-25-23	0930	LEAK	5	

Relinquished By: <u>[Signature]</u>	Date: <u>4-25-23</u>	Time: <u>1107</u>	Received By: <u>[Signature]</u>	Date: <u>4-25-23</u>	Time: <u>23</u>
Relinquished By:	Date:	Time:	Received By:	Date:	Time:



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0606

Bush Brothers & Company

Project Name: Permit Irrigation Water SW 4/17/23

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: N/A
Received: 04/17/2023
Reported: 05/02/2023

Analytical Testing Parameters

Table with client sample details: Client Sample ID: SW14, Sample Matrix: Aqueous, Lab Sample ID: R3D0606-01, Collection Date: 04/17/2023 8:45

Microbiology

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: SM 9223 B (Colilert Quanti-Tray)-2016, Escherichia coli, 613.1, 1 MPN/100mL, 1, 04/17/23 1441, 04/18/23 1526, TMW

Inorganics Total

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: BOD Preparation/SM 5210 B-2011, Biochemical Oxygen Demand (BOD5), <2.00, 2.00 mg/L, 1, 04/18/23 1901, 04/23/23 1532, JPA

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: Calculation, Total Nitrogen, 1.03, 1.00 mg/L, 1, 04/27/23 1039, 04/28/23 1059, AMG

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: EPA 300.0, Rv. 2.1 (1993), Nitrate as N, 0.544, 0.100 mg/L, 1, 04/18/23 2133, 04/18/23 2133, AMG; Nitrite as N, <0.100, 0.100 mg/L, 1, M, 04/18/23 2133, 04/18/23 2133, AMG

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: SM 2320 B-2011, Alkalinity to pH 4.5, Total, 324, 5.00 mg CaCO3/L, 1, 04/26/23 2250, AMG

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: SM 2540 D-2011, Total Suspended Solids (TSS), <5.0, 5.0 mg/L, 1, 04/23/23 1425, TIH

General Parameters

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: EPA 351.2, Rv. 2 (1993), Total Kjeldahl Nitrogen (TKN), <1.00, 1.00 mg/L, 1, 04/27/23 1039, 04/28/23 1059, AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0606

Client Sample ID:	SW17	Collection Date:	04/17/2023 9:20
Sample Matrix:	Aqueous		
Lab Sample ID:	R3D0606-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	133.3	1	MPN/100mL	1		04/17/23 1441	04/18/23 1526	TMW
Inorganics Total								
BOD Preparation/SM 5210 B-2011	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		04/18/23 1901	04/23/23 1532	JPA
Calculation								
Total Nitrogen	4.23	1.00	mg/L	1		04/27/23 1039	04/28/23 1101	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	2.89	0.100	mg/L	1	M	04/18/23 2149	04/18/23 2149	AMG
Nitrite as N	<0.100	0.100	mg/L	1	M	04/18/23 2149	04/18/23 2149	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	456	5.00	mg CaCO3/L	1			04/26/23 2250	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	6.7	5.0	mg/L	1			04/23/23 1425	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.34	1.00	mg/L	1		04/27/23 1039	04/28/23 1101	AMG

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CERTIFICATE OF ANALYSIS

R3D0606

Client Sample ID:	SW13	Collection Date:	04/17/2023 9:50
Sample Matrix:	Aqueous		
Lab Sample ID:	R3D0606-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	206.4	1	MPN/100mL	1		04/17/23 1441	04/18/23 1526	TMW
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		04/18/23 1901	04/23/23 1532	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		04/27/23 1039	04/28/23 1103	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.901	0.100	mg/L	1		04/18/23 2204	04/18/23 2204	AMG
Nitrite as N	<0.100	0.100	mg/L	1		04/18/23 2204	04/18/23 2204	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	270	5.00	mg CaCO3/L	1		05/01/23 1552	05/01/23 1558	CWS
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			04/23/23 1425	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		04/27/23 1039	04/28/23 1103	AMG

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0606

Client Sample ID:	SW15	Collection Date:	04/17/2023 10:20
Sample Matrix:	Aqueous		
Lab Sample ID:	R3D0606-04		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	142.1	1	MPN/100mL	1		04/17/23 1441	04/18/23 1526	TMW
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		04/18/23 1901	04/23/23 1532	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		04/27/23 1039	04/28/23 1109	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.902	0.100	mg/L	1		04/18/23 2220	04/18/23 2220	AMG
Nitrite as N	<0.100	0.100	mg/L	1		04/18/23 2220	04/18/23 2220	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	254	5.00	mg CaCO3/L	1		05/01/23 1552	05/01/23 1558	CWS
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			04/23/23 1425	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		04/27/23 1039	04/28/23 1109	AMG

Definitions

- M:** Matrix interference is present.
- MDL:** Minimum Detection Limit
- mg CaCO3/L** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 05/02/2023 11:46



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 3 D 0 6 0 6
 Bush Brothers & Company
 PM: Joe Sloan

Project ID--
 Permit #--
 If drinking water, State Reported? Yes No

Sampler: Tony Bryant
 Sample Hazards: None

Report To: Terry Dockery
 Bush Brothers and Company
 3304 Chestnut Hill Rd
 Dandridge, TN 37725
 Phone: 865-776-4804 Fax: 865-509-0288
 E-mail: tdockery@bushbros.com

Invoice To: SAME
 P.O. #:
 Quote #:

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts.	ANALYSIS REQUIRED	FOR LAB CHECK-IN ONLY
SW14	4-17-23	0845	GRAB	5	ALKA, Nitrate, Nitrite, TSS, BOD5, Total Nitrogen, Nitrate Nitrite	Temp Rec'd <u>27</u> C Properly Preserved: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Remarks:
SW17	4-17-23	0920	GRAB	5		
SW13	4-17-23	0950	GRAB	5		
SW15	4-17-23	1020	GRAB	5		

Please Mark Testing Required (X)

Priority
 Standard
 Next Day
 2-3 Day

Special Instructions / Comments...

Relinquished By: [Signature] Date: 4-17-23 Time: 1159
 Received By: COB Date: 4-17-23 Time: 1201

Relinquished By: Date: Time:
 Received By: Date: Time:

Customer #:
 Job Temp.:
 Project:



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0776

Bush Brothers & Company

Project Name: MONITORING WELLS 4-21-23

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: N/A
Received: 04/21/2023
Reported: 05/02/2023

Analytical Testing Parameters

Table with client and sample information: Client Sample ID: MW2, Sample Matrix: Wastewater, Lab Sample ID: R3D0776-01, Collected By: Tony Bryant, Collection Date: 04/21/2023 9:00

Main analytical results table for sample MW2, including Microbiology (Escherichia coli), Inorganics Total, Calculation (Total Nitrogen), EPA 300.0, Rv. 2.1 (1993) (Nitrate as N, Nitrite as N), SM 2320 B-2011 (Alkalinity to pH 4.5, Total), and General Parameters (EPA 351.2, Rv. 2 (1993) (Total Kjeldahl Nitrogen (TKN))

Table with client and sample information: Client Sample ID: MW4, Sample Matrix: Wastewater, Lab Sample ID: R3D0776-02, Collected By: Tony Bryant, Collection Date: 04/21/2023 10:00

Main analytical results table for sample MW4, including Microbiology (Escherichia coli), Inorganics Total, Calculation (Total Nitrogen), EPA 300.0, Rv. 2.1 (1993) (Nitrate as N, Nitrite as N), SM 2320 B-2011 (Alkalinity to pH 4.5, Total), and General Parameters (EPA 351.2, Rv. 2 (1993) (Total Kjeldahl Nitrogen (TKN))



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3D0776

Definitions

M2:	Matrix spike recovery is outside of acceptance limits, biased low.
MDL:	Minimum Detection Limit
mg CaCO₃/L	Milligrams Calcium Carbonate per Liter
mg/L:	Milligrams per Liter
MPN/100mL	Most Probable Number per 100 Milliliters
RL:	Reporting Limit

Report Comments

*The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. **The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.***

Reviewed and Approved By:

Joe Sloan
Business Development Specialist
Reported: 05/02/2023 12:02



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 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 3 D 0 7 7 6
 Bush Brothers & Company
 PM: Joe Sloan

Project ID--
 Permit #--
 If drinking water, State Reported? Yes No
 Sampler: Tony Bryant
 Sample Hazards: None

Report To: Terry Dockery
 Bush Brothers and Company
 3304 Chestnut Hill Rd
 Dandridge, TN 37725
 Phone: 865-776-4804 Fax: 865-509-0288
 E-mail: tdockery@bushbros.com

Invoice To: SAME
 P.O. #:
 Quote #:

ANALYSIS REQUIRED

ECOL	NIKRO AS N	ALKA Int. 1/4	TSS	BOD5	Total Nitrogen	Nitrate Nitrite
------	------------	---------------	-----	------	----------------	-----------------

FOR LAB CHECK-IN ONLY
 Temp Rec'd 5.3 C
 Properly Preserved: Yes No
 Remarks:

Sample ID	Sample Date	Sample Time	Sample Type	# of Cont's.	Special Instructions / Comments...
MW2	4-21-23	0900	SEAB	5	XX
MW4	4-21-23	1000	SEAB	5	XX

Priority Standard Next-Day 2-3 Day
 Special Instructions / Comments...
 Customer #:
 Job Temp.:
 Project:

Relinquished By: <u>[Signature]</u>	Date: 4-21-23	Time: 1122	Relinquished By: <u>CWS</u>	Date: 4-21-23	Time: <u>XX</u>
Relinquished By: <u>[Signature]</u>	Date:	Time:	Relinquished By:	Date:	Time:



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G0713

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: 1117228
Received: 07/19/2023
Reported: 08/03/2023

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: SW 3R2, Sample Matrix: Aqueous, Lab Sample ID: R3G0713-01, Collected By: Tony Bryant, Collection Date: 07/19/2023 8:45

Main analytical results table with columns: Microbiology, Inorganics Total, BOD Preparation, Calculation, EPA 300.0, SM 2320 B-2011, SM 2540 D-2015, General Parameters. Rows include Escherichia coli, Biochemical Oxygen Demand, Total Nitrogen, Nitrate as N, Nitrite as N, Alkalinity to pH 4.5, Total Suspended Solids, and Total Kjeldahl Nitrogen.



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G0713

Client Sample ID:	SW 9	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	07/19/2023 9:10
Lab Sample ID:	R3G0713-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	235.9	1	MPN/100mL	1		07/19/23 1618	07/20/23 1115	TIH
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		07/20/23 1829	07/25/23 1311	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		07/31/23 1054	07/31/23 1759	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.131	0.100	mg/L	1	M2	07/21/23 0324	07/21/23 0324	AMG
Nitrite as N	<0.100	0.100	mg/L	1	M2	07/21/23 0324	07/21/23 0324	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	184	5.00	mg CaCO3/L	1			07/31/23 1020	TIH
SM 2540 D-2015								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			07/20/23 2116	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		07/31/23 1054	07/31/23 1759	AMG

Definitions

- M2:** Matrix spike recovery is outside of acceptance limits, biased low.
- MDL:** Minimum Detection Limit
- mg CaCO3/L:** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL:** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit

Report Comments

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Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 08/03/2023 15:27



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G0886

Bush Brothers & Company

Project Name: SW 7/24

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: 1117228
Received: 07/24/2023
Reported: 08/07/2023

Analytical Testing Parameters

Table with client and sample information: Client Sample ID: SW12, Sample Matrix: Aqueous, Lab Sample ID: R3G0886-01, Collected By: TONY Bryant, Collection Date: 07/24/2023 8:45

Microbiology

Table row for SM 9223 B (Colilert Quanti-Tray)-2016, Escherichia coli, Result: 686.7, RL: 1, Units: MPN/100mL, DF: 1, Note: , Prepared: 07/24/23 1619, Analyzed: 07/25/23 1918, Analyst: AMG

Inorganics Total

BOD Preparation/SM 5210 B-2016

Table row for Biochemical Oxygen Demand (BOD5), Result: <2.00, RL: 2.00, Units: mg/L, DF: 1, Note: , Prepared: 07/25/23 2021, Analyzed: 07/30/23 1549, Analyst: JPA

Calculation

Table row for Total Nitrogen, Result: 5.79, RL: 1.00, Units: mg/L, DF: 1, Note: , Prepared: 08/04/23 1138, Analyzed: 08/06/23 0043, Analyst: AMG

EPA 300.0, Rv. 2.1 (1993)

Table row for Nitrate as N, Result: 1.25, RL: 0.100, Units: mg/L, DF: 1, Note: , Prepared: 07/26/23 0238, Analyzed: 07/26/23 0238, Analyst: AMG

Table row for Nitrite as N, Result: <0.100, RL: 0.100, Units: mg/L, DF: 1, Note: , Prepared: 07/26/23 0238, Analyzed: 07/26/23 0238, Analyst: AMG

SM 2320 B-2011

Table row for Alkalinity to pH 4.5, Total, Result: 244, RL: 5.00, Units: mg CaCO3/L, DF: 1, Note: , Prepared: , Analyzed: 07/31/23 1020, Analyst: TIH

SM 2540 D-2015

Table row for Total Suspended Solids (TSS), Result: <5.0, RL: 5.0, Units: mg/L, DF: 1, Note: , Prepared: 07/27/23 1908, Analyzed: 07/27/23 1930, Analyst: AMG

General Parameters

EPA 351.2, Rv. 2 (1993)

Table row for Total Kjeldahl Nitrogen (TKN), Result: 4.54, RL: 1.00, Units: mg/L, DF: 1, Note: , Prepared: 08/04/23 1138, Analyzed: 08/06/23 0043, Analyst: AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G0886

Client Sample ID:	SW11	Collected By:	TONY Bryant
Sample Matrix:	Aqueous	Collection Date:	07/24/2023 9:30
Lab Sample ID:	R3G0886-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	816.4	1	MPN/100mL	1		07/24/23 1619	07/25/23 1918	AMG
Inorganics Total								
BOD Preparation/SM 5210 B-2016	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		07/25/23 2021	07/30/23 1549	JPA
Calculation								
Total Nitrogen	1.21	1.00	mg/L	1		07/31/23 1054	07/31/23 1805	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.21	0.100	mg/L	1		07/26/23 0254	07/26/23 0254	AMG
Nitrite as N	<0.100	0.100	mg/L	1		07/26/23 0254	07/26/23 0254	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	242	5.00	mg CaCO3/L	1			07/31/23 1020	TIH
SM 2540 D-2015								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1		07/27/23 1908	07/27/23 1930	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		07/31/23 1054	07/31/23 1805	AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G0886

Client Sample ID:	SW17	Collected By:	TONY Bryant
Sample Matrix:	Aqueous	Collection Date:	07/24/2023 10:00
Lab Sample ID:	R3G0886-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	121.1	1	MPN/100mL	1		07/24/23 1619	07/25/23 1918	AMG
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		07/25/23 2021	07/30/23 1549	JPA
Calculation								
Total Nitrogen	3.91	1.00	mg/L	1		08/04/23 1138	08/05/23 2331	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.186	0.100	mg/L	1		07/26/23 0309	07/26/23 0309	AMG
Nitrite as N	<0.100	0.100	mg/L	1		07/26/23 0309	07/26/23 0309	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	419	5.00	mg CaCO3/L	1			07/31/23 1020	TIH
SM 2540 D-2015								
Total Suspended Solids (TSS)	19.6	5.0	mg/L	1			07/31/23 2237	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	3.72	1.00	mg/L	1		08/04/23 1138	08/05/23 2331	AMG

Definitions

- MDL: Minimum Detection Limit
- mg CaCO3/L: Milligrams Calcium Carbonate per Liter
- mg/L: Milligrams per Liter
- MPN/100mL: Most Probable Number per 100 Milliliters
- RL: Reporting Limit

Report Comments

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Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 08/07/2023 14:34



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 3 G 0 8 8 6
 Bush Brothers & Company
 PMI: Joe Sloan

Project ID--
 Permit #--
 If drinking water, State Reported? Yes No
 Sampler: Tony Bryant
 Sample Hazards: None

Report To: Terry Dockery
 Bush Brothers and Company
 3304 Chestnut Hill Rd
 Dandridge, TN 37725
 Phone: 865-776-4804 Fax: 865-509-0288
 E-mail: tdockery@bushbrots.com

Invoice To: SAME
 P.O. #:
 Quote #:

Sample ID	Sample Date	Sample Time	Sample Type	# of Cont's
SW12	7-24-23	0845	GPAS	5
SW11	7-24-23	0930	GPAS	5
SW17	7-24-23	1000	GPAS	5

Sample ID	Sample Date	Sample Time	Sample Type	# of Cont's	ANALYSIS REQUIRED
SW12	7-24-23	0845	GPAS	5	ALKA, NITR, TSS, BOD5, Total Nitrogen, Nitrate Nitrite
SW11	7-24-23	0930	GPAS	5	ALKA, NITR, TSS, BOD5, Total Nitrogen, Nitrate Nitrite
SW17	7-24-23	1000	GPAS	5	ALKA, NITR, TSS, BOD5, Total Nitrogen, Nitrate Nitrite

Please Mark Testing Required (X)

FOR LAB CHECK-IN ONLY
 Temp Rec'd 7.7 C
 Properly Preserved: Yes No
 Remarks: only

Priority Standard Next Day 2-3 Day
 Special Instructions / Comments...

Customer #:
 Job Temp.:
 Project:

Relinquished By: <u>Tony Bryant</u>	Date: 7-24-23	Time: 1156	Relinquished By:	Date:	Time:
Received By: <u>CWS</u>	Date: 7-24-23	Time: 1156	Received By:	Date:	Time:



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G0826

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: 1117228
Received: 07/21/2023
Reported: 08/07/2023

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: SW16, Sample Matrix: Wastewater, Lab Sample ID: R3G0826-01, Collected By: Tony Bryant, Collection Date: 07/21/2023 8:30

Microbiology Result RL Units DF Note Prepared Analyzed Analyst

SM 9223 B (Colilert Quanti-Tray)-2016

Table row for Escherichia coli with result 461.1, RL 1, Units MPN/100mL, DF 1, Note, Prepared 07/21/23 1522, Analyzed 07/22/23 1148, Analyst JAH

Inorganics Total Result RL Units DF Note Prepared Analyzed Analyst

BOD Preparation/SM 5210 B-2016

Table row for Biochemical Oxygen Demand (BOD5) with result <2.00, RL 2.00, Units mg/L, DF 1, Note, Prepared 07/21/23 1855, Analyzed 07/26/23 1323, Analyst JPA

Calculation

Table row for Total Nitrogen with result 1.42, RL 1.00, Units mg/L, DF 1, Note, Prepared 07/28/23 1048, Analyzed 07/29/23 1810, Analyst AMG

EPA 300.0, Rv. 2.1 (1993)

Table row for Nitrate as N with result 1.42, RL 1.00, Units mg/L, DF 1, Note, Prepared 07/28/23 0356, Analyzed 07/28/23 0356, Analyst AMG

Table row for Nitrite as N with result <1.00, RL 1.00, Units mg/L, DF 1, Note, Prepared 07/28/23 0356, Analyzed 07/28/23 0356, Analyst AMG

SM 2320 B-2011

Table row for Alkalinity to pH 4.5, Total with result 232, RL 5.00, Units mg CaCO3/L, DF 1, Note, Prepared, Analyzed 07/31/23 1020, Analyst TIH

SM 2540 D-2015

Table row for Total Suspended Solids (TSS) with result <5.0, RL 5.0, Units mg/L, DF 1, Note, Prepared, Analyzed 07/26/23 2308, Analyst AMG

General Parameters Result RL Units DF Note Prepared Analyzed Analyst

EPA 351.2, Rv. 2 (1993)

Table row for Total Kjeldahl Nitrogen (TKN) with result <1.00, RL 1.00, Units mg/L, DF 1, Note, Prepared 07/28/23 1048, Analyzed 07/29/23 1810, Analyst AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G0826

Client Sample ID:	SW4	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	07/21/2023 9:30
Lab Sample ID:	R3G0826-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	387.3	1	MPN/100mL	1		07/21/23 1522	07/22/23 1148	JAH
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		07/21/23 1855	07/26/23 1323	JPA
Calculation								
Total Nitrogen	1.04	1.00	mg/L	1		08/04/23 1138	08/05/23 2319	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.04	0.100	mg/L	1		07/21/23 1637	07/21/23 1637	AMG
Nitrite as N	<0.100	0.100	mg/L	1		07/21/23 1637	07/21/23 1637	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	216	5.00	mg CaCO3/L	1			07/31/23 1020	TIH
SM 2540 D-2015								
Total Suspended Solids (TSS)	5.8	5.0	mg/L	1			07/26/23 2308	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1	M1	08/04/23 1138	08/05/23 2319	AMG

Definitions

- M1:** Matrix spike recovery is outside of acceptance limits, biased high.
- MDL:** Minimum Detection Limit
- mg CaCO3/L:** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL:** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 08/07/2023 14:36



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 3 G 0 8 2 6
 Bush Brothers & Company
 PM: Joe Sloan

Report To: Terry Dockery
 Bush Brothers and Company
 3304 Chestnut Hill Rd
 Dandridge, TN 37725
 Phone: 865-776-4804 Fax: 865-509-0288
 E-mail: tdockery@bushbros.com

Invoice To: SAME

P.O. #: _____
 Quote #: _____

Project ID: _____
 Permit #: _____
 drinking water, State Reported? Yes No

Sampler: *Tony Bryant*

Sample Hazards: None

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts.
SW16	7-21-23	0830	GRAB	5
SW4	7-21-23	0930	GRAB	5

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts.	ANALYSIS REQUIRED	FOR LAB CHECK-IN ONLY
SW16	7-21-23	0830	GRAB	5	ALKA, TSS, BOD5, Total Nitrogen, Nitrate Nitrite	Temp Rec'd 10.8 C Properly Preserved: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Remarks:
SW4	7-21-23	0930	GRAB	5		

Special Instructions / Comments: _____

Priority: Standard
 Next-Day 2-3 Day

Relinquished By: *[Signature]* Date: 7-21-23 Time: 1200
 Relinquished By: *[Signature]* Date: _____ Time: _____

Received By: *[Signature]* Date: _____ Time: _____
 Received By: _____ Date: _____ Time: _____

Customer #: _____
 Job Temp.: _____
 Project: _____



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G0930

Bush Brothers & Company

Project Name: Surface Water

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: 1117228
Received: 07/25/2023
Reported: 08/07/2023

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: SW7, Sample Matrix: Aqueous, Lab Sample ID: R3G0930-01, Collected By: Tony Bryant, Collection Date: 07/25/2023 8:30

Microbiology Result RL Units DF Note Prepared Analyzed Analyst

SM 9223 B (Colilert Quanti-Tray)-2016

Table row for Escherichia coli with result 517.2, RL 1, Units MPN/100mL, DF 1, Note, Prepared 07/25/23 1617, Analyzed 07/26/23 1842, Analyst AMG

Inorganics Total Result RL Units DF Note Prepared Analyzed Analyst

BOD Preparation/SM 5210 B-2016

Table row for Biochemical Oxygen Demand (BOD5) with result 59.6, RL 2.00, Units mg/L, DF 1, Note K6, K8, Prepared 07/26/23 1910, Analyzed 07/31/23 1315, Analyst JPA

Calculation

Table row for Total Nitrogen with result <1.00, RL 1.00, Units mg/L, DF 1, Note, Prepared 07/31/23 1054, Analyzed 07/31/23 1811, Analyst AMG

EPA 300.0, Rv. 2.1 (1993)

Table row for Nitrate as N with result 0.347, RL 0.100, Units mg/L, DF 1, Note, Prepared 07/26/23 1445, Analyzed 07/26/23 1445, Analyst AMG

Table row for Nitrite as N with result <0.100, RL 0.100, Units mg/L, DF 1, Note, Prepared 07/26/23 0325, Analyzed 07/26/23 0325, Analyst AMG

SM 2320 B-2011

Table row for Alkalinity to pH 4.5, Total with result 382, RL 5.00, Units mg CaCO3/L, DF 1, Note, Prepared, Analyzed 07/31/23 1020, Analyst TIH

SM 2540 D-2015

Table row for Total Suspended Solids (TSS) with result <5.0, RL 5.0, Units mg/L, DF 1, Note, Prepared, Analyzed 07/26/23 2308, Analyst AMG

General Parameters Result RL Units DF Note Prepared Analyzed Analyst

EPA 351.2, Rv. 2 (1993)

Table row for Total Kjeldahl Nitrogen (TKN) with result <1.00, RL 1.00, Units mg/L, DF 1, Note, Prepared 07/31/23 1054, Analyzed 07/31/23 1811, Analyst AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G0930

Client Sample ID:	SW8R	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	07/25/2023 10:00
Lab Sample ID:	R3G0930-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	65	1	MPN/100mL	1		07/25/23 1617	07/26/23 1842	AMG
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	63.4	2.00	mg/L	1	K6, K8	07/26/23 1910	07/31/23 1315	JPA
Calculation								
Total Nitrogen	1.14	1.00	mg/L	1		07/31/23 1054	07/31/23 1821	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.14	0.100	mg/L	1	M		07/26/23 0341	AMG
Nitrite as N	<0.100	0.100	mg/L	1	M		07/26/23 0341	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	265	5.00	mg CaCO3/L	1			07/31/23 1020	TIH
SM 2540 D-2015								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			07/26/23 2308	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		07/31/23 1054	07/31/23 1821	AMG

Definitions

- K6:** Evidence of toxicity is present.
- K8:** Test replicates show more than 30% difference between high and low dilutions.
- M:** Matrix interference is present.
- MDL:** Minimum Detection Limit
- mg CaCO3/L** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 08/07/2023 14:34



R 3 G 0 9 3 0

Bush Brothers & Company
PM: Joe Sloan

Page 1 of 1

CHAIN OF CUSTODY

MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

Report To: Terry Dockery
 Bush Brothers and Company
 3304 Chestnut Hill Rd
 Dandridge, TN 37725
 Phone: 865-776-4804 Fax: 865-509-0288
 E-mail: tdockery@bushbros.com

Invoice To: SAME
 P.O. #: _____
 Quote #: _____

Project ID: _____
 Permit #: _____
 If drinking water, State Reported? Yes No
 Sampler: *Tom Bryant*
 Sample Hazards: None

ANALYSIS REQUIRED		FOR LAB CHECK-IN ONLY	
Temp Rec'd	Properly Preserved:	Temp Rec'd	Properly Preserved:
Yes	No	Yes	No
10.4	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Remarks: <i>ARG-008</i>			
Customer #: _____			
Job Temp.: _____			
Project: _____			

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts.	Special Instructions / Comments...
SW7	7-25-23	0830	Grab	5	
SW8R	7-25-23	1000	Grab	5	

ANALYSIS REQUIRED		FOR LAB CHECK-IN ONLY	
Temp Rec'd	Properly Preserved:	Temp Rec'd	Properly Preserved:
Yes	No	Yes	No
	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Remarks: <i>ARG-008</i>			
Customer #: _____			
Job Temp.: _____			
Project: _____			

Relinquished By:	Received By:	Date:	Time:
<i>[Signature]</i>	<i>[Signature]</i>	7-25-23	11:22
Relinquished By:	Received By:	Date:	Time:



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G0656

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: 1117228
Received: 07/18/2023
Reported: 08/10/2023

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: SW6, Sample Matrix: Wastewater, Lab Sample ID: R3G0656-01, Collected By: Tony Bryant, Collection Date: 07/18/2023 8:30

Main analytical results table with columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Includes rows for SM 9223 B (Colilert Quanti-Tray)-2016, Inorganics Total, BOD Preparation/SM 5210 B-2016, Calculation, EPA 300.0, Rv. 2.1 (1993), SM 2320 B-2011, SM 2540 D-2015, and General Parameters.



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G0656

Client Sample ID: SW22	Collected By: Tony Bryant
Sample Matrix: Wastewater	Collection Date: 07/18/2023 9:30
Lab Sample ID: R3G0656-02	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	1413.6	1	MPN/100mL	1		07/18/23 1408	07/19/23 1446	TIH
Inorganics Total								
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	4.10	2.00	mg/L	1	K1	07/19/23 2105	07/24/23 1506	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		07/28/23 1048	07/29/23 1806	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.447	0.100	mg/L	1		07/19/23 0549	07/19/23 0549	AMG
Nitrite as N	<0.100	0.100	mg/L	1		07/19/23 0549	07/19/23 0549	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	101	5.00	mg CaCO3/L	1			07/24/23 1045	TIH
SM 2540 D-2015								
Total Suspended Solids (TSS)	7.2	5.0	mg/L	1	B		07/19/23 2330	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		07/28/23 1048	07/29/23 1806	AMG

Definitions

- B:** Analyte found in the blank at or above the method acceptance criteria.
- K1:** Unseeded dilution blank depletion exceeds 0.2 mg/L.
- M2:** Matrix spike recovery is outside of acceptance limits, biased low.
- MDL:** Minimum Detection Limit
- mg CaCO3/L:** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL:** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit

Report Comments

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Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 08/10/2023 09:57



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G1010

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: 1117228
Received: 07/27/2023
Reported: 08/10/2023

Analytical Testing Parameters

Client Sample ID:	SW16	Collection Date:	07/27/2023 8:15
Sample Matrix:	Aqueous		
Lab Sample ID:	R3G1010-01		

Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Calculation								
Total Nitrogen	2.59	1.00	mg/L	1		08/04/23 1138	08/05/23 2333	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.40	0.100	mg/L	1		07/27/23 2227	07/27/23 2227	AMG
Nitrite as N	<0.100	0.100	mg/L	1		07/27/23 2227	07/27/23 2227	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.20	1.00	mg/L	1		08/04/23 1138	08/05/23 2333	AMG

Client Sample ID:	SW18	Collection Date:	07/27/2023 8:15
Sample Matrix:	Aqueous		
Lab Sample ID:	R3G1010-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	1413.6	1	MPN/100mL	1		07/27/23 1551	07/28/23 1736	TIH
Inorganics Total								
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		07/28/23 1840	08/02/23 1318	JPA
Calculation								
Total Nitrogen	2.54	1.00	mg/L	1		08/04/23 1138	08/05/23 2335	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.55	0.100	mg/L	1	M	07/28/23 1434	07/28/23 1434	AMG
Nitrite as N	<0.100	0.100	mg/L	1	M	07/28/23 0017	07/28/23 0017	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	328	5.00	mg CaCO3/L	1			07/31/23 1020	TIH
SM 2540 D-2015								
Total Suspended Solids (TSS)	54.0	5.0	mg/L	1			07/31/23 2237	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		08/04/23 1138	08/05/23 2335	AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G1010

Client Sample ID:	SW25	Collection Date:	07/27/2023 9:30
Sample Matrix:	Aqueous		
Lab Sample ID:	R3G1010-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	>2419.6	1	MPN/100mL	1		07/27/23 1551	07/28/23 1736	TIH
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	7.50	2.00	mg/L	1	G3	07/28/23 1840	08/02/23 1318	JPA
Calculation								
Total Nitrogen	5.94	1.00	mg/L	1		08/04/23 1138	08/05/23 2337	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	2.48	0.100	mg/L	1		07/28/23 0135	07/28/23 0135	AMG
Nitrite as N	<0.100	0.100	mg/L	1		07/28/23 0135	07/28/23 0135	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	410	5.00	mg CaCO3/L	1			07/31/23 1020	TIH
SM 2540 D-2015								
Total Suspended Solids (TSS)	42.8	5.0	mg/L	1			08/03/23 2310	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	3.45	1.00	mg/L	1		08/04/23 1138	08/05/23 2337	AMG

Microbac Laboratories, Inc., Maryville

505 East Broadway Avenue | Maryville, TN 37804-5744 | 865-977-1200 p | www.microbac.com



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G1010

Client Sample ID: SW26	Collection Date: 07/27/2023 10:00
Sample Matrix: Aqueous	
Lab Sample ID: R3G1010-04	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	110.6	1	MPN/100mL	1		07/27/23 1551	07/28/23 1736	TIH
Inorganics Total								
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		07/28/23 1840	08/02/23 1318	JPA
Calculation								
Total Nitrogen	2.52	1.00	mg/L	1		08/04/23 1138	08/05/23 2339	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.184	0.100	mg/L	1		07/28/23 0151	07/28/23 0151	AMG
Nitrite as N	<0.100	0.100	mg/L	1		07/28/23 0151	07/28/23 0151	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	400	5.00	mg CaCO3/L	1			07/31/23 1020	TIH
SM 2540 D-2015								
Total Suspended Solids (TSS)	32.2	5.0	mg/L	1			07/31/23 2237	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	2.34	1.00	mg/L	1		08/04/23 1138	08/05/23 2339	AMG

Definitions

- G3:** BOD result estimated due to inconsistent oxygen depletion.
- M:** Matrix interference is present.
- MDL:** Minimum Detection Limit
- mg CaCO3/L:** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL:** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 08/10/2023 14:44

MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



Bush Brothers & Company
 PM: Joe Sloan

Project ID--
 Permit #--
 If drinking water, State Reported? Yes No

Report To: Terry Dockery
 Bush Brothers and Company
 3304 Chestnut Hill Rd
 Dandridge, TN 37725
 Phone: 865-776-4804 Fax: 865-509-0288
 E-mail: tdockery@bushbros.com

Invoice To: SAME
 P.O. #:
 Quote #:

Sampler: *Tony Bryant*
 Sample Hazards: None

ANALYSIS REQUIRED

ECOL									
Nitrate AS N									
ALKALINITY									
TSS									
BOD5									
Total Nitrate									
Nitrate Nitrite									

FOR LAB CHECK-IN ONLY

Temp Rec'd 12-1 C
 Properly Preserved: Yes No
 Remarks: can ice

Please Mark Testing Required (X)

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts.
SW16	7-27-23	0815	GPAB	2
SW18	7-27-23	0900	GPAB	5
SW25	7-27-23	0930	GPAB	5
SW26	7-27-23	1000	GPAB	5

Priority Standard Next Day 2-3 Day
 Special Instructions / Comments...

Relinquished By: <i>[Signature]</i>	Date: 7-27-23	Time: 1148	Received By: <i>[Signature]</i>	Date: 7-27-23	Time: 1148
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Customer #:
 Job Temp.:
 Project:



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G1063

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: 1117228
Received: 07/28/2023
Reported: 08/10/2023

Analytical Testing Parameters

Table with 4 columns: Client Sample ID (SW27), Sample Matrix (Aqueous), Lab Sample ID (R3G1063-01), Collected By (Tony Bryant), and Collection Date (07/28/2023 8:45).

Main analytical results table with columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows include SM 9223 B (Colilert Quanti-Tray)-2016, Inorganics Total, BOD Preparation/SM 5210 B-2016, Calculation, EPA 300.0, Rv. 2.1 (1993), SM 2320 B-2011, SM 2540 D-2015, and General Parameters.



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G1063

Client Sample ID:	SW24	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	07/28/2023 9:15
Lab Sample ID:	R3G1063-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	113	1	MPN/100mL	1		07/28/23 1624	07/29/23 1748	JAH
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		07/28/23 1840	08/02/23 1318	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		08/04/23 1138	08/05/23 2343	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.117	0.100	mg/L	1		07/28/23 2059	07/28/23 2059	AMG
Nitrite as N	<0.100	0.100	mg/L	1		07/28/23 2059	07/28/23 2059	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	435	5.00	mg CaCO3/L	1			07/31/23 1020	TIH
SM 2540 D-2015								
Total Suspended Solids (TSS)	48.8	5.0	mg/L	1			08/03/23 2310	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		08/04/23 1138	08/05/23 2343	AMG

Microbac Laboratories, Inc., Maryville

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G1063

Client Sample ID:	SW14	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	07/28/2023 9:45
Lab Sample ID:	R3G1063-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	613.1	1	MPN/100mL	1		07/28/23 1624	07/29/23 1748	JAH
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		07/28/23 1840	08/02/23 1318	JPA
Calculation								
Total Nitrogen	3.83	1.00	mg/L	1		08/04/23 1138	08/05/23 2345	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.72	0.100	mg/L	1		07/28/23 2146	07/28/23 2146	AMG
Nitrite as N	<0.100	0.100	mg/L	1		07/28/23 2146	07/28/23 2146	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	398	5.00	mg CaCO3/L	1			07/31/23 1020	TIH
SM 2540 D-2015								
Total Suspended Solids (TSS)	5.8	5.0	mg/L	1			07/31/23 2237	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	2.12	1.00	mg/L	1		08/04/23 1138	08/05/23 2345	AMG

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G1063

Client Sample ID:	SW99	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	07/28/2023 9:45
Lab Sample ID:	R3G1063-04		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	727	1	MPN/100mL	1		07/28/23 1624	07/29/23 1748	JAH
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		07/28/23 1840	08/02/23 1318	JPA
Calculation								
Total Nitrogen	4.02	1.00	mg/L	1		08/04/23 1138	08/05/23 2351	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.64	0.100	mg/L	1	M	07/28/23 2201	07/28/23 2201	AMG
Nitrite as N	<0.100	0.100	mg/L	1	M	07/28/23 2201	07/28/23 2201	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	394	5.00	mg CaCO3/L	1			07/31/23 1020	TIH
SM 2540 D-2015								
Total Suspended Solids (TSS)	16.4	5.0	mg/L	1			07/31/23 2237	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	2.39	1.00	mg/L	1		08/04/23 1138	08/05/23 2351	AMG

Definitions

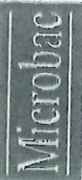
- M: Matrix interference is present.
- MDL: Minimum Detection Limit
- mg CaCO3/L: Milligrams Calcium Carbonate per Liter
- mg/L: Milligrams per Liter
- MPN/100mL: Most Probable Number per 100 Milliliters
- RL: Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 08/10/2023 16:49



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 3 G 1 0 6 3
 Bush Brothers & Company
 PM: Joe Sloan

Project ID--
 Permit #--
 If drinking water, State Reported? Yes No

Sampler: *Tony Bryant*
 Sample Hazards: None

Report To: Terry Dockery
 Bush Brothers and Company
 3304 Chestnut Hill Rd
 Dandridge, TN 37725
 Phone: 865-776-4804 Fax: 865-509-0288
 E-mail: tdockery@bushbros.com

Invoice To: SAME
 P.O. #:
 Quote #:

ANALYSIS REQUIRED

ECOL	ALKA	TSS	BOD5	Total Nitrogen	Nitrate Nitrite
------	------	-----	------	----------------	-----------------

Please Mark Testing Required (X)

Sample ID	Sample Date	Sample Time	Sample Type	# of Cont's
SW27	7-28-23	0845	GPAB	5
SW24	7-28-23	0915	GPAB	5
SW14	7-28-23	0945	GPAB	5
SW99	7-28-23	0945	GPAB	5

FOR LAB CHECK-IN ONLY
 Temp Rec'd 15.2 C
 Properly Preserved: Yes No
 Remarks:

Priority Standard Next Day 2-3 Day
 Special Instructions / Comments...

Customer #: Job Temp.: Project:
 Relinquished By: *[Signature]* Date: 7-28-23 Time: 11:31
 Received By: *[Signature]* Date: 7-28-23 Time: 11:31
 Relinquished By: Date: Time:
 Received By: Date: Time:



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G1098

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: 1117228
Received: 07/31/2023
Reported: 08/11/2023

Analytical Testing Parameters

Table with client sample details: Client Sample ID: SW13, Sample Matrix: Aqueous, Lab Sample ID: R3G1098-01, Collection Date: 07/31/2023 8:30

Main analytical results table with columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Includes rows for SM 9223 B (Colilert Quanti-Tray)-2016, Inorganics Total, BOD Preparation/SM 5210 B-2016, Calculation, EPA 300.0, Rv. 2.1 (1993), SM 2320 B-2011, SM 2540 D-2015, and General Parameters.



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3G1098

Client Sample ID:	SW15	Collection Date:	07/31/2023 9:15
Sample Matrix:	Aqueous		
Lab Sample ID:	R3G1098-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	1119.9	1	MPN/100mL	1		07/31/23 1606	08/01/23 1710	TIH
Inorganics Total								
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		08/01/23 1842	08/06/23 1552	JPA
Calculation								
Total Nitrogen	1.82	1.00	mg/L	1		08/04/23 1919	08/05/23 2355	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.15	1.00	mg/L	1		08/04/23 1919	08/04/23 1919	AMG
Nitrite as N	<1.00	1.00	mg/L	1		08/04/23 1919	08/04/23 1919	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	172	5.00	mg CaCO3/L	1			08/10/23 1007	TIH
SM 2540 D-2015								
Total Suspended Solids (TSS)	12.8	5.0	mg/L	1			08/03/23 2310	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		08/04/23 1138	08/05/23 2355	AMG

Definitions

- MDL: Minimum Detection Limit
- mg CaCO3/L: Milligrams Calcium Carbonate per Liter
- mg/L: Milligrams per Liter
- MPN/100mL: Most Probable Number per 100 Milliliters
- RL: Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 08/11/2023 10:04



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3H0301

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: 1117228
Received: 08/01/2023
Reported: 08/11/2023

Analytical Testing Parameters

Table with 4 columns: Client Sample ID, Sample Matrix, Lab Sample ID, Collected By, Collection Date. Values include SW19, Aqueous, R3H0301-01, Tony Bryant, 08/01/2023 9:00.

Main data table with columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows include SM 9223 B (Colilert Quanti-Tray)-2016, Inorganics Total, BOD Preparation/SM 5210 B-2016, Calculation, EPA 300.0, Rv. 2.1 (1993), SM 2320 B-2011, SM 2540 D-2015, General Parameters, EPA 351.2, Rv. 2 (1993).

Definitions

- M2: Matrix spike recovery is outside of acceptance limits, biased low.
MDL: Minimum Detection Limit
mg CaCO3/L: Milligrams Calcium Carbonate per Liter
mg/L: Milligrams per Liter
MPN/100mL: Most Probable Number per 100 Milliliters
RL: Reporting Limit

Report Comments

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Reviewed and Approved By:

Signature of Joe Sloan

Joe Sloan
Business Development Specialist
Reported: 08/11/2023 16:31



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3H0541

Bush Brothers & Company

Project Name: MW

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: 1117228
Received: 08/08/2023
Reported: 08/31/2023

Analytical Testing Parameters

Table with client and lab sample information: Client Sample ID: MW 4, Sample Matrix: Aqueous, Lab Sample ID: R3H0541-01, Collected By: Tony Bryant, Collection Date: 08/08/2023 10:00

Microbiology table row: SM 9223 B (Colilert Quanti-Tray)-2016, Escherichia coli, Result: <1, RL: 1 MPN/100mL, DF: 1, Note: , Prepared: 08/08/23 1636, Analyzed: 08/09/23 1316, Analyst: CJL

Inorganics Total

Calculation

Table row: Total Nitrogen, Result: 7.62, RL: 1.00 mg/L, DF: 1, Note: , Prepared: 08/28/23 2228, Analyzed: 08/28/23 2228, Analyst: AMG

EPA 300.0, Rv. 2.1 (1993)

Table rows for EPA 300.0: Nitrate as N (6.57), Nitrite as N (<0.100), Nitrite as N (<0.100) with Note M

SM 2320 B-2011

Table row: Alkalinity to pH 4.5, Total, Result: 5.50, RL: 5.00 mg CaCO3/L, DF: 1, Note: , Prepared: , Analyzed: 08/14/23 1754, Analyst: TIH

General Parameters

EPA 351.2, Rv. 2 (1993)

Table row: Total Kjeldahl Nitrogen (TKN), Result: 1.05, RL: 1.00 mg/L, DF: 1, Note: M1, Prepared: 08/14/23 1457, Analyzed: 08/15/23 2011, Analyst: AMG

Definitions

- M: Matrix interference is present.
M1: Matrix spike recovery is outside of acceptance limits, biased high.
MDL: Minimum Detection Limit
mg CaCO3/L: Milligrams Calcium Carbonate per Liter
mg/L: Milligrams per Liter
MPN/100mL: Most Probable Number per 100 Milliliters
RL: Reporting Limit

Report Comments

Reviewed and Approved By:

Signature of Joe Sloan

Joe Sloan
Business Development Specialist
Reported: 08/31/2023 12:20

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3H0668

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: 1117228
Received: 08/10/2023
Reported: 08/31/2023

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: MW15, Sample Matrix: Wastewater, Lab Sample ID: R3H0668-01, Collected By: Tony Bryant, Collection Date: 08/10/2023 9:45

Main analytical results table for MW15. Columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows include SM 9223 B (Colilert Quanti-Tray)-2016, Inorganics Total, Calculation, EPA 300.0, Rv. 2.1 (1993), SM 2320 B-2011, and EPA 351.2, Rv. 2 (1993).

Table with client and collection information for MW14: Client Sample ID: MW14, Sample Matrix: Wastewater, Lab Sample ID: R3H0668-02, Collected By: Tony Bryant, Collection Date: 08/10/2023 10:30

Main analytical results table for MW14. Columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows include SM 9223 B (Colilert Quanti-Tray)-2016, Inorganics Total, Calculation, SM 2320 B-2011, and EPA 351.2, Rv. 2 (1993).



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3H0668

Client Sample ID:	MW12	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	08/10/2023 11:15
Lab Sample ID:	R3H0668-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	16	1	MPN/100mL	1		08/10/23 1744	08/11/23 1352	CJL
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Calculation								
Total Nitrogen	2.29	1.00	mg/L	1		08/14/23 1457	08/15/23 2021	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		08/11/23 1949	08/11/23 1949	AMG
Nitrite as N	<0.100	0.100	mg/L	1		08/11/23 1949	08/11/23 1949	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	197	5.00	mg CaCO3/L	1			08/16/23 1423	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	2.22	1.00	mg/L	1		08/14/23 1457	08/15/23 2021	AMG

Definitions

- A12:** Sample was preserved with Sulfuric Acid to pH <2 on receipt.
- MDL:** Minimum Detection Limit
- mg CaCO3/L:** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL:** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit

Report Comments

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Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 08/31/2023 12:19



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3H0604

Bush Brothers & Company

Project Name: MW

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: 1117228
Received: 08/09/2023
Reported: 09/07/2023

Analytical Testing Parameters

Table with client and sample information: Client Sample ID: MW11, Sample Matrix: Aqueous, Lab Sample ID: R3H0604-01, Collected By: Tony Bryant, Collection Date: 08/09/2023 9:00

Table with 10 columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: SM 9223 B (Colilert Quanti-Tray)-2016, Escherichia coli, <1, 1 MPN/100mL, 1, 08/09/23 1659, 08/10/23 1319, CJL

Inorganics Total

Calculation

Table row: Total Nitrogen, <1.00, 1.00, mg/L, 1, 08/29/23 2109, 08/30/23 1226, AMG

EPA 300.0, Rv. 2.1 (1993)

Table row: Nitrate as N, <0.100, 0.100, mg/L, 1, 08/10/23 1930, 08/10/23 1930, AMG

Table row: Nitrite as N, <0.100, 0.100, mg/L, 1, M, 08/10/23 1930, 08/10/23 1930, AMG

SM 2320 B-2011

Table row: Alkalinity to pH 4.5, Total, 432, 5.00 mg CaCO3/L, 1, 08/14/23 1754, TIH

General Parameters

EPA 351.2, Rv. 2 (1993)

Table row: Total Kjeldahl Nitrogen (TKN), <1.00, 1.00, mg/L, 1, M1, 08/29/23 2109, 08/30/23 1226, AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3H0604

Client Sample ID:	MW6	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	08/09/2023 9:45
Lab Sample ID:	R3H0604-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	461.1	1	MPN/100mL	1		08/09/23 1659	08/10/23 1319	CJL
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Calculation								
Total Nitrogen	2.46	1.00	mg/L	1		08/29/23 2109	08/30/23 1232	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.525	0.100	mg/L	1		08/10/23 1946	08/10/23 1946	AMG
Nitrite as N	<0.100	0.100	mg/L	1		08/10/23 1946	08/10/23 1946	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	267	5.00	mg CaCO3/L	1			08/14/23 1754	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.93	1.00	mg/L	1		08/29/23 2109	08/30/23 1232	AMG

Client Sample ID:	MW7	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	08/09/2023 11:00
Lab Sample ID:	R3H0604-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	14.4	1	MPN/100mL	1		08/09/23 1659	08/10/23 1319	CJL
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		08/29/23 2109	08/30/23 1238	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		08/10/23 2001	08/10/23 2001	AMG
Nitrite as N	<0.100	0.100	mg/L	1		08/10/23 2001	08/10/23 2001	AMG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	320	5.00	mg CaCO3/L	1			08/14/23 1754	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		08/29/23 2109	08/30/23 1238	AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3H0604

Definitions

- M:** Matrix interference is present.
 - M1:** Matrix spike recovery is outside of acceptance limits, biased high.
 - MDL:** Minimum Detection Limit
 - mg CaCO3/L** Milligrams Calcium Carbonate per Liter
 - mg/L:** Milligrams per Liter
 - MPN/100mL** Most Probable Number per 100 Milliliters
 - RL:** Reporting Limit
-

Report Comments

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Reviewed and Approved By:

Joe Sloan
Business Development Specialist
Reported: 09/07/2023 13:19



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3J0929

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: 1117228
Received: 10/25/2023
Reported: 11/02/2023

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: SW 9, Sample Matrix: Aqueous, Lab Sample ID: R3J0929-01, Collected By: Customer, Collection Date: 10/25/2023 8:30

Main analytical results table with columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Includes rows for SM 9223 B (Colilert Quanti-Tray)-2016, Inorganics Total, BOD Preparation/SM 5210 B-2016, Calculation, EPA 300.0, Rv. 2.1 (1993), SM 2320 B-2011, SM 2540 D-2015, and General Parameters.



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3J0929

Client Sample ID:	MW 11	Collected By:	Customer
Sample Matrix:	Aqueous	Collection Date:	10/25/2023 9:00
Lab Sample ID:	R3J0929-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	2	1	MPN/100mL	1		10/25/23 1510	10/26/23 1637	TIH
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	33.2	2.00	mg/L	1		10/26/23 1638	10/31/23 1142	CJL
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		10/31/23 1104	10/31/23 1842	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1	M1	10/25/23 2225	10/25/23 2225	MJG
Nitrite as N	<0.100	0.100	mg/L	1	M1	10/25/23 2225	10/25/23 2225	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	402	5.00	mg CaCO3/L	1			10/31/23 1430	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	125	10.0	mg/L	2			10/30/23 1106	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		10/31/23 1104	10/31/23 1842	TIH



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3J0929

Client Sample ID:	SW 12	Collected By:	Customer
Sample Matrix:	Aqueous	Collection Date:	10/25/2023 9:30
Lab Sample ID:	R3J0929-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	344.8	1	MPN/100mL	1		10/25/23 1510	10/26/23 1637	TIH
Inorganics Total								
	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		10/26/23 1638	10/31/23 1143	CJL
Calculation								
Total Nitrogen	2.43	1.00	mg/L	1		10/31/23 1104	10/31/23 1844	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.51	0.100	mg/L	1	M1	10/25/23 2246	10/25/23 2246	MJG
Nitrite as N	<0.100	0.100	mg/L	1	M1	10/25/23 2246	10/25/23 2246	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	272	5.00	mg CaCO3/L	1			10/31/23 1448	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			10/30/23 1106	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		10/31/23 1104	10/31/23 1844	TIH

Microbac Laboratories, Inc., Maryville

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3J0929

Client Sample ID:	SW 11	Collected By:	Customer
Sample Matrix:	Aqueous	Collection Date:	10/25/2023 9:45
Lab Sample ID:	R3J0929-04		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	161.6	1	MPN/100mL	1		10/25/23 1510	10/26/23 1637	TIH
Inorganics Total								
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		10/26/23 1638	10/31/23 1145	CJL
Calculation								
Total Nitrogen	2.31	1.00	mg/L	1		10/31/23 1104	10/31/23 1846	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.47	0.100	mg/L	1	M1	10/25/23 2349	10/25/23 2349	MJG
Nitrite as N	<0.100	0.100	mg/L	1	M1	10/25/23 2349	10/25/23 2349	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	272	5.00	mg CaCO3/L	1		10/30/23 1103	10/30/23 1540	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			10/30/23 1106	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		10/31/23 1104	10/31/23 1846	TIH

Definitions

- M1:** Matrix spike recovery is outside of acceptance limits, biased high.
- MDL:** Minimum Detection Limit
- mg CaCO3/L:** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL:** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 11/02/2023 11:17



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3J0901

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: 1117228
Received: 10/24/2023
Reported: 11/02/2023

Analytical Testing Parameters

Table with 4 columns: Client Sample ID (SW 4), Sample Matrix (Aqueous), Lab Sample ID (R3J0901-01), Collected By (Customer), and Collection Date (10/24/2023 8:30).

Microbiology Result RL Units DF Note Prepared Analyzed Analyst

SM 9223 B (Colilert Quanti-Tray)-2016

Table row for Total coliforms with result >2419.6, RL 1 MPN/100mL, DF 1, Note, Prepared 10/24/23 1544, Analyzed 10/25/23 1854, Analyst AMG.

Inorganics Total Result RL Units DF Note Prepared Analyzed Analyst

BOD Preparation/SM 5210 B-2016

Table row for Biochemical Oxygen Demand (BOD5) with result <2.00, RL 2.00 mg/L, DF 1, Note K2, Prepared 10/25/23 1651, Analyzed 10/30/23 1850, Analyst AMG.

Calculation

Table row for Total Nitrogen with result 2.56, RL 1.00 mg/L, DF 1, Note, Prepared 10/31/23 1104, Analyzed 10/31/23 1820, Analyst TIH.

EPA 300.0, Rv. 2.1 (1993)

Table row for Nitrate as N with result 1.23, RL 0.100 mg/L, DF 1, Note, Prepared 10/25/23 0410, Analyzed 10/25/23 0410, Analyst MJG.

Table row for Nitrite as N with result <0.100, RL 0.100 mg/L, DF 1, Note, Prepared 10/25/23 0410, Analyzed 10/25/23 0410, Analyst MJG.

SM 2320 B-2011

Table row for Alkalinity to pH 4.5, Total with result 222, RL 5.00 mg CaCO3/L, DF 1, Note, Prepared 10/30/23 1103, Analyzed 10/30/23 1629, Analyst SCC.

SM 2540 D-2015

Table row for Total Suspended Solids (TSS) with result <5.0, RL 5.0 mg/L, DF 1, Note, Prepared 10/27/23 1106, Analyzed 10/27/23 1350, Analyst AMG.

General Parameters Result RL Units DF Note Prepared Analyzed Analyst

EPA 351.2, Rv. 2 (1993)

Table row for Total Kjeldahl Nitrogen (TKN) with result 1.24, RL 1.00 mg/L, DF 1, Note, Prepared 10/31/23 1104, Analyzed 10/31/23 1820, Analyst TIH.



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3J0901

Client Sample ID:	SW 16	Collected By:	Customer
Sample Matrix:	Aqueous	Collection Date:	10/24/2023 8:50
Lab Sample ID:	R3J0901-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Total coliforms	>2419.6	1	MPN/100mL	1		10/24/23 1544	10/25/23 1854	AMG
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1	K2	10/25/23 1651	10/30/23 1853	AMG
Calculation								
Total Nitrogen	2.17	1.00	mg/L	1		10/31/23 1104	10/31/23 1822	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.76	0.100	mg/L	1		10/25/23 0555	10/25/23 0555	MJG
Nitrite as N	<0.100	0.100	mg/L	1		10/25/23 0555	10/25/23 0555	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	257	5.00	mg CaCO3/L	1		10/30/23 1103	10/30/23 1717	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1		10/27/23 1106	10/27/23 1350	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		10/31/23 1104	10/31/23 1822	TIH



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3J0901

Client Sample ID:	SW 14	Collected By:	Customer
Sample Matrix:	Aqueous	Collection Date:	10/24/2023 9:30
Lab Sample ID:	R3J0901-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Total coliforms	>2419.6	1	MPN/100mL	1		10/24/23 1544	10/25/23 1854	AMG
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1	K2, K4	10/25/23 1651	10/30/23 1855	AMG
Calculation								
Total Nitrogen	4.46	1.00	mg/L	1		10/31/23 1104	10/31/23 1824	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	2.96	0.100	mg/L	1		10/25/23 0617	10/25/23 0617	MJG
Nitrite as N	<0.100	0.100	mg/L	1		10/25/23 0617	10/25/23 0617	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	564	5.00	mg CaCO3/L	1		10/30/23 1103	10/30/23 1734	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	15.2	5.0	mg/L	1		10/27/23 1106	10/27/23 1350	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.50	1.00	mg/L	1		10/31/23 1104	10/31/23 1824	TIH



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3J0901

Client Sample ID:	SW 24	Collected By:	Customer
Sample Matrix:	Aqueous	Collection Date:	10/24/2023 10:00
Lab Sample ID:	R3J0901-04		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Total coliforms	>2419.6	1	MPN/100mL	1		10/24/23 1544	10/25/23 1854	AMG
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	2.10	2.00	mg/L	1	K2	10/25/23 1651	10/30/23 1857	AMG
Calculation								
Total Nitrogen	5.86	1.00	mg/L	1		10/31/23 1104	10/31/23 1832	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	2.92	0.100	mg/L	1		10/25/23 0638	10/25/23 0638	MJG
Nitrite as N	<0.100	0.100	mg/L	1		10/25/23 0638	10/25/23 0638	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	653	5.00	mg CaCO3/L	1			10/31/23 1339	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	15.0	5.0	mg/L	1		10/27/23 1106	10/27/23 1350	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	2.95	1.00	mg/L	1		10/31/23 1104	10/31/23 1832	TIH

Definitions

- K2:** Glucose/glutamic acid recovery was below acceptance limits. The reported value is estimated.
- K4:** Sample did not meet the minimum dissolved oxygen depletion in any dilution.
- MDL:** Minimum Detection Limit
- mg CaCO3/L:** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL:** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit

Report Comments

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Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 11/02/2023 11:17



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3J0860

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: 1117228
Received: 10/23/2023
Reported: 11/02/2023

Analytical Testing Parameters

Table with 4 columns: Client Sample ID, Sample Matrix, Lab Sample ID, Collected By, and Collection Date. Values include SW 3R2, Aqueous, R3J0860-01, Customer, and 10/23/2023 10:00.

Microbiology

SM 9223 B (Colilert Quanti-Tray)-2016

Table row for Escherichia coli with columns: Result (59.1), RL (1), Units (MPN/100mL), DF (1), Note, Prepared (10/23/23 1238), Analyzed (10/25/23 1357), Analyst (TIH).

Inorganics Total

BOD Preparation/SM 5210 B-2016

Table row for Biochemical Oxygen Demand (BOD5) with columns: Result (<2.00), RL (2.00), Units (mg/L), DF (1), Note (K7), Prepared (10/24/23 1748), Analyzed (10/29/23 1905), Analyst (AMG).

Calculation

Table row for Total Nitrogen with columns: Result (<1.00), RL (1.00), Units (mg/L), DF (1), Note, Prepared (10/25/23 0142), Analyzed (10/25/23 0142), Analyst (TIH).

EPA 300.0, Rv. 2.1 (1993)

Table row for Nitrate as N with columns: Result (<0.100), RL (0.100), Units (mg/L), DF (1), Note, Prepared (10/25/23 0142), Analyzed (10/25/23 0142), Analyst (MJG).

Table row for Nitrite as N with columns: Result (<0.100), RL (0.100), Units (mg/L), DF (1), Note, Prepared (10/25/23 0142), Analyzed (10/25/23 0142), Analyst (MJG).

SM 2320 B-2011

Table row for Alkalinity to pH 4.5, Total with columns: Result (245), RL (5.00), Units (mg CaCO3/L), DF (1), Note, Prepared (10/30/23 1103), Analyzed (10/30/23 1616), Analyst (SCC).

SM 2540 D-2015

Table row for Total Suspended Solids (TSS) with columns: Result (<5.0), RL (5.0), Units (mg/L), DF (1), Note, Prepared, Analyzed (10/24/23 1643), Analyst (AMG).

General Parameters

EPA 351.2, Rv. 2 (1993)

Table row for Total Kjeldahl Nitrogen (TKN) with columns: Result (<1.00), RL (1.00), Units (mg/L), DF (1), Note, Prepared (10/24/23 1133), Analyzed (10/24/23 1723), Analyst (TIH).



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3J0860

Client Sample ID:	SW 6	Collected By:	Customer
Sample Matrix:	Aqueous	Collection Date:	10/23/2023 10:30
Lab Sample ID:	R3J0860-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	9.6	1	MPN/100mL	1		10/23/23 1238	10/25/23 1357	TIH
Inorganics Total								
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1	K7	10/24/23 1748	10/29/23 1906	AMG
Calculation								
Total Nitrogen	2.94	1.00	mg/L	1		10/25/23 0246	10/25/23 0246	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	2.02	0.100	mg/L	1		10/25/23 0246	10/25/23 0246	MJG
Nitrite as N	<0.100	0.100	mg/L	1		10/25/23 0246	10/25/23 0246	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	280	5.00	mg CaCO3/L	1		10/30/23 1103	10/30/23 1455	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	11.4	5.0	mg/L	1			10/24/23 1643	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		10/24/23 1133	10/24/23 1729	TIH

Definitions

- K7:** Seed control did not meet method criteria.
- MDL:** Minimum Detection Limit
- mg CaCO3/L:** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL:** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit

Report Comments

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Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 11/02/2023 11:18



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3J1025

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: 1117228
Received: 10/27/2023
Reported: 11/06/2023

Analytical Testing Parameters

Table with 4 columns: Client Sample ID (SW 7), Sample Matrix (Aqueous), Lab Sample ID (R3J1025-01), Collected By (Customer), and Collection Date (10/27/2023 9:00).

Main analytical results table with columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows include SM 9223 B (Colilert Quanti-Tray)-2016, Inorganics Total, BOD Preparation/SM 5210 B-2016, Calculation, EPA 300.0, Rv. 2.1 (1993), SM 2320 B-2011, SM 2540 D-2015, and General Parameters.



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3J1025

Client Sample ID:	MW 7	Collected By:	Customer
Sample Matrix:	Aqueous	Collection Date:	10/27/2023 10:00
Lab Sample ID:	R3J1025-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	2	1	MPN/100mL	1		10/27/23 1711	10/28/23 1802	JAH
Inorganics Total								
BOD Preparation/SM 5210 B-2016								
					Method Notes: G1			
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1	K7	10/27/23 1712	11/01/23 1146	CJL
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		10/31/23 1104	10/31/23 1852	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1	M2, R1	10/27/23 2115	10/27/23 2115	MJG
Nitrite as N	<0.100	0.100	mg/L	1	M2, R1	10/27/23 2115	10/27/23 2115	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	356	5.00	mg CaCO3/L	1			10/31/23 1524	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	403	20.8	mg/L	4			10/30/23 1106	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		10/31/23 1104	10/31/23 1852	TIH

Definitions

- G1:** Elevated detection limit due to insufficient oxygen depletion.
- K7:** Seed control did not meet method criteria.
- M2:** Matrix spike recovery is outside of acceptance limits, biased low.
- MDL:** Minimum Detection Limit
- mg CaCO3/L:** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL:** Most Probable Number per 100 Milliliters
- R1:** Duplicate RPD is outside of acceptance limits.
- RL:** Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 11/06/2023 12:15



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 3 J 1 0 2 5
 Bush Brothers & Company
 PM: Joe Sloan

Project ID: _____
 Permit #: _____
 If drinking water, State Reported? Yes No

Sampler: Tom Bryant
 Sample Hazards: None

Report To: Terry Dockery
 Bush Brothers and Company
 3304 Chestnut Hill Rd
 Dandridge, TN 37725
 Phone: 865-776-4804 Fax: 865-509-0288
 E-mail: tdockery@bushbros.com

Invoice To: SAME
 P.O. #: _____
 Quote #: _____

ANALYSIS REQUIRED

ALKALINITY	
AMMONIA	
AMMONIUM	
BOD5	
TOTAL NITROGEN	
NITRATE NITRITE	

FOR LAB CHECK-IN ONLY
 Temp Rec'd 5.5 C
 Properly Preserved: Yes No
 Remarks: _____

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts.
SW7	10-27-23	0900	GEARS	5
MW7	10-27-23	1000	GEARS	5

Please Mark Testing Required (X)

Sample #	Analysis	Result
1	ALKALINITY	X
2	AMMONIA	X
3	AMMONIUM	X
4	BOD5	X
5	TOTAL NITROGEN	X
6	NITRATE NITRITE	X

Priority: Standard
 Next Day: _____
 2-3 Day: _____
 Special Instructions / Comments: _____

Customer #: _____
 Job Temp.: _____
 Project: _____

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
<u>Tom Bryant</u>	10-27-23	1222	<u>[Signature]</u>		
Relinquished By:	Date:	Time:	Received By:	Date:	Time:



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3J1069

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: 1117228
Received: 10/30/2023
Reported: 11/08/2023

Analytical Testing Parameters

Table with 4 columns: Client Sample ID, Sample Matrix, Lab Sample ID, Collected By, Collection Date. Values include SW 25, Aqueous, R3J1069-01, Customer, 10/30/2023 10:00.

Main data table with 10 columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows include SM 9223 B (Colilert Quanti-Tray)-2016, Inorganics Total, BOD Preparation/SM 5210 B-2016, Calculation, EPA 300.0, Rv. 2.1 (1993), SM 2320 B-2011, SM 2540 D-2015, General Parameters, EPA 351.2, Rv. 2 (1993).

Definitions

- M2: Matrix spike recovery is outside of acceptance limits, biased low.
MDL: Minimum Detection Limit
mg CaCO3/L: Milligrams Calcium Carbonate per Liter
mg/L: Milligrams per Liter
MPN/100mL: Most Probable Number per 100 Milliliters
RL: Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

Reviewed and Approved By:

Signature of Joe Sloan

Joe Sloan
Business Development Specialist
Reported: 11/08/2023 17:25



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3J1128

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: 1117228
Received: 10/31/2023
Reported: 11/09/2023

Analytical Testing Parameters

Table with 4 columns: Client Sample ID (SW26), Sample Matrix (Aqueous), Lab Sample ID (R3J1128-01), Collected By (Customer), and Collection Date (10/31/2023 9:00).

Microbiology

SM 9223 B (Colilert Quanti-Tray)-2016

Table row for Escherichia coli with Result 920.8, RL 1, Units MPN/100mL, DF 1, Note, Prepared 10/31/23 1613, Analyzed 11/01/23 1226, Analyst AMG.

Inorganics Total

BOD Preparation/SM 5210 B-2016

Table row for Biochemical Oxygen Demand (BOD5) with Result <2.00, RL 2.00, Units mg/L, DF 1, Note, Prepared 11/01/23 1724, Analyzed 11/06/23 1335, Analyst CJL.

Calculation

Table row for Total Nitrogen with Result <1.00, RL 1.00, Units mg/L, DF 1, Note, Prepared 11/06/23 1128, Analyzed 11/07/23 1318, Analyst TIH.

EPA 300.0, Rv. 2.1 (1993)

Table row for Nitrate as N with Result <0.100, RL 0.100, Units mg/L, DF 1, Note, Prepared 10/31/23 2359, Analyzed 10/31/23 2359, Analyst MJG.

Table row for Nitrite as N with Result <0.100, RL 0.100, Units mg/L, DF 1, Note, Prepared 10/31/23 2359, Analyzed 10/31/23 2359, Analyst MJG.

SM 2320 B-2011

Table row for Alkalinity to pH 4.5, Total with Result 357, RL 5.00, Units mg CaCO3/L, DF 1, Note, Prepared, Analyzed 11/06/23 1105, Analyst SCC.

SM 2540 D-2015

Table row for Total Suspended Solids (TSS) with Result <5.0, RL 5.0, Units mg/L, DF 1, Note, Prepared, Analyzed 11/01/23 2100, Analyst AMG.

General Parameters

EPA 351.2, Rv. 2 (1993)

Table row for Total Kjeldahl Nitrogen (TKN) with Result <1.00, RL 1.00, Units mg/L, DF 1, Note, Prepared 11/06/23 1128, Analyzed 11/07/23 1318, Analyst TIH.



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3J1128

Client Sample ID:	MW15	Collected By:	Customer
Sample Matrix:	Aqueous	Collection Date:	10/31/2023 9:30
Lab Sample ID:	R3J1128-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	<1	1	MPN/100mL	1		10/31/23 1613	11/01/23 1226	AMG
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		11/01/23 1724	11/06/23 1338	CJL
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		11/06/23 1128	11/07/23 1324	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.157	0.100	mg/L	1		11/01/23 0102	11/01/23 0102	MJG
Nitrite as N	<0.100	0.100	mg/L	1		11/01/23 0102	11/01/23 0102	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	414	5.00	mg CaCO3/L	1			11/06/23 1117	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	362	20.8	mg/L	4			11/01/23 2100	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		11/06/23 1128	11/07/23 1324	TIH



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3J1128

Client Sample ID:	SW27	Collected By:	Customer
Sample Matrix:	Aqueous	Collection Date:	10/31/2023 9:50
Lab Sample ID:	R3J1128-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	48.7	1	MPN/100mL	1		10/31/23 1613	11/01/23 1226	AMG
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		11/01/23 1724	11/06/23 1341	CJL
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		11/06/23 1128	11/07/23 1347	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		11/01/23 0123	11/01/23 0123	MJG
Nitrite as N	<0.100	0.100	mg/L	1		11/01/23 0123	11/01/23 0123	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	315	5.00	mg CaCO3/L	1			11/06/23 1150	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	12.4	5.0	mg/L	1			11/01/23 2100	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		11/06/23 1128	11/07/23 1347	TIH

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CERTIFICATE OF ANALYSIS

R3J1128

Client Sample ID:	MW14	Collected By:	Customer
Sample Matrix:	Aqueous	Collection Date:	10/31/2023 10:15
Lab Sample ID:	R3J1128-04		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	3	1	MPN/100mL	1		10/31/23 1613	11/01/23 1226	AMG
Inorganics Total								
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		11/01/23 1724	11/06/23 1345	CJL
Calculation								
Total Nitrogen	1.43	1.00	mg/L	1		11/06/23 1128	11/07/23 1349	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		11/01/23 0144	11/01/23 0144	MJG
Nitrite as N	<0.100	0.100	mg/L	1		11/01/23 0144	11/01/23 0144	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	280	5.00	mg CaCO3/L	1			11/06/23 1201	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	463	25.0	mg/L	5			11/01/23 2100	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.27	1.00	mg/L	1		11/06/23 1128	11/07/23 1349	TIH

Definitions

- MDL: Minimum Detection Limit
- mg CaCO3/L: Milligrams Calcium Carbonate per Liter
- mg/L: Milligrams per Liter
- MPN/100mL: Most Probable Number per 100 Milliliters
- RL: Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 11/09/2023 09:34



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3K0417

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: 1117228
Received: 11/03/2023
Reported: 11/15/2023

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: MW12D, Sample Matrix: Aqueous, Lab Sample ID: R3K0417-01, Collected By: Tony Bryant, Collection Date: 11/03/2023 9:30

Microbiology

Table row for SM 9223 B (Colilert Quanti-Tray)-2016, Escherichia coli, Result: <1, RL: 1, Units: MPN/100mL, DF: 1, Note: , Prepared: 11/03/23 1701, Analyzed: 11/04/23 1211, Analyst: MOJ

Inorganics Total

BOD Preparation/SM 5210 B-2016

Table row for Biochemical Oxygen Demand (BOD5), Result: 2.10, RL: 2.00, Units: mg/L, DF: 1, Note: , Prepared: 11/03/23 1640, Analyzed: 11/08/23 1130, Analyst: CJL

Calculation

Table row for Total Nitrogen, Result: 2.67, RL: 1.00, Units: mg/L, DF: 1, Note: , Prepared: 11/13/23 1752, Analyzed: 11/13/23 2344, Analyst: AMG

EPA 300.0, Rv. 2.1 (1993)

Table rows for Nitrate as N and Nitrite as N, including Note M2

SM 2320 B-2011

Table row for Alkalinity to pH 4.5, Total, Result: 208, RL: 5.00, Units: mg CaCO3/L, DF: 1, Note: , Prepared: , Analyzed: 11/10/23 1048, Analyst: SCC

SM 2540 D-2015

Table row for Total Suspended Solids (TSS), Result: 1920, RL: 125, Units: mg/L, DF: 25, Note: , Prepared: , Analyzed: 11/08/23 1040, Analyst: AMG

General Parameters

EPA 351.2, Rv. 2 (1993)

Table row for Total Kjeldahl Nitrogen (TKN), Result: 2.51, RL: 1.00, Units: mg/L, DF: 1, Note: , Prepared: 11/13/23 1752, Analyzed: 11/13/23 2344, Analyst: AMG



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CERTIFICATE OF ANALYSIS

R3K0417

Client Sample ID:	MW12	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	11/03/2023 9:15
Lab Sample ID:	R3K0417-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	1	1	MPN/100mL	1		11/03/23 1701	11/04/23 1211	MOJ
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<30		mg/L	15		11/03/23 1640	11/08/23 1130	CJL
Calculation								
Total Nitrogen	3.15	2.50	mg/L	2		11/08/23 1312	11/09/23 1639	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		11/04/23 0104	11/04/23 0104	MJG
Nitrite as N	<0.100	0.100	mg/L	1	M2	11/04/23 0104	11/04/23 0104	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	214	5.00	mg CaCO3/L	1			11/10/23 1053	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	772	62.5	mg/L	13			11/08/23 1040	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	2.97	2.50	mg/L	3		11/08/23 1312	11/09/23 1639	TIH

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CERTIFICATE OF ANALYSIS

R3K0417

Client Sample ID:	SW15	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	11/03/2023 10:00
Lab Sample ID:	R3K0417-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	1046.2	1	MPN/100mL	1		11/03/23 1701	11/04/23 1211	MOJ
Inorganics Total								
	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		11/03/23 1640	11/08/23 1130	CJL
Calculation								
Total Nitrogen	1.35	1.00	mg/L	1		11/08/23 1312	11/09/23 1641	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.944	0.100	mg/L	1		11/04/23 0125	11/04/23 0125	MJG
Nitrite as N	<0.100	0.100	mg/L	1	M2	11/04/23 0125	11/04/23 0125	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	185	5.00	mg CaCO3/L	1			11/10/23 1133	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	5.2	5.0	mg/L	1			11/08/23 1040	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		11/08/23 1312	11/09/23 1641	TIH

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CERTIFICATE OF ANALYSIS

R3K0417

Client Sample ID:	SW13	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	11/03/2023 10:20
Lab Sample ID:	R3K0417-04		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	1413.6	1	MPN/100mL	1		11/03/23 1701	11/04/23 1211	MOJ
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		11/03/23 1640	11/08/23 1130	CJL
Calculation								
Total Nitrogen	1.35	1.00	mg/L	1		11/08/23 1312	11/09/23 1647	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.947	0.100	mg/L	1		11/04/23 0146	11/04/23 0146	MJG
Nitrite as N	<0.100	0.100	mg/L	1	M2	11/04/23 0146	11/04/23 0146	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	185	5.00	mg CaCO3/L	1			11/10/23 1142	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			11/08/23 1040	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		11/08/23 1312	11/09/23 1647	TIH



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3K0417

Client Sample ID:	SW8R	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	11/03/2023 10:30
Lab Sample ID:	R3K0417-05		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	133.3	1	MPN/100mL	1		11/03/23 1701	11/04/23 1211	MOJ
Inorganics Total								
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		11/03/23 1640	11/08/23 1130	CJL
Calculation								
Total Nitrogen	1.25	1.00	mg/L	1		11/08/23 1312	11/09/23 1649	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.16	0.100	mg/L	1		11/04/23 0207	11/04/23 0207	MJG
Nitrite as N	<0.100	0.100	mg/L	1	M2	11/04/23 0207	11/04/23 0207	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	294	5.00	mg CaCO3/L	1			11/10/23 1151	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			11/08/23 1040	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		11/08/23 1312	11/09/23 1649	TIH

Definitions

- G1: Elevated detection limit due to insufficient oxygen depletion.
- M2: Matrix spike recovery is outside of acceptance limits, biased low.
- MDL: Minimum Detection Limit
- mg CaCO3/L: Milligrams Calcium Carbonate per Liter
- mg/L: Milligrams per Liter
- MPN/100mL: Most Probable Number per 100 Milliliters
- RL: Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 11/15/2023 13:22



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 3 K 0 4 1 7
 Bush Brothers & Company
 PMI: Joe Sloan

Project ID--
 Permit #--
 If drinking water, State Reported? Yes No

Report To: Terry Dockery
 Bush Brothers and Company
 3304 Chestnut Hill Rd
 Dandridge, TN 37725
 Phone: 865-776-4804 Fax: 865-509-0288
 E-mail: tdockery@bushbros.com

Invoice To: SAME
 P.O. #:
 Quote #:

Sampler: *Tony Bryant*
 Sample Hazards: None

FOR LAB CHECK-IN ONLY
 Temp Rec'd 10.5 C
 Property Preserved: Yes No
 Remarks: *mic*

ANALYSIS REQUIRED

ECOL	
Nitrate AS N	
TKS	
BOD5	
Total Nitrogen	
Nitrate Nitrite	

Please Mark Testing Required (X)

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts.	Sample #
MW1A D	11-3-23	0930	Gears	5	
MW1Z	11-3-23	0915	Gears	5	
SW1S	11-3-23	1000	Gears	5	
SW1B	11-3-23	1020	Gears	5	
SW1R	11-3-23	1030	Gears	5	

Priority
 Standard
 Next Day
 2-3 Day

Special Instructions / Comments...

Customer #:
 Job Temp.:
 Project:

Relinquished By: <i>[Signature]</i>	Date: 11-3-23	Time: 1155	Received By: <i>CWS</i>	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3K0352

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Ground Water, Surface Water, and Spray Drift

Project / PO Number: 1117228
Received: 11/02/2023
Reported: 11/20/2023

Analytical Testing Parameters

Table with 4 columns: Client Sample ID (SW19), Sample Matrix (Aqueous), Lab Sample ID (R3K0352-01), Collected By (Customer), and Collection Date (11/02/2023 9:00).

Microbiology

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: SM 9223 B (Colilert Quanti-Tray)-2016, Escherichia coli, 203.5, 1 MPN/100mL, 1, 11/02/23 1554, 11/03/23 1350, TIH.

Inorganics Total

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: BOD Preparation/SM 5210 B-2016, Biochemical Oxygen Demand (BOD5), <2.00, 2.00 mg/L, 1, 11/03/23 1640, 11/08/23 1130, CJL.

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: Calculation, Total Nitrogen, 2.30, 1.00 mg/L, 1, 11/06/23 1128, 11/07/23 1357, TIH.

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: EPA 300.0, Rv. 2.1 (1993), Nitrate as N, 1.89, 0.100 mg/L, 1, 11/02/23 2315, 11/02/23 2315, MJG.

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: SM 2320 B-2011, Alkalinity to pH 4.5, Total, 228, 5.00 mg CaCO3/L, 1, 11/06/23 1225, SCC.

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: SM 2540 D-2015, Total Suspended Solids (TSS), <5.0, 5.0 mg/L, 1, H, 11/14/23 1857, AMG.

General Parameters

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: EPA 351.2, Rv. 2 (1993), Total Kjeldahl Nitrogen (TKN), <1.00, 1.00 mg/L, 1, 11/06/23 1128, 11/07/23 1357, TIH.



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3K0352

Client Sample ID:	SW17	Collected By:	Customer
Sample Matrix:	Aqueous	Collection Date:	11/02/2023 9:45
Lab Sample ID:	R3K0352-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	1986.3	1	MPN/100mL	1		11/02/23 1554	11/03/23 1350	TIH
Inorganics Total								
	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<37.5		mg/L	19		11/03/23 1640	11/08/23 1130	CJL
Calculation								
Total Nitrogen	6.51	1.00	mg/L	1		11/06/23 1128	11/07/23 1359	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.475	0.100	mg/L	1		11/02/23 2336	11/02/23 2336	MJG
Nitrite as N	<0.100	0.100	mg/L	1		11/02/23 2336	11/02/23 2336	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	604	5.00	mg CaCO3/L	1			11/06/23 1248	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	1220	62.5	mg/L	13	H		11/16/23 1255	TIH
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	6.03	1.00	mg/L	1		11/06/23 1128	11/07/23 1359	TIH

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R3K0352

Client Sample ID:	SW31	Collected By:	Customer
Sample Matrix:	Aqueous	Collection Date:	11/02/2023 10:30
Lab Sample ID:	R3K0352-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2016								
Escherichia coli	<1	1	MPN/100mL	1		11/02/23 1554	11/03/23 1350	TIH
Inorganics Total								
BOD Preparation/SM 5210 B-2016								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		11/03/23 1640	11/08/23 1130	CJL
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		11/06/23 1128	11/07/23 1401	TIH
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		11/02/23 2357	11/02/23 2357	MJG
Nitrite as N	<0.100	0.100	mg/L	1		11/02/23 2357	11/02/23 2357	MJG
SM 2320 B-2011								
Alkalinity to pH 4.5, Total	<5.00	5.00	mg CaCO3/L	1			11/06/23 1310	SCC
SM 2540 D-2015								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1	H		11/14/23 1857	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		11/06/23 1128	11/07/23 1401	TIH

Definitions

- G1:** Elevated detection limit due to insufficient oxygen depletion.
- H:** Sample was analyzed past holding time.
- MDL:** Minimum Detection Limit
- mg CaCO3/L:** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- MPN/100mL:** Most Probable Number per 100 Milliliters
- RL:** Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

Reviewed and Approved By:

Joe Sloan
 Business Development Specialist
 Reported: 11/20/2023 11:49

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW-6
Date: 4-3-2023 Time: 0850 Weather Conditions: cloudy 47°
Personnel: Tony Air Temperature: 47°

Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 13.4 pH: 7.8 Spec. Conductivity: 737 DO: 12.8 ORP: 126

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

SW1
Date: 4-4-23 Time: 0830 Date: _____ Time: _____
Personnel: Tony Personnel: _____
Weather Conditions: cloudy 52°

Does location have water present? Yes No
Is water depth sufficient for sampling? Yes No
Are irrigation fields active within area? Yes No

PREPARATION FOR SAMPLING:

Has equipment been dedicated to sample location? Yes No
Has equipment been prepared off site prior to sampling? Yes No
Has equipment been cleaned and reused in field? Yes No

FIELD MEASUREMENT DATA:

Appearance: clear
Odor: Yes No
Temperature: 13.6 pH: 7.8 Spec. Conductivity: 250 DO: 16.1 ORP: 180

LABORATORY ANALYSES

NITRATE-NITROGEN E. COLI ALKALINITY 5-DAY BOD TOTAL SUSPENDED SOLIDS (TSS)

REMARKS:

I CERTIFY THAT THIS SAMPLE WAS COLLECTED AND HANDLED IN ACCORDANCE WITH APPLICABLE PROTOCOLS AS DERIVED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
Signature

Date