



Technical Memorandum

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Prepared for: Bush Brothers and Company

Project Title: Bush 2023 LAS Support

Project No.: 159633

Technical Memorandum

Subject: 2022 Annual Operations and Maintenance Report

Date: March 31, 2023

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

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

A handwritten signature in black ink, appearing to read "EJ Greenwood".

Prepared by: _____

Emily Greenwood, Associate Geologist/Hydrogeologist, Brown and Caldwell

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Reviewed by: _____

Terry Dockery, Environmental Manager, Bush Brothers & Company

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 August 1, 2014 and was effective through July 31, 2019. Note that the application for SOP renewal with an updated WMPP was submitted to the TDEC DWR on January 4, 2019, to which TDEC responded with a letter, dated September 20, 2019, regarding the requested permit modifications. A revised WMPP was submitted along with the 2019 Annual Operations and Maintenance (O&M) Report. Correspondence is ongoing regarding the reissuance of this SOP.

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, 2022, and December 31, 2022. 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 March/April, October/November, and December 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 2022 Annual 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:

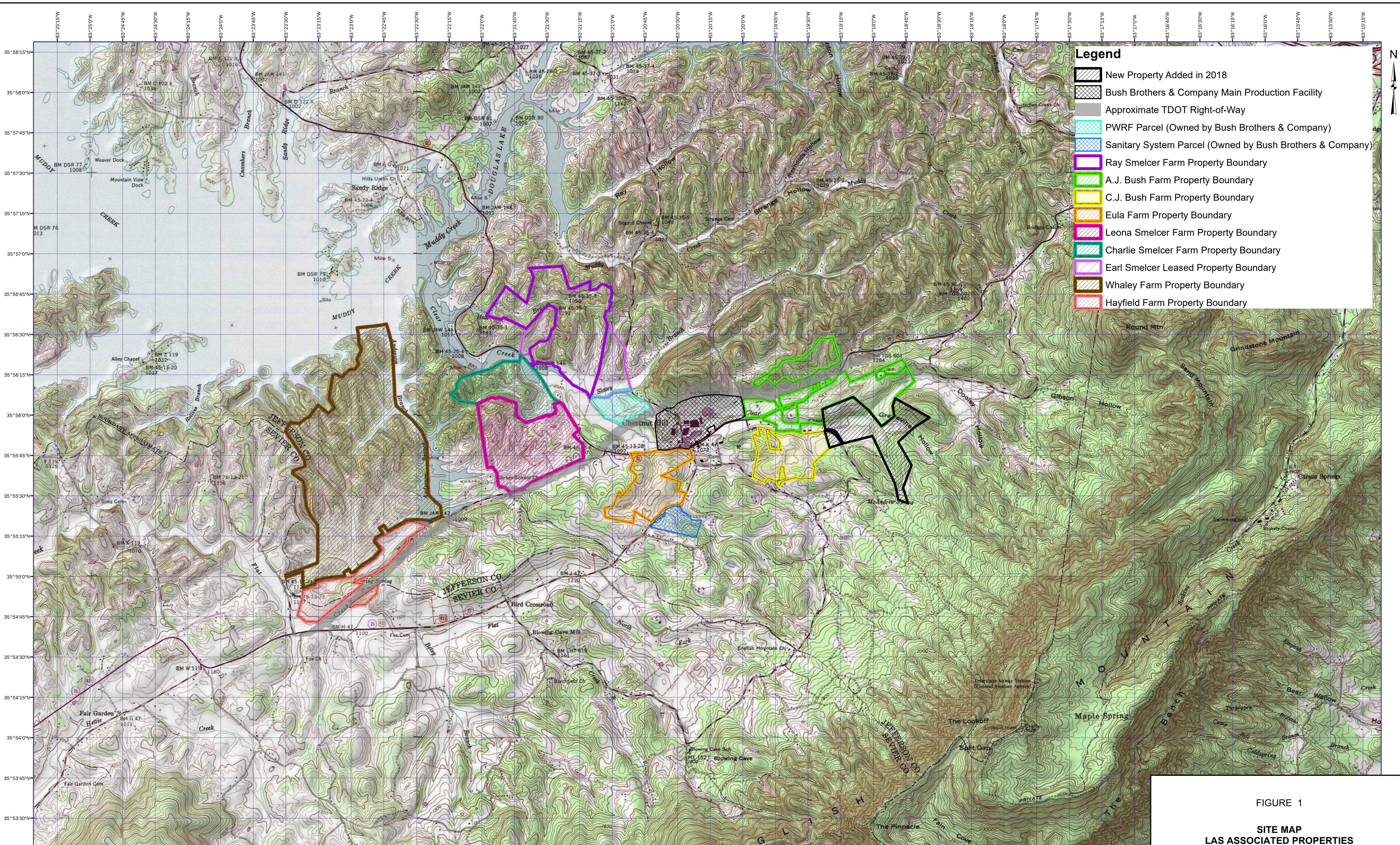
- Attachment A – LAS Monitoring Program Data
- Attachment B – Field Datasheets and Laboratory Reports



Figure 1. Site Map – LAS Associated Properties



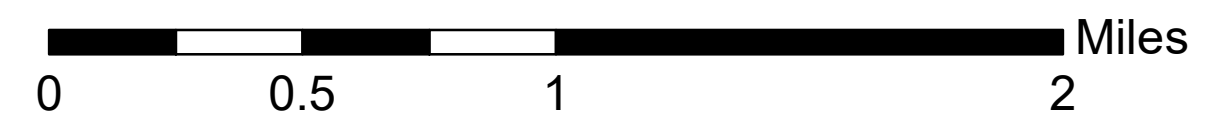
Path: \\BCNSH\FP01\Projects\Clients\Bush Beans\GIS\19_2020\OMReport\Figure1_SiteMap.mxd



- Legend**
- New Property Added in 2018
 - Bush Brothers & Company Main Production Facility
 - Approximate TDOT Right-of-Way
 - PWRF Parcel (Owned by Bush Brothers & Company)
 - Sanitary System Parcel (Owned by Bush Brothers & Company)
 - Ray Smelcer Farm Property Boundary
 - A.J. Bush Farm Property Boundary
 - C.J. Bush Farm Property Boundary
 - Eula Farm Property Boundary
 - Leona Smelcer Farm Property Boundary
 - Charlie Smelcer Farm Property Boundary
 - Earl Smelcer Leased Property Boundary
 - Whaley Farm Property Boundary
 - Hayfield Farm Property Boundary

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)



Brown and Caldwell	BUSH BROTHERS & COMPANY	DATE: 03/18/2021
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		CHECKED BY: ENG
		PROJECT #: 15288
	FINISHED: 03/02/21	

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 discharged to a temporary holding pond and then to the spray irrigation fields that comprise the LAS.

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, 2022, and December 31, 2022. Sampling was completed in accordance with the updated WMPP. It should be noted that the laboratory lost the

Table 1. 2022 Process Wastewater Effluent Characteristics				
Parameter	Monitoring Frequency ^a	Unit	Average	Peak (95 th Percentile)
Operating Flow ^b	Daily	MGD ^c	0.8862	1.438
Total 5-day Biological Oxygen Demand (BOD ₅)	Once per Month	mg/L ^d	12.27	67.5
Nitrate-Nitrogen	Once per Month	mg/L	11.64	21

Source: Statistical evaluation of data compiled in the Bush Brothers and Company MOR data summary spreadsheet for the period between January 1, 2022, and December 31, 2022.

Due to the laboratory losing the December 2022 samples, no analytical data for that month has been included as part of these statistics.

^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 permit (SOP-14018) was issued on June 1, 2015, with an expiration date of May 31, 2020. This 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, 2022, and December 31, 2022, have been summarized in Table 2.

Table 2. 2022 Sanitary Wastewater Effluent Characteristics			
Parameter	Monitoring Frequency ^a	Unit	Average
Operating Flow ^b	Daily	Gal per Day ^c	11,626
Total 5-day Biological Oxygen Demand (BOD ₅)	Once per Year	mg/L ^d	1.25
Ammonia	Once per Quarter	mg/L	3.74

Source: Statistical evaluation of data compiled in the Bush Brothers and Company MOR data summary spreadsheet for the period between January 1, 2022, and December 31, 2022.

Due to the laboratory losing the December 2022 samples, no analytical data for that month has been included as part of these statistics.

^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 PWRF, 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 2022 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 2022 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 2022 monitoring period, no modifications were made to Bush's NMP.



Figure 2. LAS Schematic



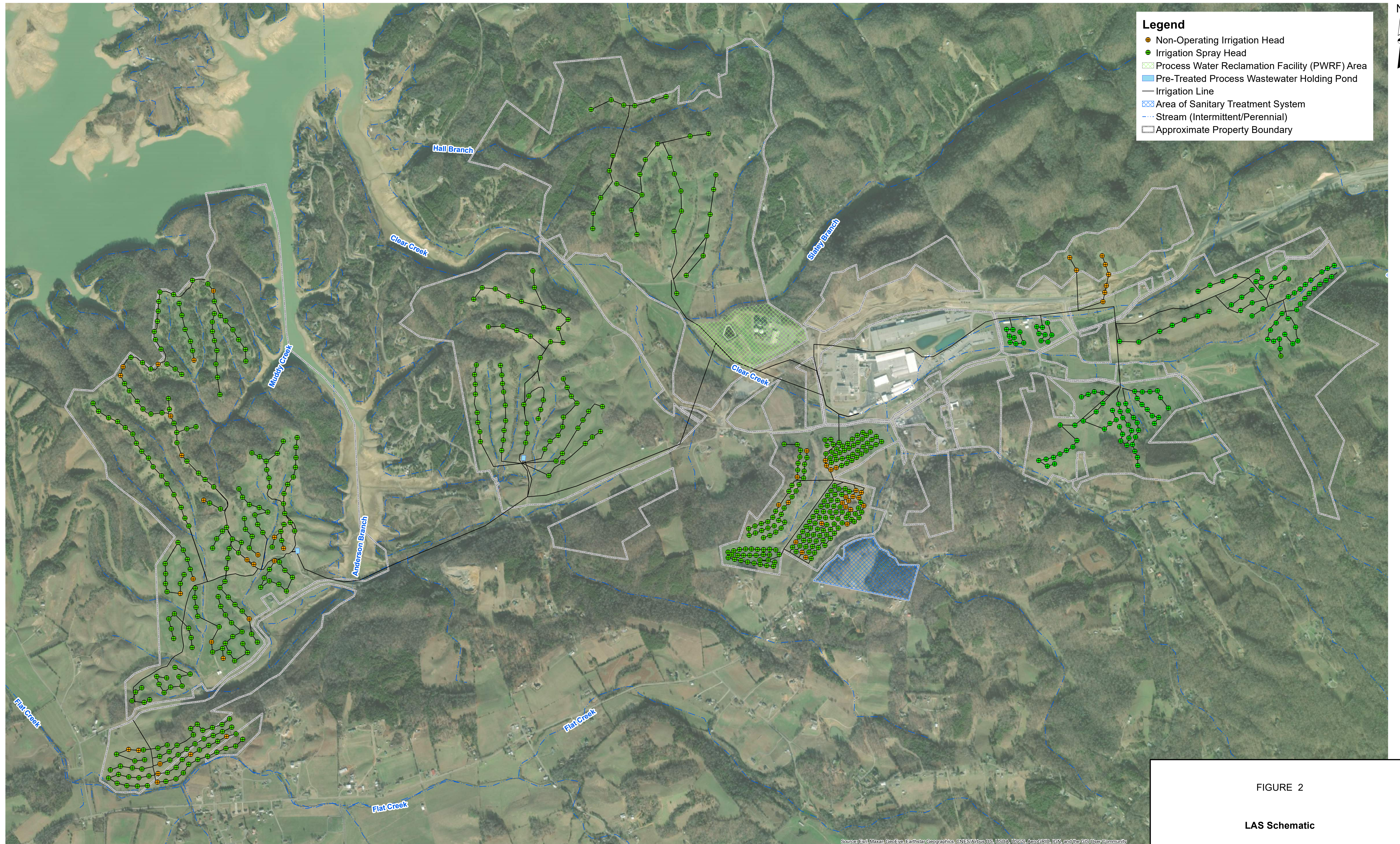
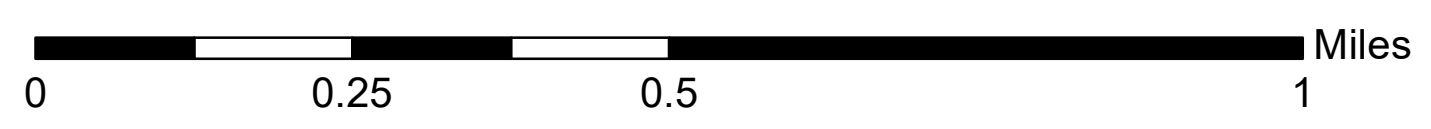


FIGURE 2

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

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Brown and Caldwell	BUSH BROTHERS & COMPANY CHESTNUT HILL, TENNESSEE	<small>SAVED DATE</small> 03/18/2021 <small>SCALE</small> AS SHOWN <small>DRAWN BY</small> GJC <small>CHECKED BY</small> ENG <small>PROJECT #</small> 153008 <small>FINAL/REV</small> 03/18/2021
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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 2022 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 2022 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 2022 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.
- Replaced flow meter.
- Repaired broken pipe.
- Sprayed for weeds and ants around the filter perimeter.



- Changed Recirculation Pumps 1, 2, 4, and 5.
- Installed new operating system.

Section 5: Compliance Monitoring

This section discusses the procedures, results, and conclusions associated with the LAS Monitoring Program sampling activities for the 2022 monitoring period (January 1, 2022, through December 31, 2022). 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, 2022, three sampling events occurred, in March/April, October/November, and December 2022. 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).

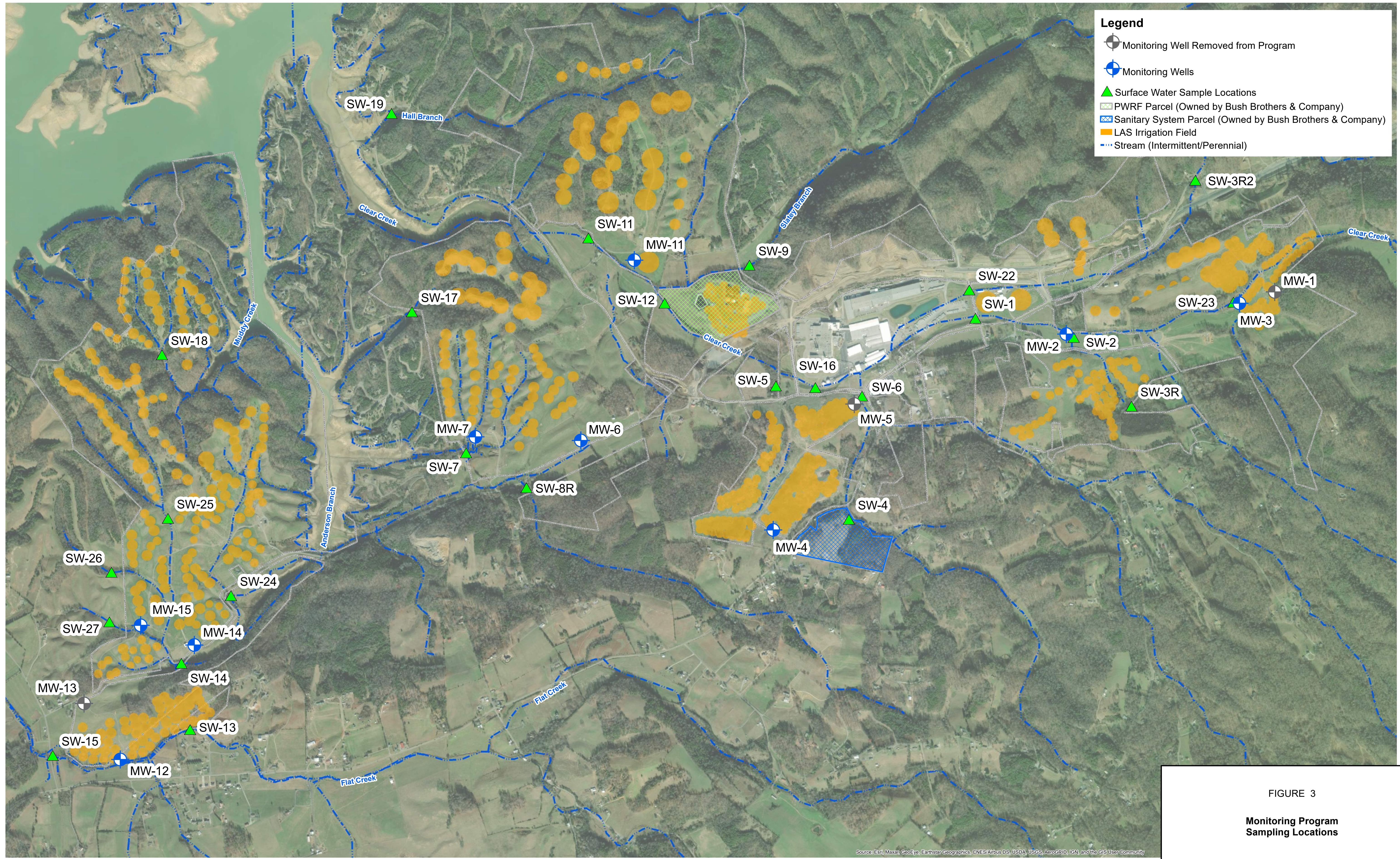
Study Area	Upgradient/Side-Gradient Location		Compliance (Downgradient) Location	
	Monitoring Well	Surface Water Sample	Monitoring Well(s)	Surface Water Sample(s)
AJ/CJ Bush	--	SW-3R and SW-3R2	MW-2 and MW-3	SW-1, SW-2, SW-22, and SW-23
Eula	MW-4	SW-4	--	SW-5, SW-6, and SW-16
L/C Smelcer	MW-6	SW-8R	MW-7	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. It should be noted that several samples from the December event were lost by the laboratory; therefore, no analytical data is available for those select sample locations.

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-3R3, SW-23, SW-5, and SW-17.

Figure 3. Monitoring Program Sample Locations



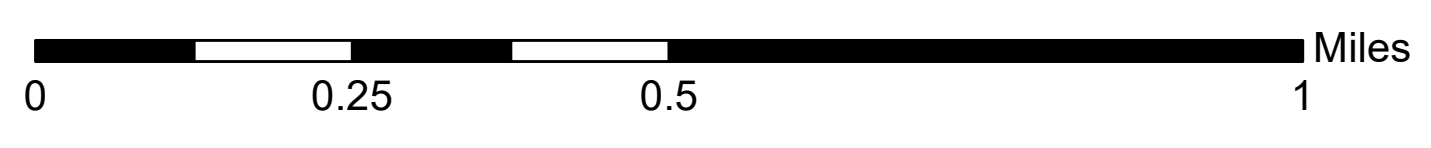


Legend

- 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
DATED: 03/10/2022 SCALE: AS SHOWN DRAWN BY: GJC CHECKED BY: ENG PROJECT #: 15088 REVISED: 03/10/2021	



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.

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, 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 2022 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. Two downgradient monitoring wells (MW-2 and MW-3) are located in the AJ/CJ Bush LAS Study Area; both wells contained insufficient water for sample collection during the Fall and Winter 2022 events.

Six surface water sampling locations (SW-1, SW-2, SW-3R, SW-3R2, SW-22, and SW-23) are located within the AJ/CJ Bush LAS Study Area (Figure 3). Locations SW-3R and SW-3R2 are considered upgradient locations; 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-3R2 and SW-22 contained sufficient water for sampling during the 2022 sampling events.

Results from the three sampling events conducted by the BST during the 2022 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 2022 monitoring period are included as Attachment B. Review of the data that were collected during the 2022 monitoring period indicates that concentrations in surface water and groundwater are generally consistent with historical data, with few notable exceptions. E. Coli at SW-22 generally returned to concentrations within historical range in 2022. BOD returned to non-



detect in SW-3R2, after an elevated detection in 2021. Alkalinity, nitrate, total nitrogen, conductivity, and E.Coli concentrations in MW-2 during the March event were the highest observed in this well. The DO concentration observed in this well in March 2023 was the lowest historically observed.

Note that in 2018, the Tennessee Department of Transportation (TDOT) began working on the expansion of a section of Highway 411 that is within the AJ/CJ Bush Study Area. As this expansion continued into the 2019 monitoring period, soil disturbance in this area was likely the cause for some of the outlier results (i.e., elevated TSS observed at location SW-22 during March 2019, which was located downgradient of these activities). Also, because of the TDOT activities, cattle were not present on the AJ Bush Farm during the 2019 monitoring period which was likely the reason for lower E. Coli concentrations observed in the MW-3 sample. It is believed that the origin of the E. Coli concentrations detected in MW-3 is from the cattle field and not LAS operations. Now that construction on the highway has been completed and cattle have returned to the study area, surface water and groundwater concentrations appear to be generally consistent with historical observations.

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 locations MW-4 (April and November) and SW-5 (all events) did not contain sufficient water for sample collection during the 2022 sampling events. Otherwise, all locations were sampled each event during the 2022 monitoring period.

Results from the three sampling events conducted by the BST during the 2022 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 two of the 2022 monitoring events; data from the December 2022 event are consistent with previously observed detections.

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 December 2022 was the lowest observed since 2012. Surface water data during the 2022 monitoring period are generally within the range of historical results. BOD was only detected in sample location SW-16 during the November 2022 event; concentrations were elevated as compared to historical data. BOD concentrations remained slightly elevated in SW-6, similar to concentrations observed in 2021. E. Coli was detected in several 2022 samples at an order of magnitude lower than previously observed in SW-4; however, these detections are within historical range. As mentioned previously in Section 3.1, Bush is reviewing not only flows to irrigation fields but also irrigation head configuration, cycle durations, and BMPs associated with some of the lines upgradient of this sample point. Results will continue to be reviewed during the 2024 monitoring period as Bush continues to modify LAS operations.



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 April 2022 event; data were generally consistent with previous events. SW-17 only contained sufficient water during the March 2022 event. Otherwise, all locations were sampled each event during the 2022 monitoring period. Detections of nitrate-nitrogen, BOD, TSS, and E. Coli were all slightly elevated as compared to recent events; however, all were within historical range.

Results from the three sampling events conducted by the BST during the 2022 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 2022 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 2022 monitoring period are within the range of historical results. Results will continue to be closely reviewed during the 2023 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.

Results from the three sampling events conducted by the BST during the 2022 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 2022 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 2022 was generally elevated as compared to historical DO results; however, this is potentially related to field equipment calibration. Results will continue to be closely reviewed during the 2023 monitoring period as Bush continues to modify LAS operations.

As part of the Highway 411 expansion project, TDOT completed stream restoration activities along Hall Branch from the upgradient starting point to discharge into nearby Douglas Lake. Based on these changes, the location where surface water sample SW-19 is collected has been moved from being upgradient of a pond, which was removed as part of these activities, to being collected near the property entrance. Since sampling re-started for this location in December 2018, data will continue to be reviewed during the 2023 monitoring period.



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 2022 monitoring period.

Results from the three sampling events conducted by the BST during the 2022 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 2022 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 2022 sample events. Similar to 2021, E.Coli concentrations in surface water remained generally lower than historical range during the 2022 monitoring period. 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 2023 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

Additional information regarding these changes will be provided as part of the 2023 O&M Annual Report.

Groundwater and surface water sampling events, as part of the LAS Monitoring Program, will continue to be implemented through the 2023 monitoring period on a triannual basis (spring, late summer, and early winter). During the 2023 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

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

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

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				

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

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

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

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

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

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 issue	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									
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									

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				Dry or insufficient water present, sample not collected.							
			12/4/2012				Dry or insufficient water present, sample not collected.							
			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				Dry or insufficient water present, sample not collected.							
			9/16/2014				Dry or insufficient water present, sample not collected.							
			11/12/2014				Dry or insufficient water present, sample not collected.							
			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				Dry or insufficient water present, sample not collected.							
			11/29/2016				Dry or insufficient water present, sample not collected.							
			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 issue										
					3/12/2019	7.67	14.3	1 U	NA	15.44	5.45	0.491	4.28	306
					12/12/2019				Dry or insufficient water present, sample not collected.					
					4/13/2020	9.00	10.4	>2,400	11.5	15.07	3.65	0.440	5.69	304.4
					9/14/2020				Dry or insufficient water present, sample not collected.					
					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				Dry or insufficient water present, sample not collected.					
		12/30/2022	19.0	6.98	2	8.51	14.80	8.40	0.363	9.20	93			
Leona/Charlie Smelcer	MW-6	Side-Gradient	4/1/2008											
			9/23/2008				Dry or insufficient water present, sample not collected.							
			1/15/2009				Dry or insufficient water present, sample not collected.							
			5/14/2009				Dry or insufficient water present, sample not collected.							
			9/24/2009				Dry or insufficient water present, sample not collected.							
			1/4/2010				Dry or insufficient water present, sample not collected.							
			5/18/2010	266	0.05 U	10 U	NA	15.78	7.34	1.154	2.16	43		
			8/25/2010				Dry or insufficient water present, sample not collected.							
			11/19/2010				Dry or insufficient water present, sample not collected.							
			5/19/2011	269	0.05 UB	10 U	NA	13.93	8.48	0.941	3.17	136		
			9/21/2011				Dry or insufficient water present, sample not collected.							
			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				Dry or insufficient water present, sample not collected.							
			12/6/2012				Dry or insufficient water present, sample not collected.							
			4/25/2013	305	0.011 UB	1 U	NA	14.90	7.47	0.742	0.73	102.9		
			8/7/2013				Dry or insufficient water present, sample not collected.							
			11/21/2013				Dry or insufficient water present, sample not collected.							
			5/23/2014				Dry or insufficient water present, sample not collected.							
			9/17/2014				Dry or insufficient water present, sample not collected.							
			11/11/2014				Dry or insufficient water present, sample not collected.							
			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				Dry or insufficient water present, sample not collected.							
			5/6/2016	310	0.056 U	1 U	NA	10.30	7.18	0.820	2.03	19.4		
			8/31/2016				Dry or insufficient water present, sample not collected.							
			11/30/2016				Dry or insufficient water present, sample not collected.							
			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		
				Nitrate re-sampled 3/20/2019 due to laboratory issue										
					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				Dry or insufficient water present, sample not collected.					
					7/9/2021			Sample Data Not Reported		17.30	7.16	0.872	2.20	130
					12/1/2021				Dry or insufficient water present, sample not collected.					
					4/11/2022	284	0.130	<1	<1.67	14.00	6.70	0.867	5.70	173
					11/2/2022				Dry or insufficient water present, sample not collected.					
		12/30/2022				Dry or insufficient water present, sample not collected.								

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-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 issue		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		Sample Data Not Reported			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
			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	1.90	-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 issue					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		Sample data not reported			13.10	7.50	0.471	9.30	-187

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	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	490	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				16.10	7.20	0.340	4.00	-55
			12/29/2022	162	<0.100	<1	2.29	14.20	7.80	0.355	10.10	-92	
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	

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					Dry or insufficient water present, sample not collected.				
			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					Dry or insufficient water present, sample not collected.				
			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

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.

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/100 mL instead of CFU/100 mL.

² Total 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 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
AJ/CJ 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								12.00		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													
AJ/CJ 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	86	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 UJ	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								12.90		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													
12/6/2022													

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	NA	NA			
A/CJ 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	8	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		29	11.89	6.73	0.426	13.17	NA	
		8/27/2012													Dry or insufficient water present, sample not collected.	
		12/3/2012													Dry or insufficient water present, sample not collected.	
		4/22/2013		66	0.276		2 U	5.2		NA	390	12.80	8.01	0.248	9.05	102.5
		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														Dry or insufficient water present, sample not collected.
		5/21/2014		107	0.414		2 U	13.8		NA	73	15.70	8.80	0.183	7.63	150
		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		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														Dry or insufficient water present, sample not collected.
		11/28/2016														Dry or insufficient water present, sample not collected.
		9/6/2017														Dry or insufficient water present, sample not collected.
		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														Dry or insufficient water present, sample not collected.
		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 UJ		2 U	7.4		NA	26	12.92	7.20	0.181	8.12	338
		12/9/2019														Dry or insufficient water present, sample not collected.
		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														Dry or insufficient water present, sample not collected.		
7/7/2021														Dry or insufficient water present, sample not collected.		
11/10/2021														Dry or insufficient water present, sample not collected.		
		12/5/2022	160.0	<0.10	<2	6.6	<1.0	48.8						No Field Data Provided		
A/CJ 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	11.20	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			
		11/29/2016	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 UJ	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		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					
A/CJ 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												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.			

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	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-23 ³	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	>2,420	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	10.60	7.60	0.568	18.10	182			
		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	<1.0	73.3	7.70	7.90	0.414	12.00	78				
		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.																
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	177				
		9/23/2009	217	1.11	2 U	7.5	NA	500	16.63	7.74	0.418	10.02	175				
		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				
		11/29/2016	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	12.82	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																

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	NA	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					Dry or insufficient water present, sample not collected.								
		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					Dry or insufficient water present, sample not collected.								
		12/28/2009	438	23.5	2 U	4 U	NA	70	5.04	7.55	2,046	13.32	250		
		5/17/2010					Dry or insufficient water present, sample not collected.								
		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					Dry or insufficient water present, sample not collected.								
		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					Dry or insufficient water present, sample not collected.								
		12/3/2012					Dry or insufficient water present, sample not collected.								
		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					Dry or insufficient water present, sample not collected.								
		11/19/2013	588	7.7	49	39	NA	>2,420	7.10	8.01	1,327	6.27	90.4		
		5/22/2014					Dry or insufficient water present, sample not collected.								
		9/16/2014					Dry or insufficient water present, sample not collected.								
		11/12/2014					Dry or insufficient water present, sample not collected.								
		4/14/2015	422	11.7	23.2	53.6	NA	>2,420	15.70	8.45	1,435	NA	NA		
		8/17/2015					Dry or insufficient water present, sample not collected.								
		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					Dry or insufficient water present, sample not collected.								
		9/6/2017					Dry or insufficient water present, sample not collected.								
		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					Dry or insufficient water present, sample not collected.								
		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					Dry or insufficient water present, sample not collected.								
		7/7/2021					Dry or insufficient water present, sample not collected.								
		11/11/2021					Dry or insufficient water present, sample not collected.								
		3/28/2022					Dry or insufficient water present, sample not collected.								
		10/20/2022					Dry or insufficient water present, sample not collected.								
		12/12/2022					Dry or insufficient water present, sample not collected.								
		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	227	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				

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	
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	260	13.70	7.85	0.690	9.57	207	
		4/24/2013	192	1.61	2 U	8	NA	>2,420	14.06	8.24	0.489	7.33	119	
		8/6/2013	253	0.14	2 U	4	NA	270	18.30	8.56	0.416	5.48	148	
		11/19/2013	263	2.38	4.1	4 U	NA	>2,420	10.90	8.61	0.686	7.32	201	
		5/22/2014	228	1.83 D	2 U	5 U	NA	280	16.30	8.51	0.525	8.04	151	
		5/22/2014*	236	1.89 DM2	2 U	5 U	NA	230	16.30	8.51	0.525	8.04	151	
		9/16/2014	274	2.00 D	2 U	5 U	NA	49	17.40	8.89	0.762	5.78	219	
		11/12/2014	283	3.50 D	2 U	5.8	NA	110	14.00	8.76	0.722	7.19	206	
		4/14/2015	205	1.72	2 U	6.8	NA	2,000	15.20	8.50	0.465	6.70	353	
		8/17/2015	277	2.21	2 U	5 U	NA	61	18.00	8.00	0.690	9.41	NA	
		11/19/2015	255	2.45	2 U	186	NA	>2,420	15.80	7.70	0.727	9.57	221	
		5/5/2016	189	1.18	2 U	8.8	NA	>2,400	9.30	8.10	0.527	9.53	-7.9	
		8/30/2016	281	1.60	2 U	5 U	NA	110	12.90	7.70	0.696	8.15	4.9	
		11/28/2016	259	1.51 D	2 U	5 U	NA	>2,400	7.30	8.21	0.632	8.60	14.9	
		9/6/2017	234	1.98	2 U	6	NA	660	18.30	8.00	0.705	7.40	89.3	
		4/10/2018	197	2.00	2 U	10.2	NA	240	12.60	7.56	0.553	8.50	214	
		8/22/2018	236	2.02	9.4	5 U	NA	410	19.89	7.46	0.711	4.94	148.9	
		12/11/2018	215	3.05	2 U	15.6	NA	230	10.97	6.60	0.675	8.92	360	
		3/12/2019	177	1.75	2 U	10.0	NA	52	10.98	7.36	0.459	8.47	258	
12/9/2019	258	3.64	2 U	11.0	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	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	5.40	184.2			
7/7/2021	238	1.98	2.00 U	5.0 U	1.98	96	18.80	7.70	0.651	9.50	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			
3/28/2022	208	1.43	<2.00	7.8	2.02	108.1	10.60	7.30	0.564	16.20	153			
10/20/2022	252	1.71	<2.00	<5.0	2.82	85.7	11.90	8.10	0.721	11.40	130			
11/30/2022	146	1.00	28.4	59.8	1.61	>2419.6	13.60	8.10	0.479	16.70	80			
12/12/2022	265	2.11	<2.00	5.2	2.53	42.2	13.50	8.30	0.912	18.40	87			
Leona/ Llano Embudo	SW-7	3/31/2008	490	0.32	5.9	4 U	NA	3,600	11.70	8.41	2.815	6.00	65	
		9/23/2008						Dry 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	
		5/14/2009	440	1.22	2 U	61	NA	7,700	14.73	7.72	4.376	6.80	-58	
		9/24/2009	1,060	0.54	140	87.9	NA	86,000	22.02	8.07	0.748	3.25	14	
		1/4/2010	NR	2.92	2 U	4.5	NA	400	16.70	7.34	3.142	8.85	147	
		5/19/2010	392	0.38	2 U	7.1	NA	150	14.80	7.32	3.474	7.05	-64	
		8/25/2010	700	2.22	30.1	39.3	NA	2,400	19.34	8.06	2.600	6.43	7	
		11/17/2010	428	7.15	3.7	9.3	NA	1,800	9.16	9.07	2.686	10.85	-28	
		5/19/2011	406	0.406 B	2.3	15	NA	860	12.84	8.00	2.686	8.26	-46	
		9/20/2011	395	0.25	2 U	9	NA	98	17.24	8.30	2.724	6.92	-63	
		12/14/2011	317	1.75	2 U	8	NA	630	6.57	7.92	2.542	12.09	-13	
		4/18/2012	478	5.76	130	296	NA	17,000	13.07	6.63	2.566	8.77	169	
		8/29/2012	230	0.112 U	2 U	327	NA	230	15.51	7.40	2.699	2.65	NA	
		12/6/2012	420	0.056	52.6	42	NA	>2,420	7.47	6.12	2.357	7.17	196	
		4/25/2013	307	0.506	6.2	20 U	NA	>2,420	12.90	7.81	2.161	5.85	51.1	
		8/8/2013	474	0.035	3.6	20 U	NA	2,400	17.20	7.99	2.818	5.93	117	
		11/21/2013	586	0.011 U	30.7	18	NA	>2,420	7.90	7.90	2.359	4.63	22	
		5/23/2014	356	1.44 D	39.3	208	NA	>2,420	18.80	8.34	2.264	4.50	134	
		9/17/2014	NR	0.075	2 U	5 U	NA	150	17.70	8.02	2.661	4.04	99.6	
		11/11/2014	399	0.859	2 U	5 U	NA	370	9.00	8.00	2.177	6.76	127	
		4/17/2015	451	0.355	46.3	65.6	NA	>2,420	15.30	8.11	1.996	4.98	226	
		8/19/2015	443	0.60	2 U	12.8	NA	>2,420	19.50	7.50	2.987	6.40	NA	
		11/20/2015	542	0.097	233	9.8	NA	>2,420	8.70	7.47	2.091	3.11	149	
		5/9/2016	418	0.16	10.5		NA	>2,400	10.40	7.51	2.104	5.93	-7.7	
		8/31/2016						Dry 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	
		9/8/2017	584	10.90 D	2 U	106	NA	1,300	15.90	7.24	3.020	4.01	-30.1	
		4/11/2018	402	6.01	3	106	NA	>2,400	8.18	7.61	2.490	9.00	83	
		8/23/2018	372	0.63	2 U	5 U	NA	2,400	18.55	7.23	3.077	4.53	51.2	
		12/13/2018	225	3.31	2 U	5.6 U	NA	110	16.05	5.76	2.493	7.36	269	
		3/13/2019	304	3 W	2 U	9.6	NA	15	9.27	7.49	2.510	9.42	43.3	
12/10/2019	266	0.773	4.60	216	NA	>2,400	11.69	6.33	1.113	7.80	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			
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			
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			
11/12/2021	724	0.222	17.1	130	3.65	390	10.00	7.50	2.395	7.10	174			
3/28/2022	369	1.40	<2.00	<5.0	2.15	261.3	6.20	7.20	2.560	11.20	58			
10/24/2022	908	1.51	2.1	38.3	4.58	>2419.6	7.60	8.30	3.053	17.00	115			
12/8/2022	367	0.517	2.1	15	1.86	770.1	13.90	7.90	1.696	15.80	58			

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
Leona/ UName	SW-BR²												
		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	7.35	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
Leona/ UName	SW-17³												
		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	690	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	3.91	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, K5	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											

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		
Ray Smeicer	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	Dry or insufficient water present, sample not collected.												
		8/24/2010	Dry or insufficient water present, sample not collected.												
		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	0.485	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	Dry or insufficient water present, sample not collected.												
		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	2400	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		
		Ray Smeicer	SW-12 ³	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	Dry or insufficient water present, sample not collected.														
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	>2,420	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	>2,420	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	>2,420	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		
11/20/2015	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	7.25	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	No Lab Data														
							11.00	8.40	0.382	21.00	100				

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	NA	
TDEC FAL Limit(s)			NA	MCL	NA	Background	NA	2,880	+/- 3° Background	6.0 - 9.0	NA	>5	NA	
Ray Smeicer	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	>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	>2,420	18.90	8.47	0.702	5.69	2.1	
		11/20/2013	284	2.15	2 U	8	NA	>2,420	9.30	8.70	0.620	9.91	-29	
		5/21/2014	232	1.64 D	2 U	8	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	>2,420	10.70	8.87	0.685	6.08	-79	
		4/16/2015	195	1.35	2.8	25.4	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	>24,000	12.90	7.86	0.861	8.11	204.7	
		5/6/2016	192	1.42	2 U	7.6	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 RL	142	NA	>2,400	9.20	8.32	0.310	8.60	-58	
		9/7/2017	220	1.91 D	2 U	5.2	NA	680	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	>2,400	13.24	7.09	0.602	7.38	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	>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	>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			
		Ray Smeicer	SW-19 ⁴	10/24/2012 ⁵	NA	16	NA	NA	NA	NA	NA	NA	NA	NA
11/20/2012 ⁵	NA			14.7	2 U	4 U	NA	>2,420	NA	NA	NA	NA	NA	
12/11/2012 ⁵	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	
2/28/2013	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														
11/13/2014														
4/16/2015														
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														
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														
8/23/2018														
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								
12/14/2022	232	2.15	<2.0	6.0	2.67	22.6	10.40	8.50	2.980	19.70	129			

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	NA	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		
		4/28/2013	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		
		9/28/2017	NR	0.938 D	2 U	5 U	NA	290	16.50	8.30	0.454	7.15	210		
		4/20/2018	122	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	NA	<5.0	NA	NA	No field data reported: Resample for Alkalinity and TSS						
		10/27/2022	179	0.691	<2.00	5.2	1.10	686.7	NA	NA	NA	NA	NA	NA	
		12/13/2022	153	0.937	<2.00	<5.0	<1.00	488.8	10.40	8.50	0.328	20.00	103		
		Whaley/Hayfield	SW-18 ²	4/20/2012	323	0.06 U	8.1	19	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	281			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				

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		
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	156		
		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				
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	1.388	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		
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			Dry or insufficient water present, sample not collected.										
		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	0.757	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			Dry or insufficient water present, sample not collected.										
		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		No field data reported; Resample TSS only					
		10/24/2022	452	0.144	<2.00	<5.0	<1.00	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		
		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					Dry or insufficient water present, sample not collected.										
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		No field data reported; Resample TSS only					
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		

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 large analyte exceeding calibration range

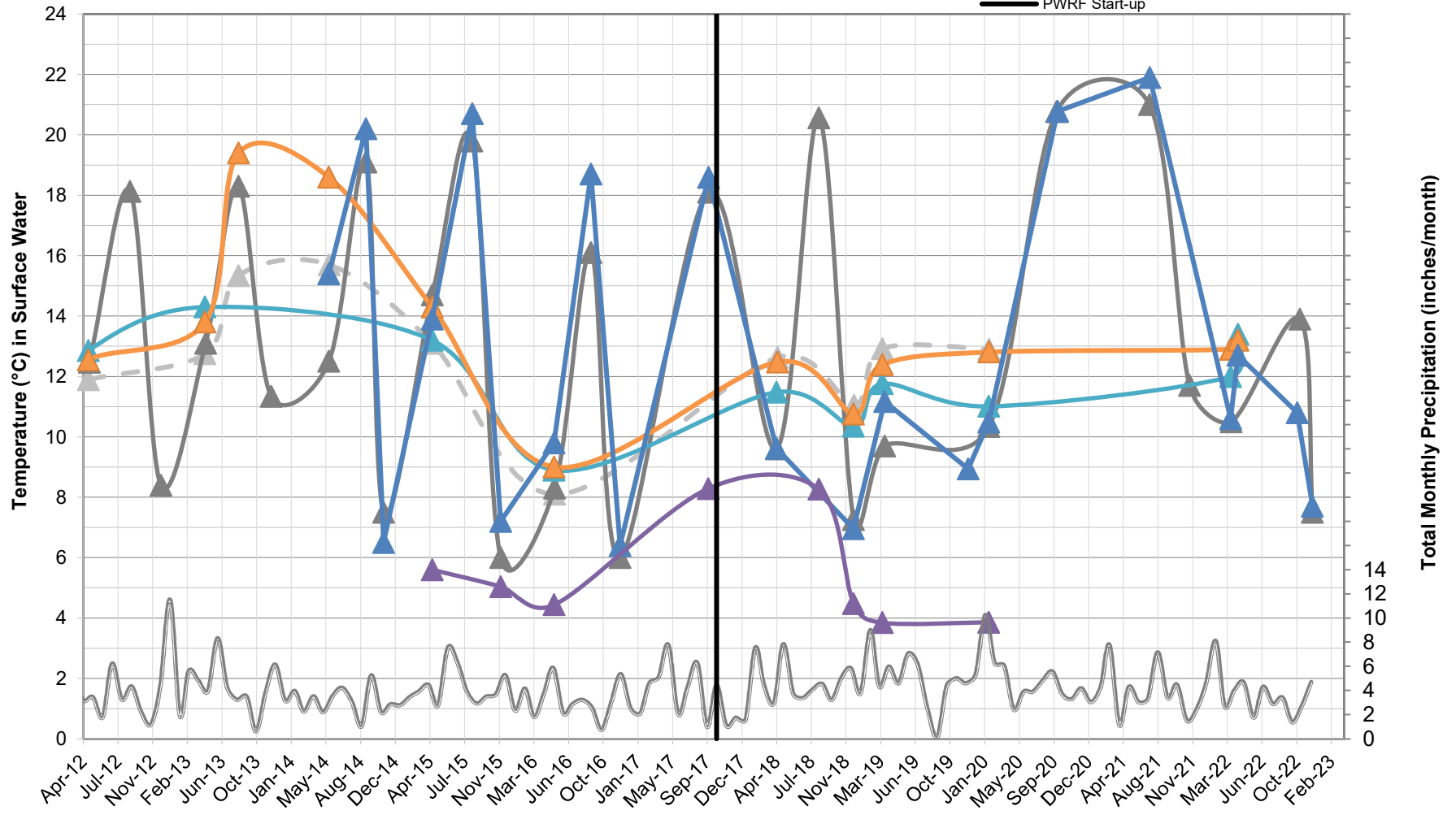
H8 - Test replicates show more than 30% difference between high and low dilutions

R1 - Duplicate RPD is outside of control limits

G1 - Elevated detection limit due to insufficient oxygen depletion

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

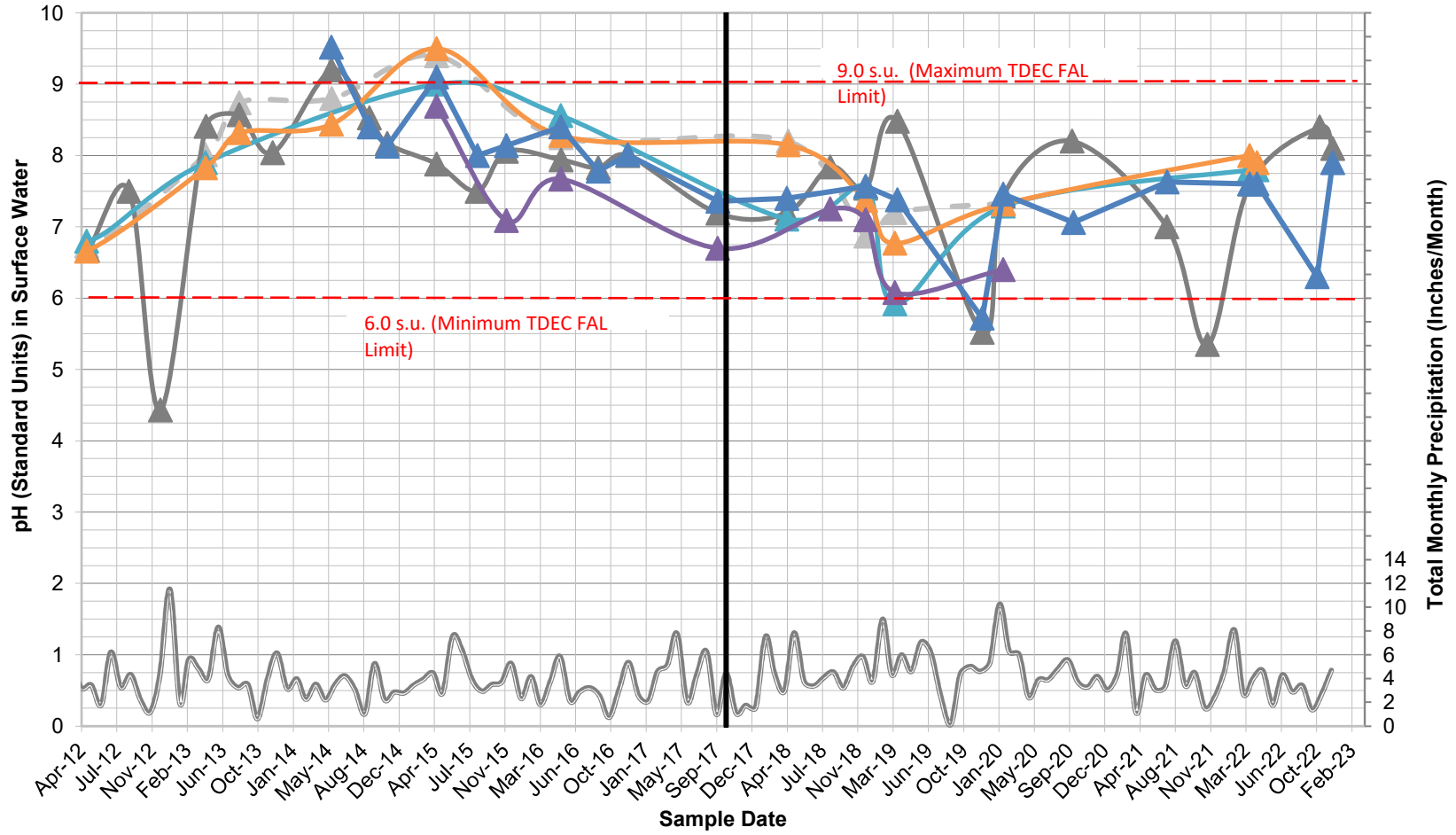
- ▲— SW-3R (Upgradient)
- ▲— SW-3R2 (Upgradient)
- ▲— SW-1
- ▲— SW-2
- ▲— SW-22
- ▲— SW-23
- Precipitation
- PWRF Start-up



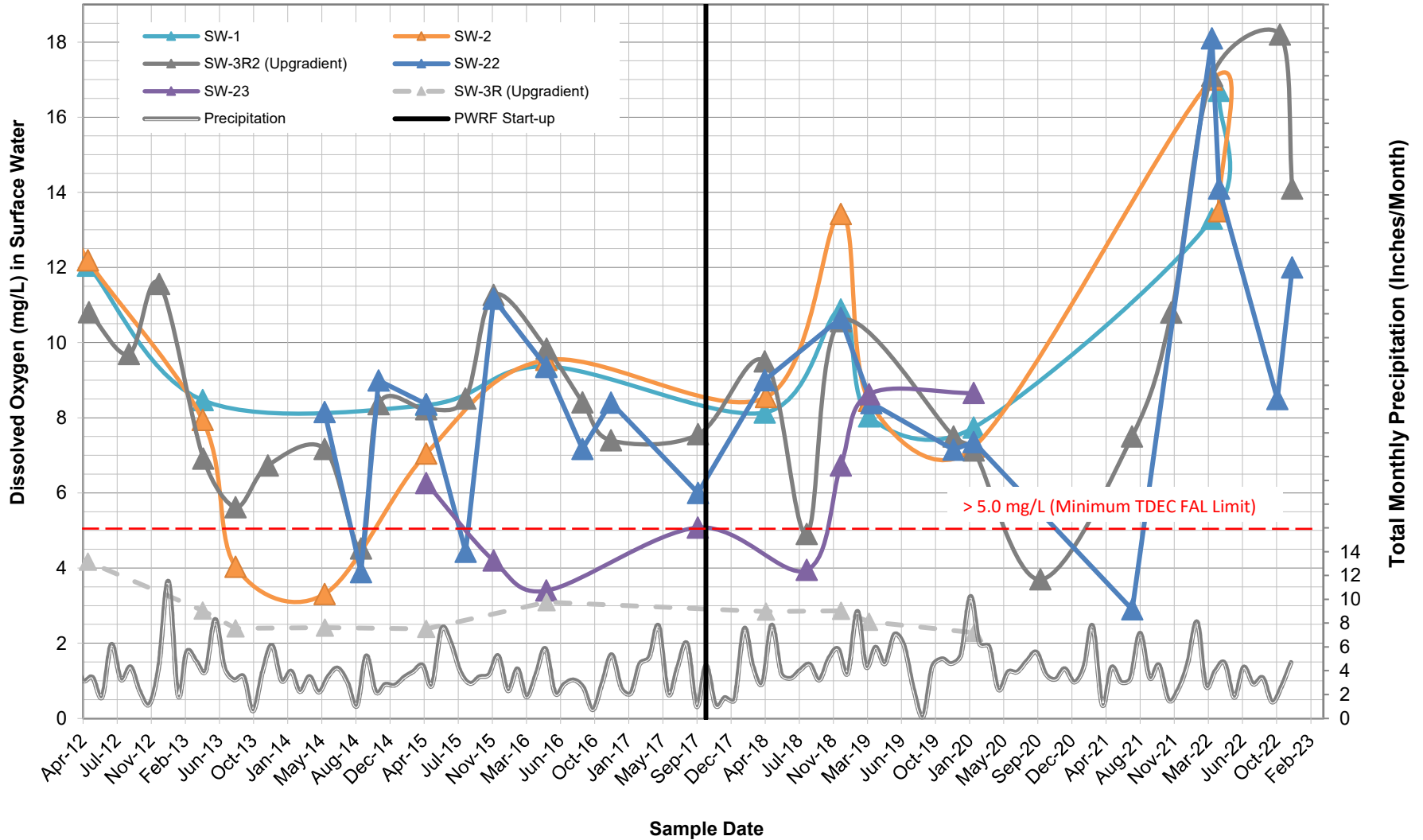
AJCJ Bush (Temp_SW)

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

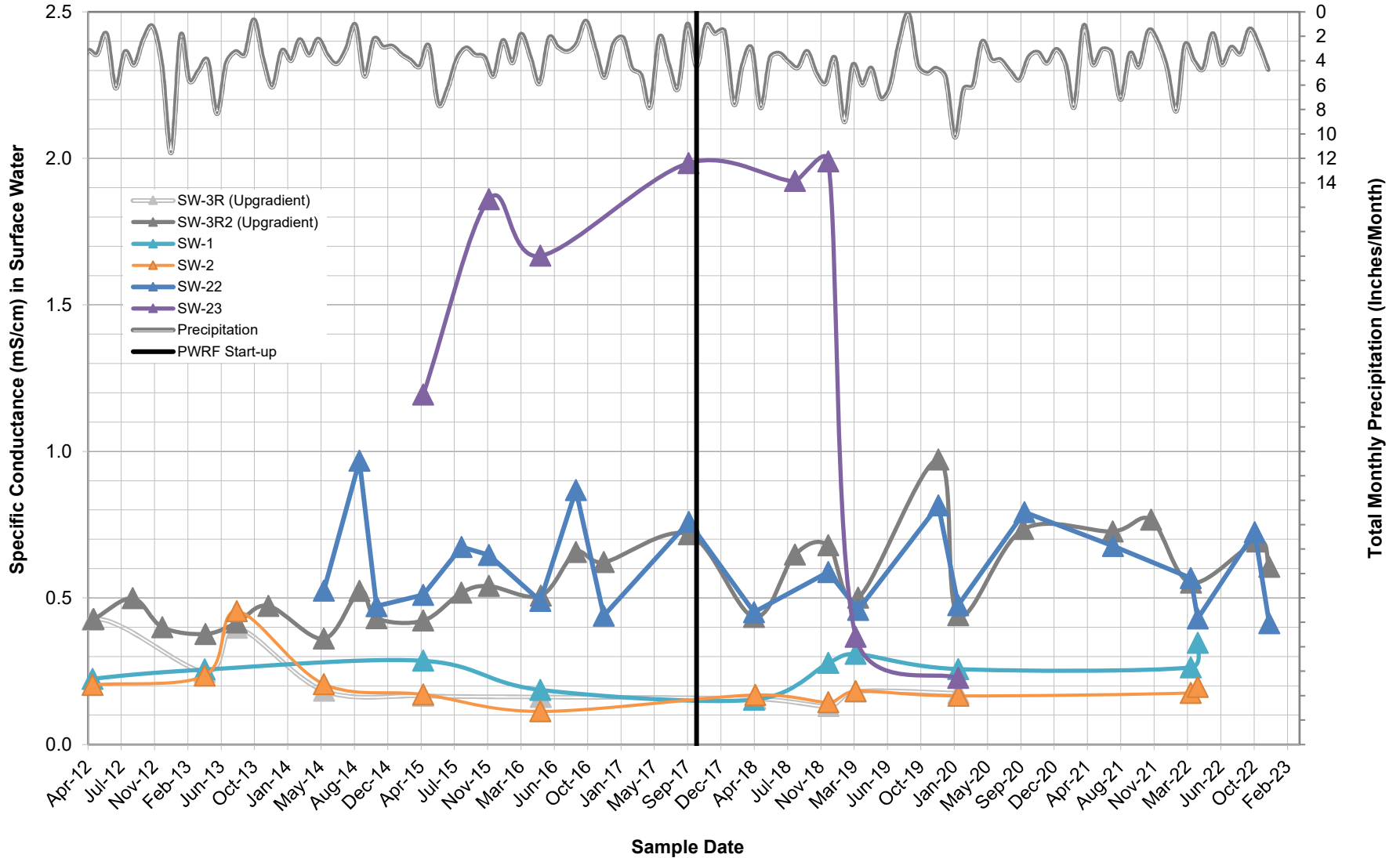
- SW-3R (Upgradient)
- SW-1
- SW-22
- Precipitation
- SW-3R2 (Upgradient)
- SW-2
- SW-23
- PWRF Start-up



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

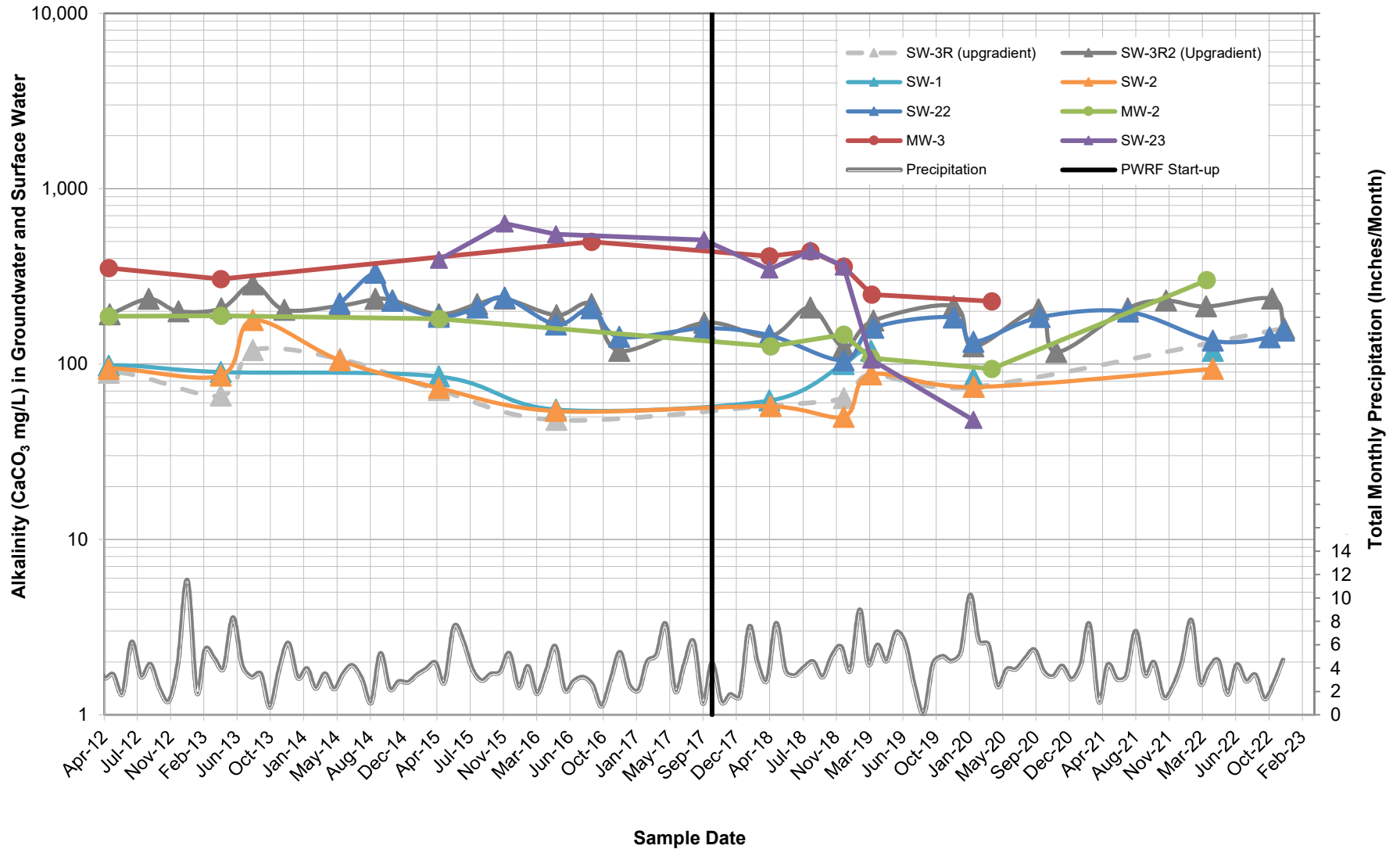


AJ/CJ Bush Study Area Surface Water Conductivity (Field) Readings



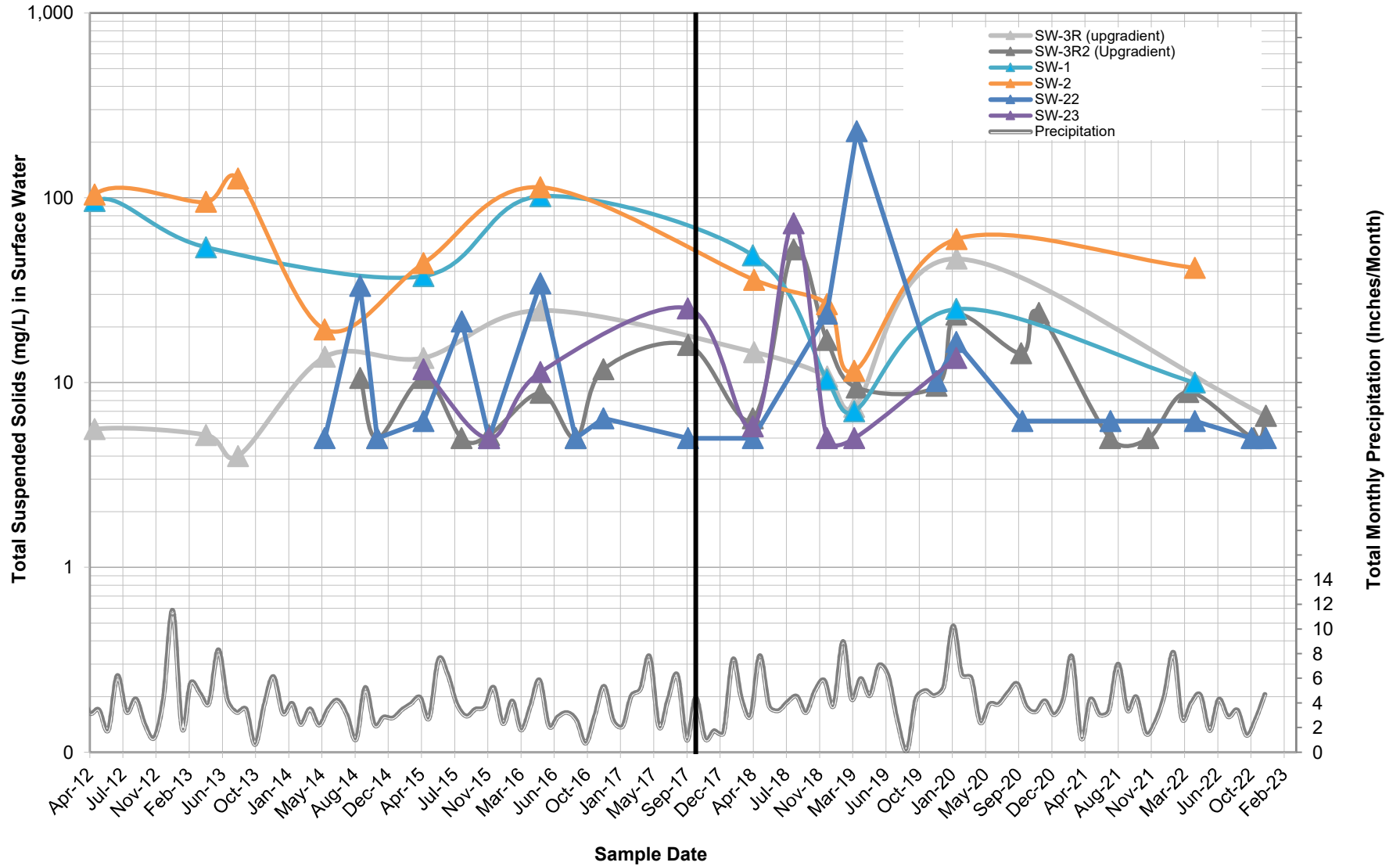
AJCJ Bush (Cond_SW)

AJ/CJ Bush Study Area Alkalinity Concentrations



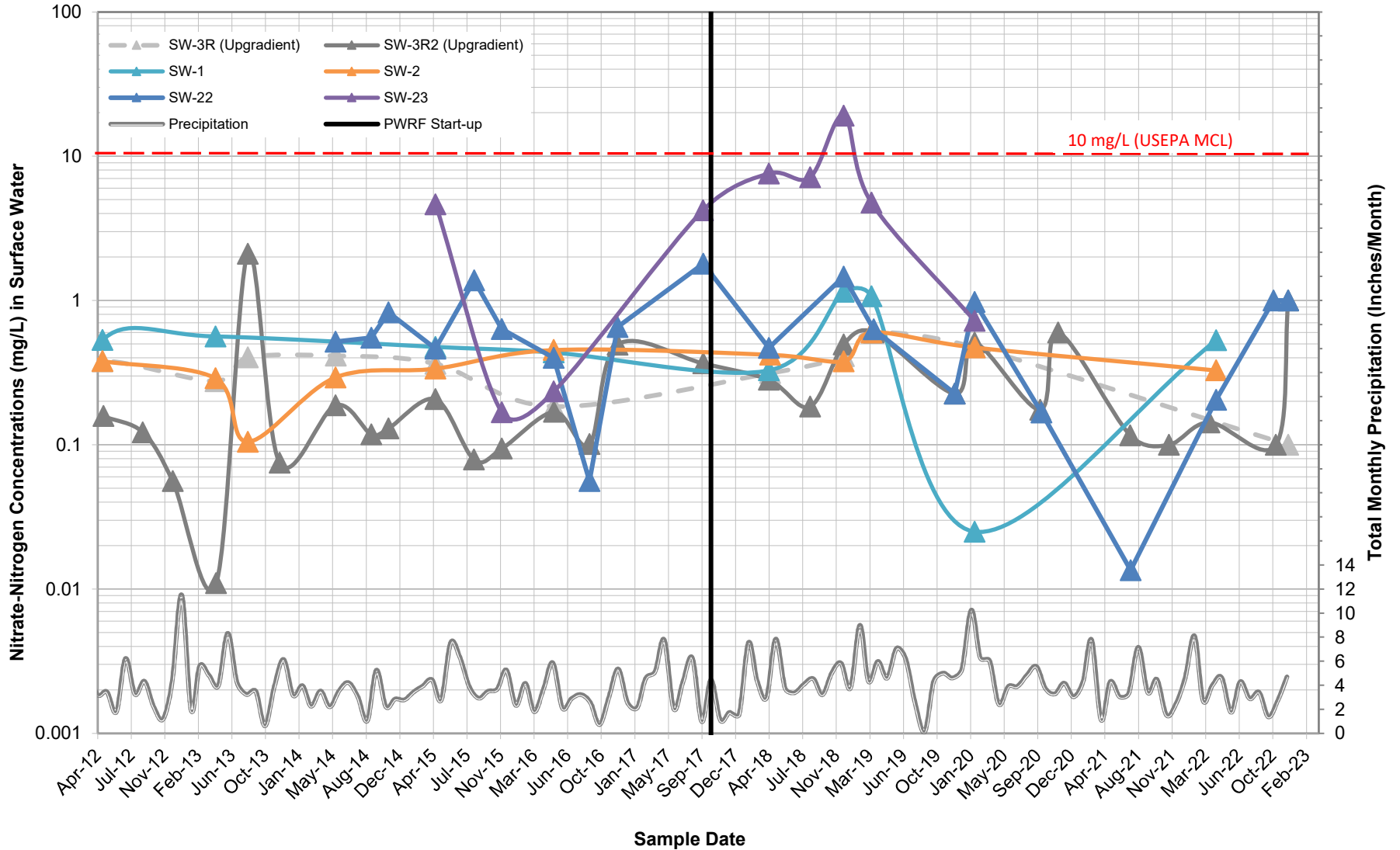
AJCJ Bush (Alk)

AJ/CJ Bush Study Area Surface Water TSS Concentrations



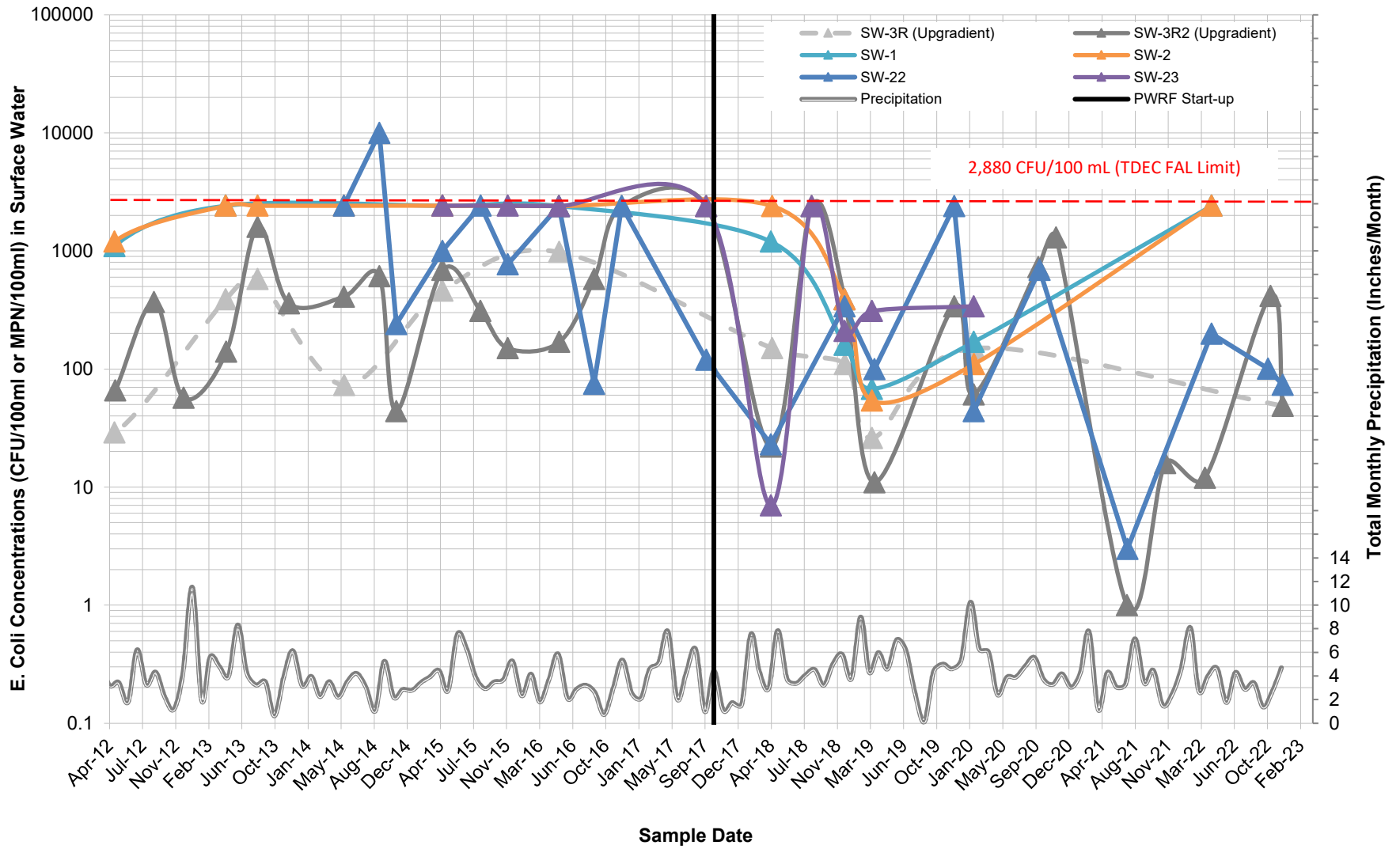
AJCJ Bush (TSS_SW)

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

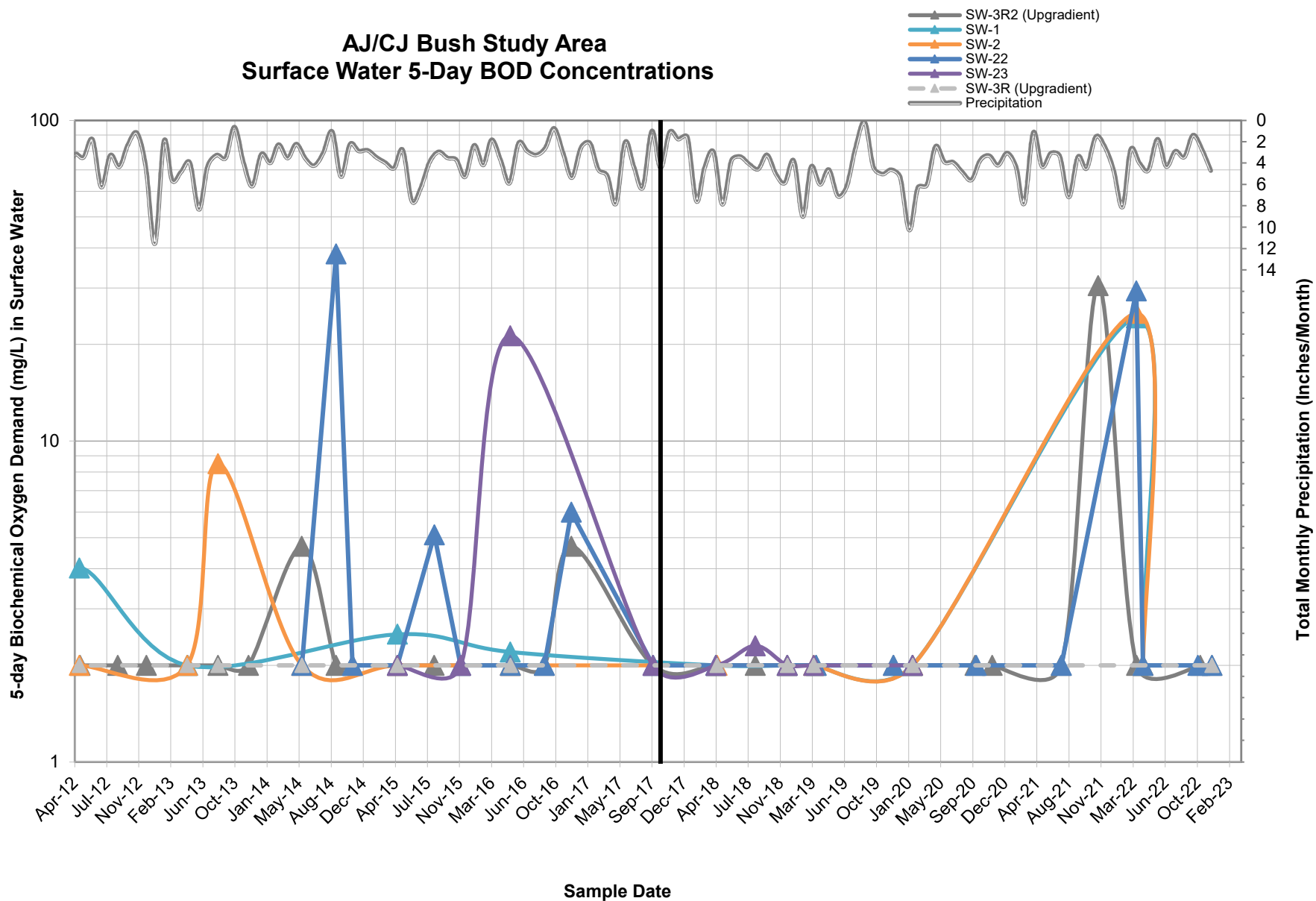


AJCJ Bush (N_SW)

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

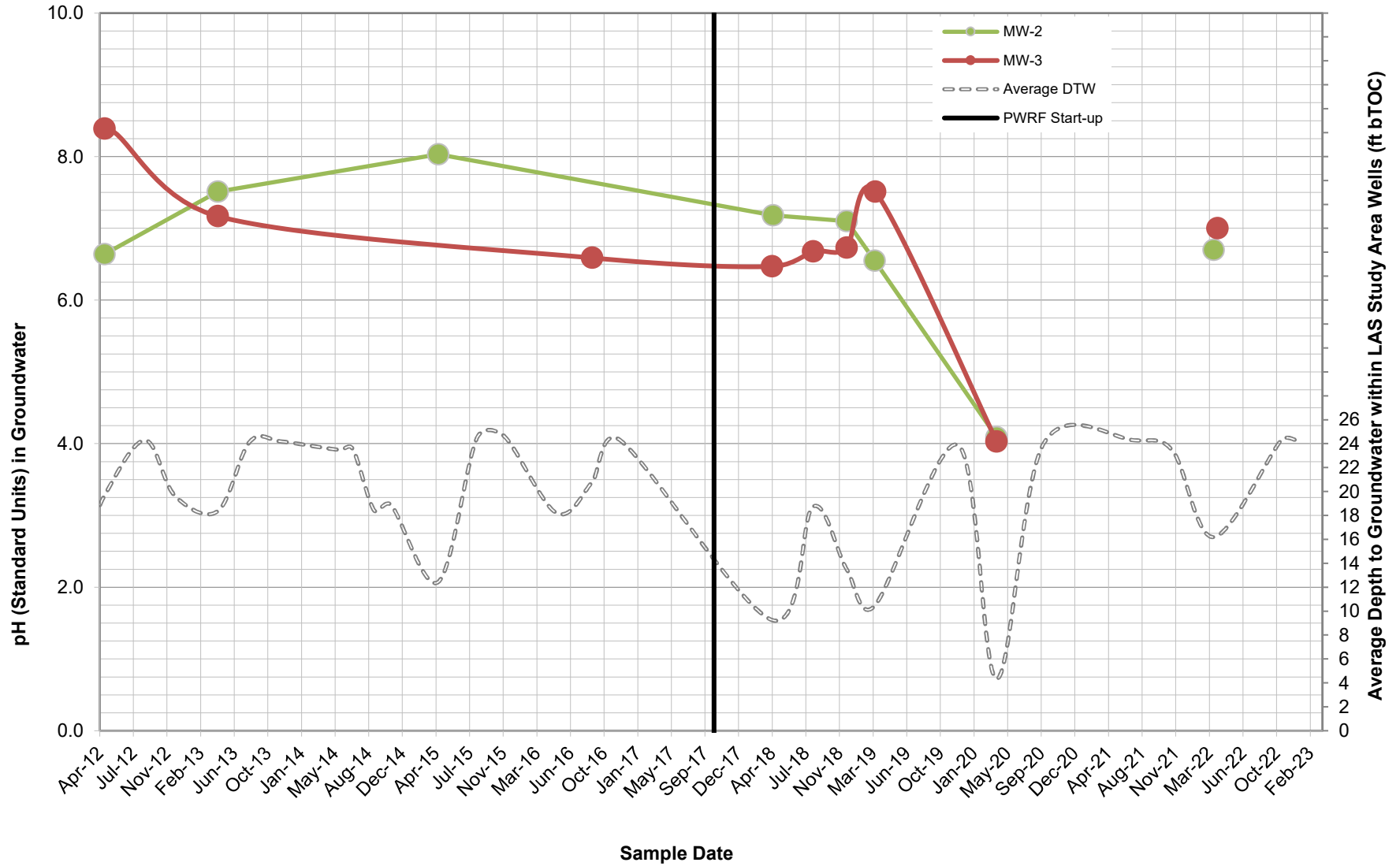


AJ/CJ Bush Study Area Surface Water 5-Day BOD Concentrations



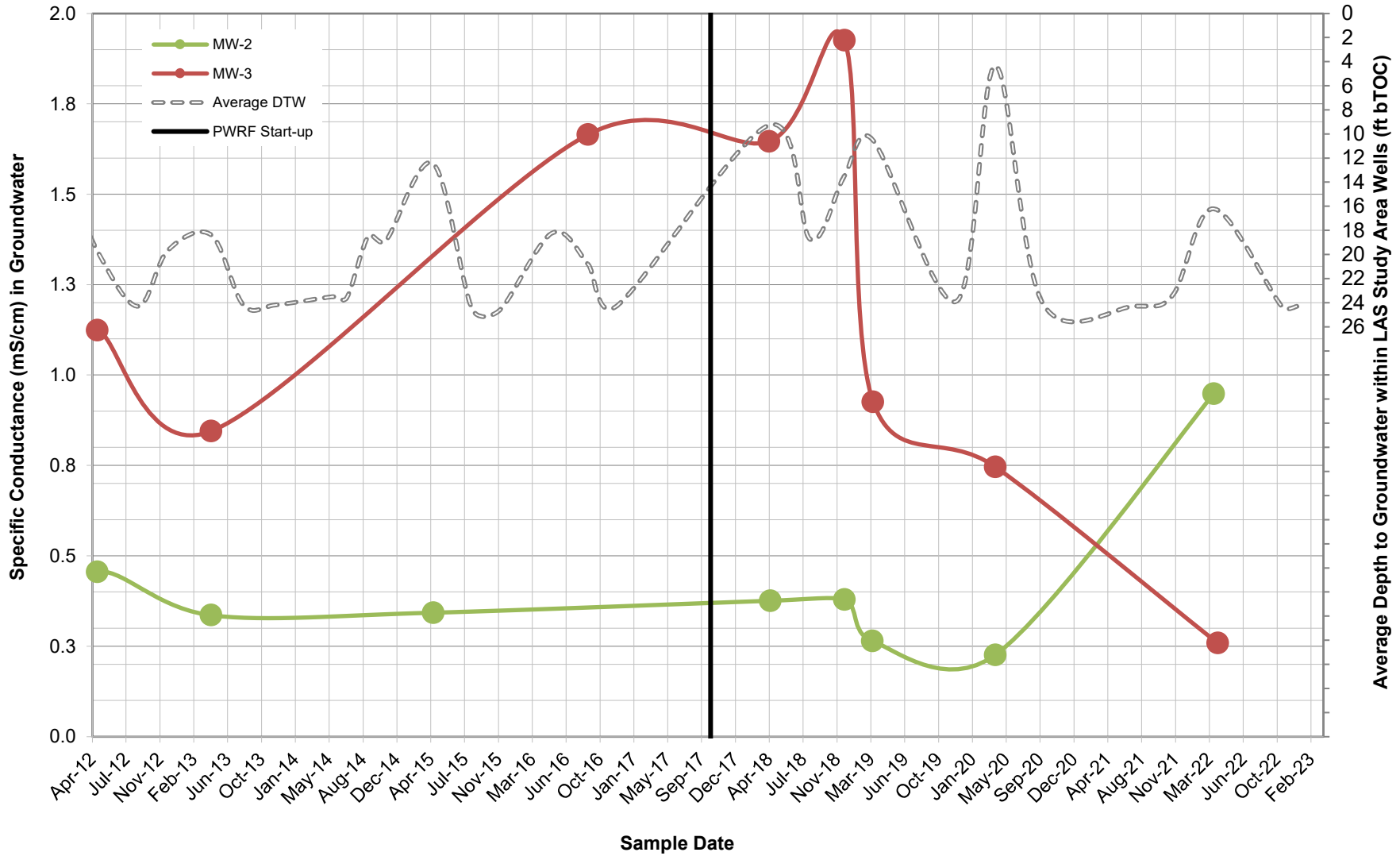
AJCJ Bush (BOD5_SW)

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



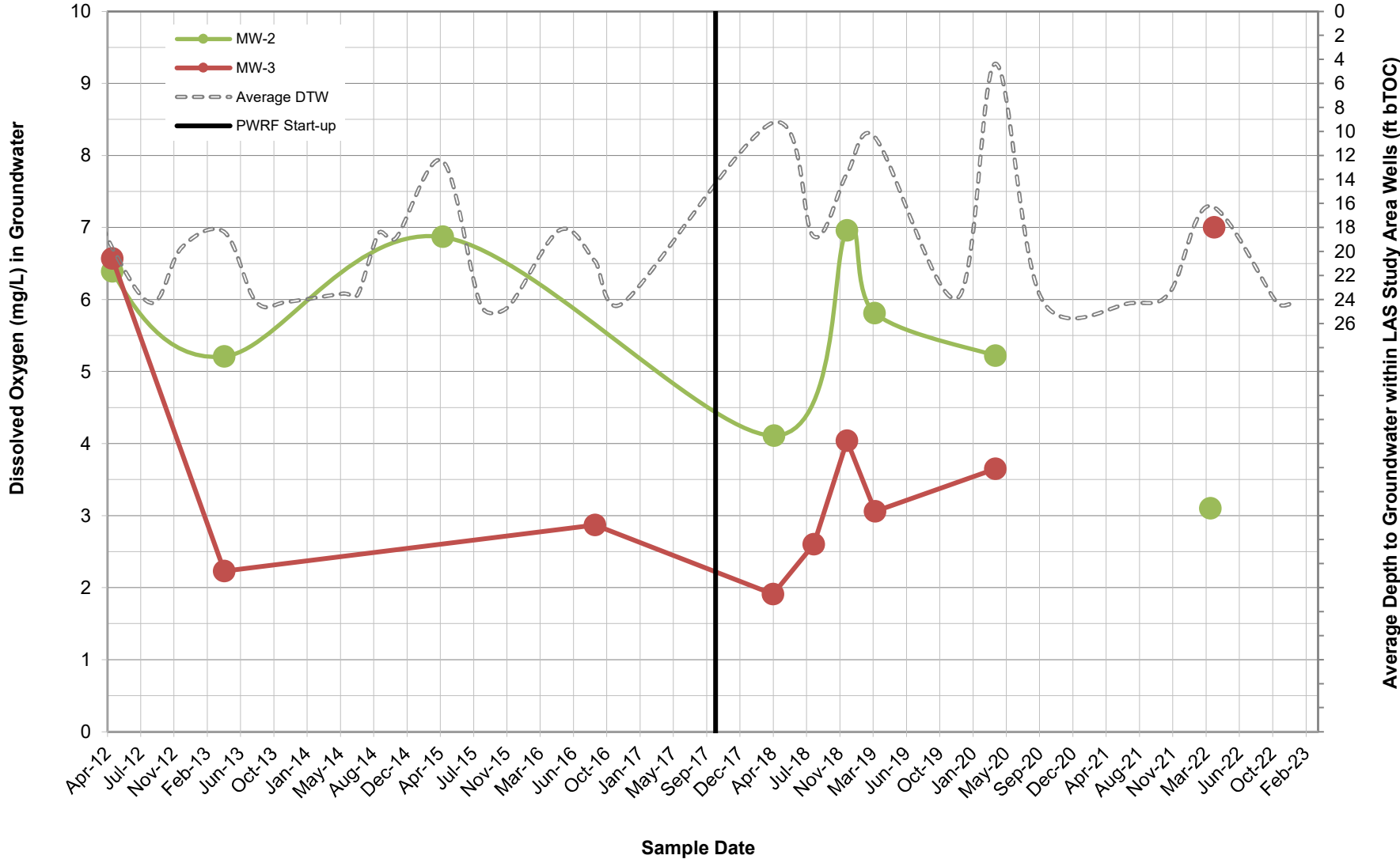
AJCJ Bush (pH_GW)

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



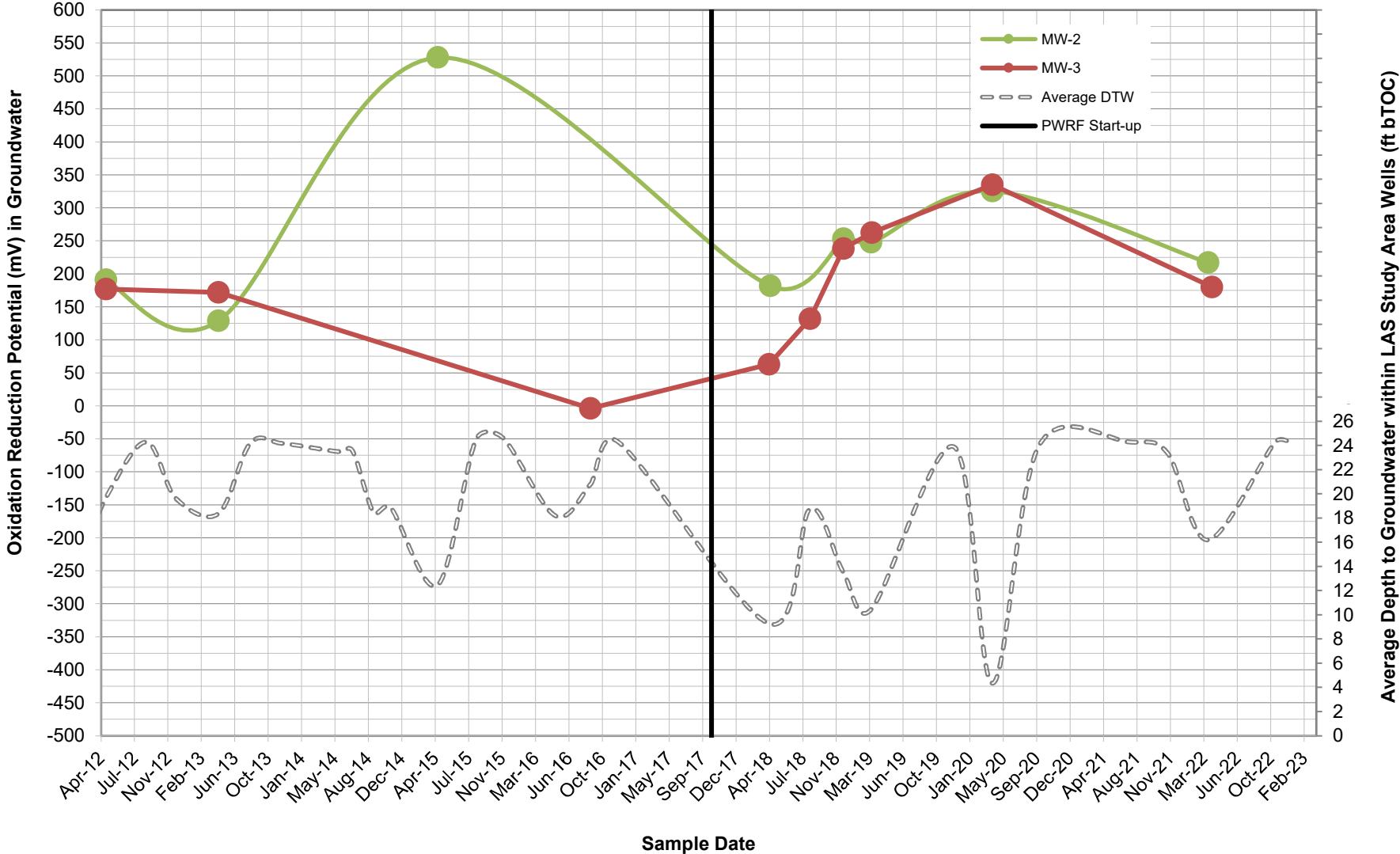
AJCJ Bush (Cond_GW)

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



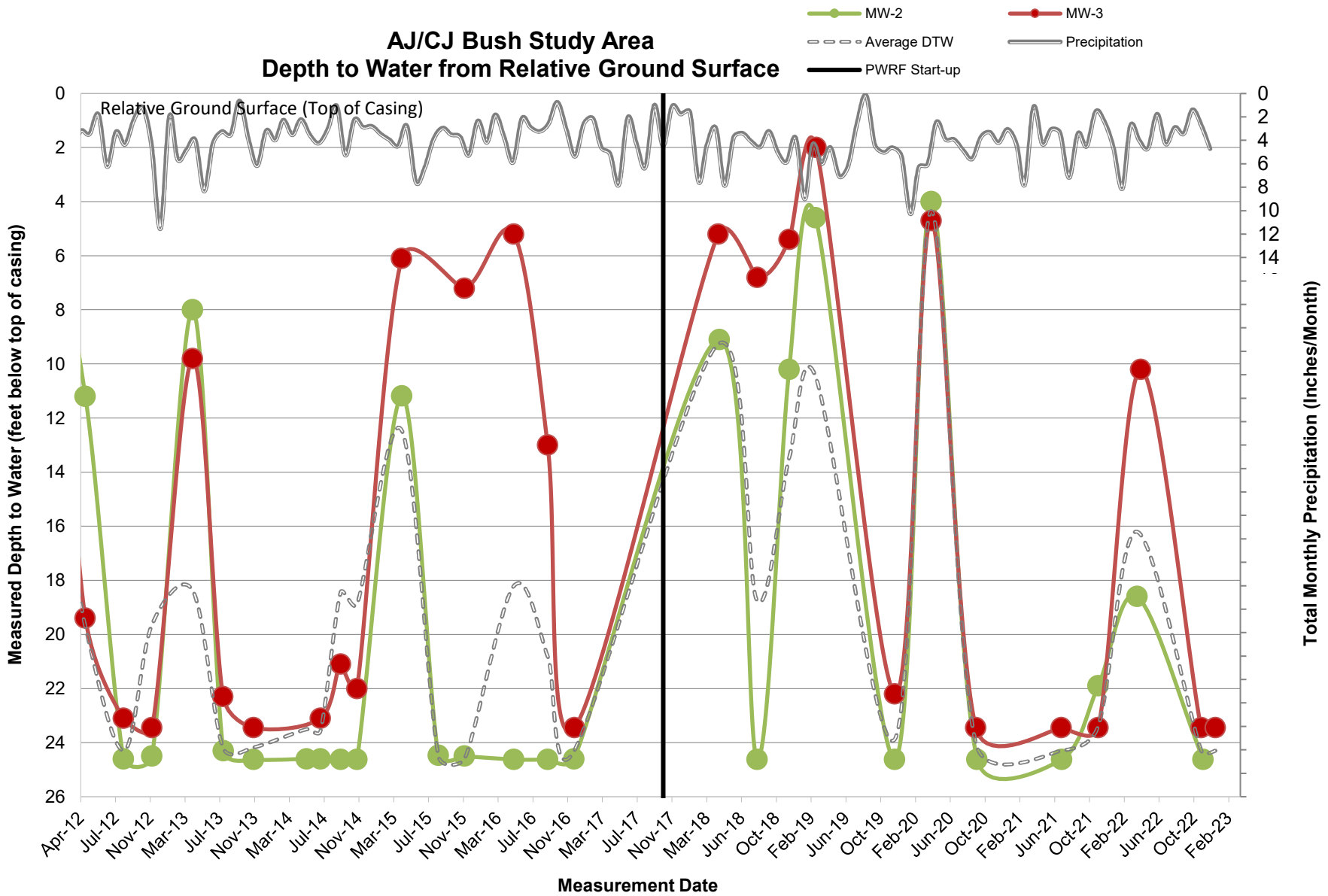
AJCJ Bush (DO_GW)

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



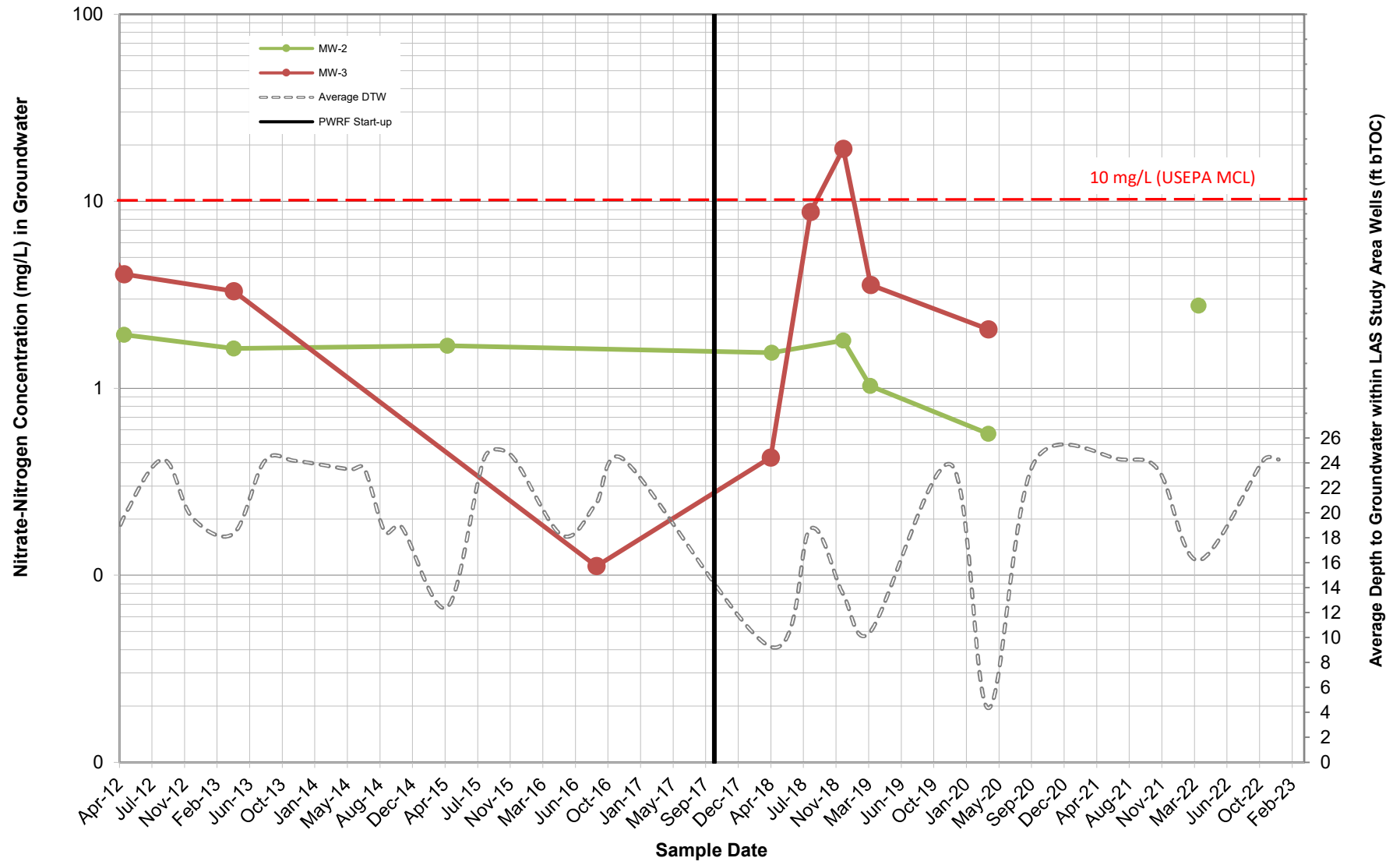
AJCJ Bush (ORP_GW)

AJ/CJ Bush Study Area Depth to Water from Relative Ground Surface



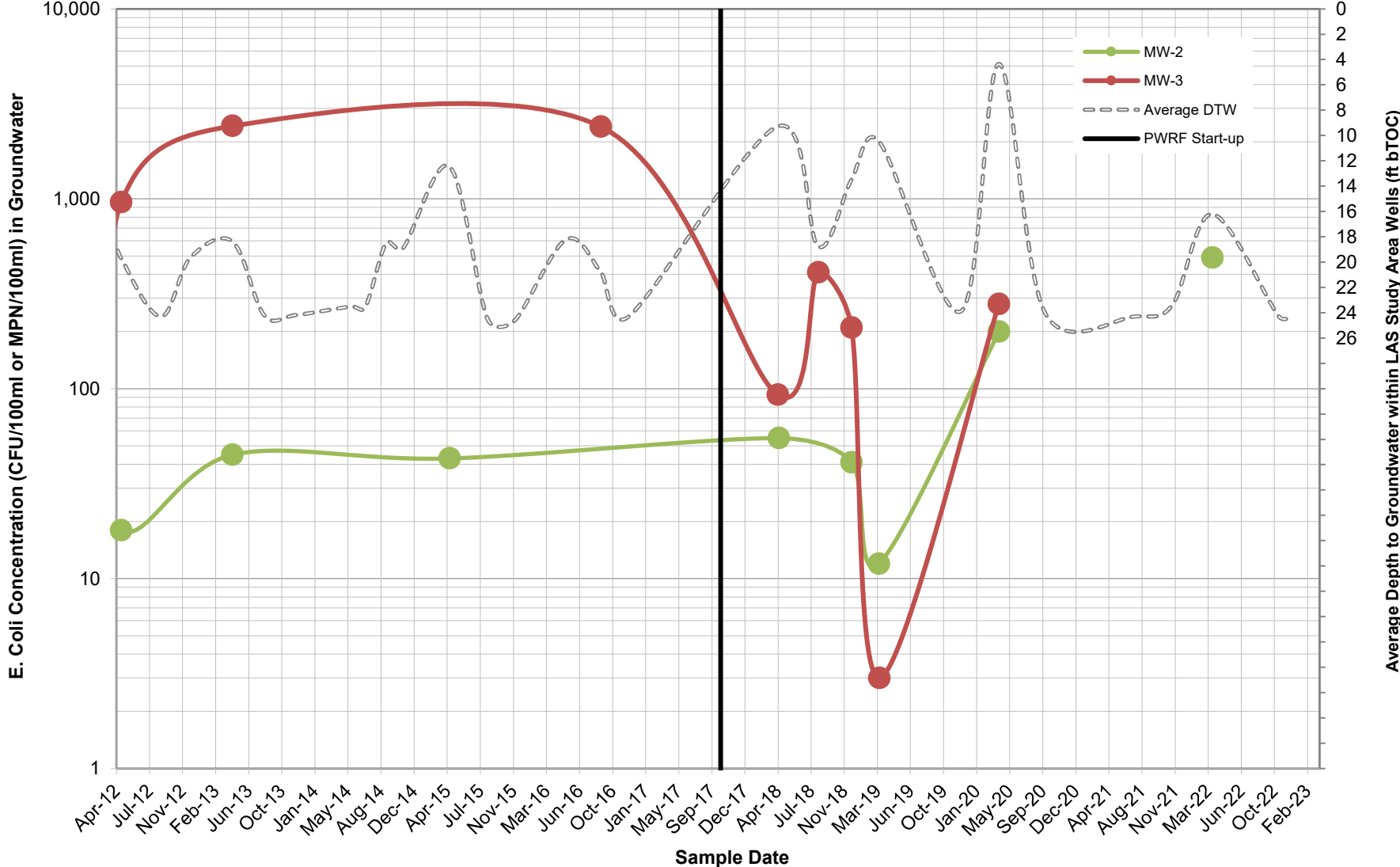
AJCJ Bush (DTW_GW)

AJ/CJ Bush Study Area Groundwater Nitrate-Nitrogen Concentrations



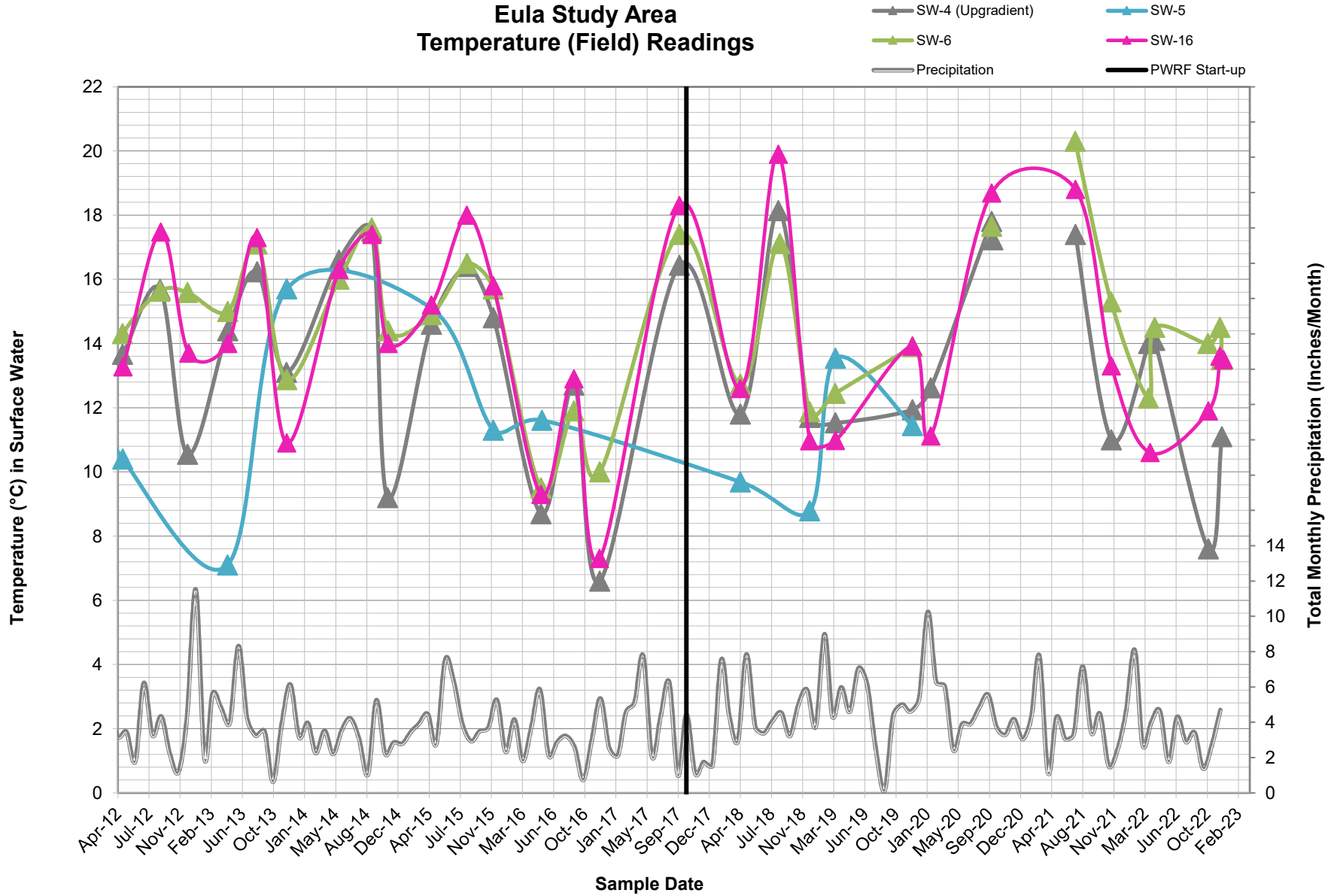
AJCJ Bush (N_GW)

AJ/CJ Bush Study Area Groundwater E. Coli Concentrations



AJCJ Bush (Ecoli_GW)

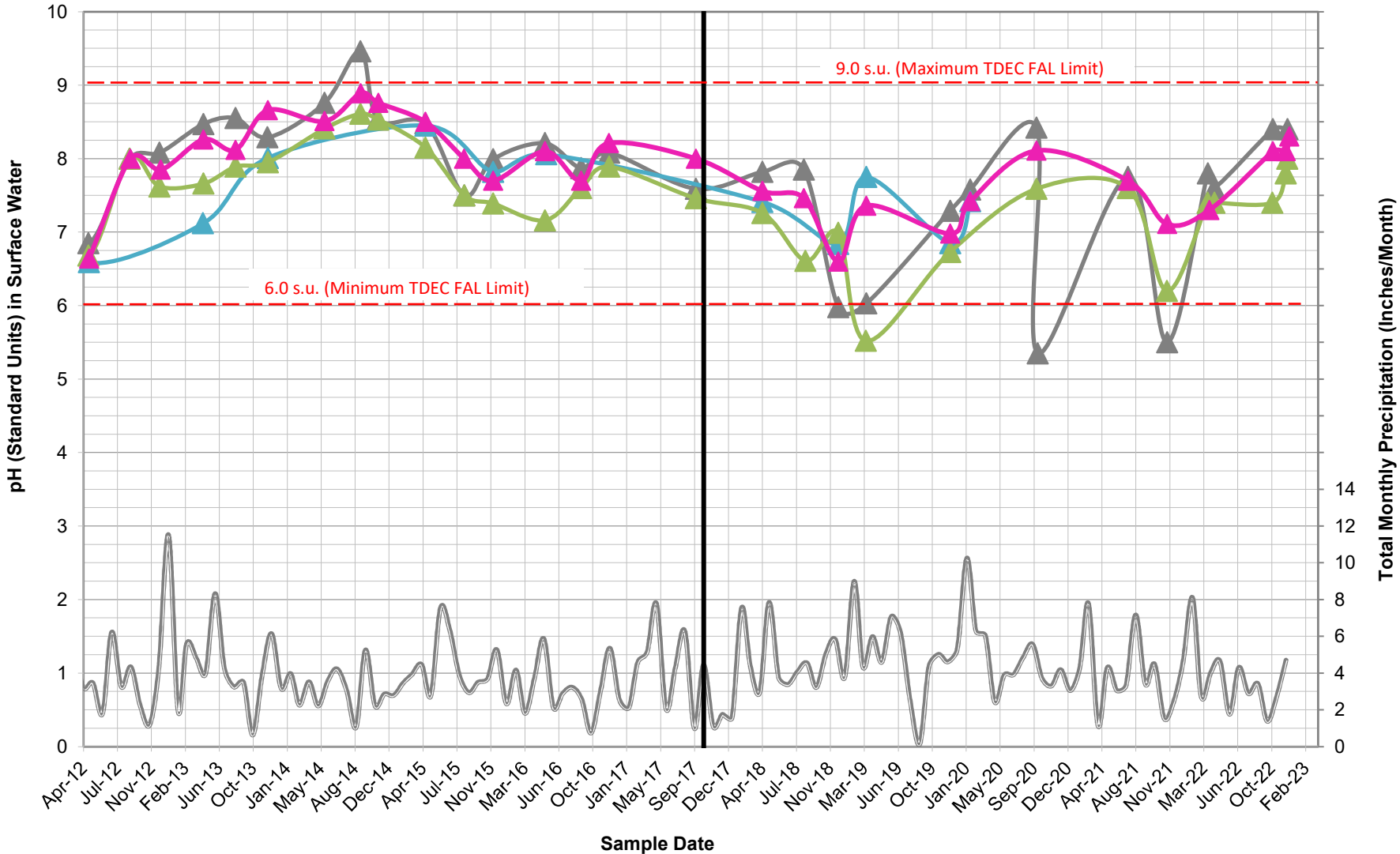
Eula Study Area Temperature (Field) Readings



Eula (Temp_SW)

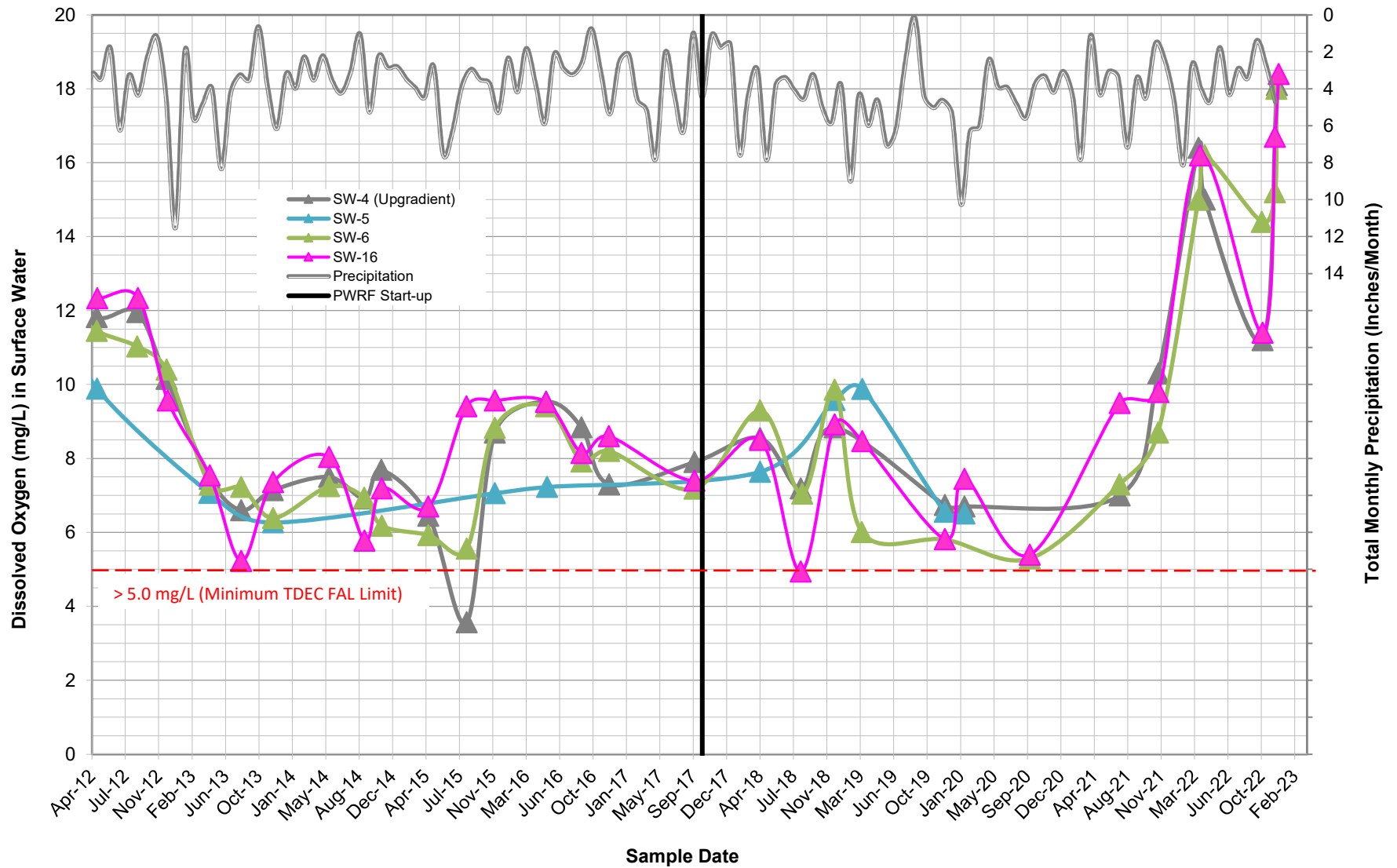
Eula Study Area Surface Water pH (Field) Readings

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



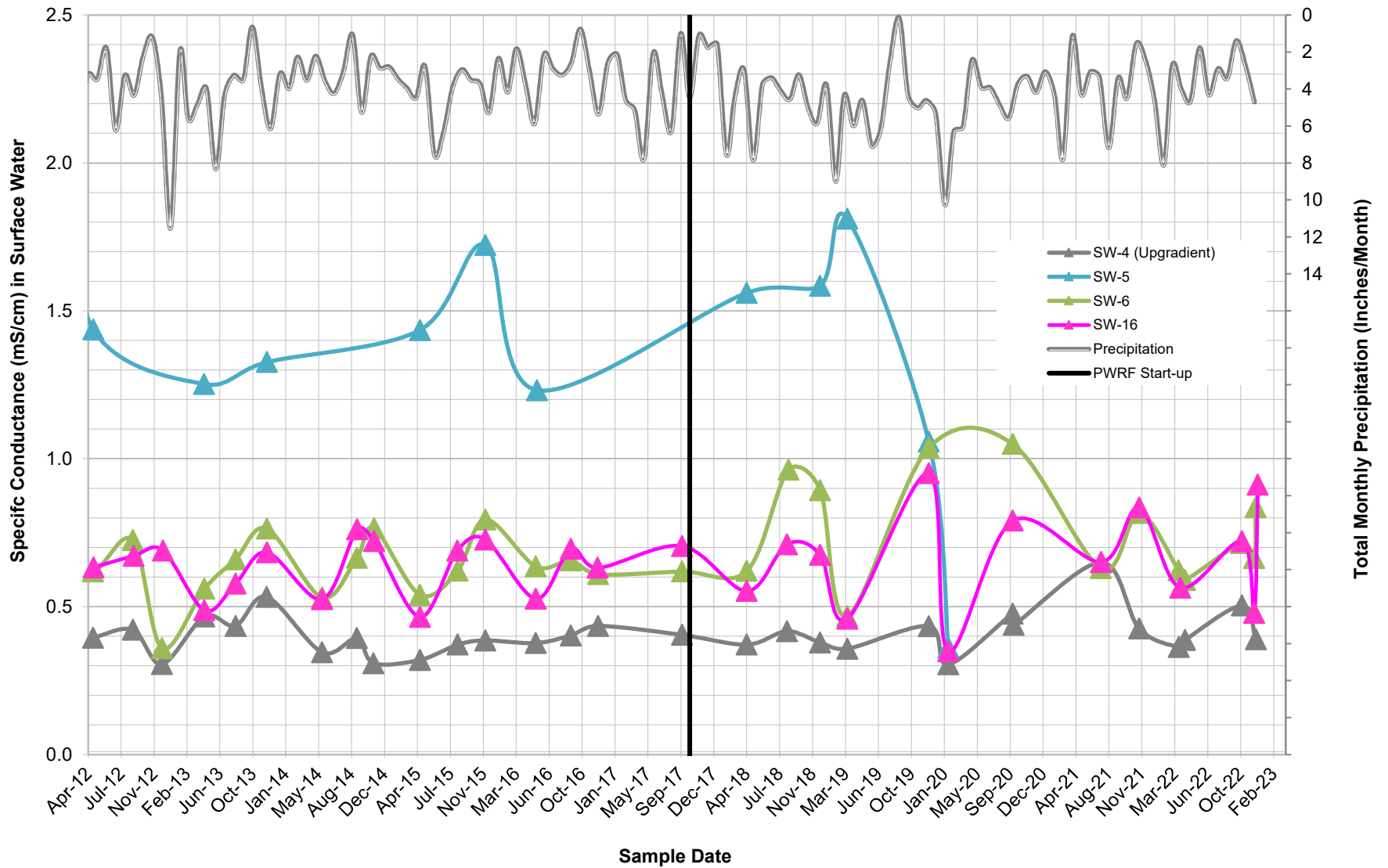
Eula (pH_SW)

Eula Study Area Surface Water DO (Field) Readings



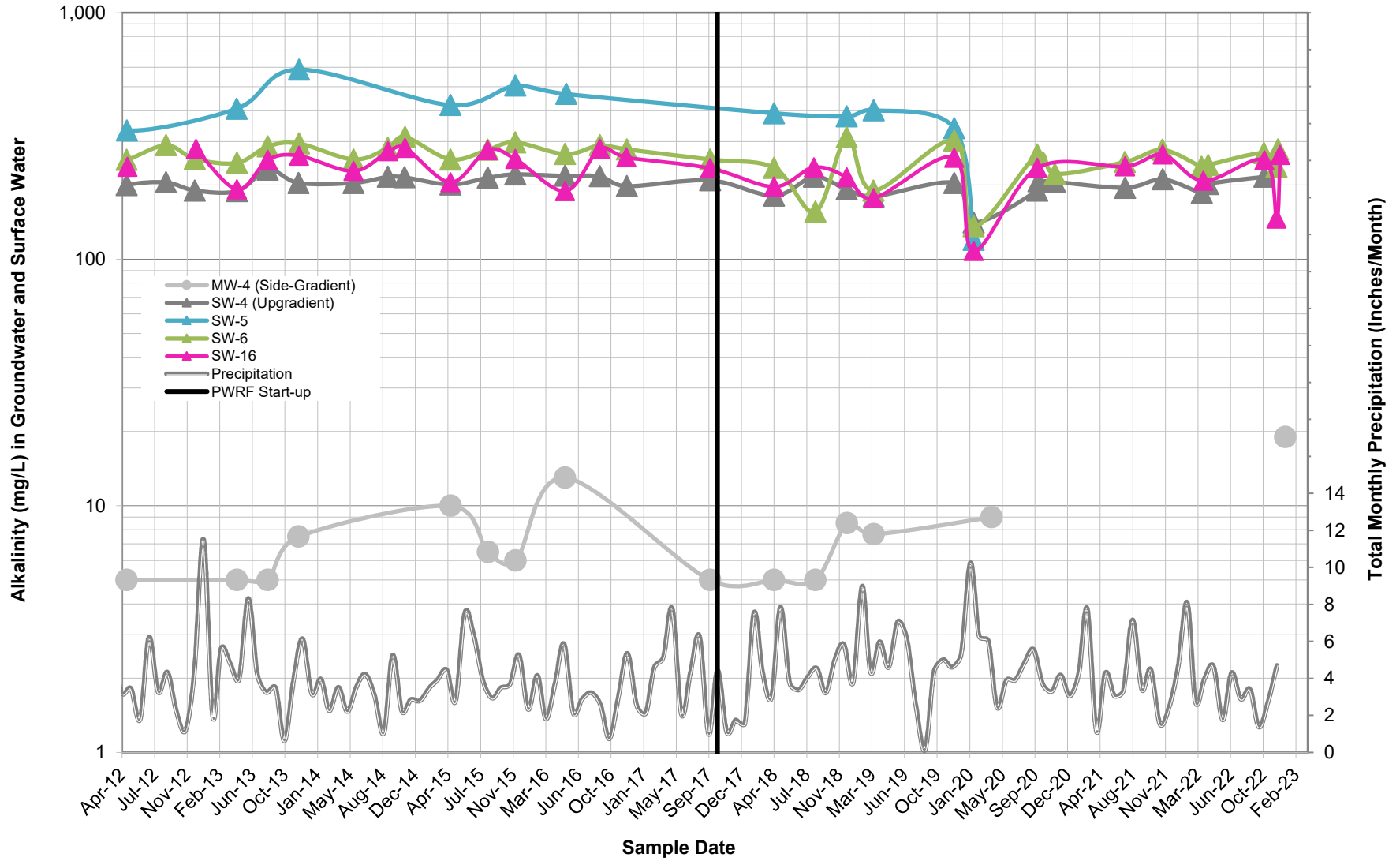
Eula (DO_SW)

Eula Study Area Surface Water Conductivity (Field) Readings



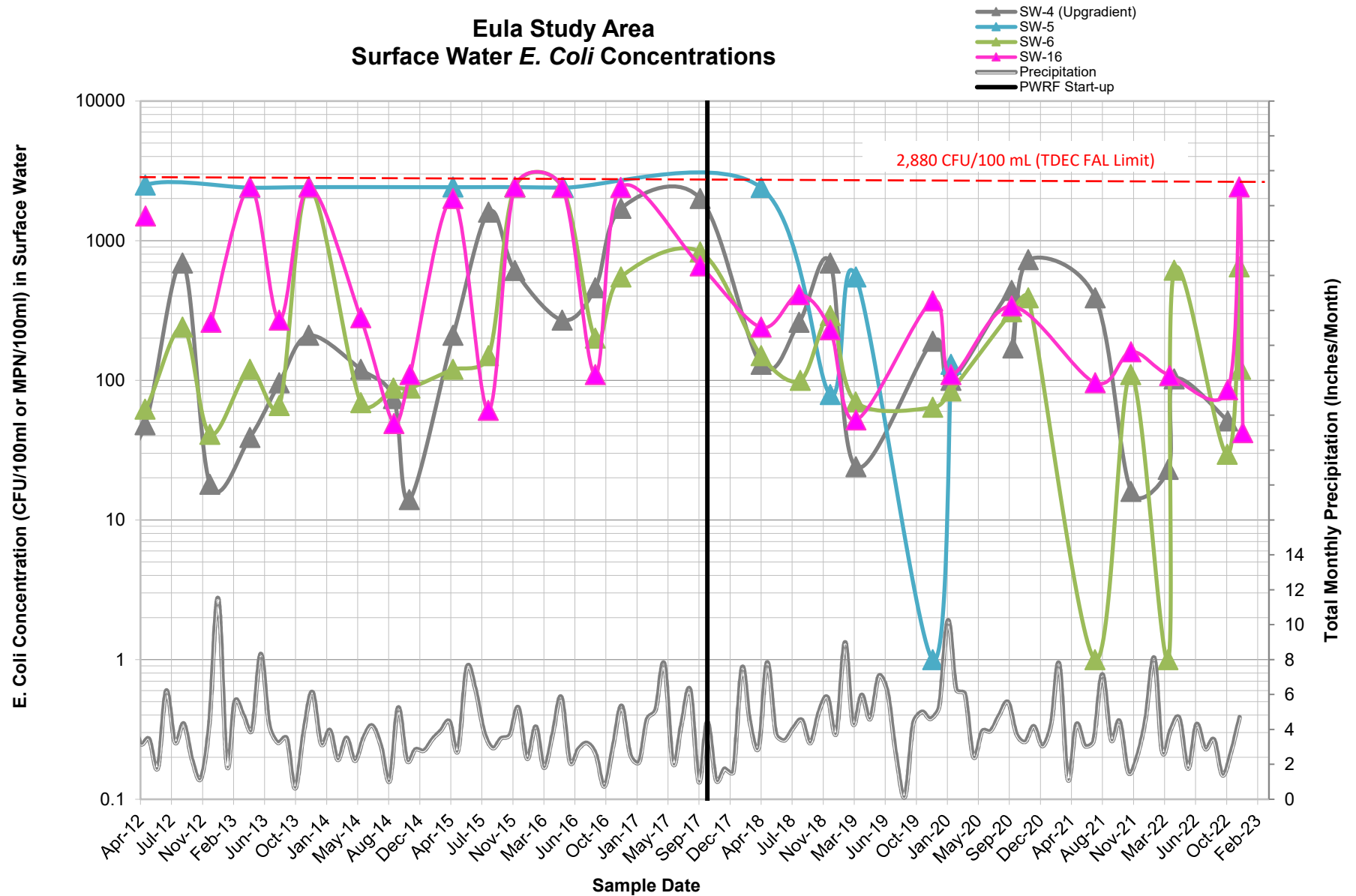
Eula (Cond_SW)

Eula Study Area Alkalinity Concentrations



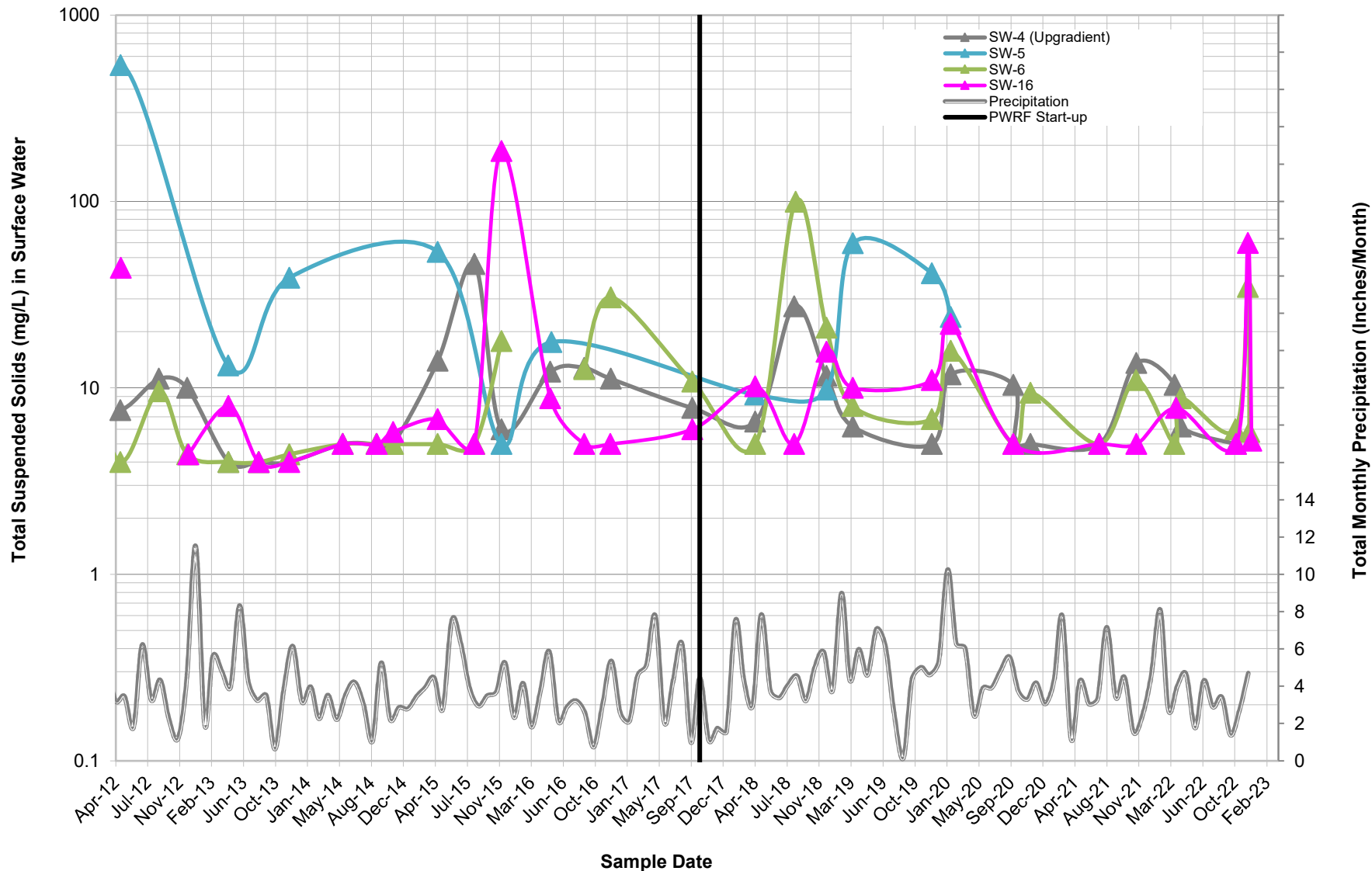
Eula (Alk)

Eula Study Area Surface Water *E. Coli* Concentrations



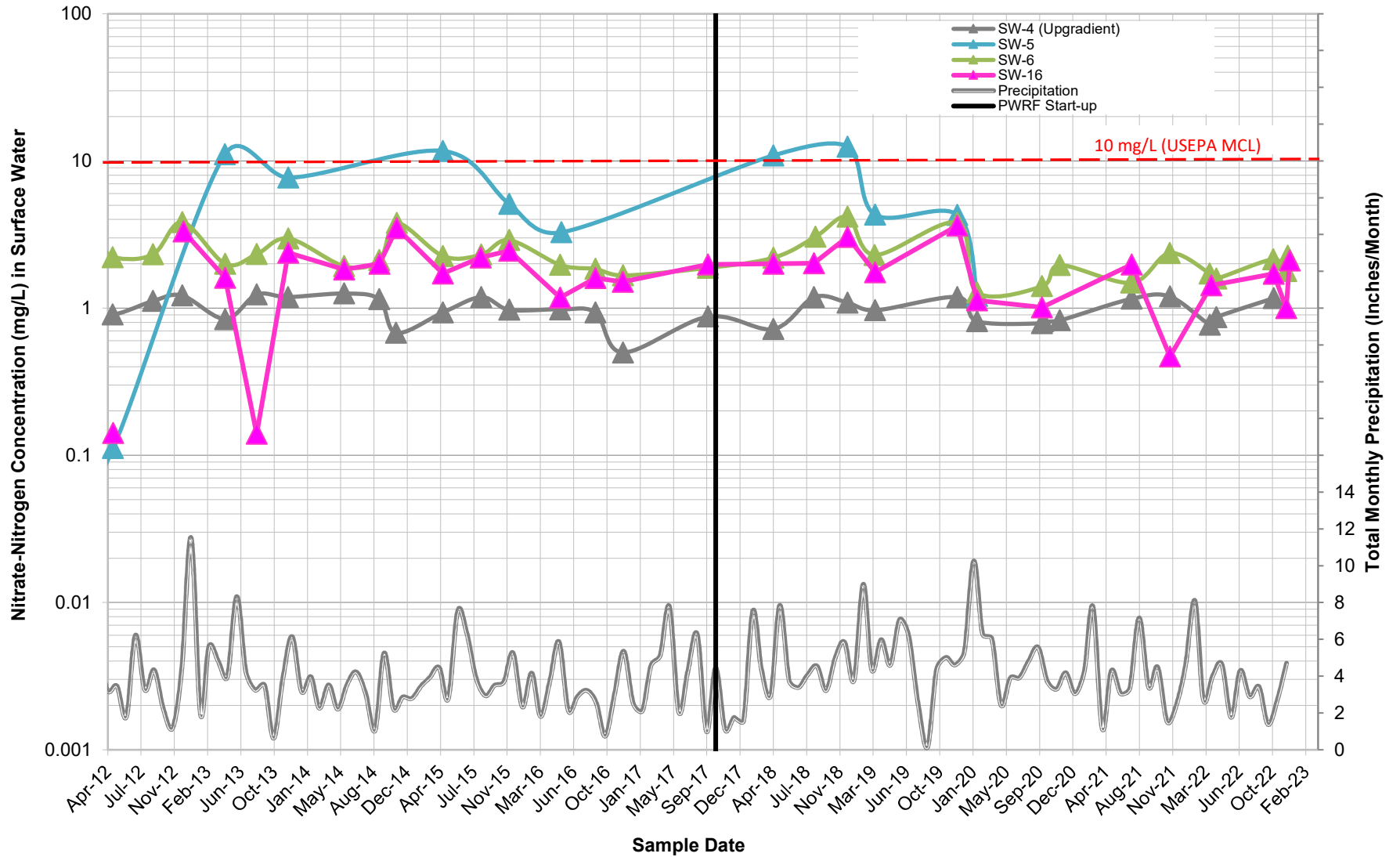
Eula (Ecoli_SW)

Eula Study Area Surface Water TSS Concentrations



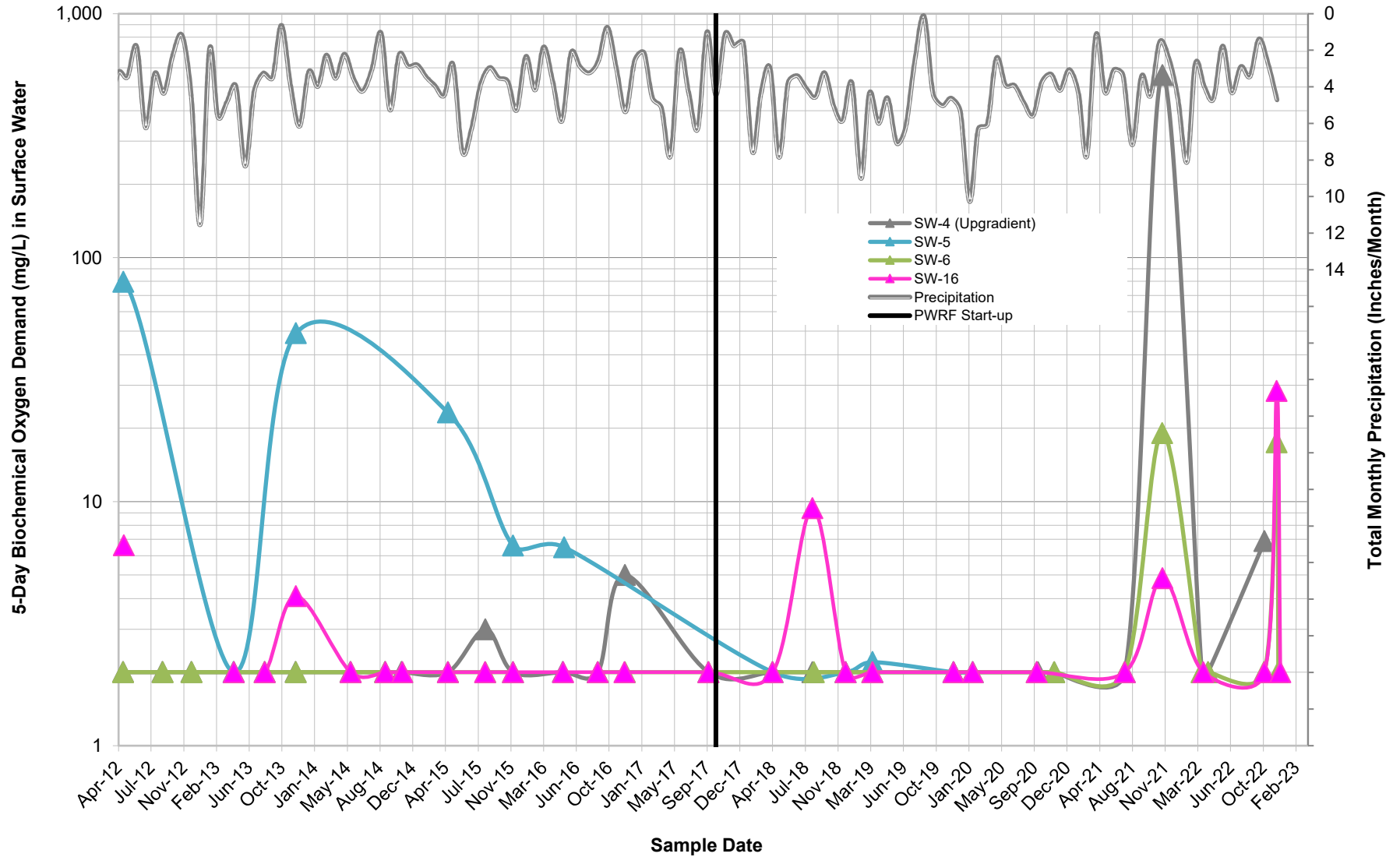
Eula (TSS_SW)

Eula Study Area Surface Water Nitrate-Nitrogen Concentrations



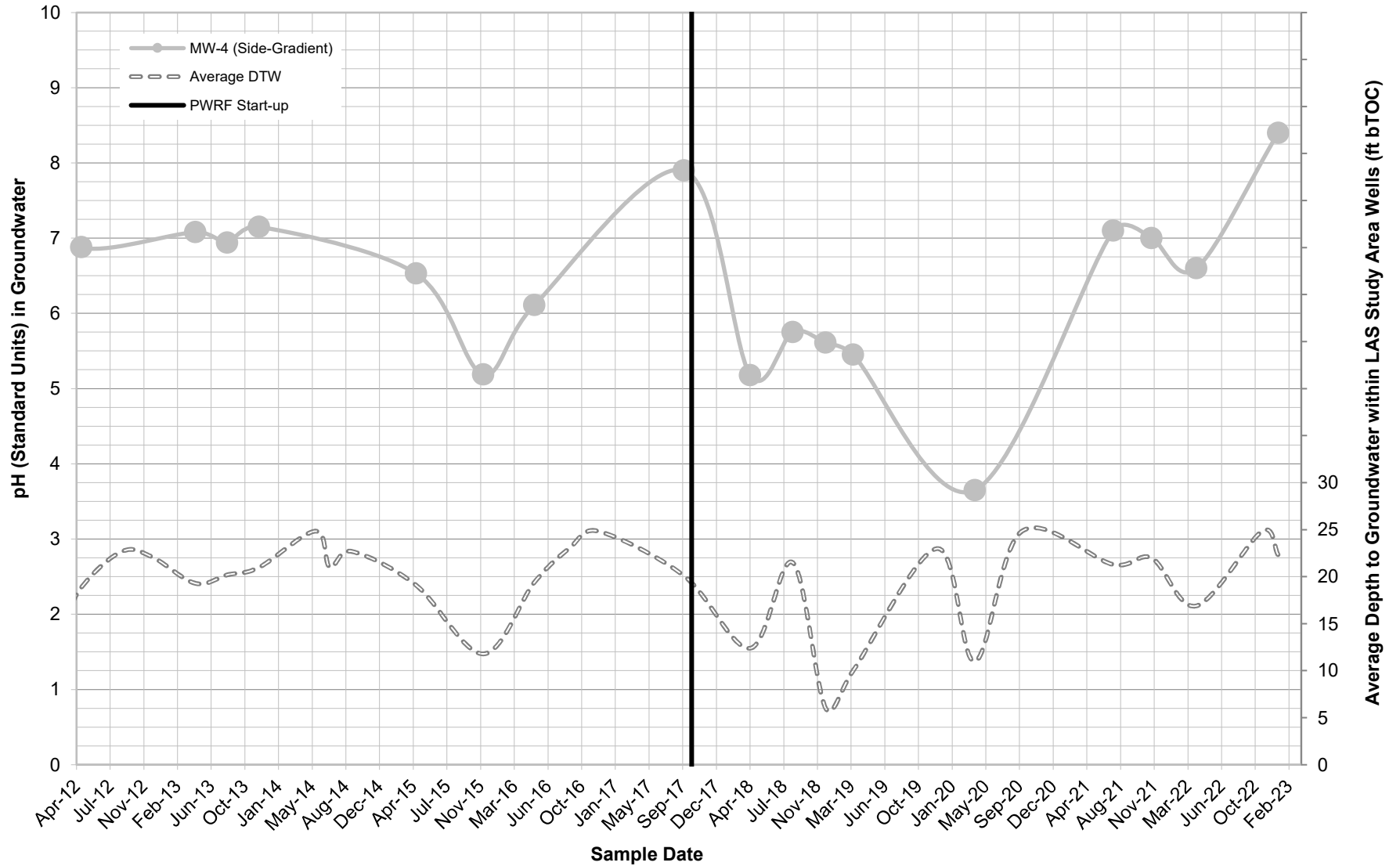
Eula (N_SW)

Eula Study Area Surface Water 5-Day BOD Concentrations



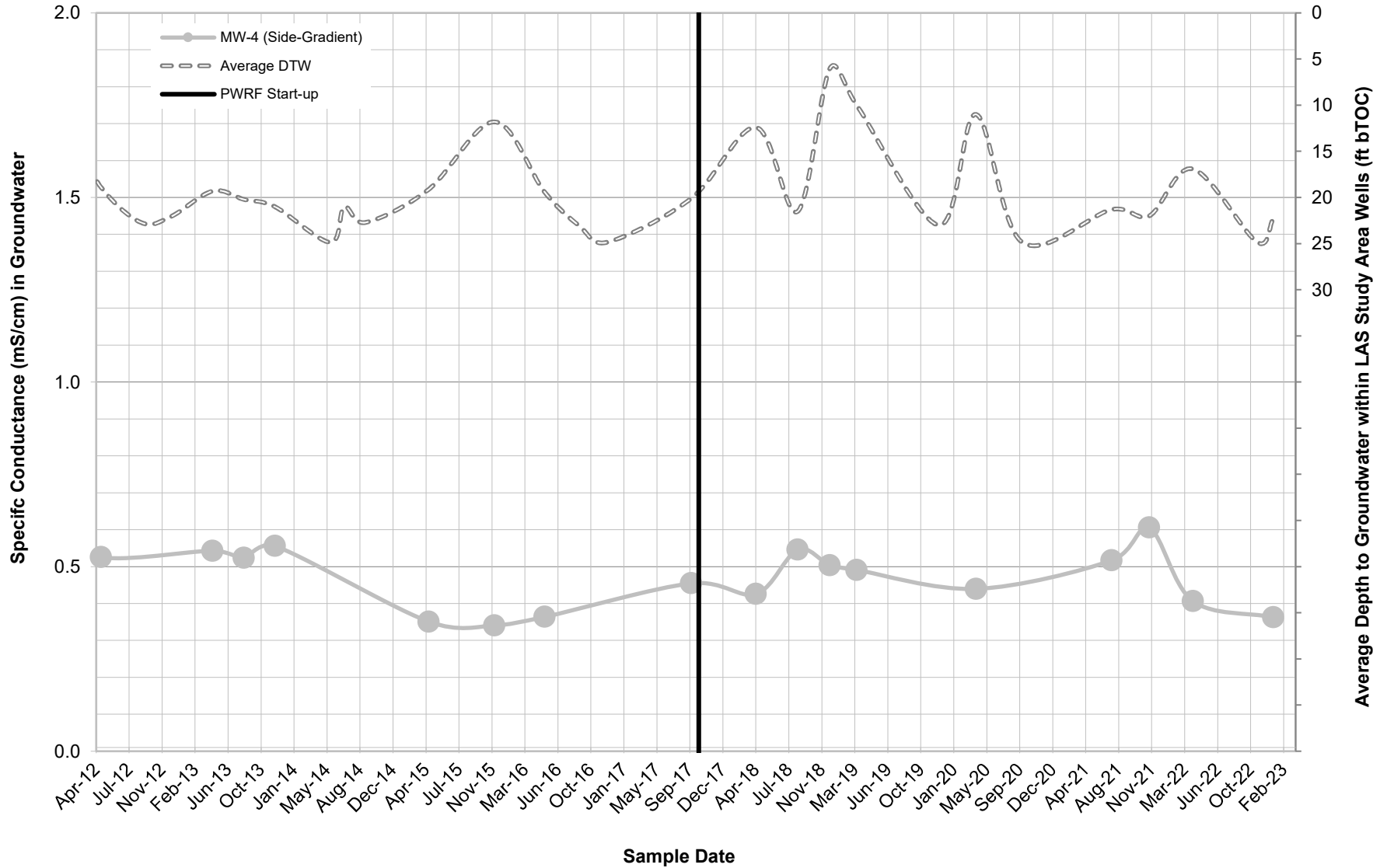
Eula (BOD5_SW)

Eula Study Area Groundwater pH (Field) Readings



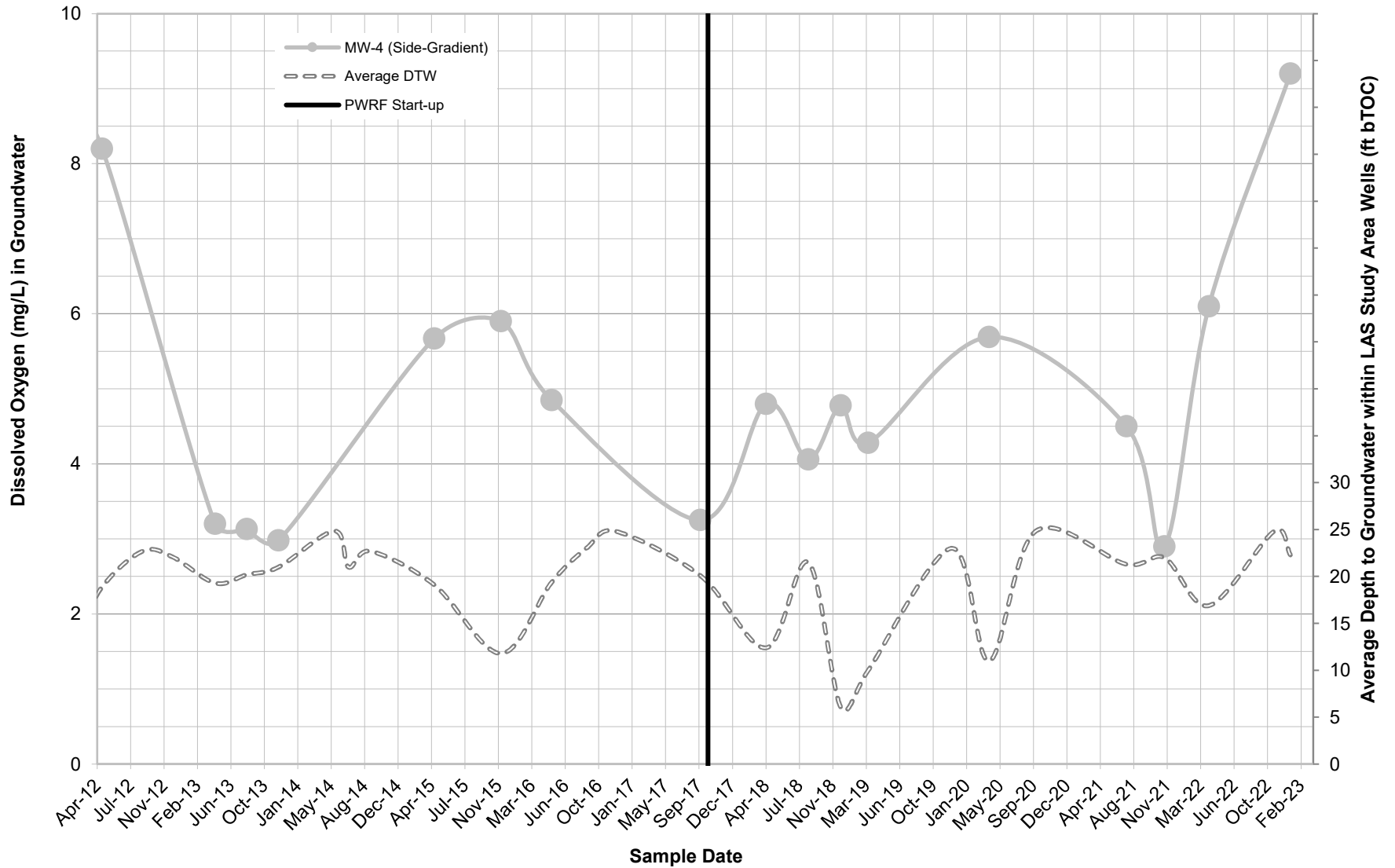
Eula (pH_GW)

Eula Study Area Groundwater Conductivity (Field) Readings



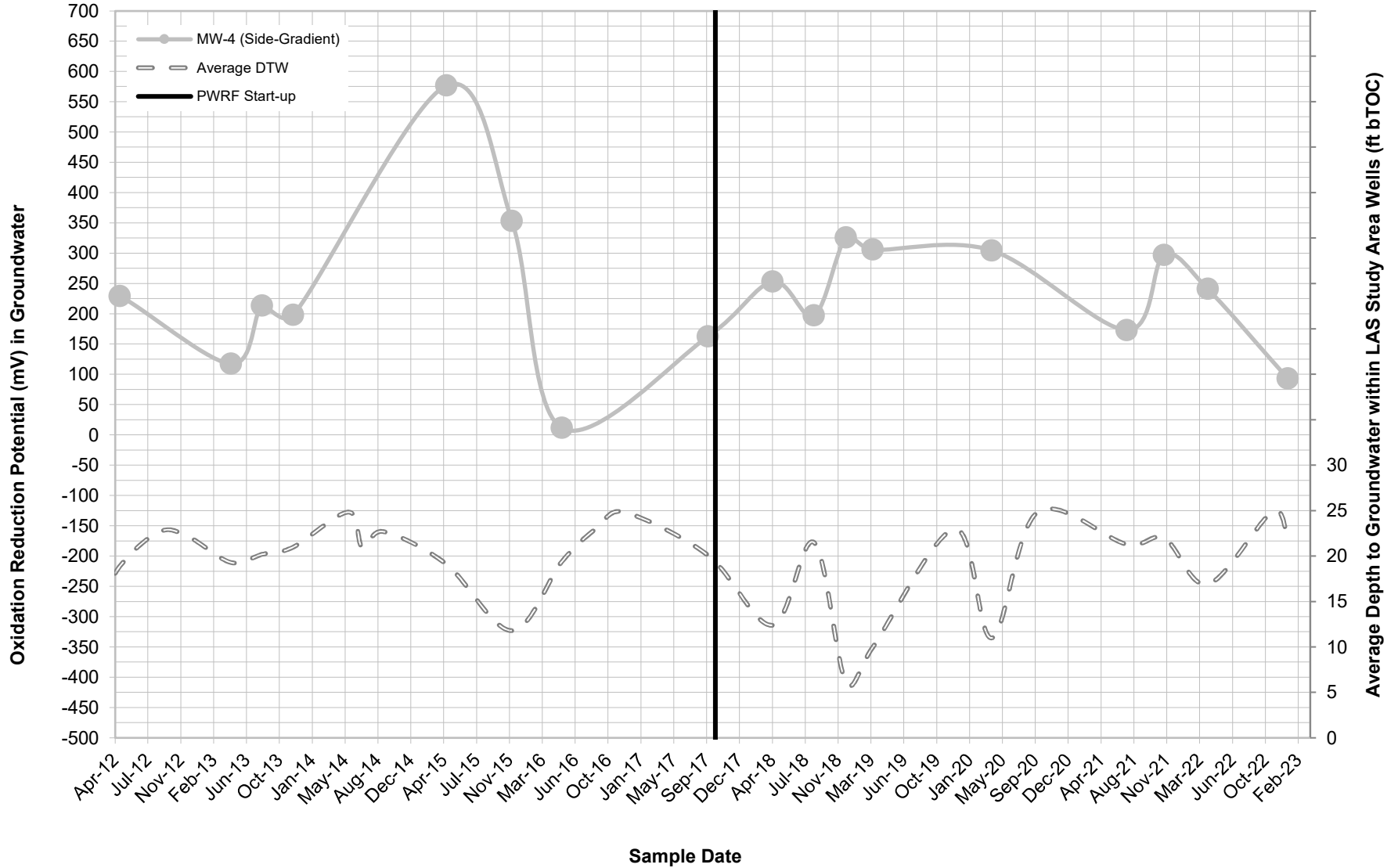
Eula (Cond_GW)

Eula Study Area Groundwater DO (Field) Readings



Eula (DO_GW)

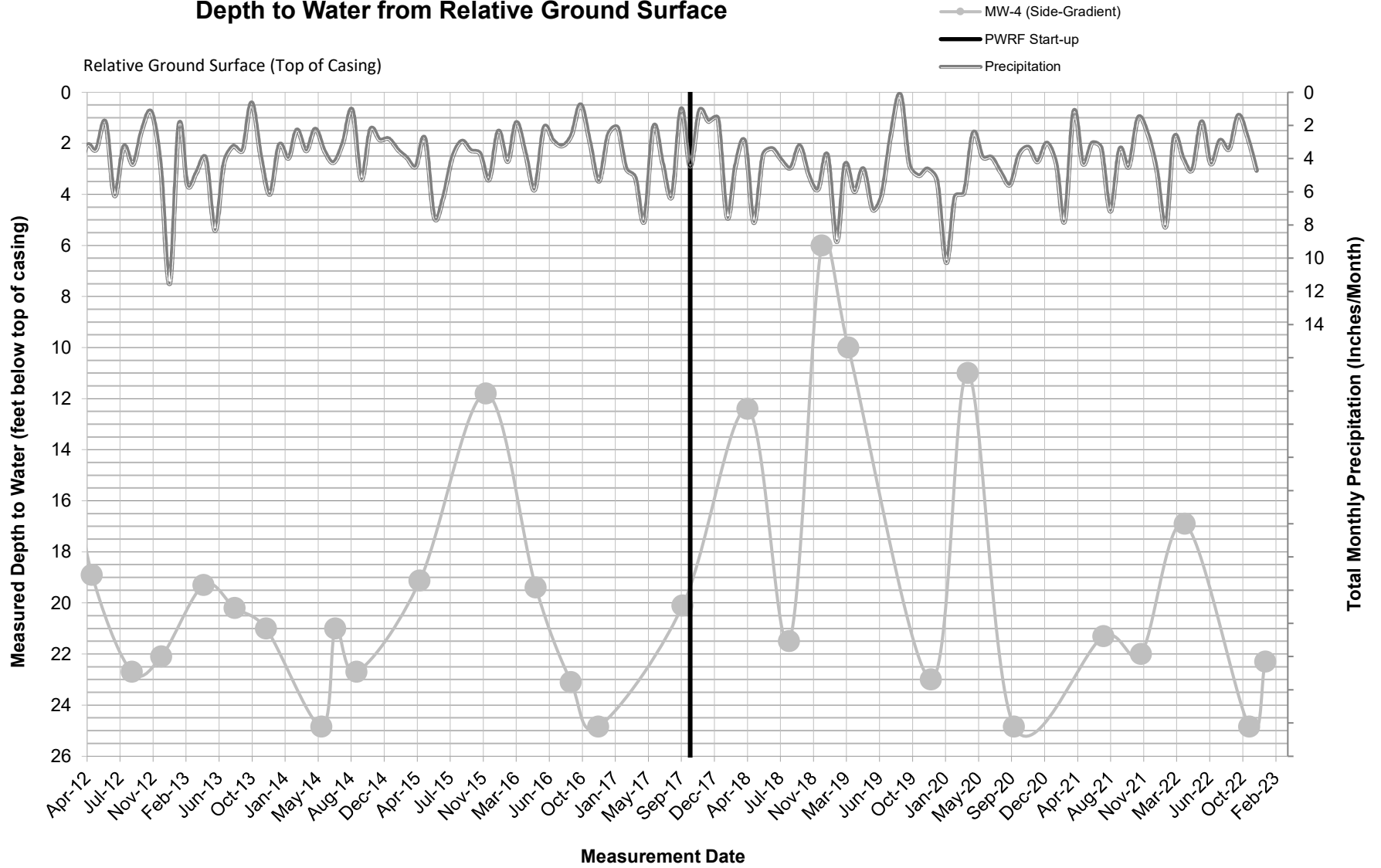
Eula Study Area Groundwater ORP (Field) Readings



Eula (ORP_GW)

Eula LAS Study Area

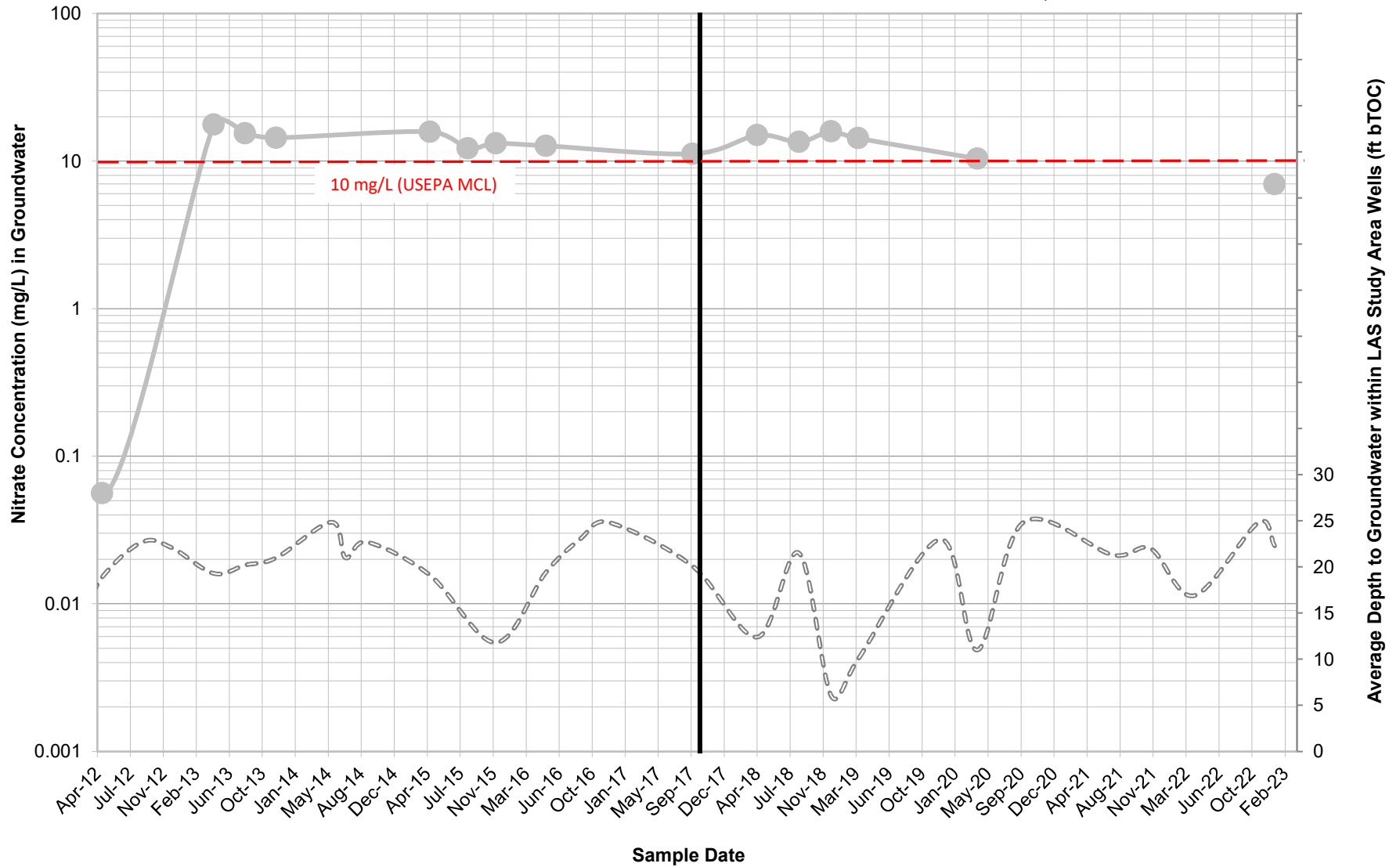
Depth to Water from Relative Ground Surface



Eula (DTW_GW)

Eula Study Area Groundwater Nitrate-Nitrogen Concentrations

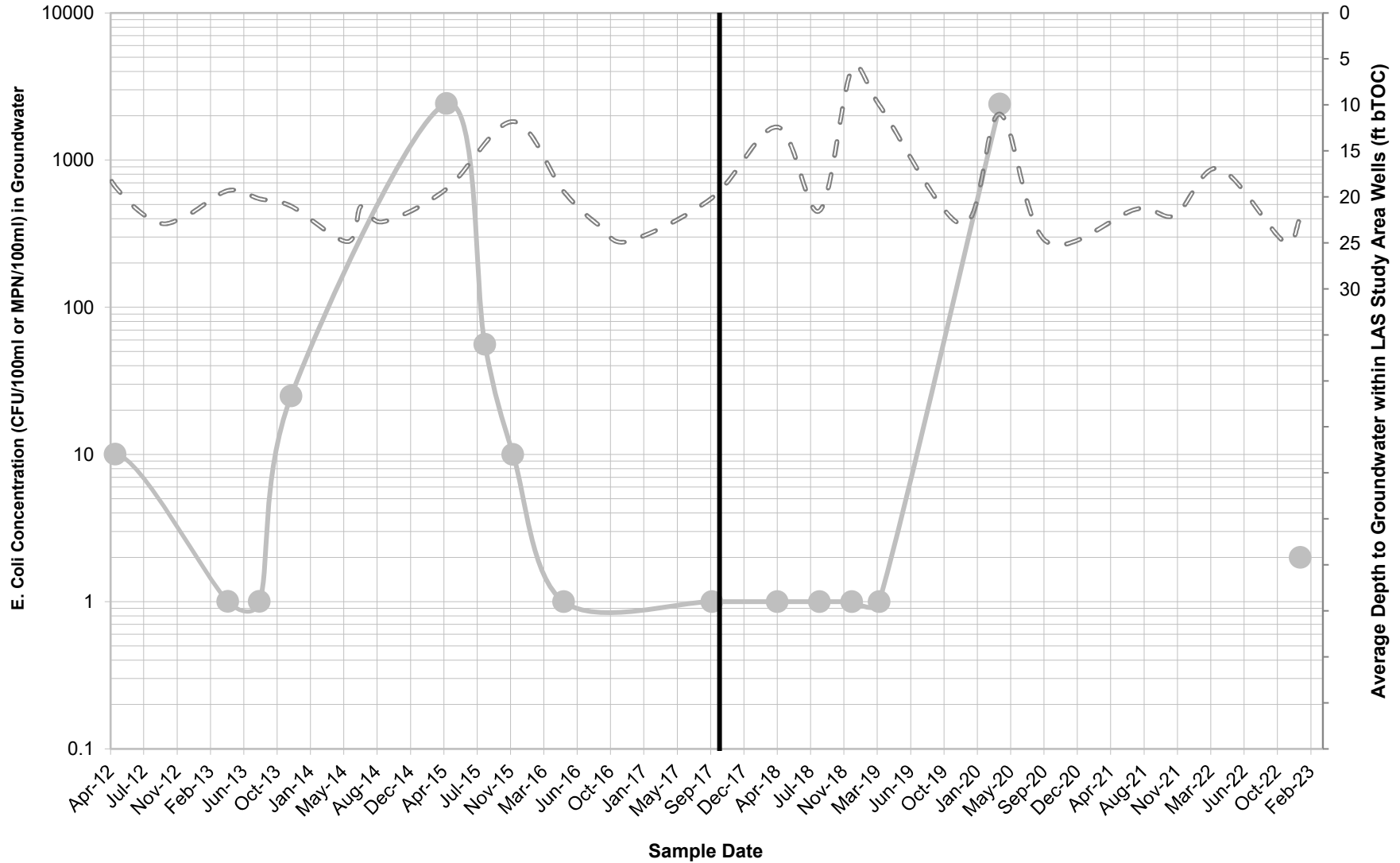
- MW-4 (Side-Gradient)
- Average DTW
- PWRF Start-up



Eula (N_GW)

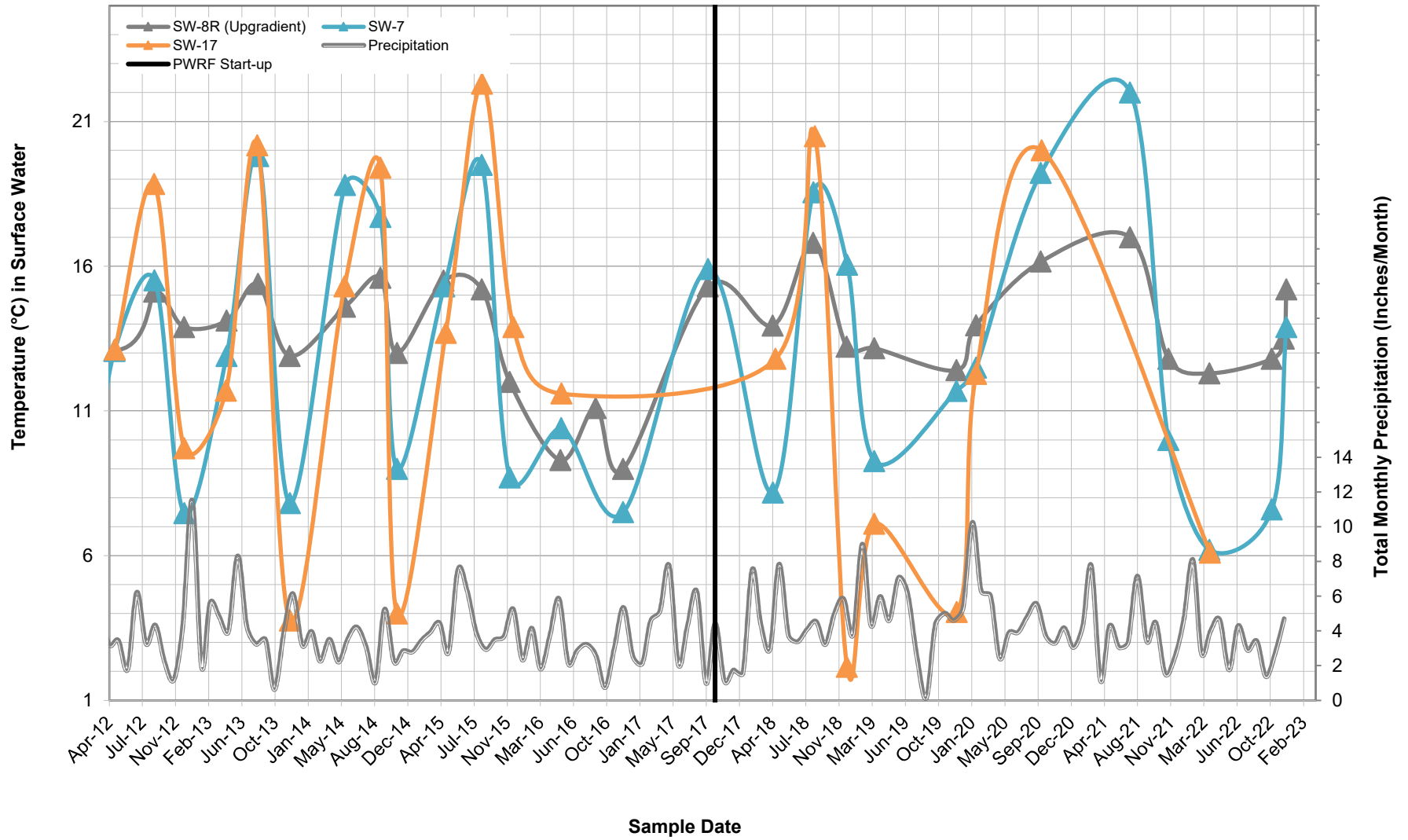
Eula Study Area Groundwater *E. Coli* Concentrations

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



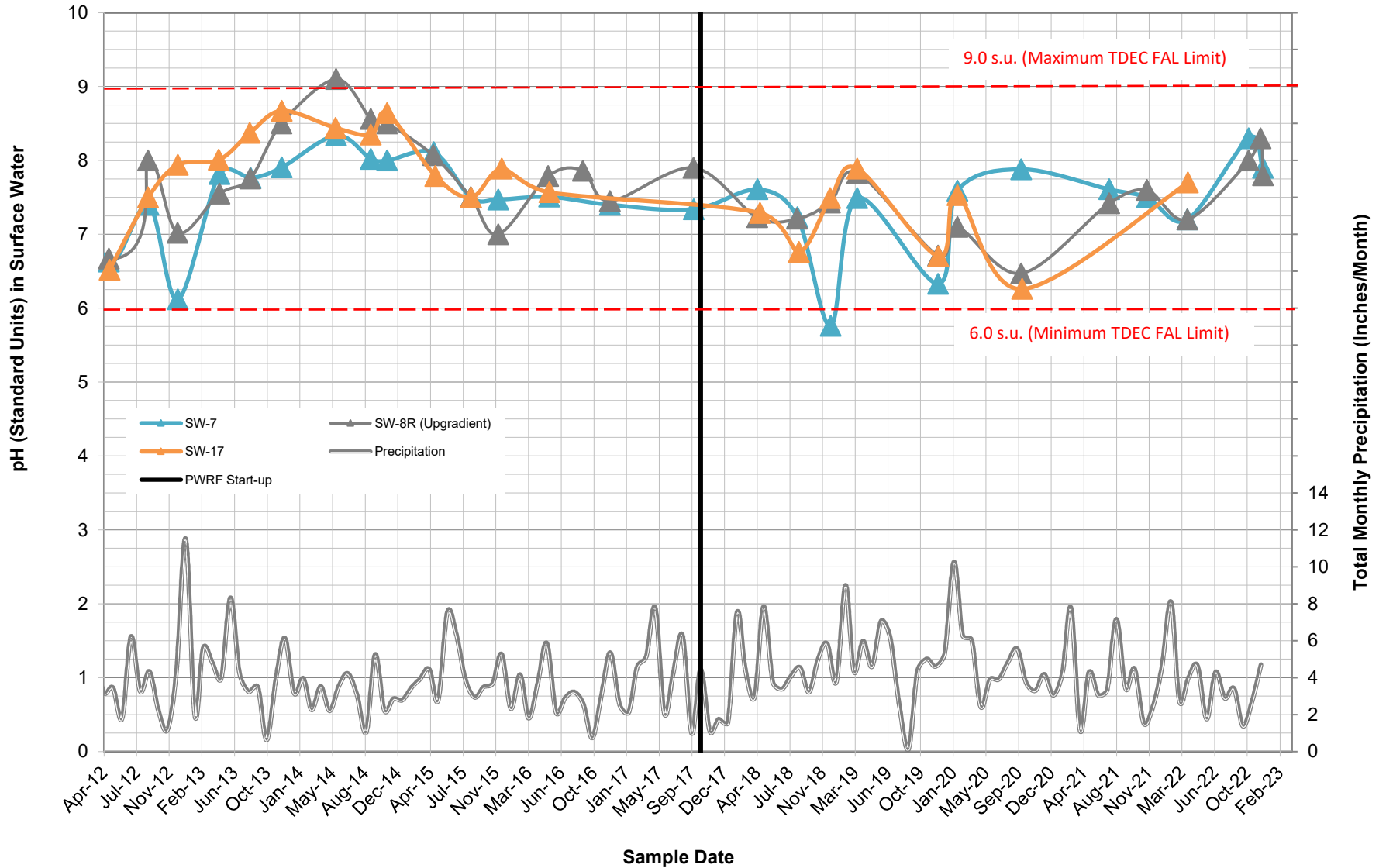
Eula (Ecoli_GW)

L/C Smelcer Study Area Surface Water Temperature Readings

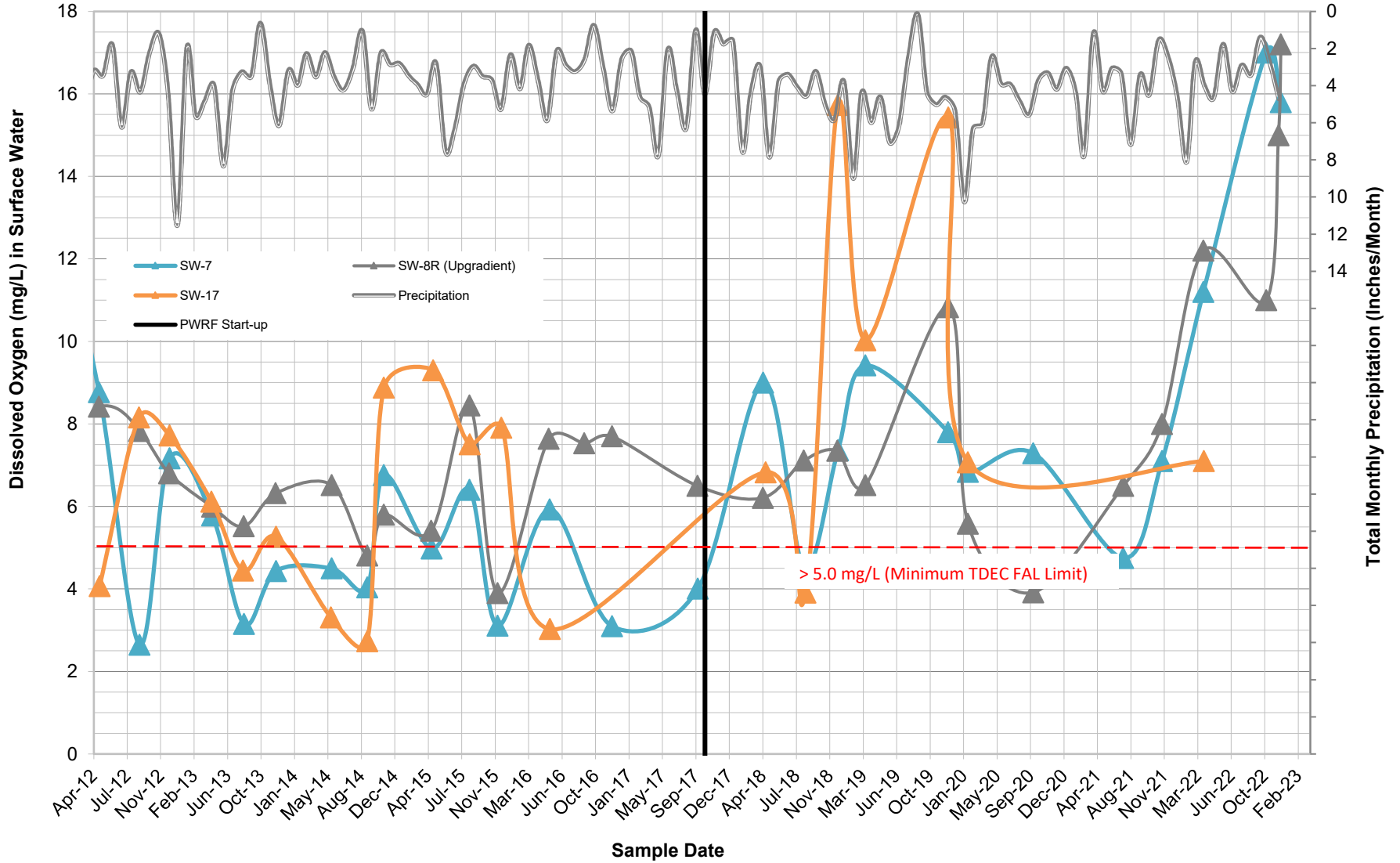


L. C Smelcer (Temp_SW)

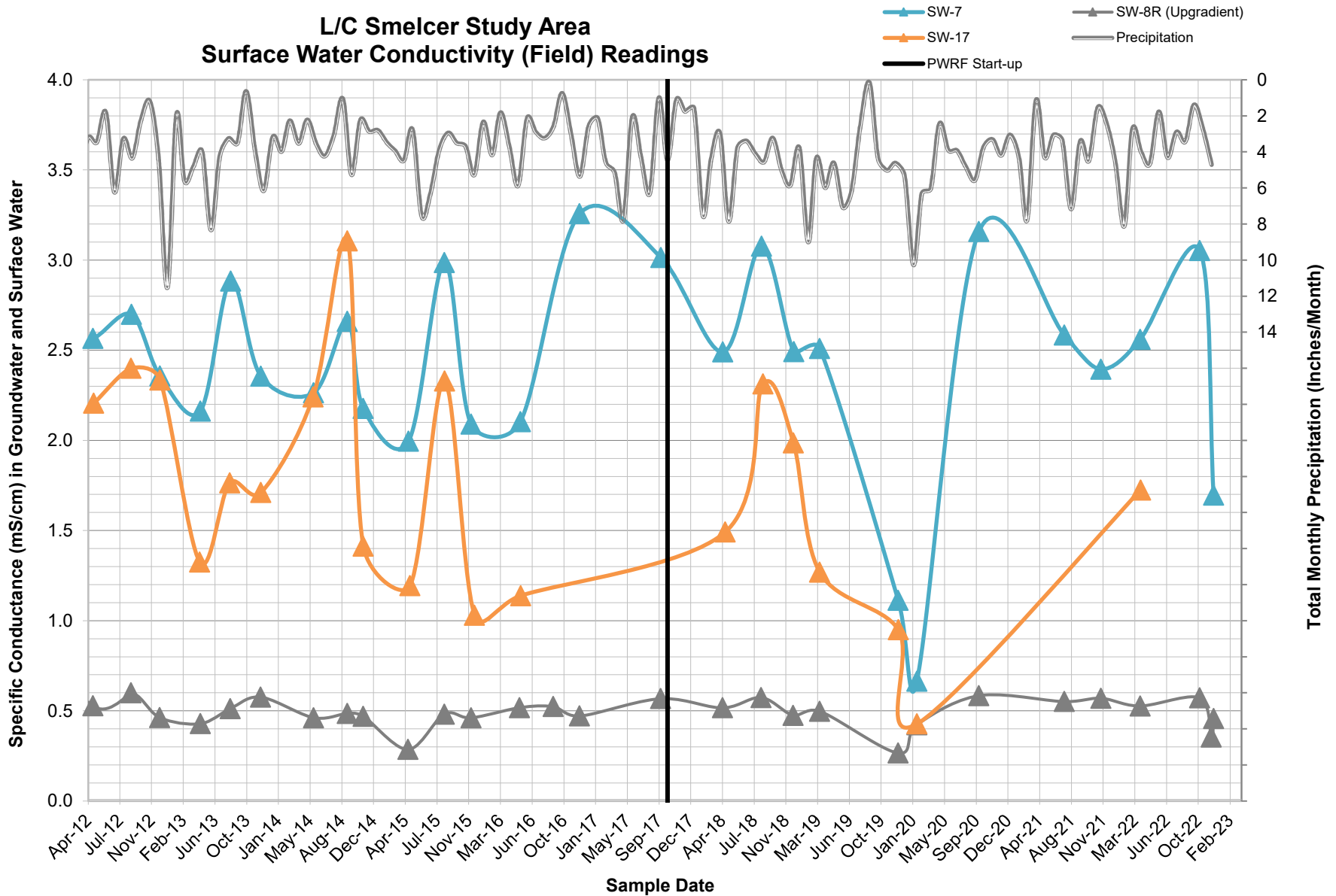
L/C Smelcer Study Area Surface Water pH (Field) Readings



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

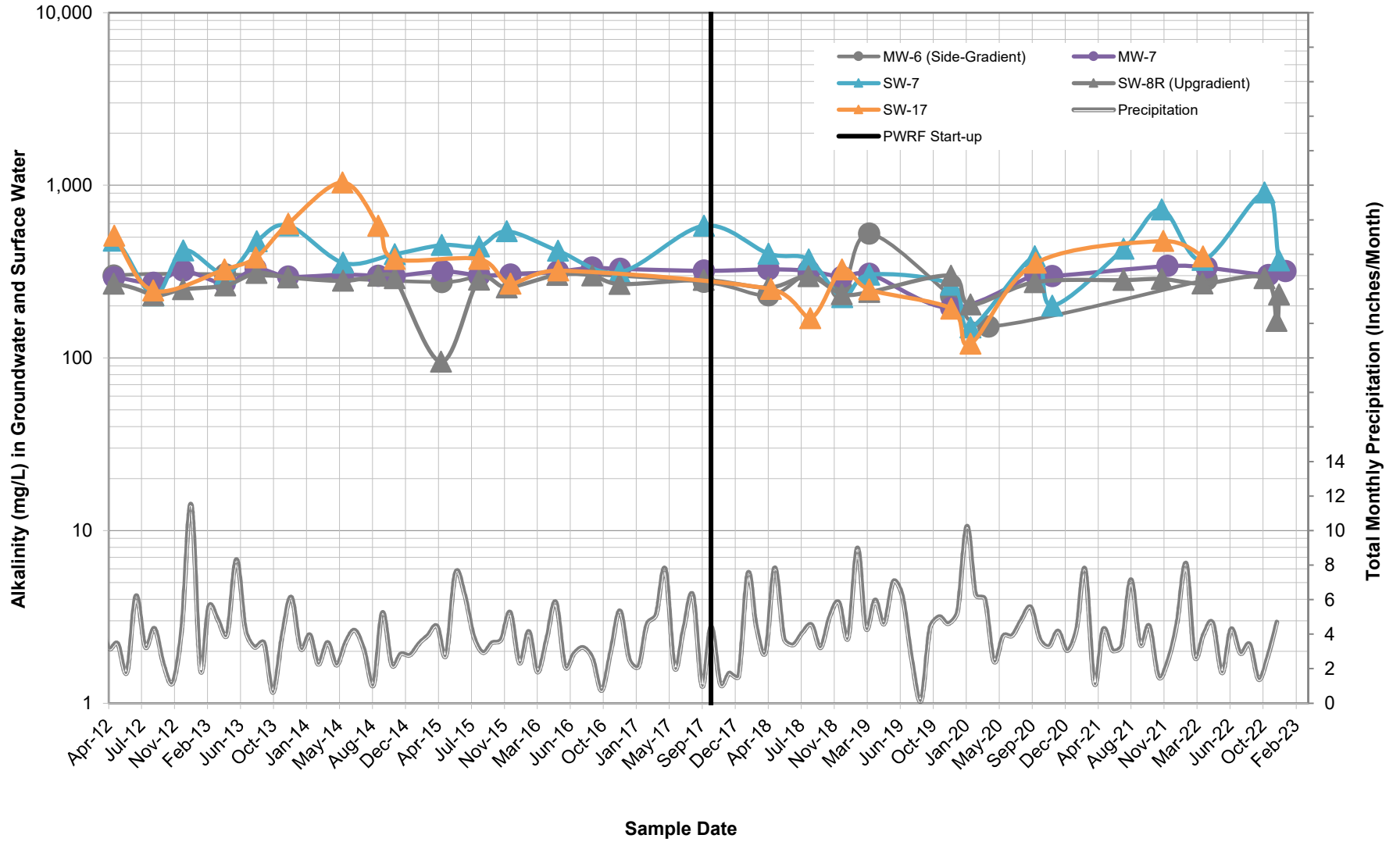


L/C Smelcer Study Area Surface Water Conductivity (Field) Readings



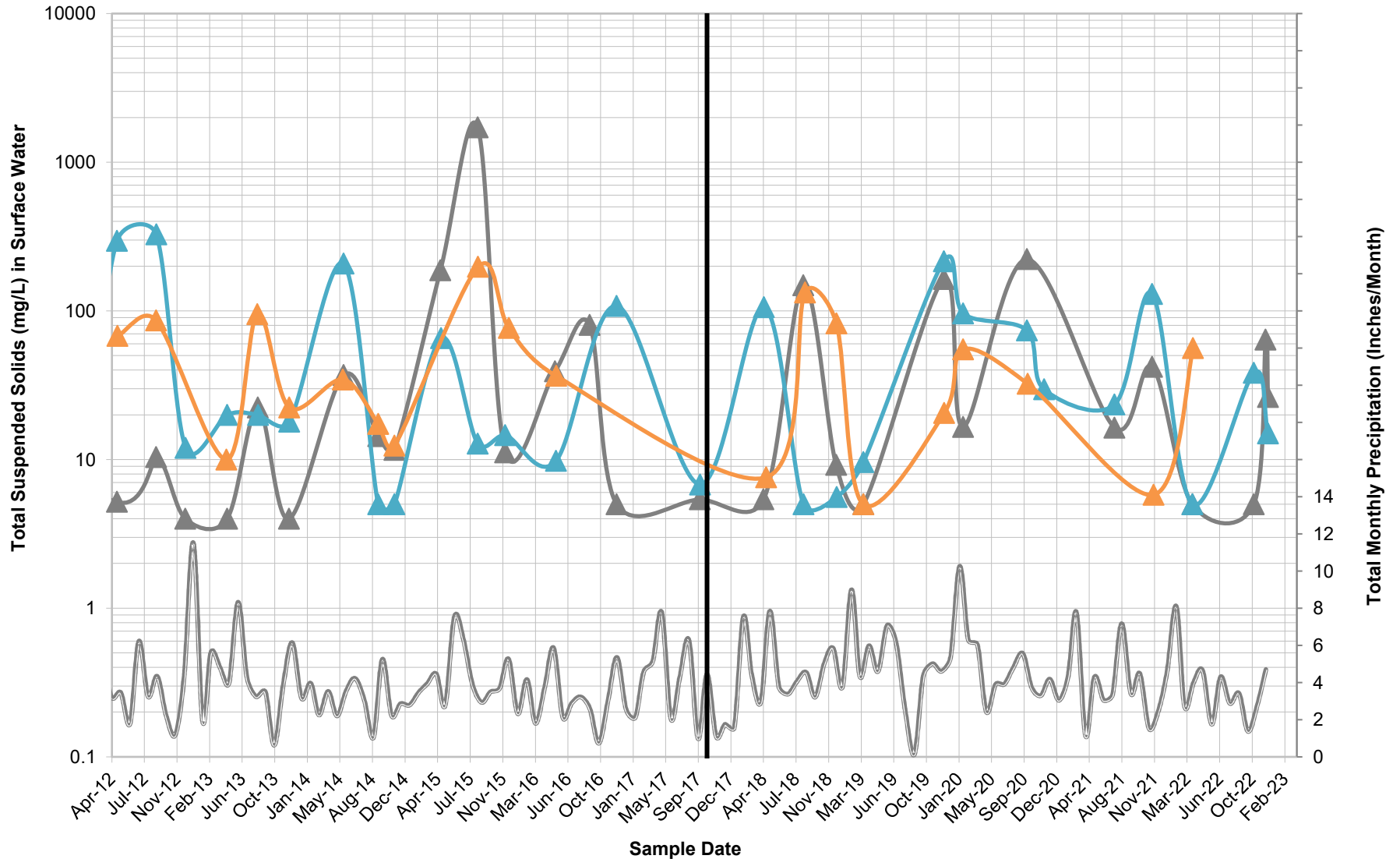
L. C Smelcer (Cond_SW)

L/C Smelcer Study Area Alkalinity Concentrations



L/C Smelcer Study Area Surface Water TSS Concentrations

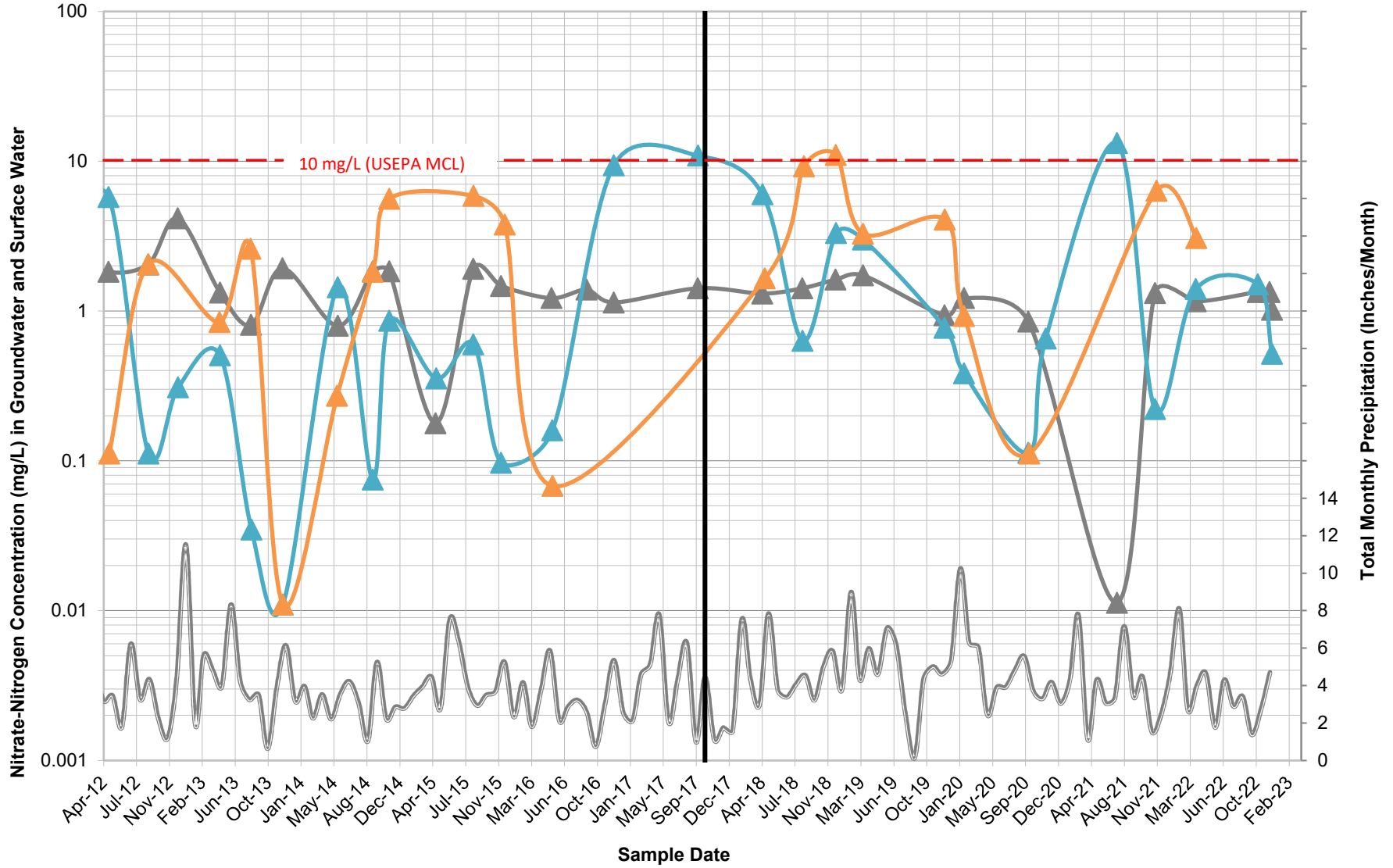
▲ SW-8R (Upgradient) ▲ SW-7 ▲ SW-17
— Precipitation — PWRF Start-up



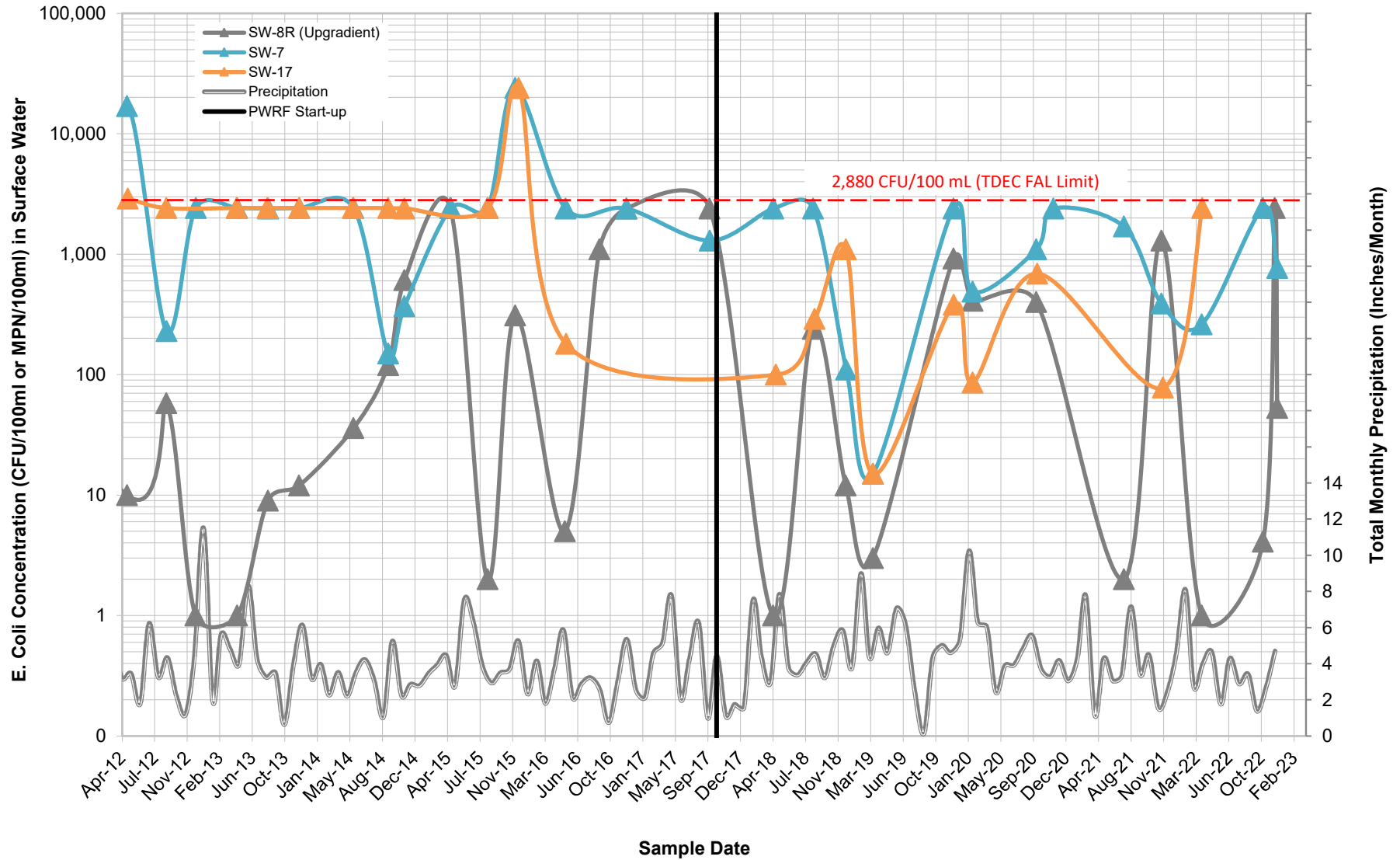
L. C Smelcer (TSS_SW)

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

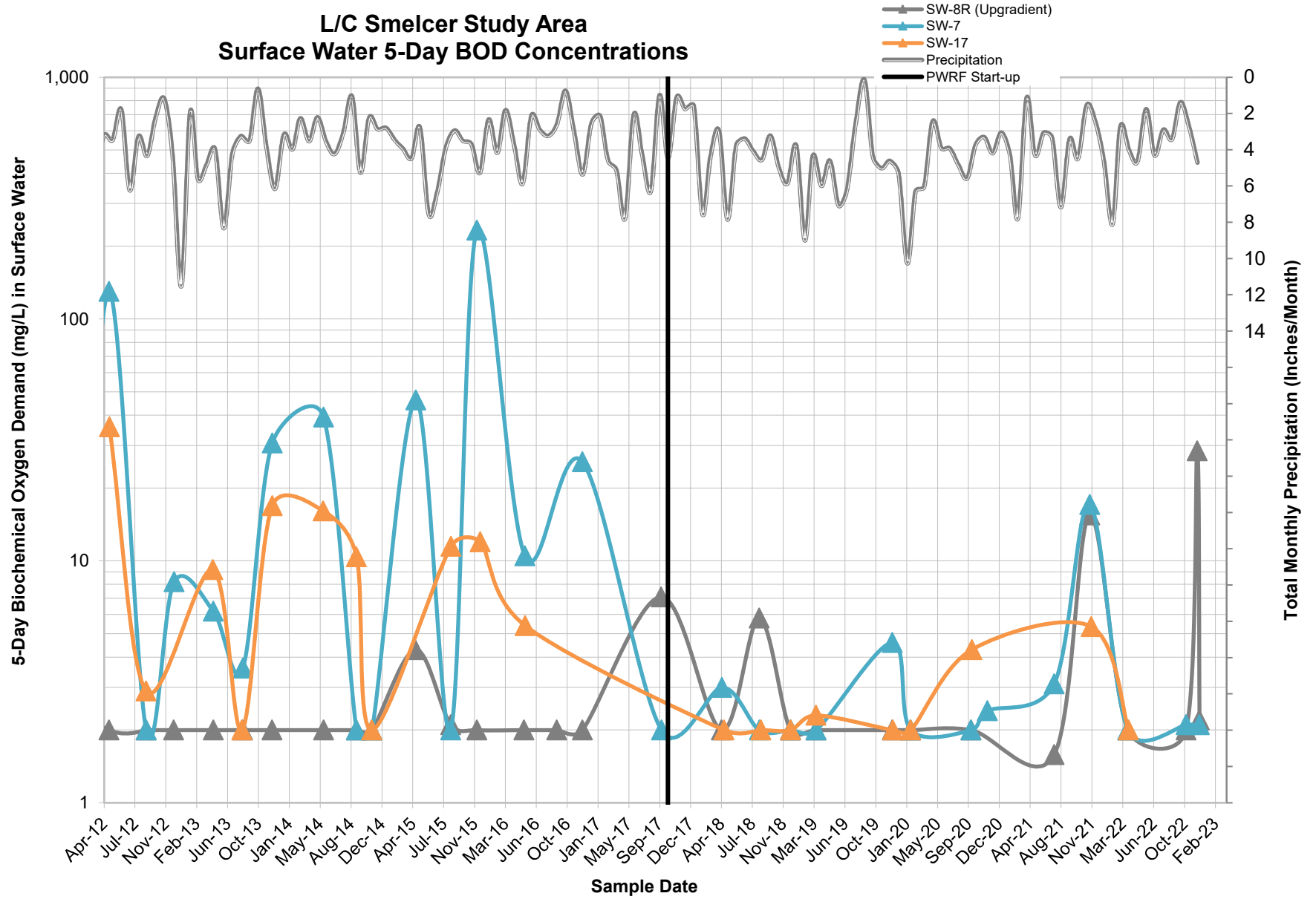
- ▲ SW-8R (Upgradient)
- ▲ SW-17
- ▲ SW-7
- Precipitation
- PWRF Start-up



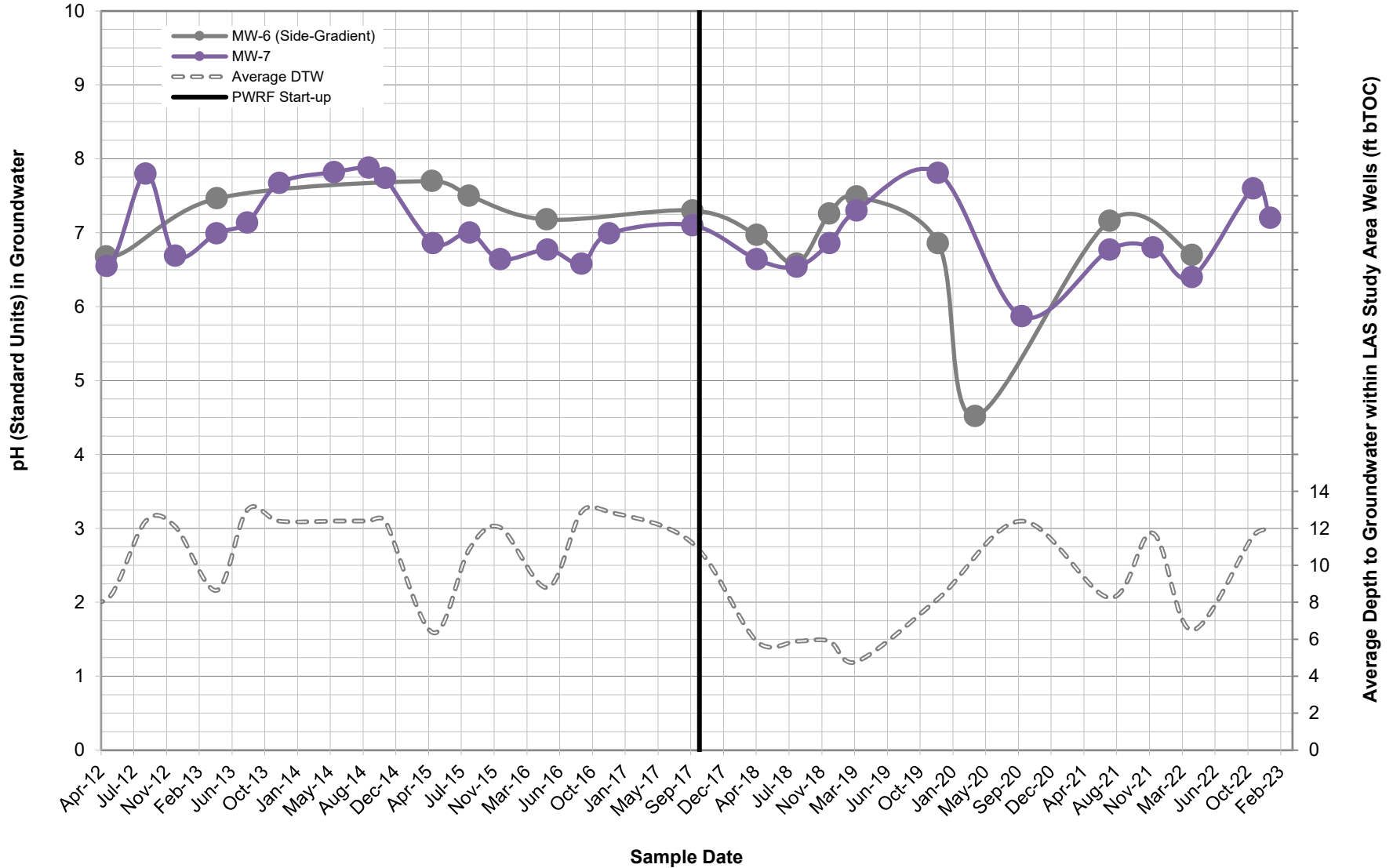
L/C Smelcer Study Area Surface Water *E. Coli* Concentrations



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

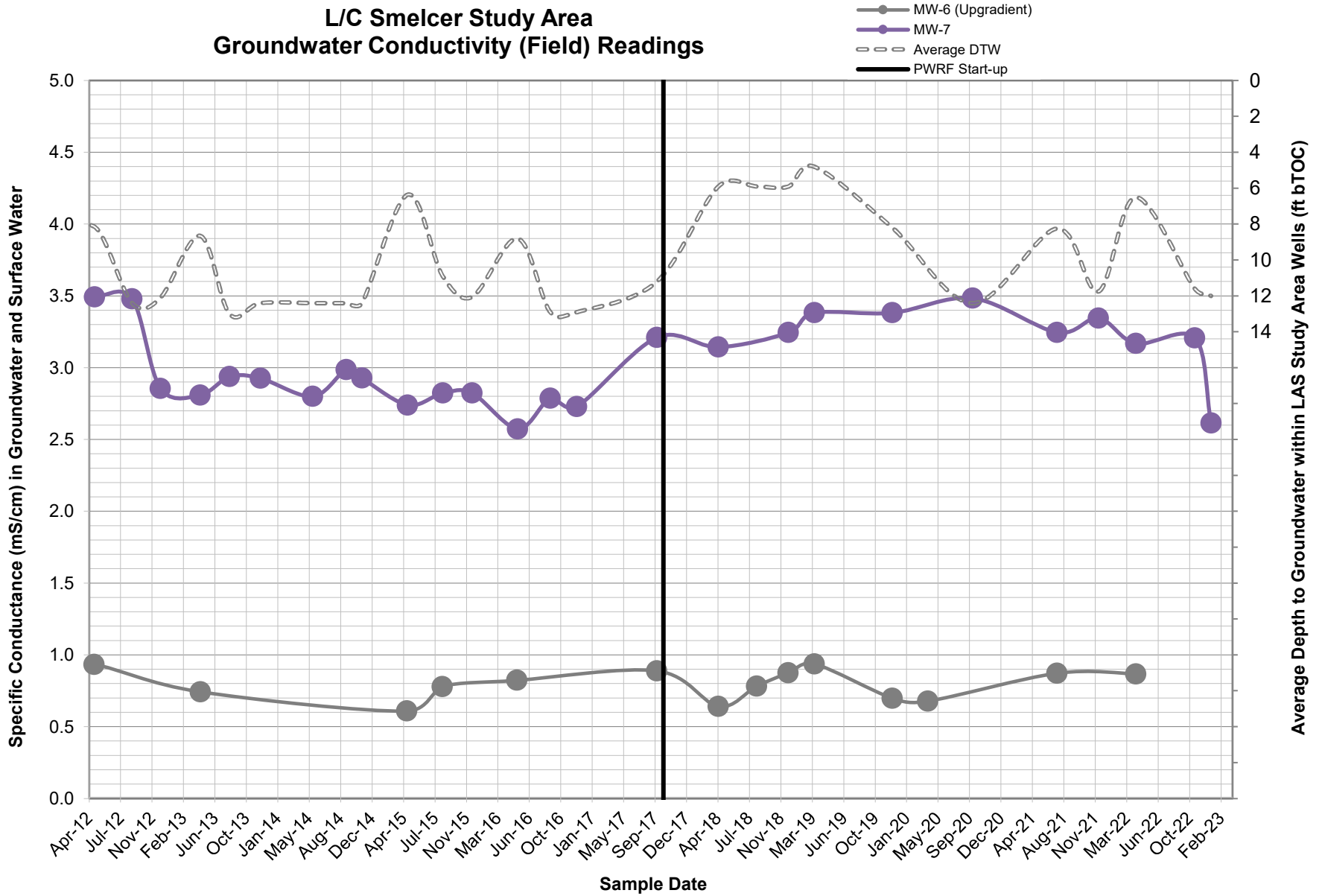


L/C Smelcer Study Area Groundwater pH (Field) Readings

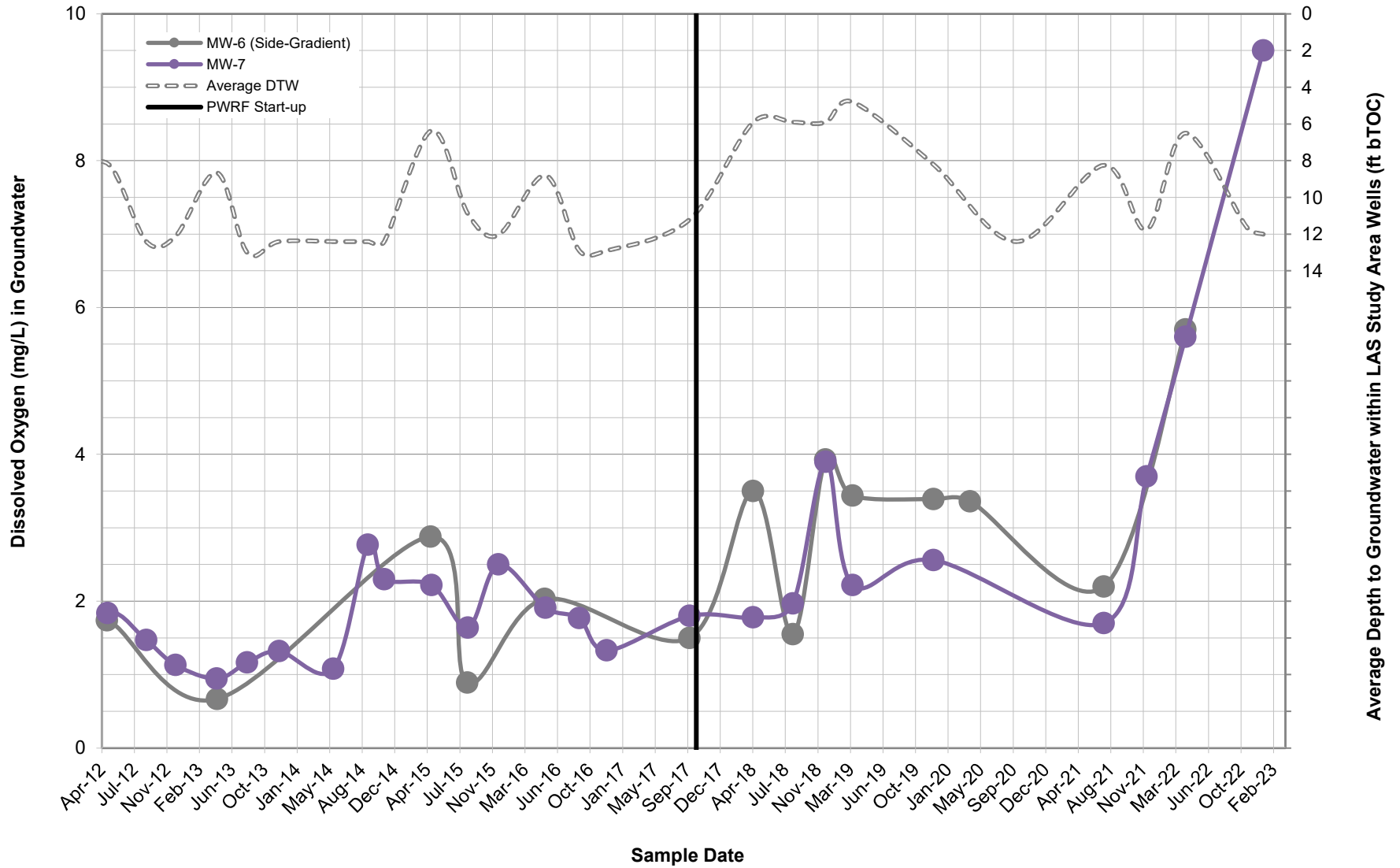


L. C Smelcer (pH_GW)

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



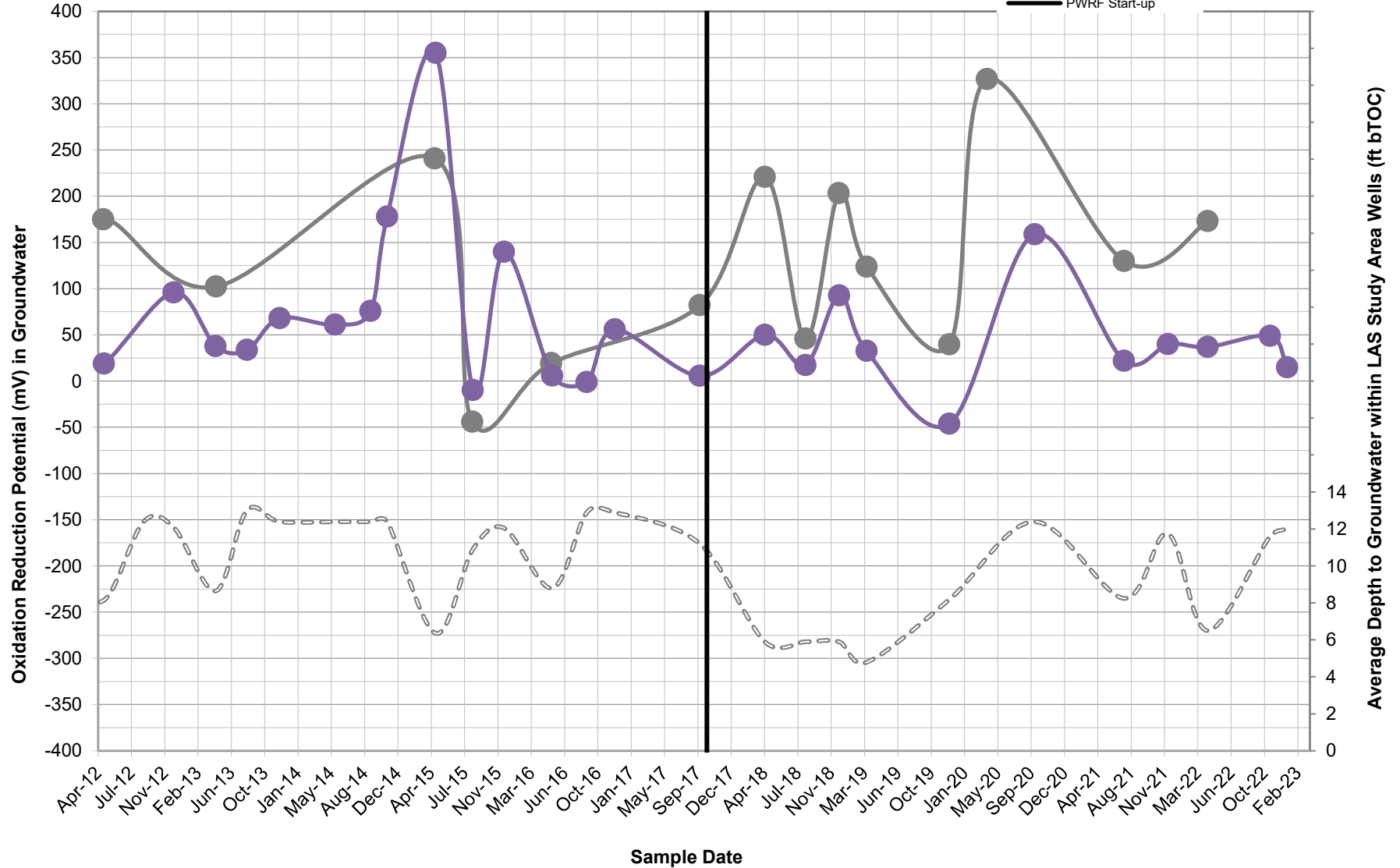
L/C Smelcer Study Area Groundwater DO (Field) Readings



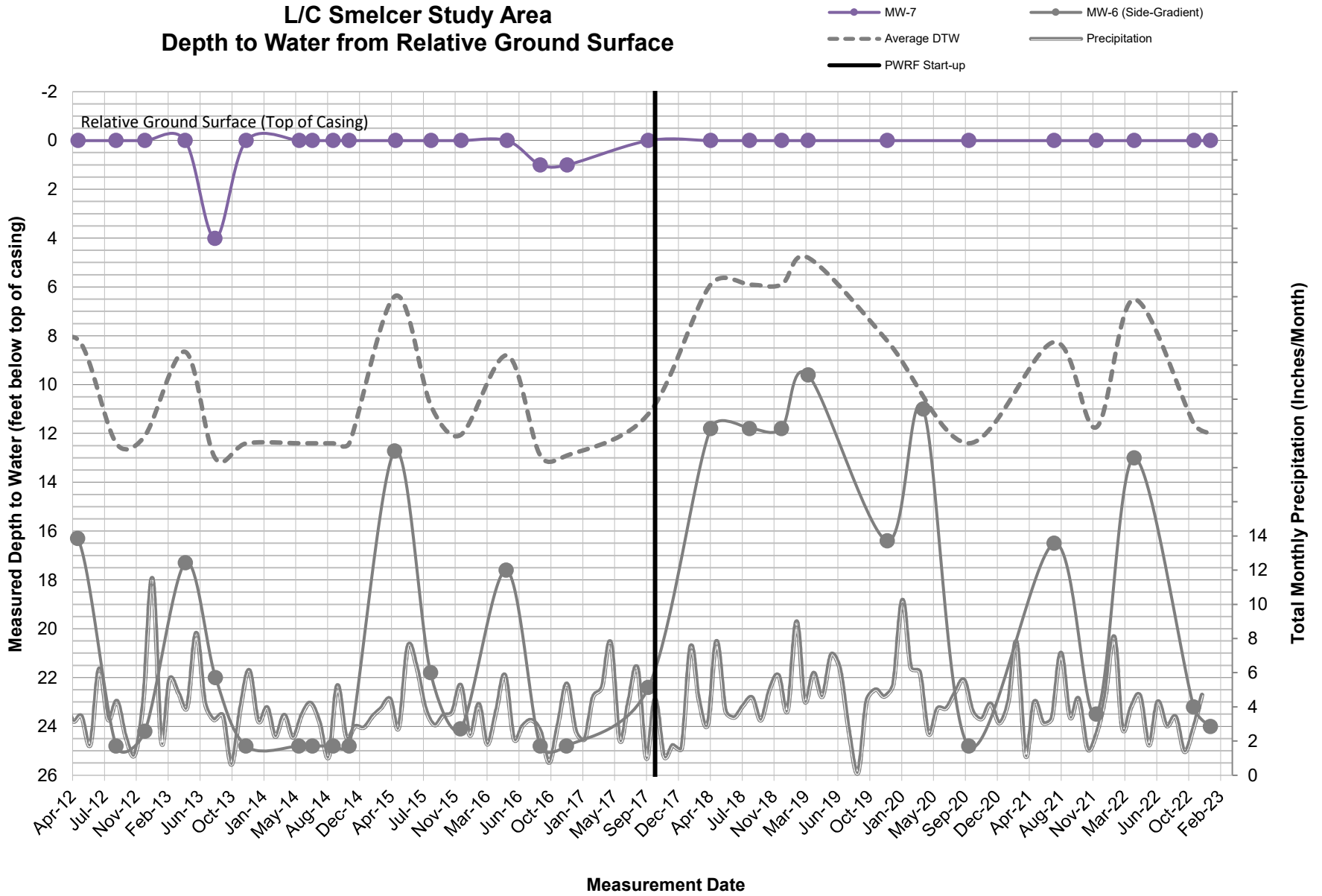
L. C Smelcer (DO_GW)

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

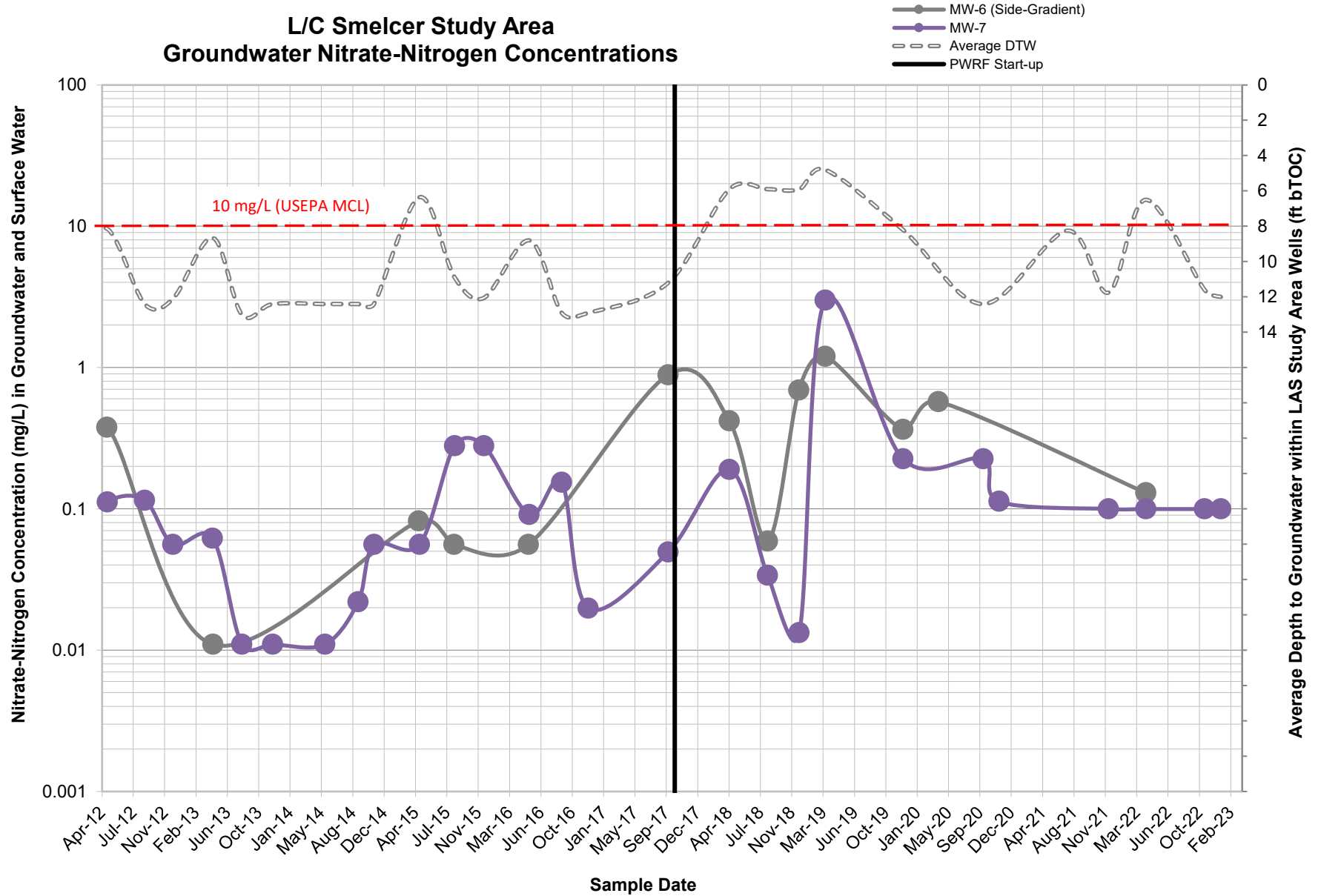
- MW-6 (Side-Gradient)
- MW-7
- - - Average DTW
- PWRF Start-up



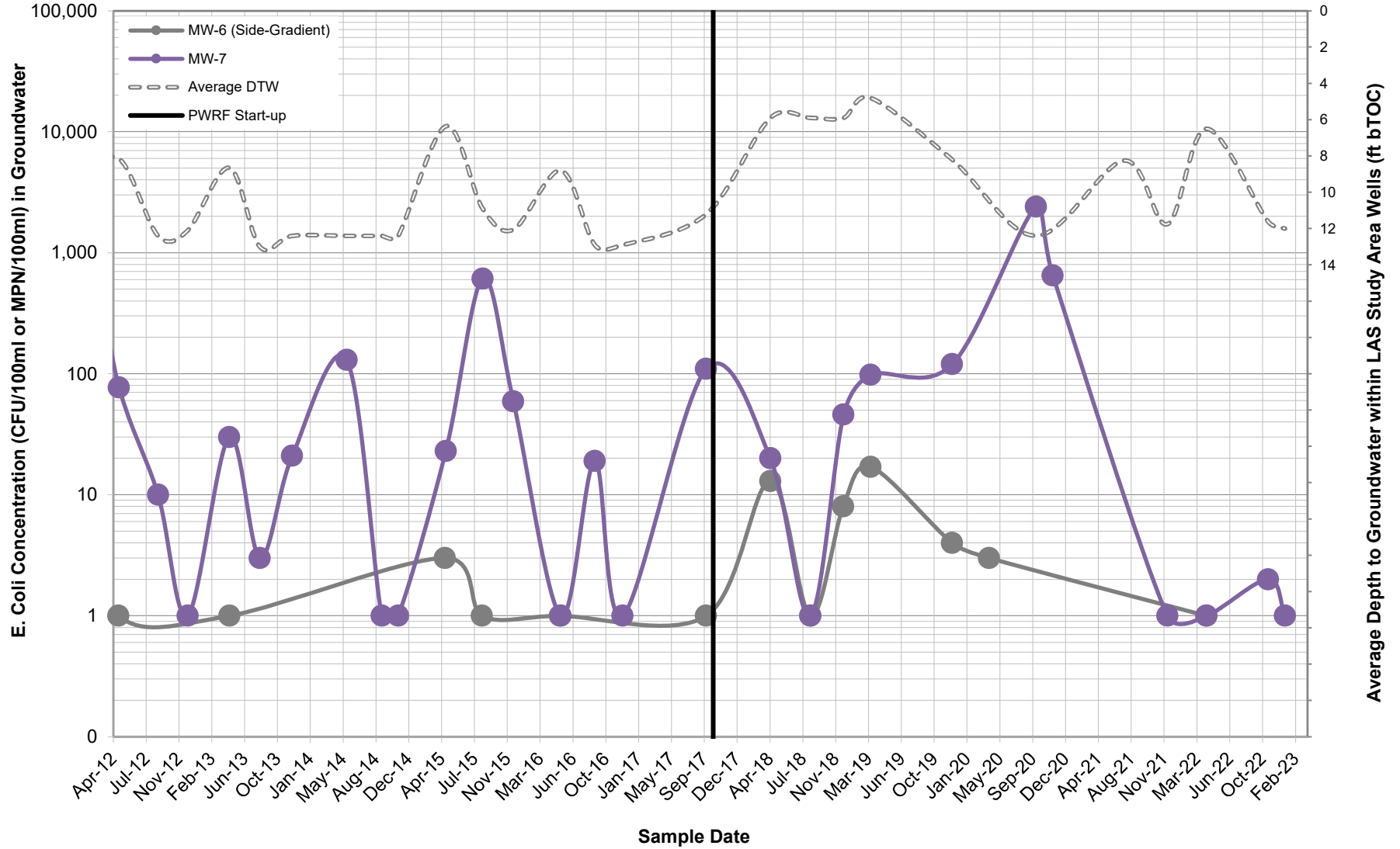
L/C Smelcer Study Area Depth to Water from Relative Ground Surface



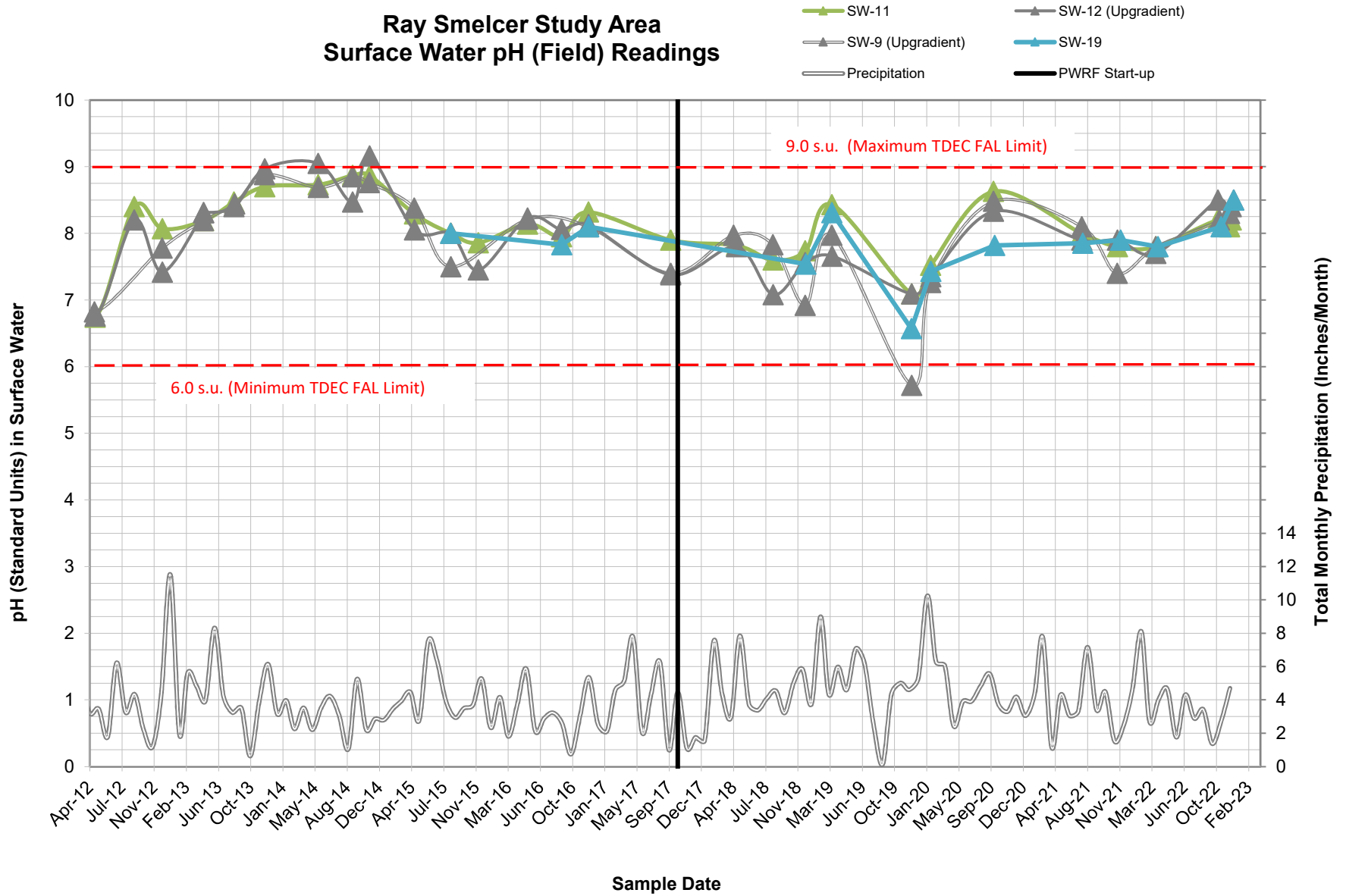
L/C Smelcer Study Area Groundwater Nitrate-Nitrogen Concentrations



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

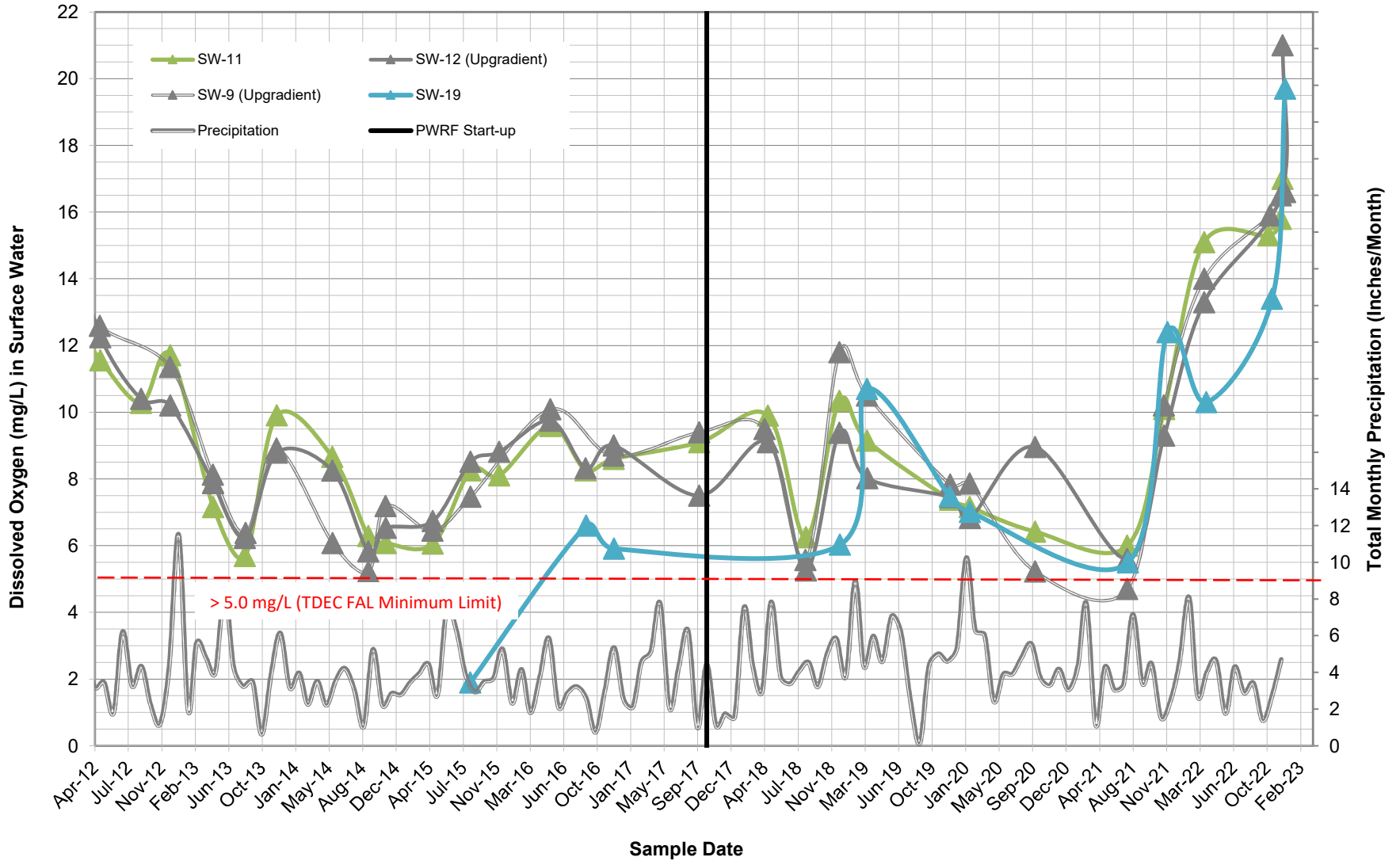


Ray Smelcer Study Area Surface Water pH (Field) Readings

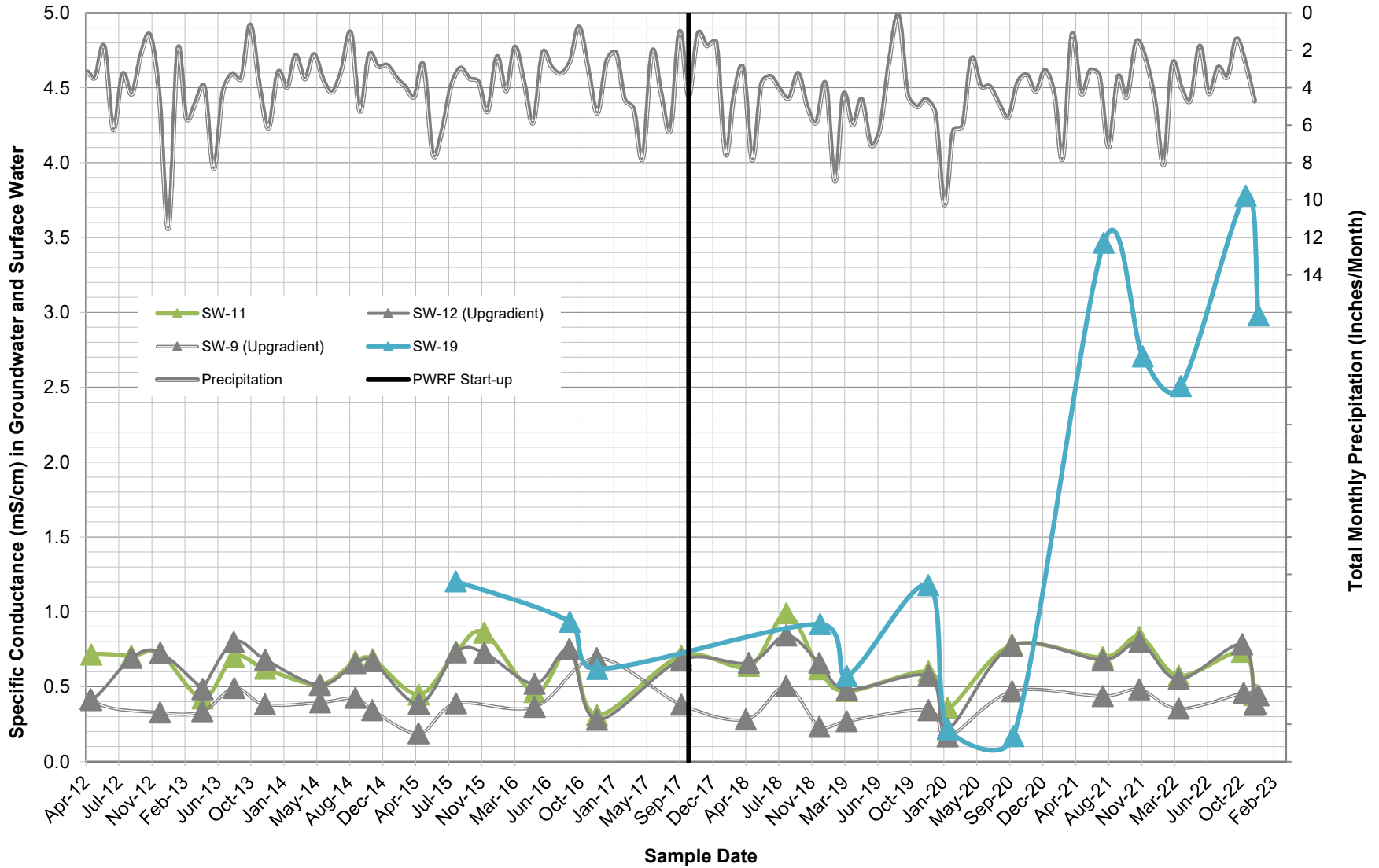


R. Smelcer (pH_SW)

Ray Smelcer Study Area Surface Water DO (Field) Readings

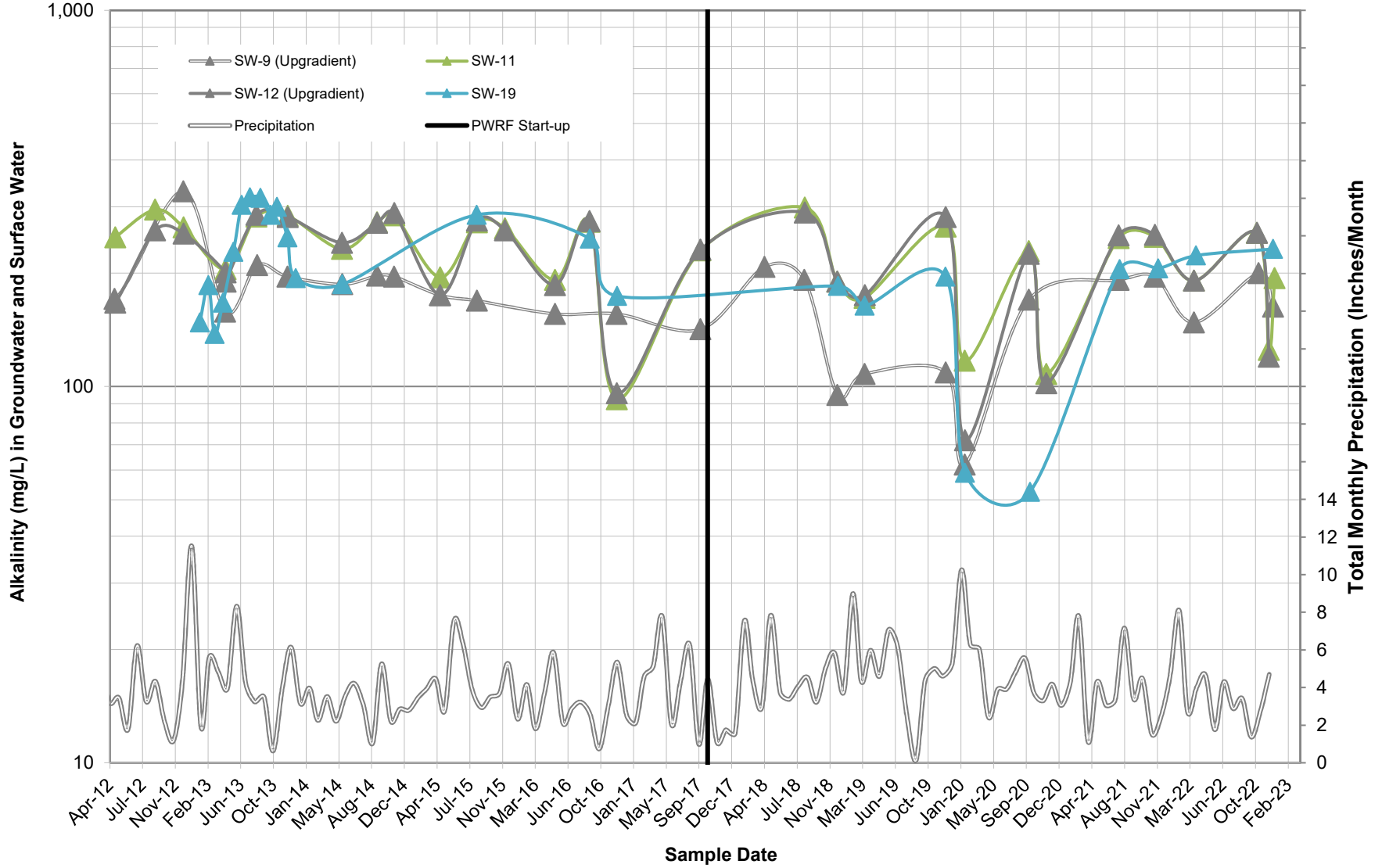


Ray Smelcer Study Area Surface Water Conductivity (Field) Readings

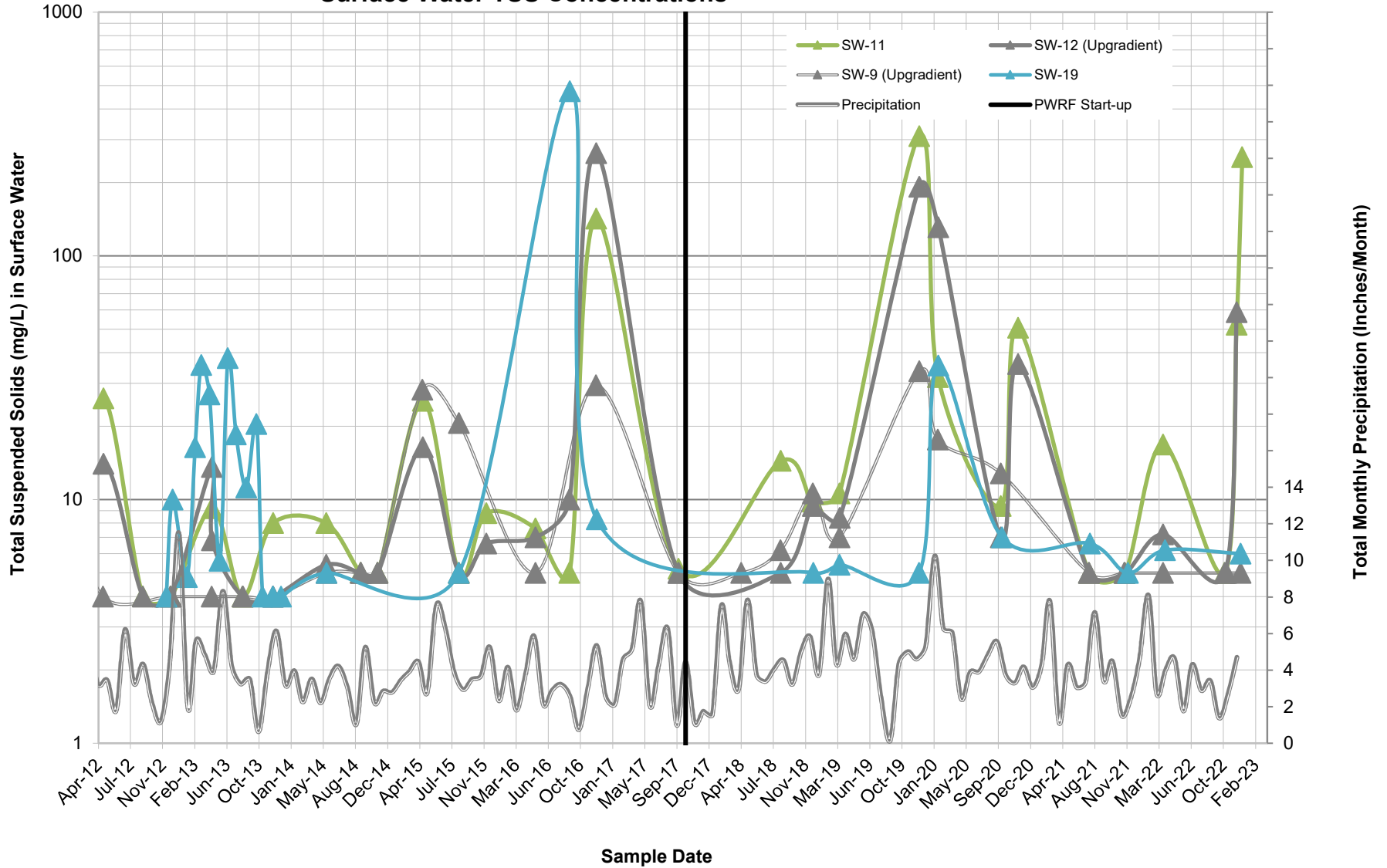


R. Smelcer (Cond_SW)

Ray Smelcer Study Area Alkalinity Concentrations

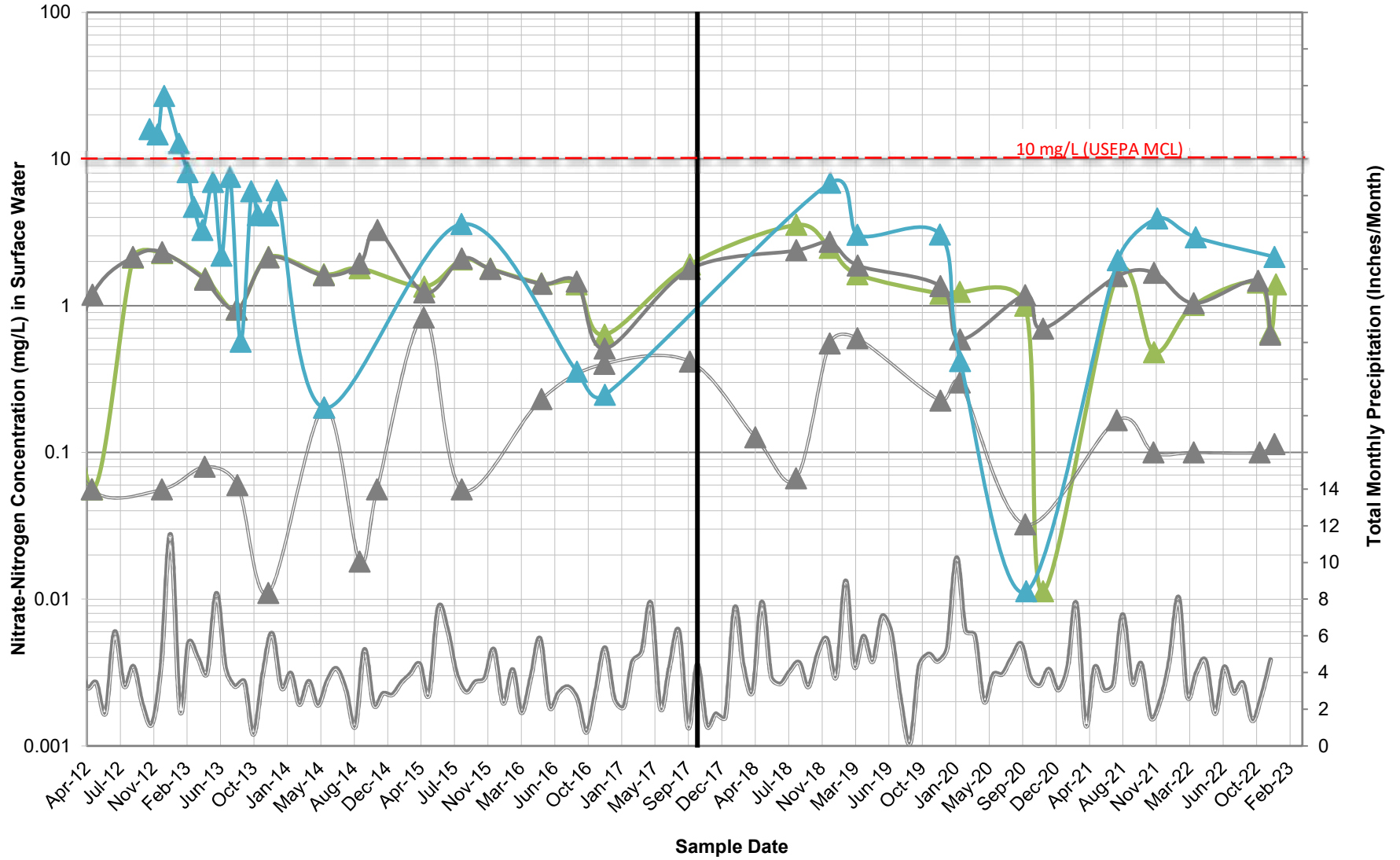


Ray Smelcer Study Area Surface Water TSS Concentrations



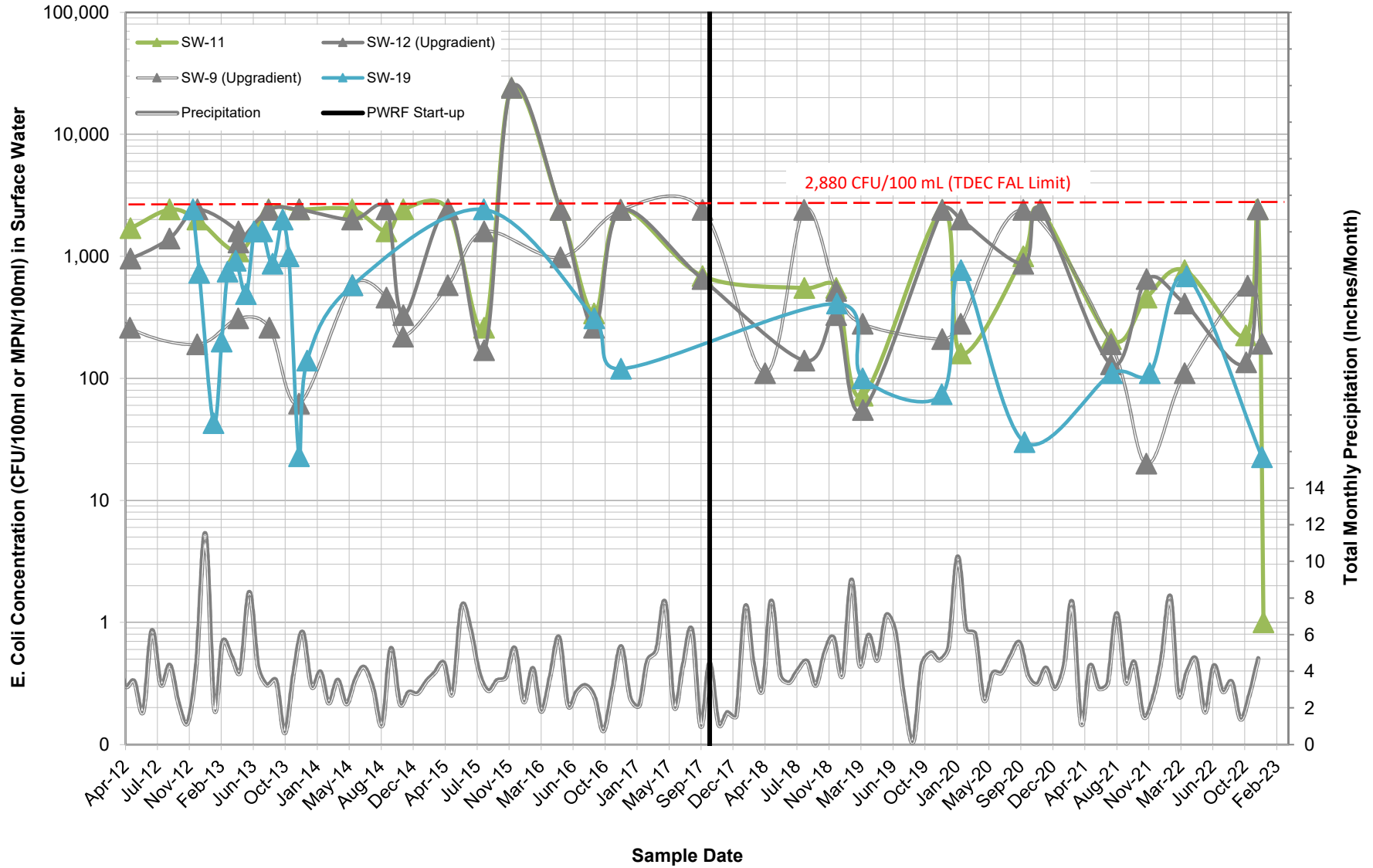
Ray Smelcer Study Area Surface Water Nitrate-Nitrogen Concentrations

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



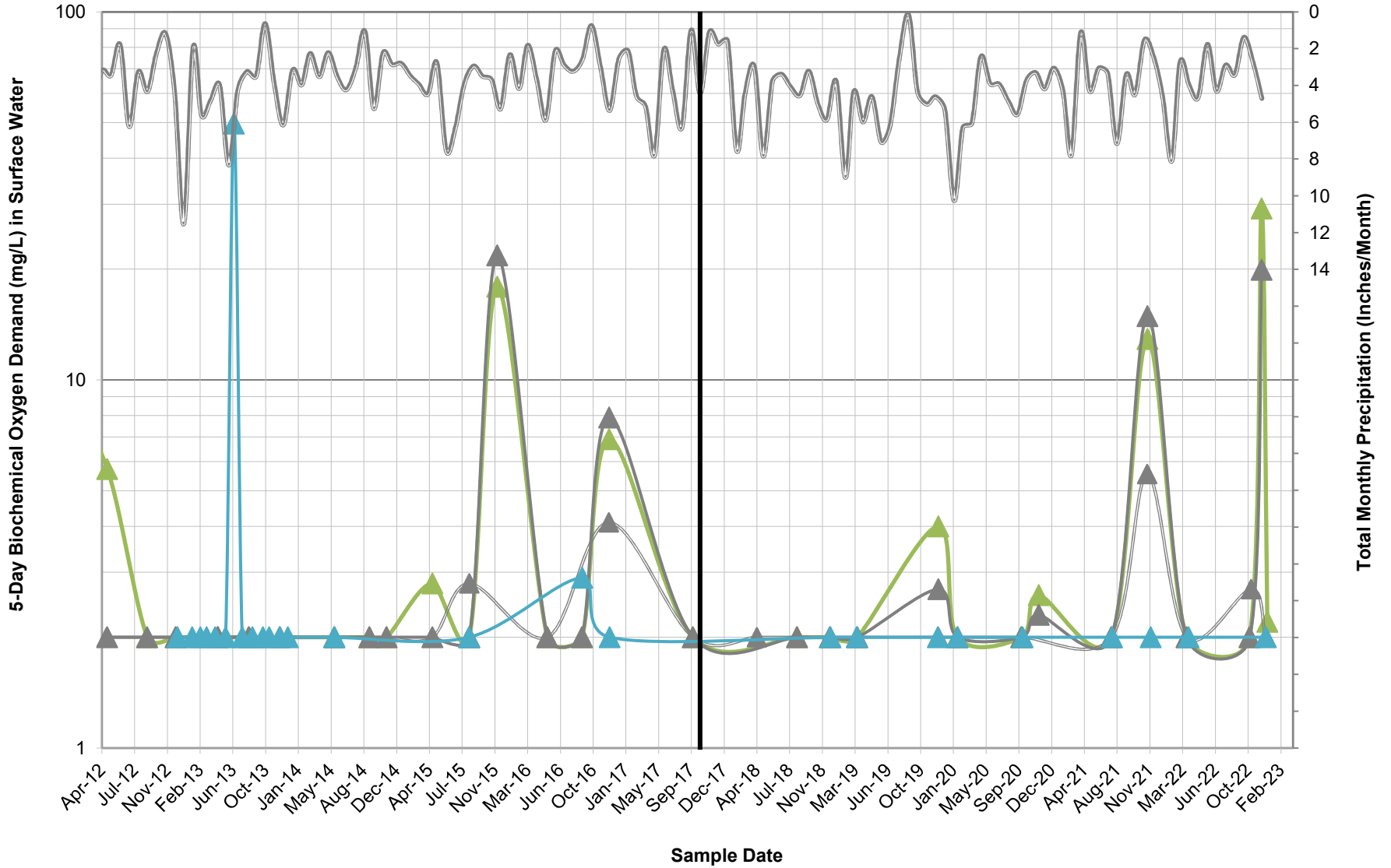
R. Smelcer (N_SW)

Ray Smelcer Study Area Surface Water E.Coli Concentrations

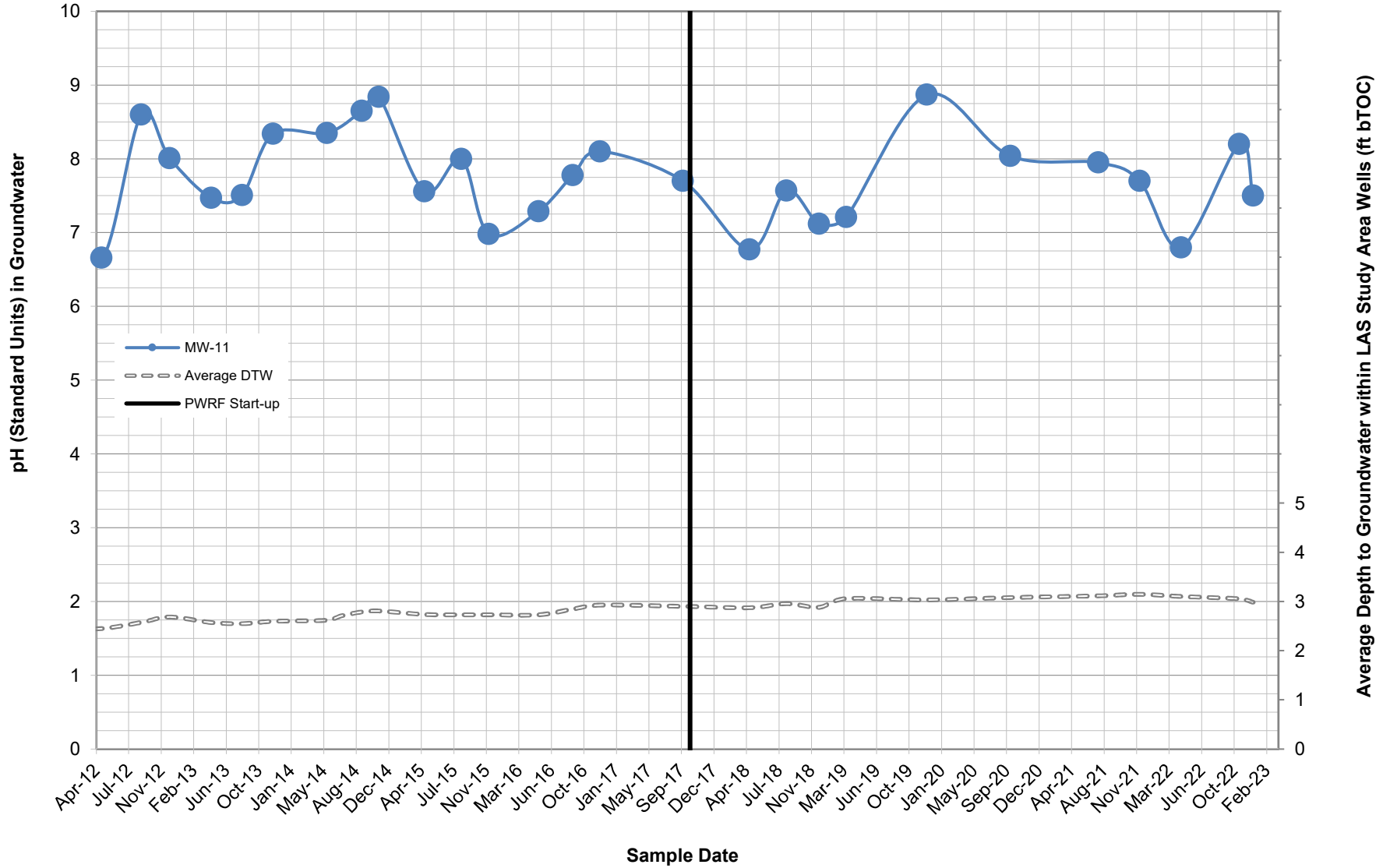


Ray Smelcer Study Area Surface Water 5-Day BOD Concentrations

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

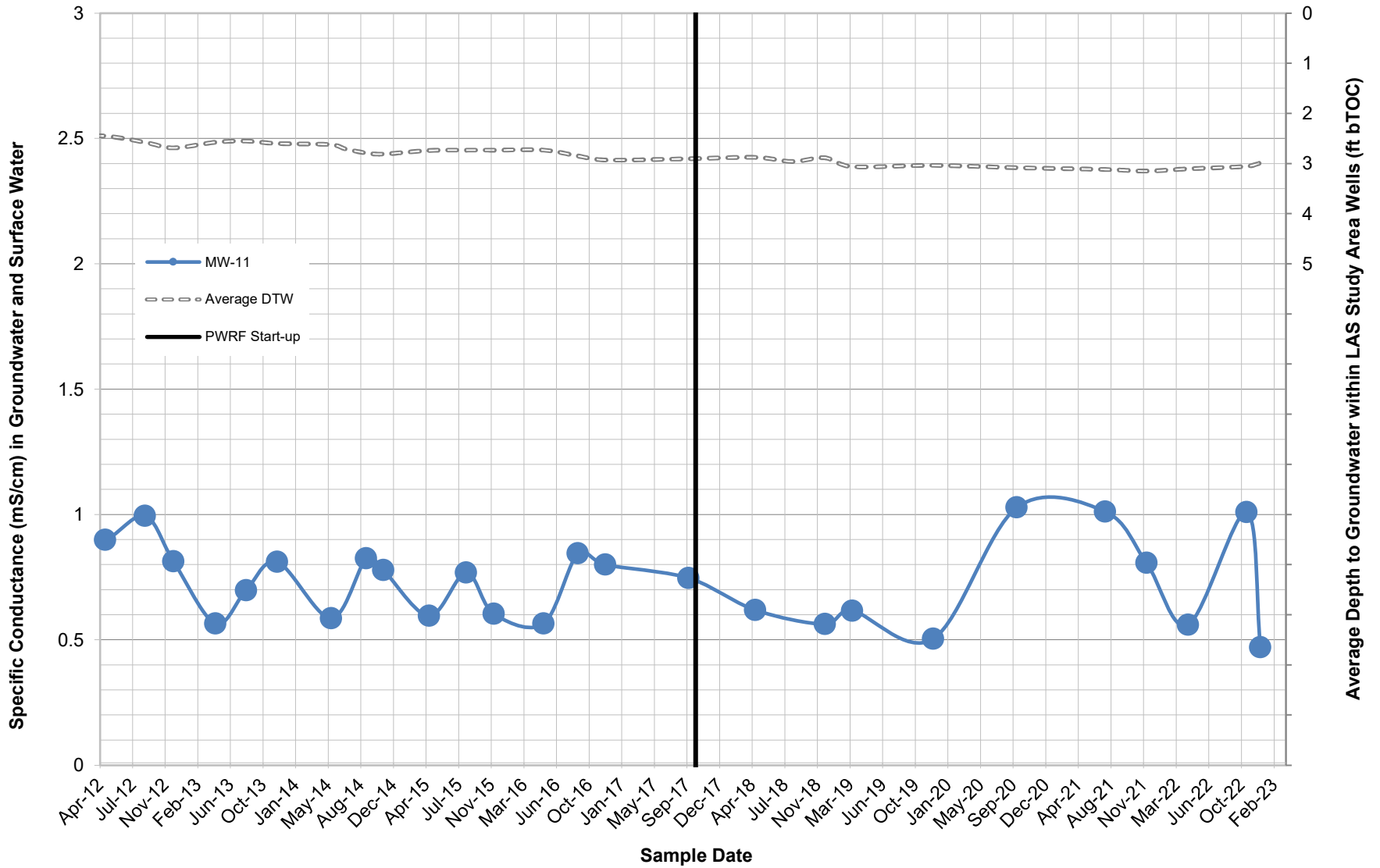


Ray Smelcer Study Area Groundwater pH (Field) Readings

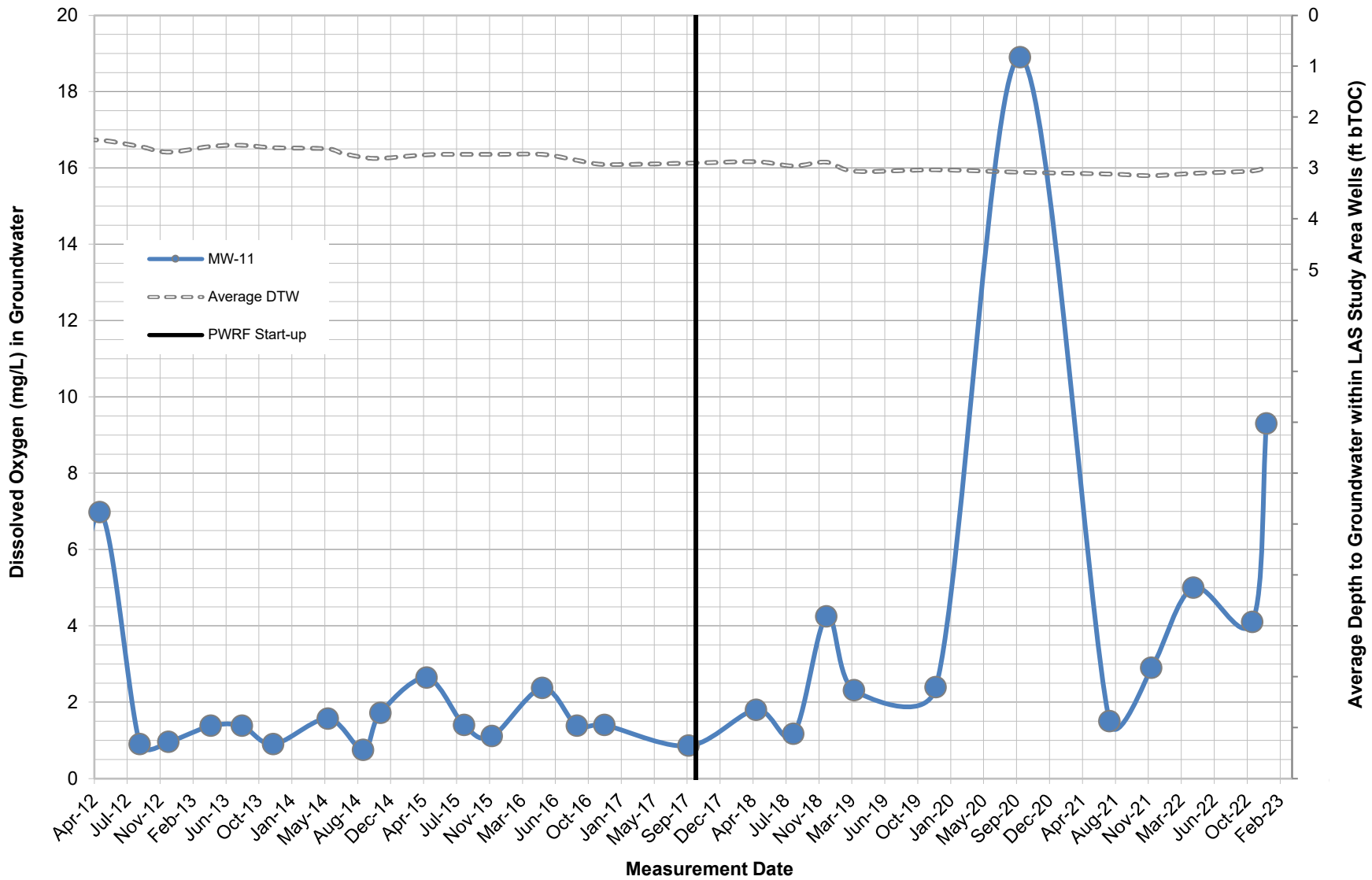


R. Smelcer (pH_GW)

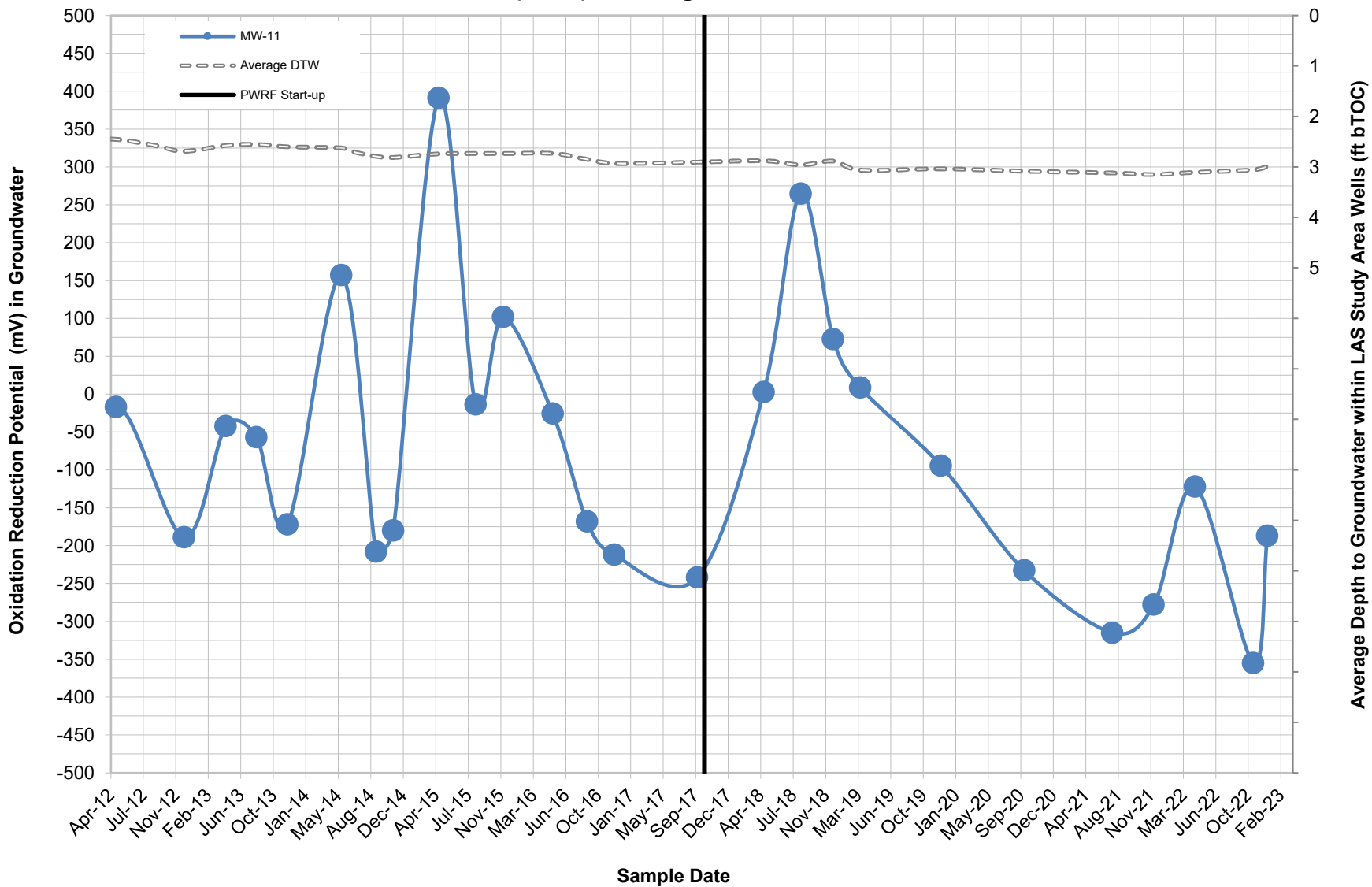
Ray Smelcer Study Area Groundwater Conductivity (Field) Readings



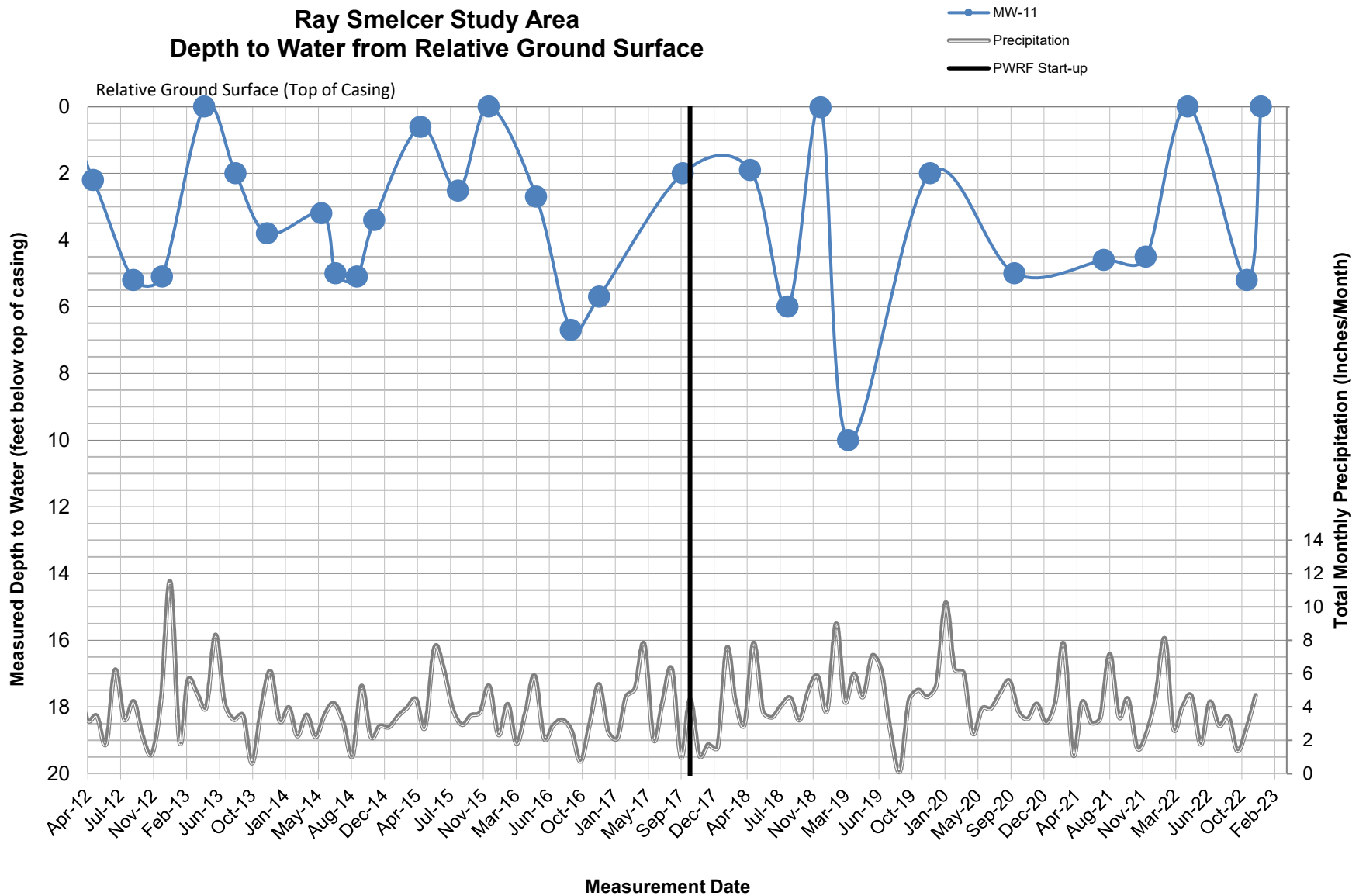
Ray Smelcer Study Area Groundwater DO (Field) Readings



Ray Smelcer Study Area Groundwater ORP (Field) Readings



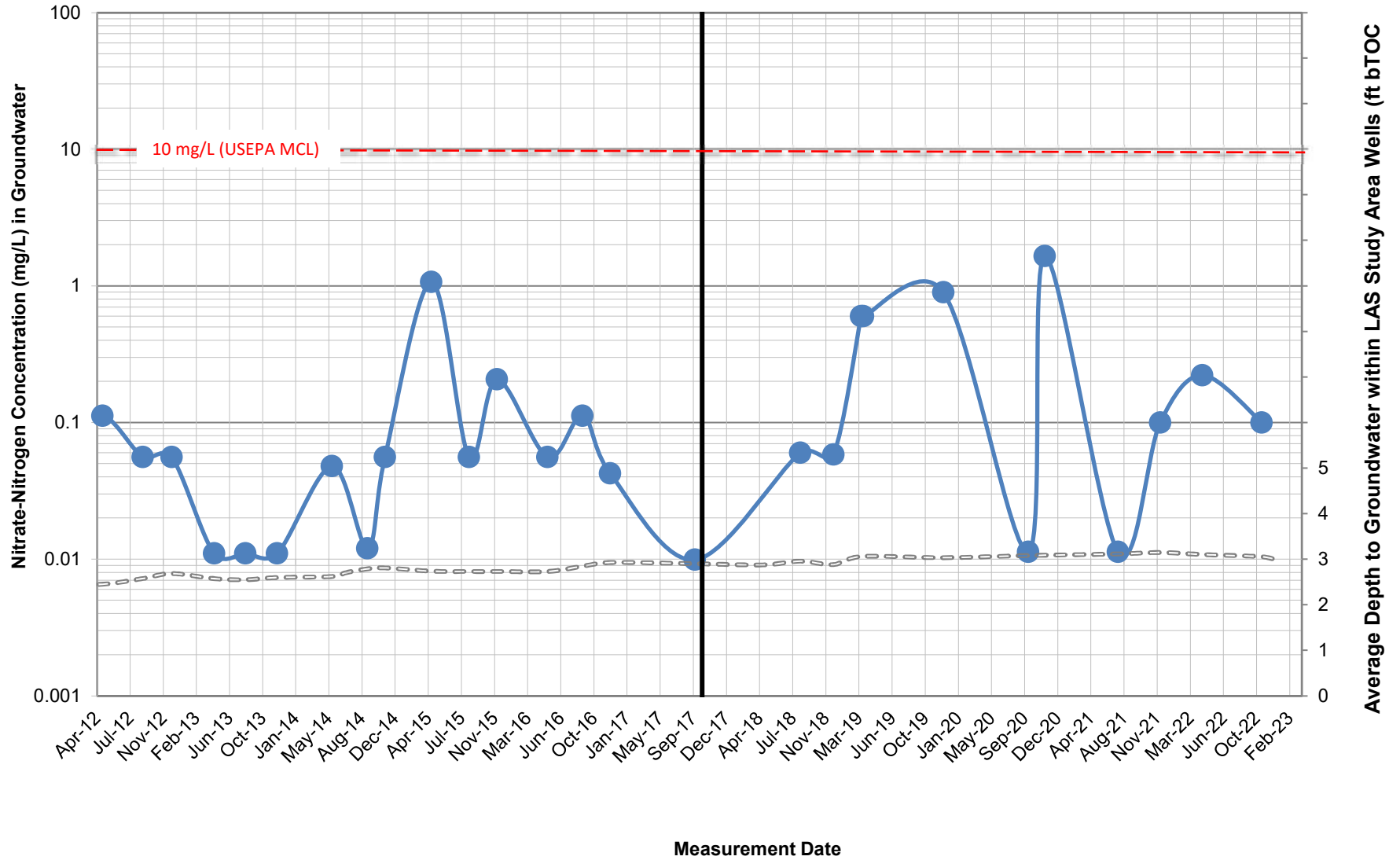
Ray Smelcer Study Area Depth to Water from Relative Ground Surface



R. Smelcer (DTW_GW)

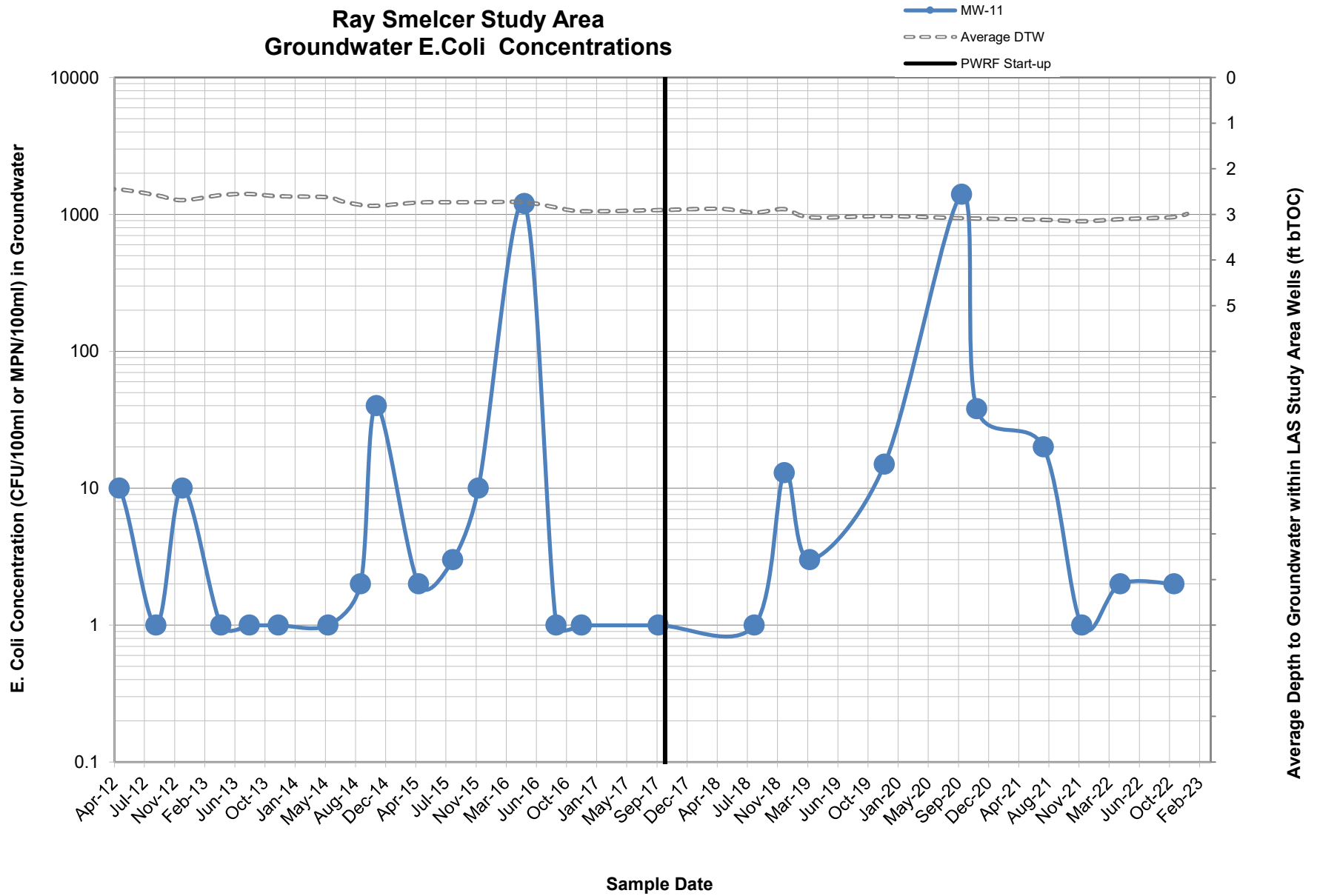
Ray Smelcer Study Area Groundwater Nitrate-Nitrogen Concentrations

MW-11
Average DTW
PWRF Start-up



R. Smelcer (N_GW)

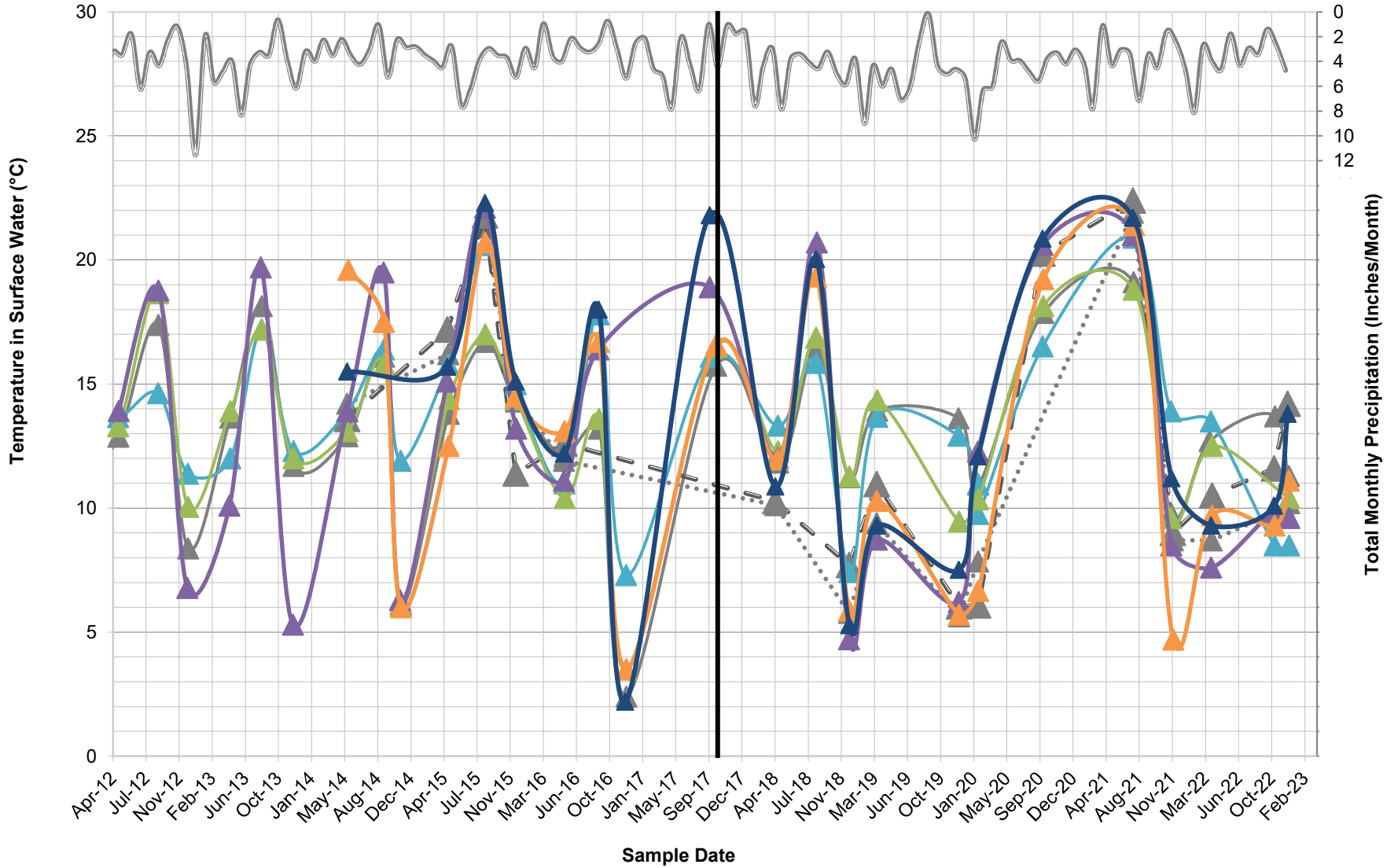
Ray Smelcer Study Area Groundwater E.Coli Concentrations



R. Smelcer (Ecoli_GW)

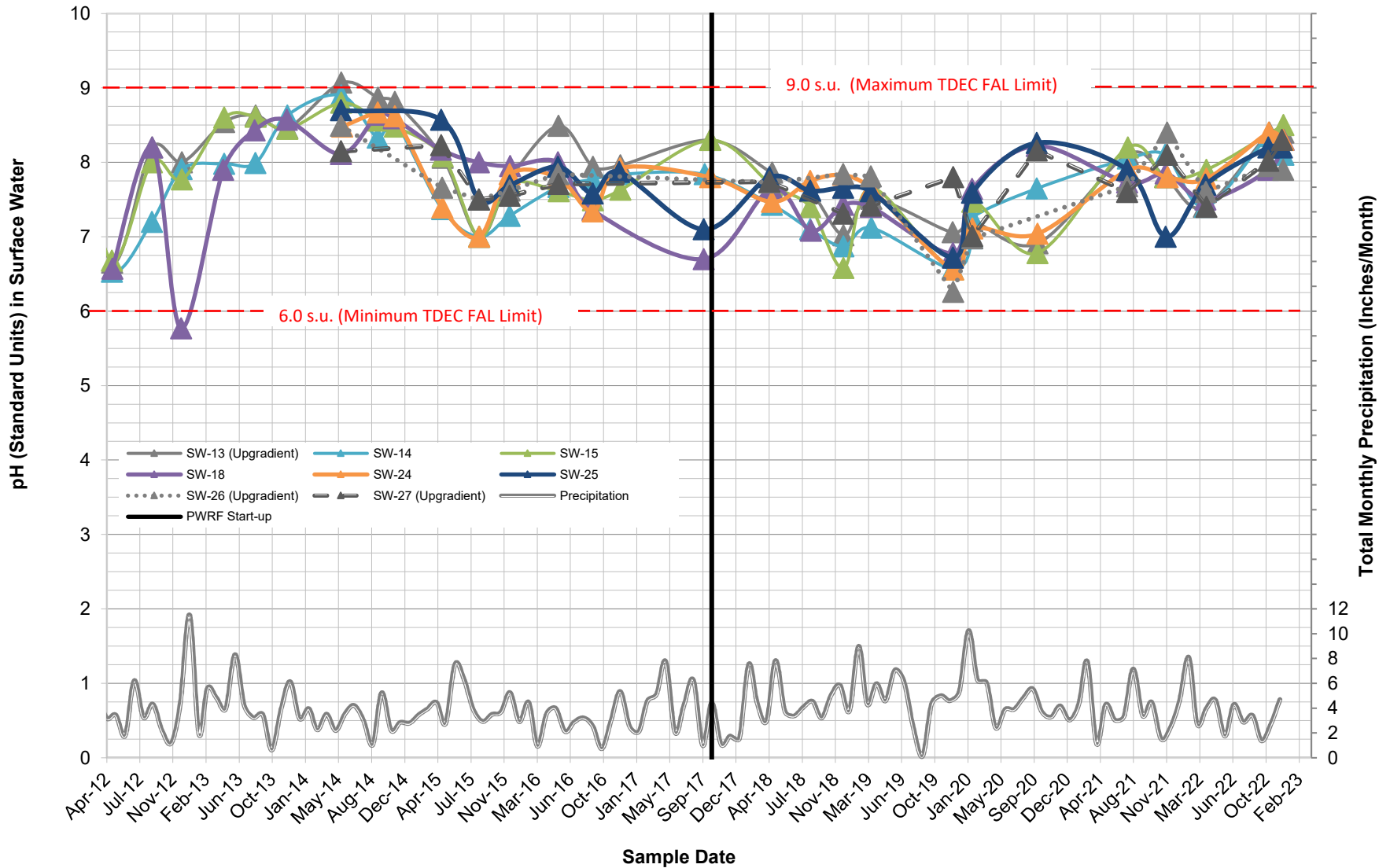
Whaley/Hayfield Study Area Surface Water Temperature Readings

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



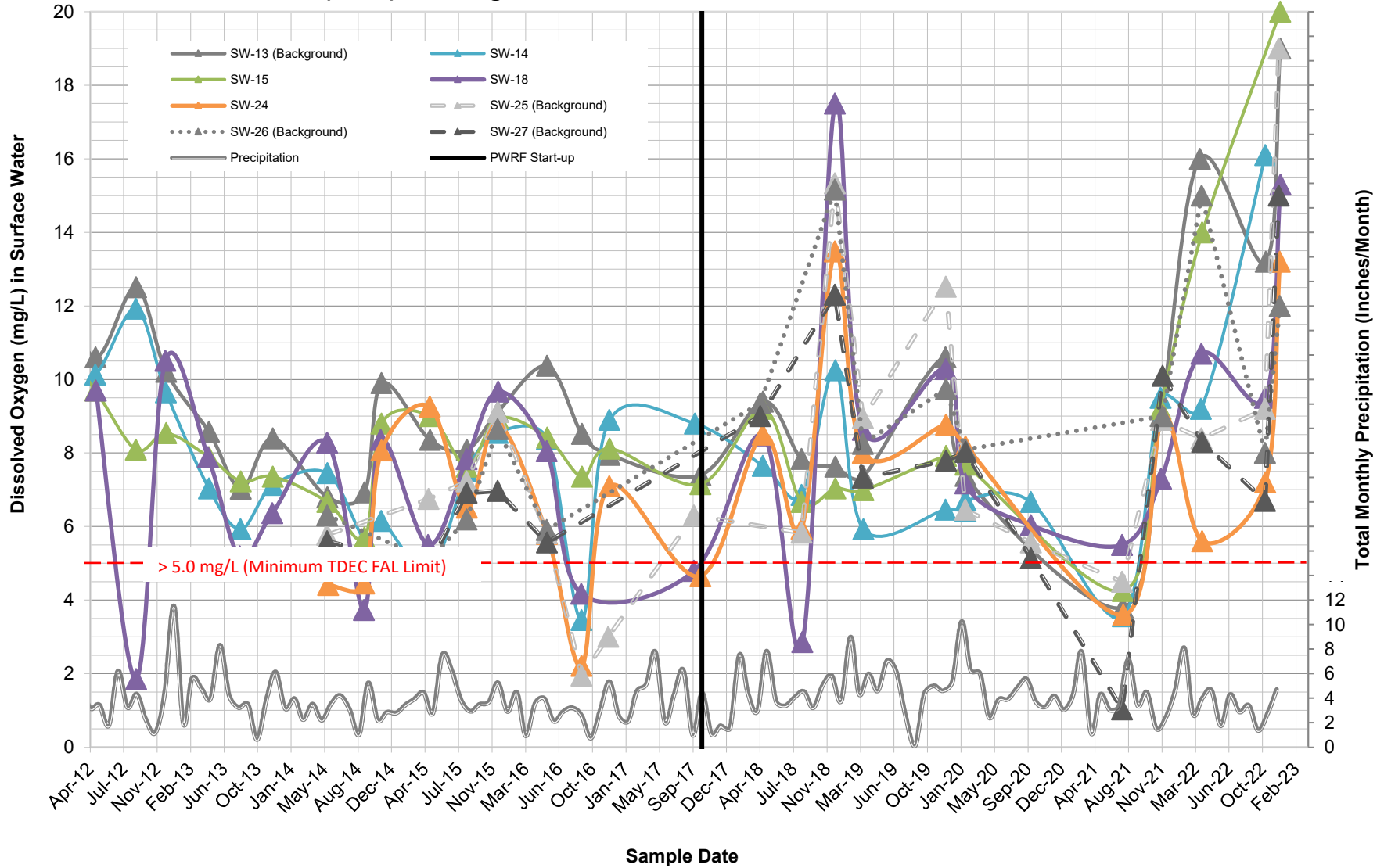
Whaley.Hay (Temp_SW)

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

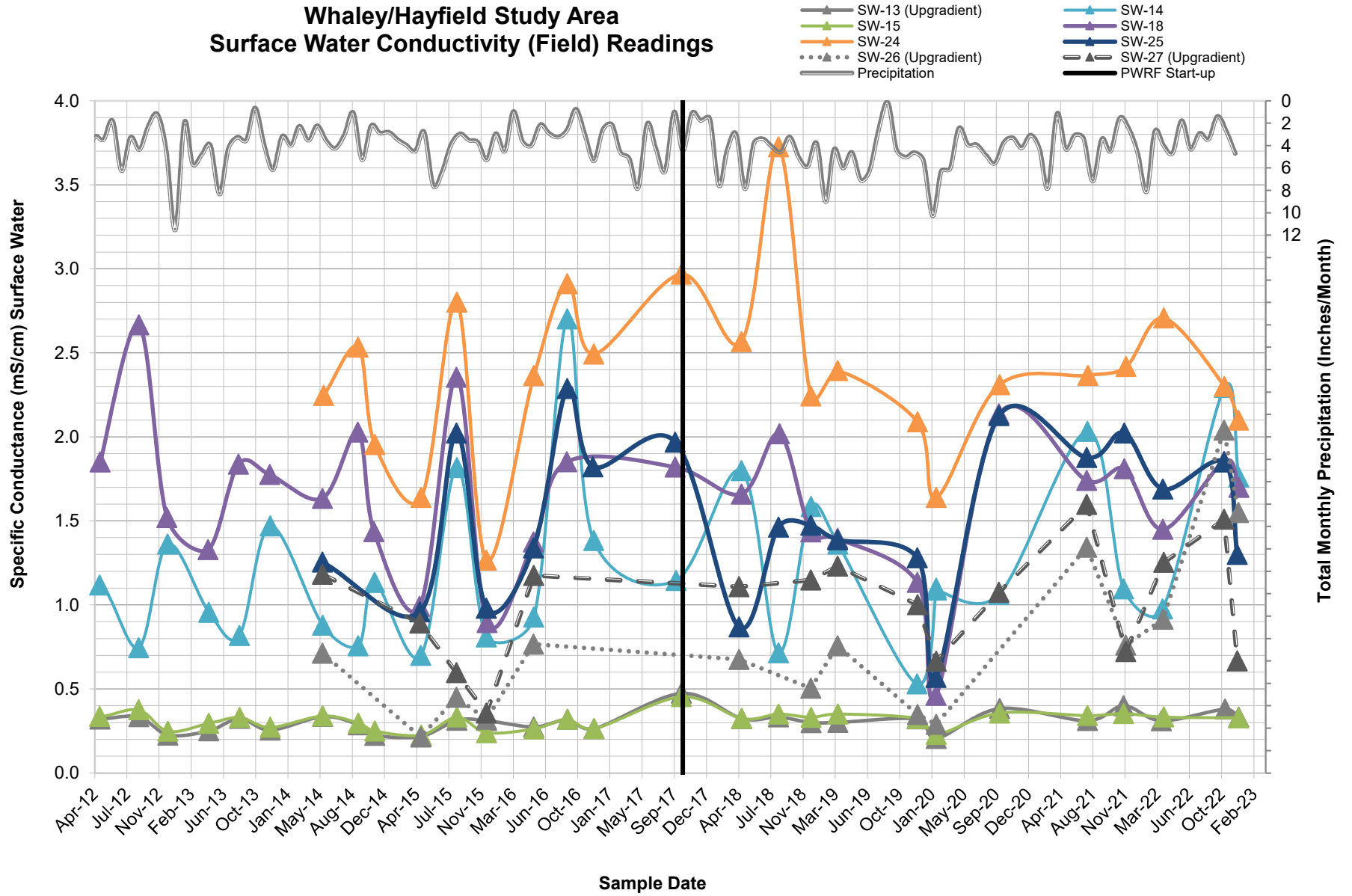


Whaley.Hay (pH_SW)

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

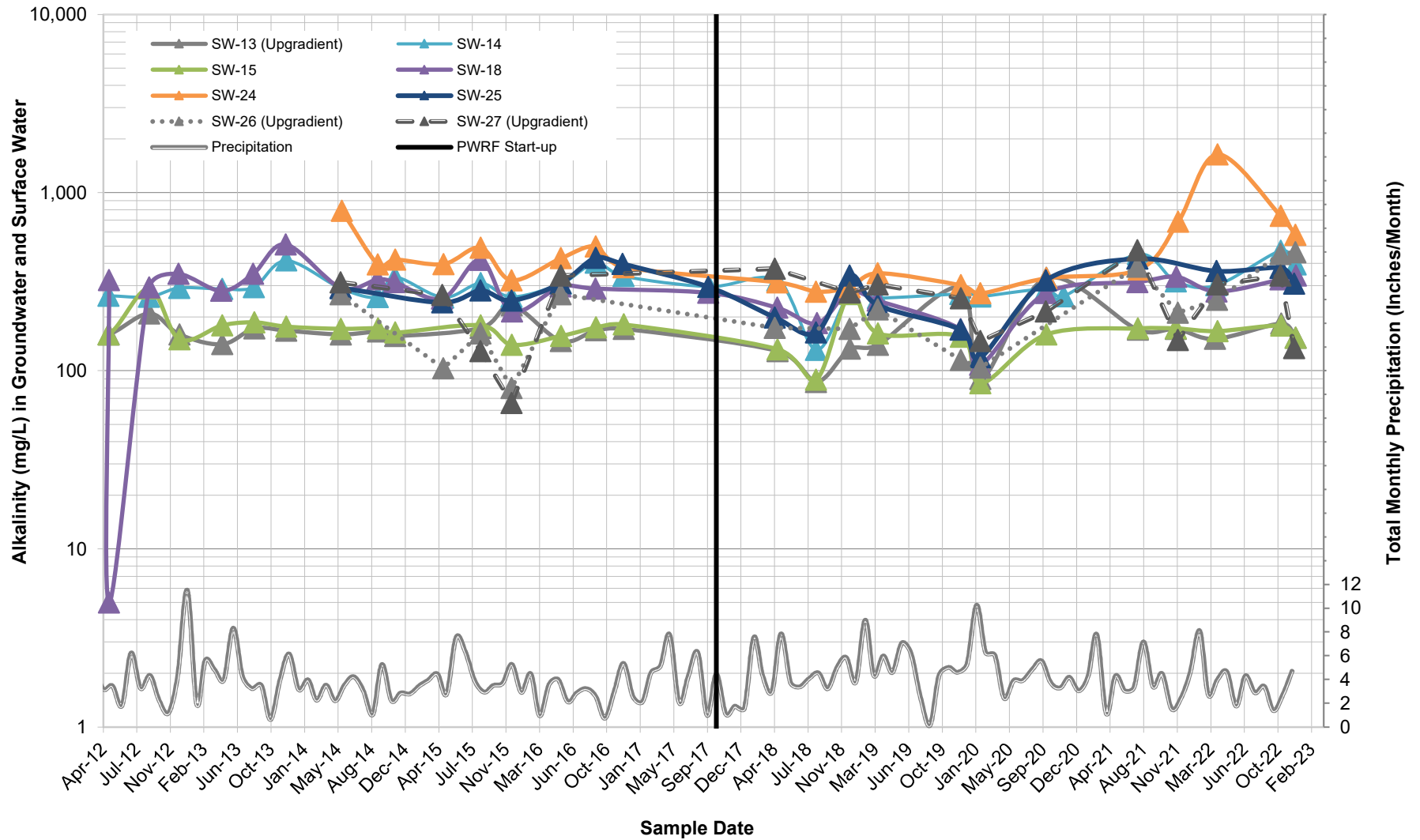


Whaley/Hayfield Study Area Surface Water Conductivity (Field) Readings

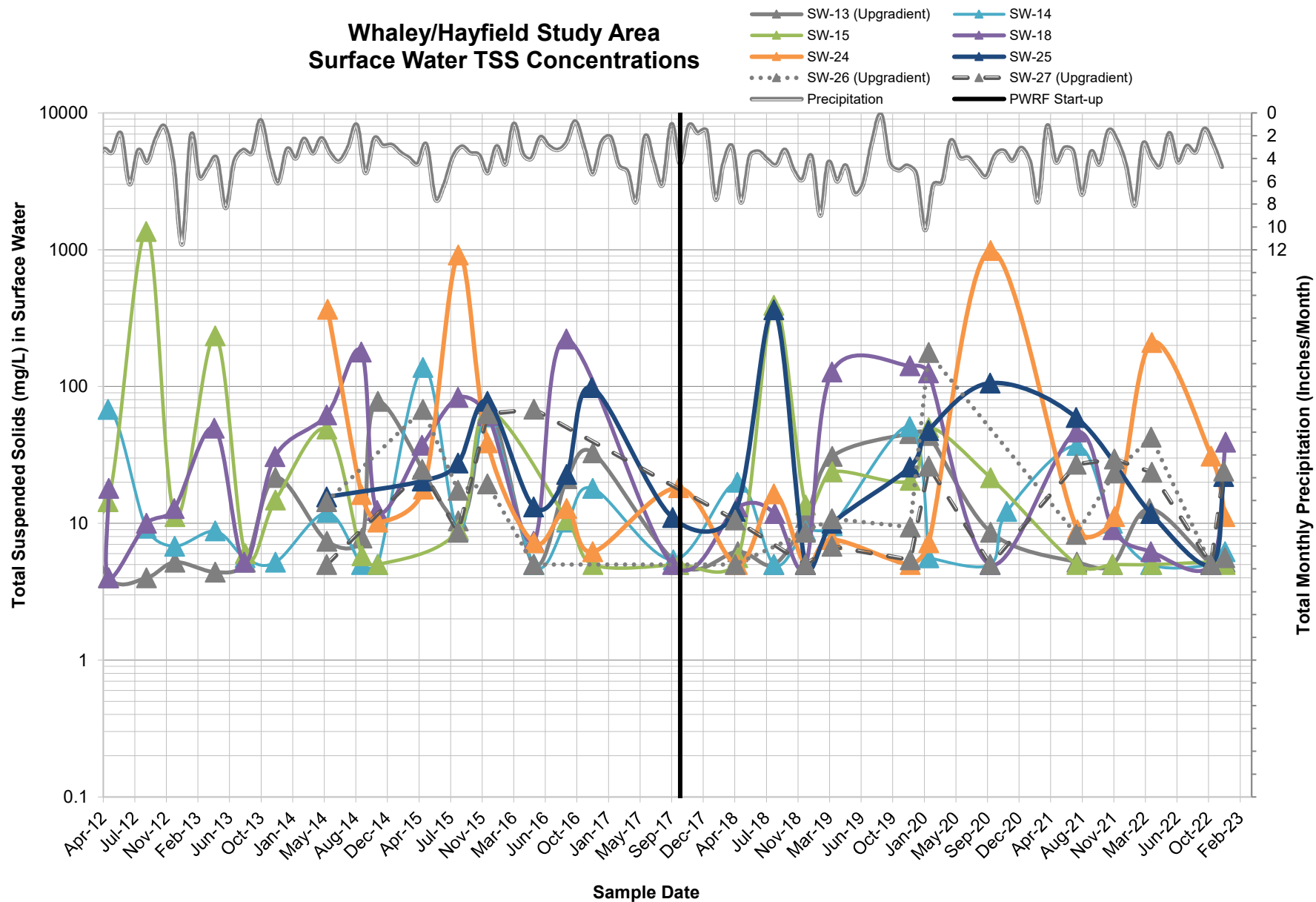


Whaley.Hay (Cond_SW)

Whaley/Hayfield Study Area Alkalinity Concentrations

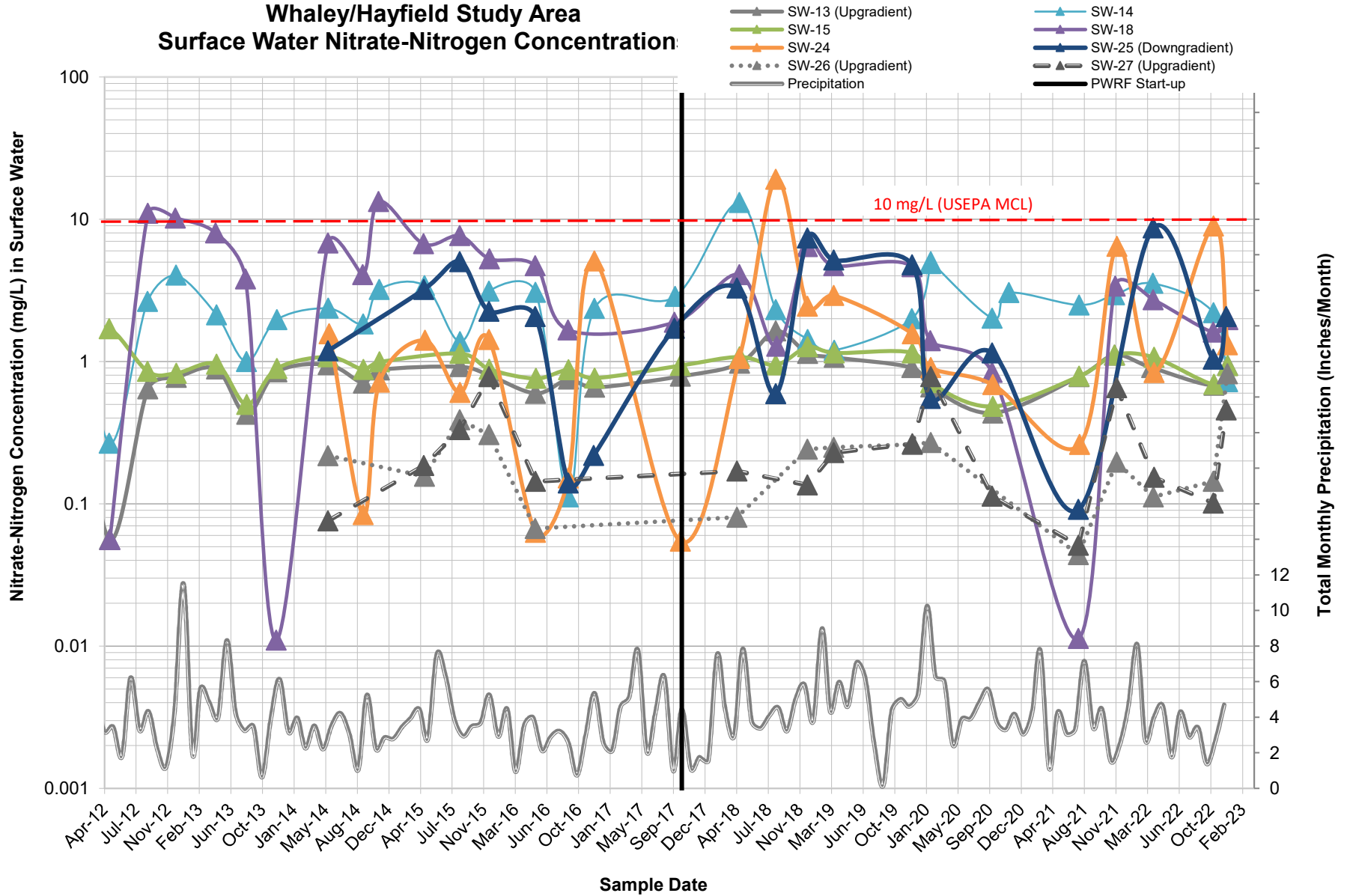


Whaley/Hayfield Study Area Surface Water TSS Concentrations



Whaley.Hay (TSS_SW)

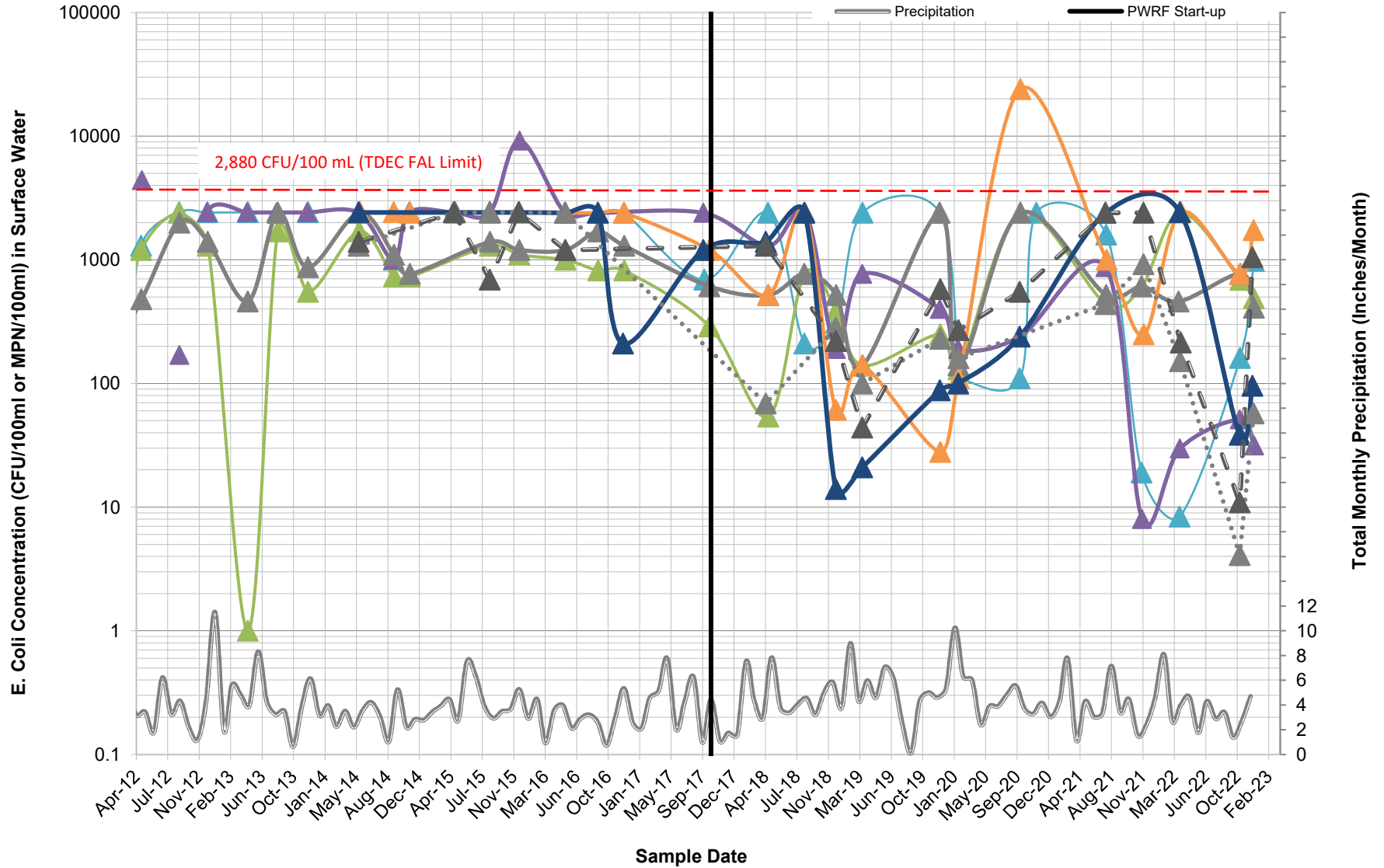
Whaley/Hayfield Study Area Surface Water Nitrate-Nitrogen Concentration



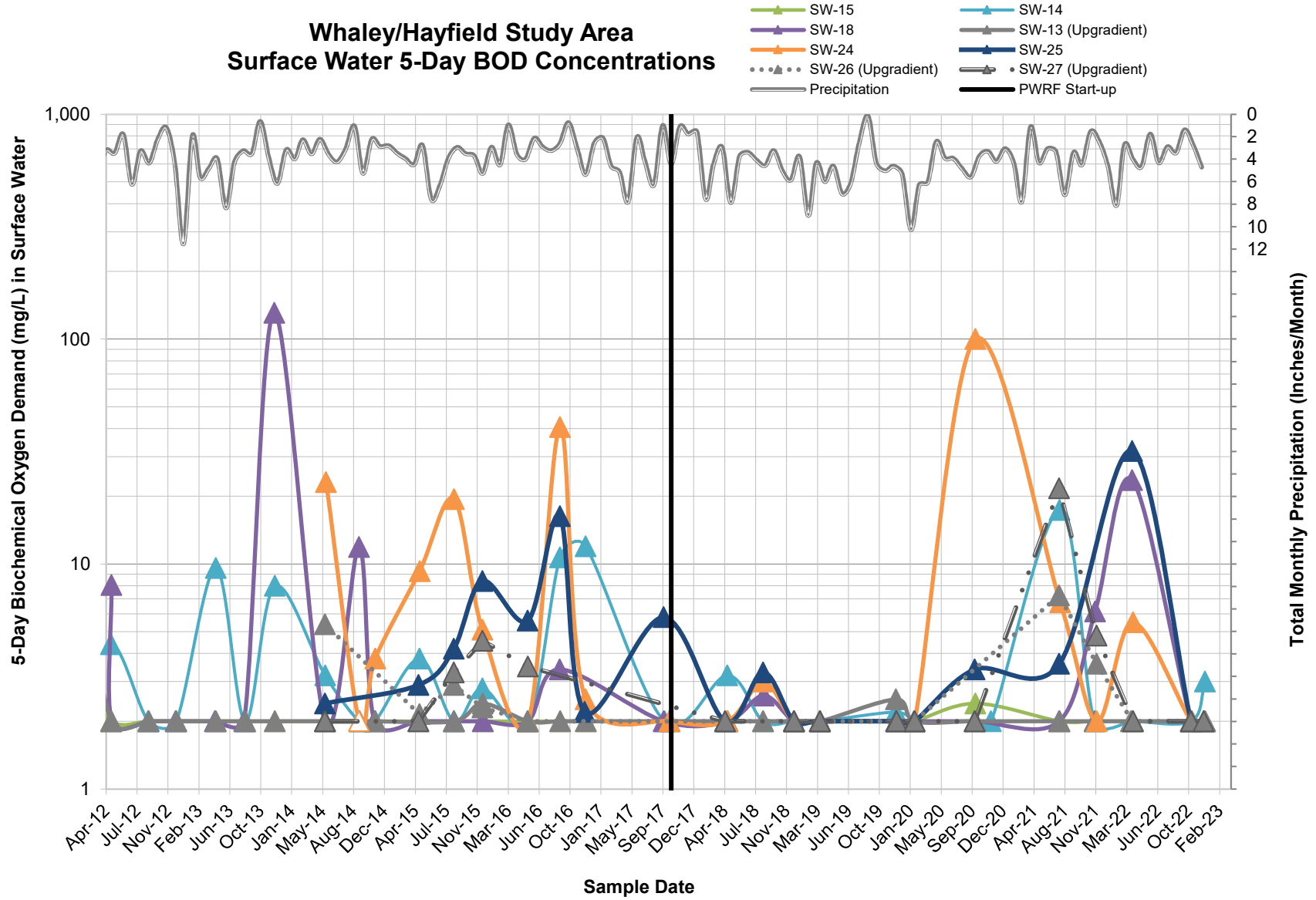
Whaley.Hay (N_SW)

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

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

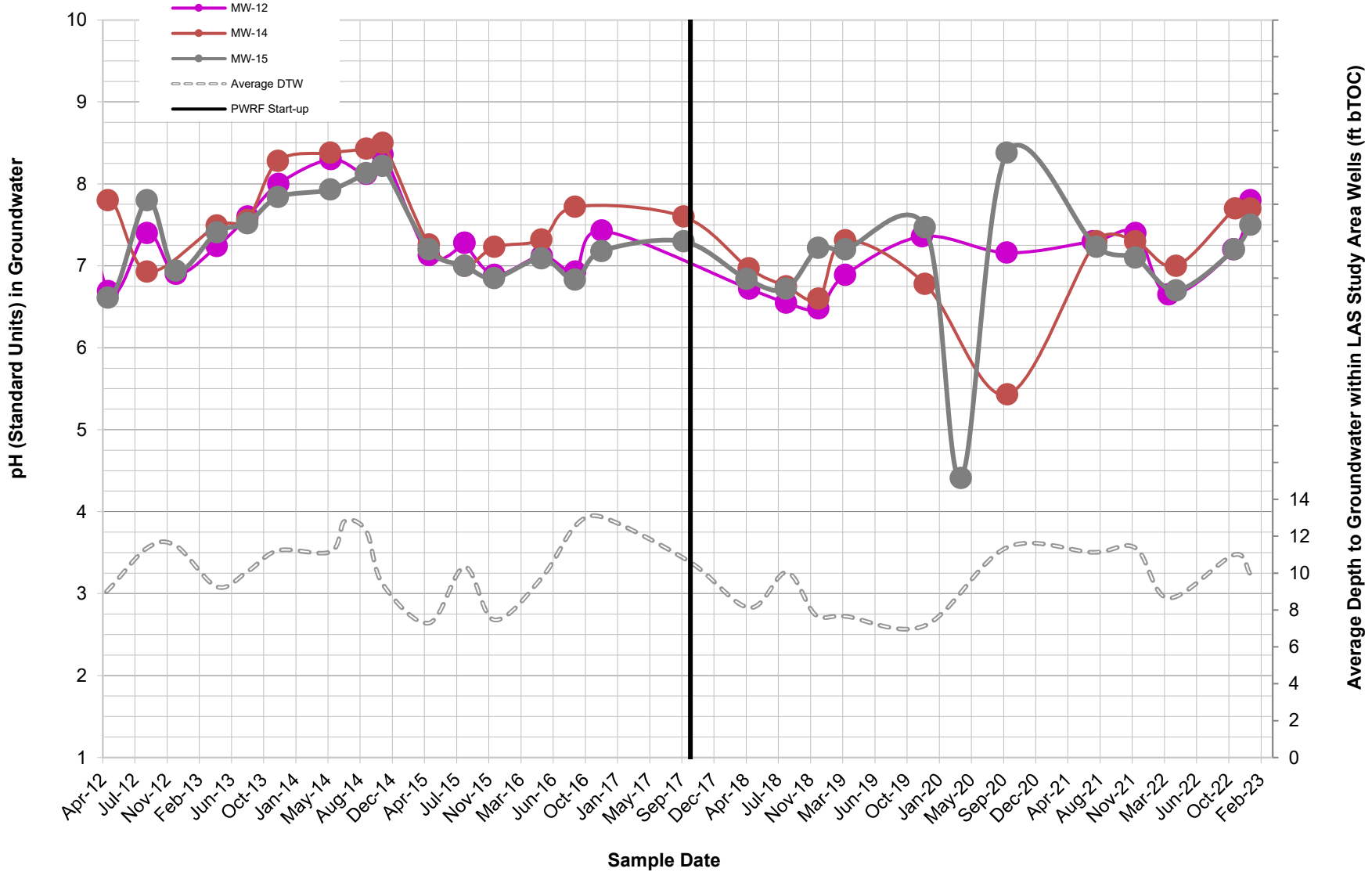


Whaley/Hayfield Study Area Surface Water 5-Day BOD Concentrations



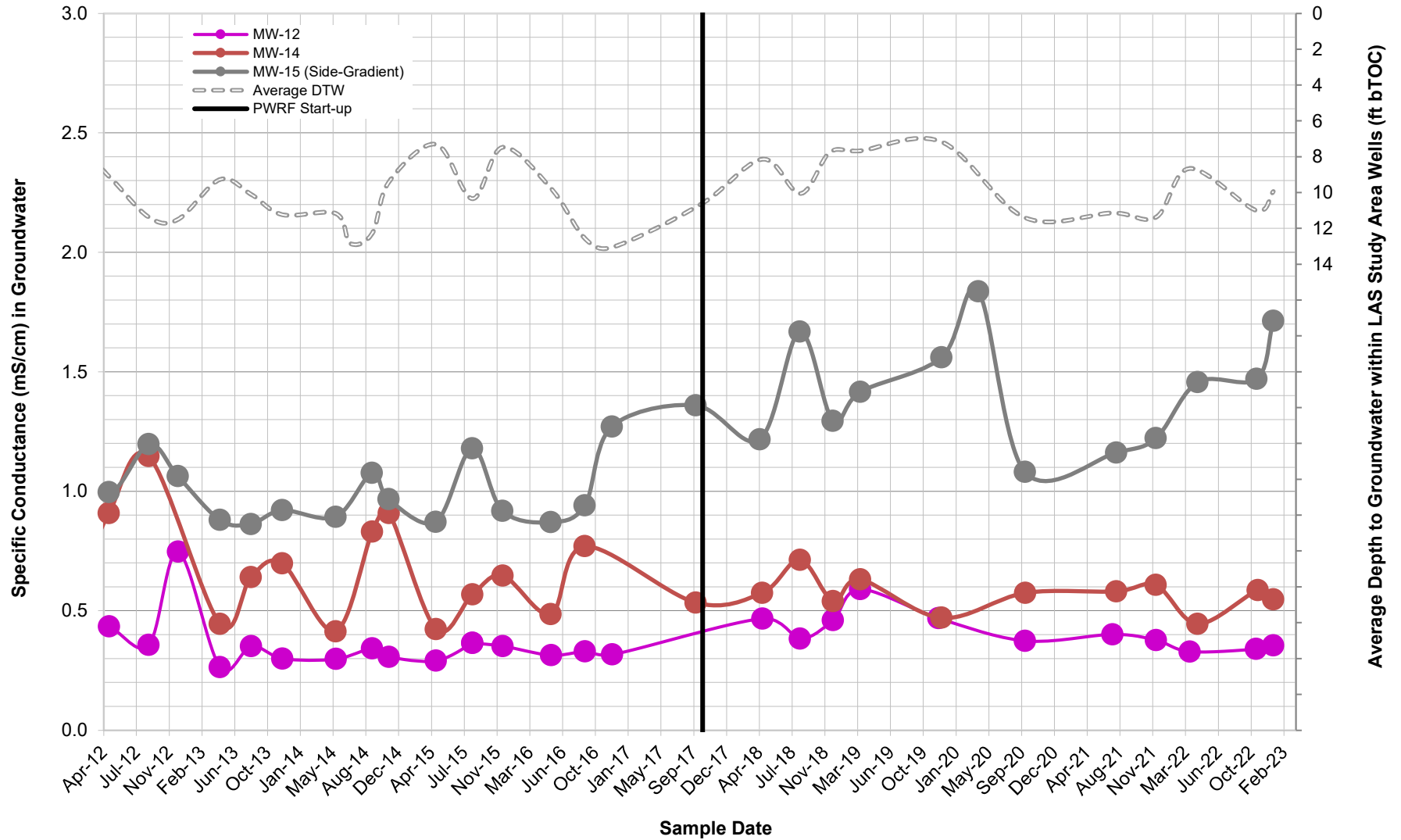
Whaley.Hay (BOD5_SW)

Whaley/Hayfield Study Area Groundwater pH (Field) Readings



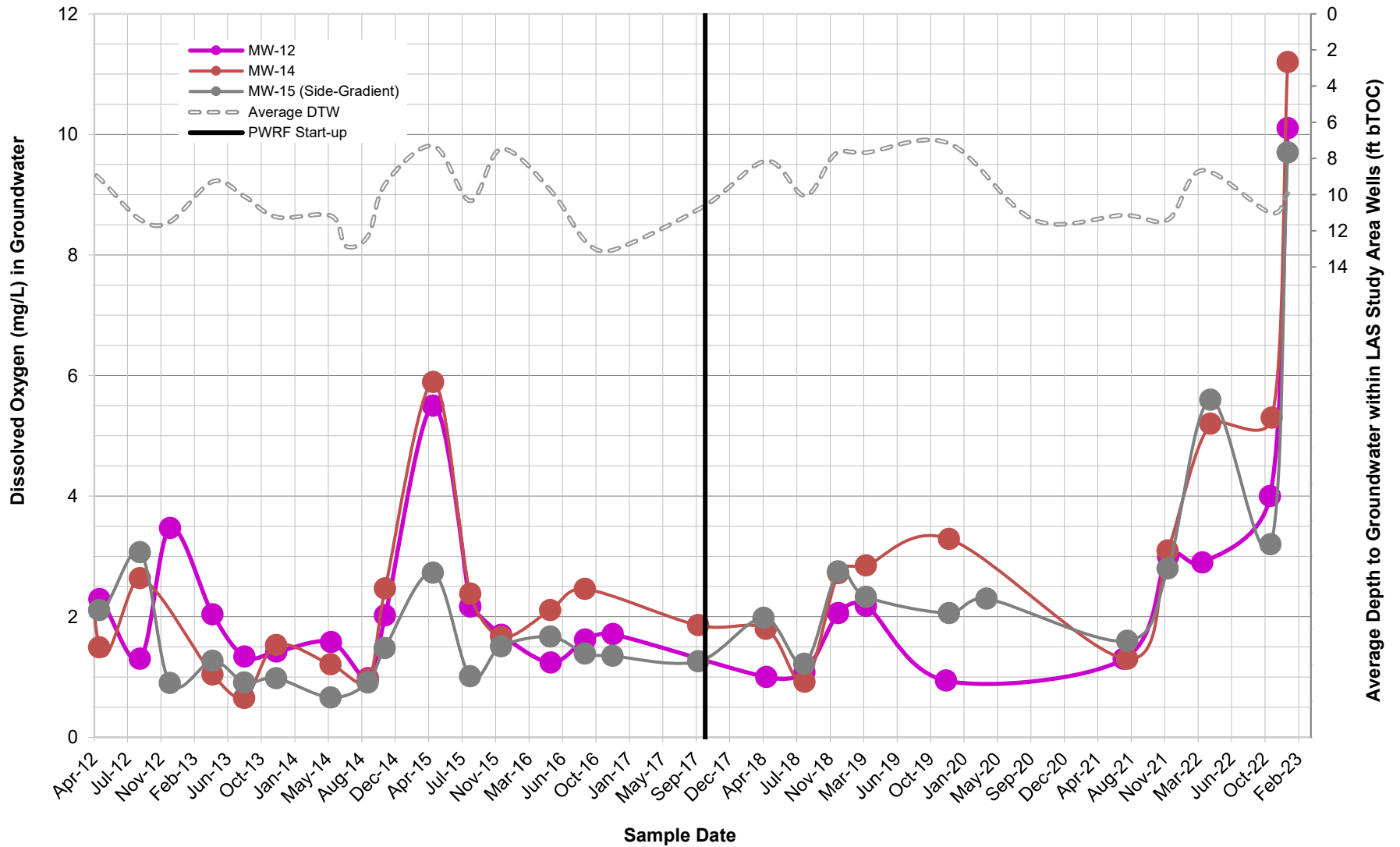
Whaley.Hay (pH_GW)

Whaley/Hayfield Study Area Groundwater Conductivity (Field) Readings



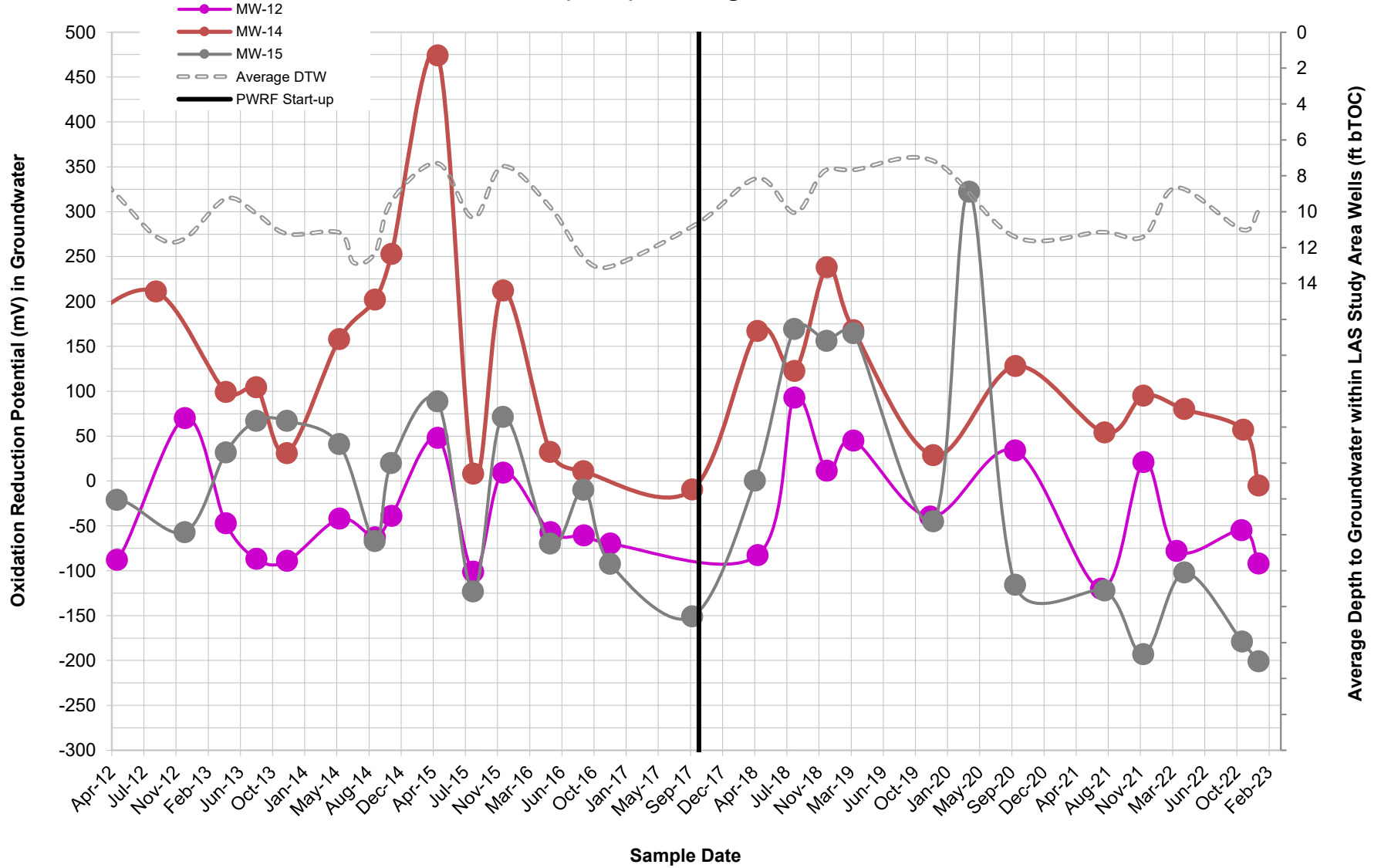
Whaley.Hay (Cond_GW)

Whaley/Hayfield Study Area Groundwater DO (Field) Readings



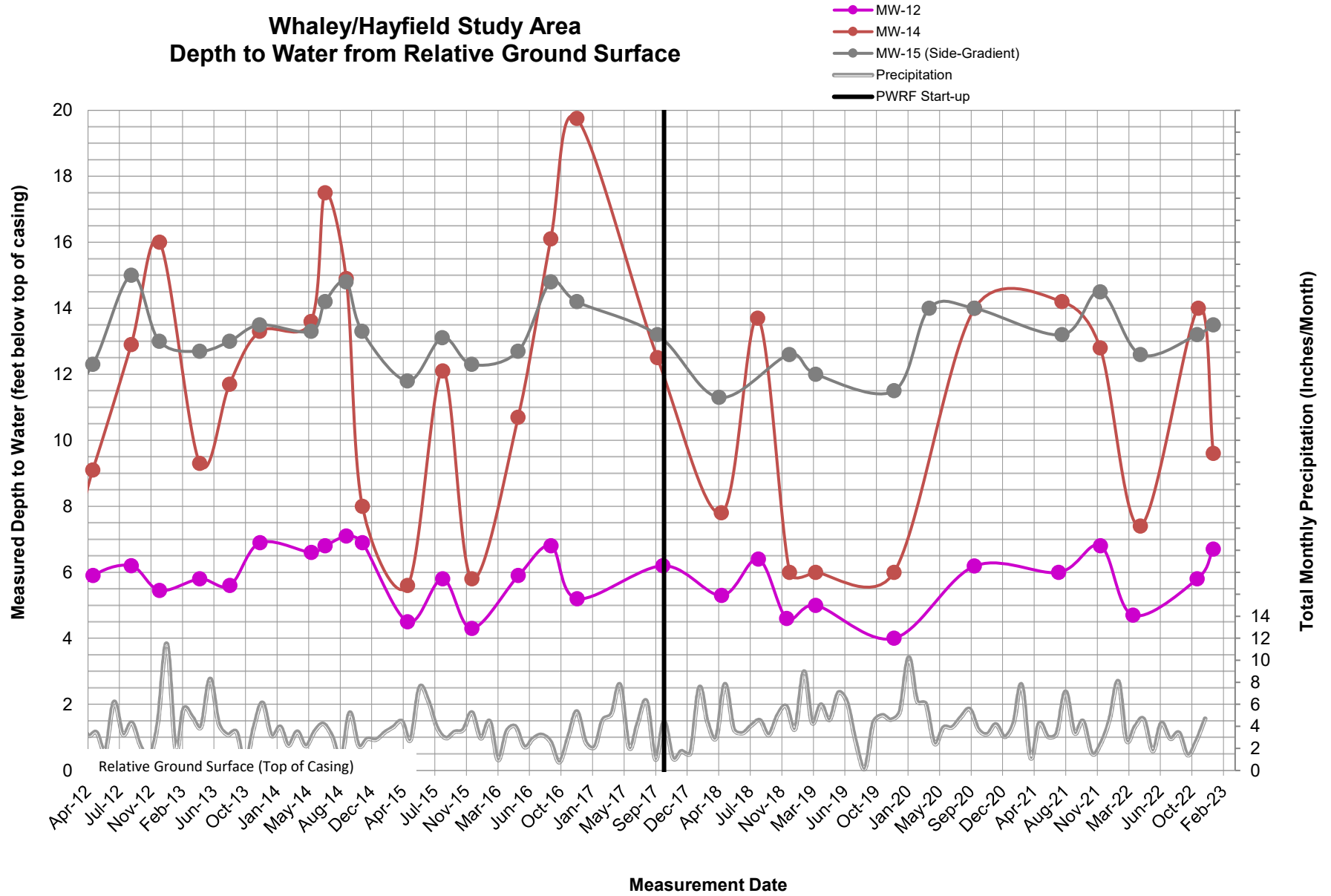
Whaley.Hay (DO_GW)

Whaley/Hayfield Study Area Groundwater ORP (Field) Readings



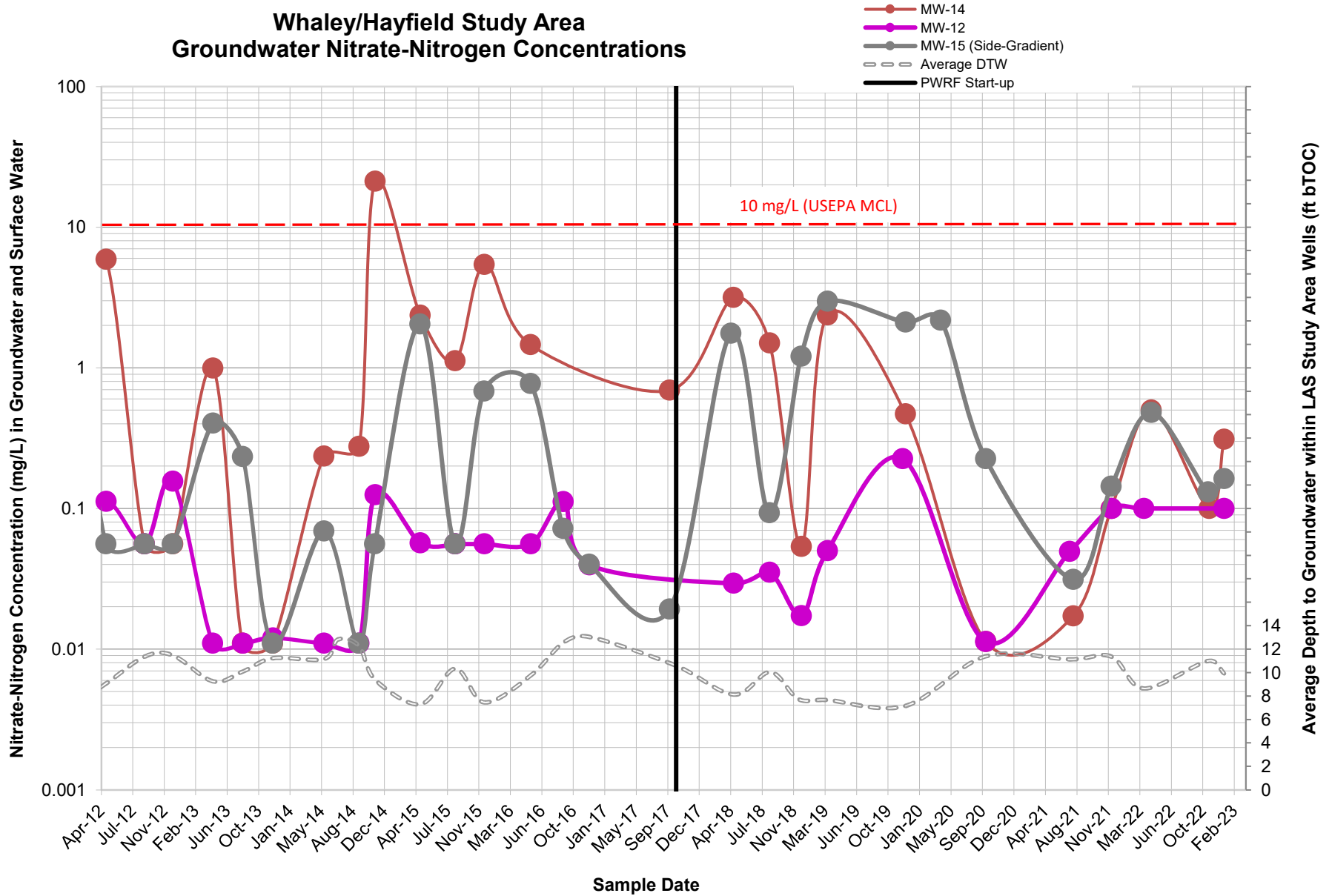
Whaley.Hay (ORP_GW)

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



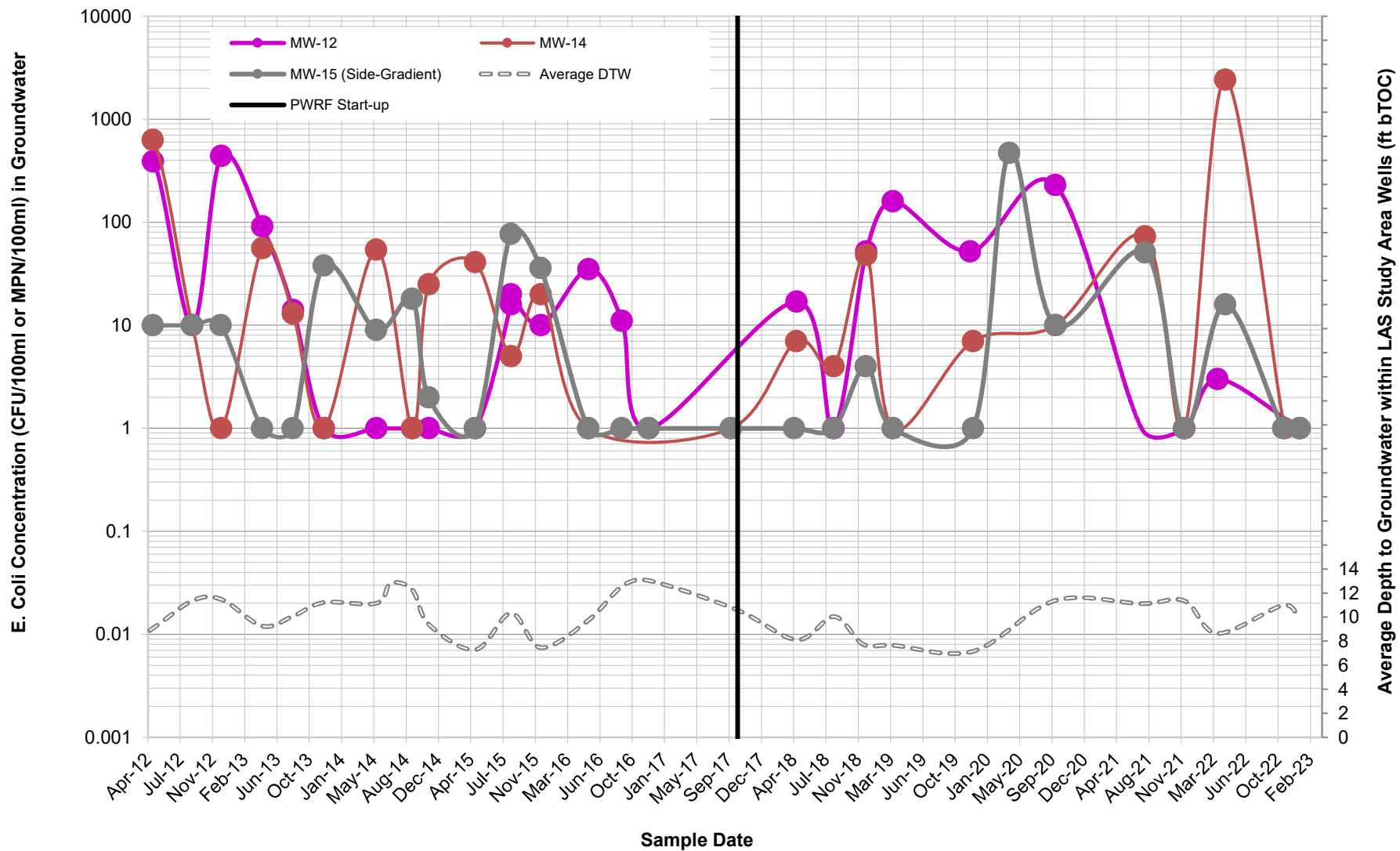
Whaley.Hay (DTW_GW)

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

MW11

Sample Date: 4-19-22 Sample Time: 0930

Personnel: Tony

Weather Conditions: clear
Air Temperature: 47°

- 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: Full 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: 0915 Purge End Time: 0950 Number of Purged Volumes: 3

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	13.7	7.1				
1	12.6	6.9	539	-109	9.9	Grey
2	12.2	6.9	562	-106	4.9	Grey
3	13.2	6.8	543	-103	4.1	Grey
Sample Date (if purged dry)			560	-122	5.0	

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

4-19-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW14

Sample Date: 4-19-22 Sample Time: 0830

Personnel: Tony

Weather Conditions: clear
Air Temperature: 46°

- 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
 Total Depth: 19.75 ft. Depth to water: 7.4 ft. Water Column Height: (total depth - Depth to water) = 12.35 ft.
 Equipment? Dedicated Field/off-site Cleaned
 Purge Volume: (Water Column Height) * 0.163 = 2.01 gal
 Purge Start Time: 0830 Purge End Time: 0900 Number of Purged Volumes: 3

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	12.6	7.4				
1	13.4	7.0	275	96	12.2	clear
2	13.9	6.9	400	87	9.5	cloudy
3	14.2	7.0	439	82	8.0	gray
Sample Data (if purged city)			445	80	5.2	gray

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

4-19-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW15

Sample Date: 4-19-22 Sample Time: 0800

Personnel: Tony

Weather Conditions: clear
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: 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: 0730 Purge End Time: 0810 Number of Purged Volumes: 3

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	13.2	6.8	1737	-136	8.1	Gray
1	14.1	6.8	1387	-69	7.3	Gray
2	14.0	6.7	1336	-46	6.1	Gray
3	14.1	6.7	1467	-102	5.6	Gray
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:

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

4-19-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW13

Sample Date: 4-19-22 Sample Time: 0830

Personnel: TONY

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? Bailer Submersible Pump Dedicated Field/off-site Cleaned

Total Depth: 24.68 ft. Depth to water: 0 ft. Water Column Height: (total depth - Depth to water) = _____ 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 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

4-19-22

Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW7

Sample Date: 4-11-22 Sample Time: 1015

Personnel: _____

Weather Conditions: clear

Air Temperature: 55°

- 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

Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.6 ft Depth to water: Full ft

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

Purge Volume: (Water Column Height) * 0.163 = 4.0 gal

Purge Start Time: 1015

Purge End Time: _____

Number of Purged Volumes: 3

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	14.4	6.7	3130	68	9.0	
1	14.4	6.4	3145	46	6.0	Turbid
2	14.6	6.4	3163	40	5.1	Turbid
3	14.7	6.4	3169	37	5.6	Turbid
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 ~~artesian~~ artesian couldnt purge dry

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

Signature

4-11-22

Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW 06

Sample Date: 4-11-22 Sample Time: 0900

Personnel: Tony

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: 24.8 ft Depth to water: 13.0 ft Water Column Height: (total depth - Depth to water) = 11.8 ft

Purge Volume: (Water Column Height) * 0.163 = 1.92 gal

Purge Start Time: 0900 Purge End Time: 0940 Number of Purged Volumes: 2

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	13.0	6.7	678	249	10.1	clear
1	14.0	6.6	863	224	6.4	Turbid
2	14.0	6.7	867	173	5.7	Turbid
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

4-11-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW15 Resample

Date: 4-8-22 Time: _____

Weather Conditions: clear

Personnel: Tony

Air Temperature: 51°

- 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:

TSS AND AIK Resample. Lab lost first sample

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 _____

Date _____

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW27 resample

Date: 4-8-22 Time: _____

Weather Conditions: clear

Personnel: Tony

Air Temperature: 51°

- 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:

Resample For TSS Lab lost first sample

SW26 Resample

Date: 4-8-22 Time: _____

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:

TSS Resample Lab lost first 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
 Signature

4-8-22
 Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW4

Sample Date: 4-6-22 Sample Time: 0900

Personnel: Tony

Weather Conditions: clear

Air Temperature: 57°

- 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

0.25 inch 24 hour
Rainfall Total

WELL PURGING:

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

Total Depth: 24.85 ft Depth to water: 16.9 ft Water Column Height: (total depth - Depth to water) = 7.95 ft

Purge Volume: (Water Column Height) * 0.163 = 1.29 gal

Purge Start Time: 0900 Purge End Time: 0930 Number of Purged Volumes: 1

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	14.6	6.5	393	223	7.2	cloudy
1	14.8	6.6	407	241	6.1	cloudy
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:

very slow recovery

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

4-6-22

Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW3

Sample Date: 4-6-22 Sample Time: 0800

Personnel: Tony

Weather Conditions: clear

Air Temperature: 55°

- 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

0.25 inch 24 hr
Rain total

WELL PURGING:

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

Total Depth: 23.45 ft Depth to water: 10.2 ft Water Column Height: (total depth - Depth to water) = 13.25 ft

Purge Volume: (Water Column Height) * 0.163 = 2.16 gal

Purge Start Time: 0800 Purge End Time: _____ Number of Purged Volumes: _____

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	<u>11.9</u>	<u>7.4</u>	<u>222</u>	<u>182</u>	<u>8.0</u>	<u>clear</u>
1	<u>11.9</u>	<u>7.0</u>	<u>257</u>	<u>189</u>	<u>7.2</u>	<u>cloudy</u>
2	<u>12.1</u>	<u>7.0</u>	<u>259</u>	<u>180</u>	<u>7.0</u>	<u>cloudy</u>
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 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.

T. B. S.
Signature

4-6-22
Date

Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

5W75

Date: 4-1-22 Time: 1000

Weather Conditions: clear

Personnel: Tony

Air Temperature: 51°

- 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: 12.5 pH: 7.9 Spec. Conductivity: 333 DO: 14 ORP: 87

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: clear
 Odor: Yes No
 Temperature: 12.5 pH: 7.9 Spec. Conductivity: 333 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

4-1-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW27

Date: 4-1-22 Time: 0900

Weather Conditions: clear

Personnel: Tony

Air Temperature: 44°

- 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: 7.4 Spec. Conductivity: 1253 DO: 8.3 ORP: 81

LABORATORY ANALYSES

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

REMARKS:

SW24

Date: 4-1-22 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: 9.7 pH: 7.78 Spec. Conductivity: 2707 DO: 5.6 ORP: 95

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

4-1-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW19

Date: 3-30-22 Time: 0845 Weather Conditions: clear
 Personnel: Tony Air Temperature: 46°

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: 7.6 pH: 7.8 Spec. Conductivity: 2507 DO: 10.3 ORP: 53

LABORATORY ANALYSES

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

REMARKS:

SW26

Date: 3-30-22 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: 8.7 pH: 7.6 Spec. Conductivity: 914 DO: 15.0 ORP: 66

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

3-30-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW25

Date: 3-29-22 Time: 1030

Weather Conditions: cloudy
Air Temperature: 54°

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: 9.3 pH: 7.7 Spec. Conductivity: 1690 DO: 8.4 ORP: 129

LABORATORY ANALYSES

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

REMARKS:

cattle up stream

SW17

Date: 3-30-22 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

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: 6.1 pH: 7.7 Spec. Conductivity: 1725 DO: 7.1 ORP: 123

LABORATORY ANALYSES

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

REMARKS:

Low Flow cattle in stream

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

J. B. [Signature]
Signature

3-30-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW2

Date: 3-29-22 Time: 0950

Weather Conditions: cloudy

Personnel: Tony

Air Temperature: 48°

- 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: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

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

REMARKS:

BOD5 Resample for lost first sample on 3-21

SWR

Date: 3-29-22 Time: 1010

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: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

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

REMARKS:

BOD5 Resample for lost 3-21 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

3-29-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW1

Date: 3-29-22 Time: 0940

Weather Conditions: cloudy
Air Temperature: 48°

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: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

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

REMARKS: BOD5 Resample because IAB 1st First Sample on 3-21

SW22

Date: 3-29-22 Time: 1000

Date: _____ Time: _____
Personnel: _____

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: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

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

REMARKS: BOD5 resample IAB 1st First sample on 3-21

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

3-29-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW14

Date: 3-28-22 Time: 1040

Weather Conditions: clear

Personnel: Tony

Air Temperature: 46°

- 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: 13.5 pH: 7.4 Spec. Conductivity: 976 DO: 9.2 ORP: 87

LABORATORY ANALYSES

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

REMARKS:

SW18

Date: 3-29-22 Time: 0900

clear 47°

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

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: 7.6 pH: 7.5 Spec. Conductivity: 1450 DO: 10.7 ORP: 51

LABORATORY ANALYSES

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

REMARKS:

CATTLE in water upstream

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

3-29-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW8R

Date: 3-28-22 Time: 0930

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: 12.3 pH: 7.2 Spec. Conductivity: 527 DO: 12.2 ORP: 171

LABORATORY ANALYSES

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

REMARKS:

SW7

Date: 3-28-22 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

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: 6.2 pH: 7.2 Spec. Conductivity: 2560 DO: 11.2 ORP: 58

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

3-28-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW 16

Date: 3-28-22 Time: 0900 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: 10.6 pH: 7.3 Spec. Conductivity: 564 DO: 16.2 ORP: 153

LABORATORY ANALYSES

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

REMARKS:

SW 5

Date: 3-28-22 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

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

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 3-28-22 Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW12

Sample Date: 3-24-22 Sample Time: 1045

Personnel: _____

Weather Conditions: clear

Air Temperature: 60°

- 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: 20.01 ft Depth to water: 4.7 ft

Water Column Height: (total depth - Depth to water) = 15.34 ft

Purge Volume: (Water Column Height) * 0.163 = 2.5 gal

Purge Start Time: 1045 Purge End Time: _____

Number of Purged Volumes: 3

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	12.2	7.0	326	-49	7.5	clear
1	11.0	6.75	316	-60	4.1	cloudy
2	11.5	6.7	324	-63	3.8	cloudy
3	10.9	6.65	329	-78	2.9	cloudy
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:

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

3-24-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW13

Date: 3-24-22 Time: 1000
 Personnel: Tony Jim B

Weather Conditions: clear
 Air Temperature: 46°

- 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: 12.7 pH: 7.4 Spec. Conductivity: 311 DO: 16.0 ORP: 259

LABORATORY ANALYSES

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

REMARKS:

SW28B

Date: 3-28-22 Time: 0830
 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

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 with unopened container of distilled water
 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

3-28-22
 Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW2

Sample Date: 3-24-22 Sample Time: 0830

Personnel: Tony Tin

Weather Conditions: clear

Air Temperature: 41°

- 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 Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.62 ft Depth to water: 18.6 ft Water Column Height: (total depth - Depth to water) = 6.02 ft

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

Purge Start Time: 0830 Purge End Time: 0900 Number of Purged Volumes: 2

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	13	6.7	961	192	7.0	cloudy
1	13.3	6.65	945	193	4.1	mud silt
2	13.1	6.7	948	217	3.1	cloudy
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 very slow to recover sample on 2nd 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

3-24-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW1

Sample Date: 3-24-22 Sample Time: 0800

Personnel: Toxy Tim B

Weather Conditions: clear

Air Temperature: 41°

- 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: 24.81 ft Depth to water: 19.8 ft

Water Column Height: (total depth - Depth to water) = 5.01 ft

Purge Volume: (Water Column Height) * 0.163 = 0.81 gal

Purge Start Time: 0800

Purge End Time: 0820

Number of Purged Volumes: 1

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	14	7.2	480	188	5.1	clear
1	14	6.6	473	218	3.2	cloudy
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 was very slow to recover took samples after 1st volume

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

Toxy Tim B
Signature

3-24-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW12

Date: 3-23-22 Time: 0945

Weather Conditions: Rain 0.17" 24 hours total

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 heavy flow
 Odor: Yes No
 Temperature: 14.9 pH: 7.7 Spec. Conductivity: 550 DO: 13.3 ORP: 182

LABORATORY ANALYSES

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

REMARKS:

SW10R

Date: 3-23-22 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

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:

No location to get 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
 Signature

3-23-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW9

Date: 3-23-22 Time: 0900

Personnel: Tony

Weather Conditions: Rain 0.17/24 hours total
 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: clear
 Odor: Yes No
 Temperature: 13.3 pH: 7.8 Spec. Conductivity: 353 DO: 14.0 ORP: 217

LABORATORY ANALYSES

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

REMARKS:

SW11

Date: 3-23-22 Time: 1020

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

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: 15.0 pH: 7.8 Spec. Conductivity: 574 DO: 15.1 ORP: 170

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.

JBS
 Signature

3-23-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW4

Date: 3-23-22 Time: 0830

Personnel: Tony

Weather Conditions: Rain 0.15" 24 hour total

Air Temperature: 60°

- 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: 14.0 pH: 7.8 Spec. Conductivity: 364 DO: 16.4 ORP: 220

LABORATORY ANALYSES

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

REMARKS:

SW40

Date: 3-23-22 Time: 0830

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

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: 7.8 Spec. Conductivity: 364 DO: 16.4 ORP: 220

LABORATORY ANALYSES

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

REMARKS:

This is a duplicate sample of SW4

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

3-23-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW 23

Date: 3-22-22 Time: 0930

Personnel: Tony

Weather Conditions: cloudy
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: _____
Odor: Yes No
Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

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

REMARKS:

no water to sample

SW 6

Date: 3-22-22 Time: 0945

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

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: 12.3 pH: 7.4 Spec. Conductivity: 623 DO: 15 ORP: 166

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

3-22-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW3R2

Date: 3-22-22 Time: 0900

Personnel: Tony

Weather Conditions: cloudy

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: 10.5 pH: 7.6 Spec. Conductivity: 552 DO: 17.1 ORP: 196

LABORATORY ANALYSES

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

REMARKS:

SW3R3

Date: 3-22-22 Time: 0915

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

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:

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

3-22-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW-2

Date: 3-21-22 Time: 1030

Weather Conditions: clear

Personnel: Tony

Air Temperature: 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: 12.9 pH: 8.0 Spec. Conductivity: 176 DO: 17.0 ORP: 196

LABORATORY ANALYSES

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

REMARKS:

Heavy Flow

SWR

Date: 3-21-22 Time: 1100

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: 12.7 pH: 7.9 Spec. Conductivity: 175 DO: 18.3 ORP: 194

LABORATORY ANALYSES

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

REMARKS:

Heavy 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

3-21-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW1

Date: 3-21-22 Time: 0930 Weather Conditions: clear
 Personnel: Tony Air Temperature: 44°

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: 7.8 Spec. Conductivity: 263 DO: 13.3 ORP: 186

LABORATORY ANALYSES

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

REMARKS: Heavy water flow

SW-22

Date: 3-21-22 Time: 1000 Weather Conditions: clear 45°
 Personnel: Tony 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

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: 10.6 pH: 7.6 Spec. Conductivity: 568 DO: 18.1 ORP: 182

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

3-21-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW4 RAIN

Date: 4-13-22 Time: 0945

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

24 Hour Rain total 1.02"

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: 14.1 pH: 7.6 Spec. Conductivity: 387 DO: 15 ORP: 167

LABORATORY ANALYSES

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

REMARKS:

Heavy Rain event sample

SW6 RAIN

Date: 4-13-22 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

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: 14.5 pH: 7.4 Spec. Conductivity: 590 DO: 16.2 ORP: 172

LABORATORY ANALYSES

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

REMARKS:

Heavy Rain event 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

4-13-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW2 Rain

Date: 4-13-2022 Time: 0850

Weather Conditions: Light Rain

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

24 hour rain total 1.02"

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: 13.2 pH: 7.9 Spec. Conductivity: 196 DO: 13.5 ORP: 154

LABORATORY ANALYSES

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

REMARKS:

Heavy rain event sample

SW2 Rain

Date: 4-13-22 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

24 hour rain total 1.02"

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: 13.3 pH: 7.8 Spec. Conductivity: 192 DO: 14.4 ORP: 157

LABORATORY ANALYSES

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

REMARKS:

Heavy rain event 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

4-13-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW1 RAIN

Date: 4-13-22 Time: 0810

Weather Conditions: cloudy
Air Temperature: Light RAIN 54°

Personnel: Tony

24 Hour RAIN total 1.02"

- 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: 347 DO: 16.7 ORP: 145

LABORATORY ANALYSES

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

REMARKS:

Heavy RAIN event sample

SW22 RAIN

Date: 4-13-22 Time: 0830

Date: _____ Time: _____

Personnel: Tony

Personnel: _____
24 Hour RAIN total 1.02"

- 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: 12.7 pH: 7.6 Spec. Conductivity: 430 DO: 14.1 ORP: 158

LABORATORY ANALYSES

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

REMARKS:

Heavy RAIN event 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

4-13-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW 14

Sample Date: 11-7-22 Sample Time: 0930

Personnel: Tony

Weather Conditions: cloudy
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

WELL PURGING:

Purge Method? Bailor Submersible Pump
 Total Depth: 19.75 ft Depth to water: 14.00 ft Water Column Height: (total depth - Depth to water) = 5.75 ft
 Equipment? Dedicated Field/off-site Cleaned
 Purge Volume: (Water Column Height) * 0.163 = 0.93 gal
 Purge Start Time: 0930 Purge End Time: 1000 Number of Purged Volumes: 1

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0						
1	<u>19.4</u>	<u>7.7</u>	<u>586</u>	<u>57</u>	<u>5.3</u>	
2						<u>Grey</u>
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 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]

11-7-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW2

Sample Date: 11-7-22 Sample Time: 0900

Personnel: Tony

Weather Conditions: cloudy
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

WELL PURGING:

Purge Method? Bailor Submersible Pump

Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.62 ft Depth to water: 24.62 ft

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

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

Purge Start Time: 0900 Purge End Time: 0915

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 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.

Tony
Signature

11-7-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

Mw 4

Sample Date: 11-7-22 Sample Time: 0845

Personnel: Tony

Weather Conditions: cloudy
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

WELL PURGING:

Purge Method? Bailor Submersible Pump
 Total Depth: 24.85 ft Depth to water: 24.85 ft Water Column Height: (total depth - Depth to water) = 0 ft
 Equipment? Dedicated Field/off-site Cleaned

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 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

11-7-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW15

Sample Date: 11-3-22 Sample Time: 1015
Personnel: Tony

Weather Conditions: clear
Air Temperature: 64°

- 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: 25.73 ft. Depth to water: 13.2 ft. Water Column Height: (total depth - Depth to water) = 12.03 ft.

Purge Volume: (Water Column Height) * 0.163 = 1.96 gal

Purge Start Time: 1015 Purge End Time: 1045 Number of Purged Volumes: 2

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0						
1	17.2	7.2	1696	-214	4.2	Gray Only
2	17.5	7.2	1470	-179	3.2	
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 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

11-3-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW13

Sample Date: 11-3-22 Sample Time: 0900

Personnel: Tony

Weather Conditions: cloudy
Air Temperature: 61°

- 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: 24.68 ft Depth to water: 24.68 ft Water Column Height: (total depth - Depth to water) = 0 ft

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

Purge Start Time: 0900 Purge End Time: 0915 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.

Tony
Signature

11-3-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW7

Sample Date: 11-3-22 Sample Time: 0830

Personnel: Tony

Weather Conditions: cloudy
Air Temperature: 57°

- 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) = 24.61 ft.

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

Purge Start Time: 0830 Purge End Time: 0930 Number of Purged Volumes: 3

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	15.1	7.5	3217	47		
1	16.0	7.5	3171	47		Cloudy
2	16.2	7.6	3190	46		Cloudy
3	16.0	7.6	3208	49		Cloudy
Sample Date (if purged dry)						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:

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

11-3-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW6

Sample Date: 11-2-22 Sample Time: 1015

Personnel: Tony

Weather Conditions: cloudy
Air Temperature: 58°

- 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: 24.80 ft Depth to water: 23.2 ft Water Column Height: (total depth - Depth to water) = 1.6 ft

Purge Volume: (Water Column Height) * 0.163 = 0.26 gal

Purge Start Time: 1000 Purge End Time: 1015 Number of Purged Volumes: 0

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

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 get a 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

11-2-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW11

Sample Date: 11-2-22 Sample Time: 0900

Personnel: Tony

Weather Conditions: cloudy
Air Temperature: 57°

- 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: 5.2 ft Water Column Height: (total depth - Depth to water) = 19.37 ft

Purge Volume: (Water Column Height) * 0.163 = 3.15 gal

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

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	<u>16.0</u>	<u>8.1</u>	<u>1040</u>	<u>-357</u>	<u>4.8</u>	
1	<u>16.9</u>	<u>8.2</u>	<u>1010</u>	<u>-355</u>	<u>4.1</u>	<u>Grey</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:

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

11-2-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW12

Sample Date: 11-1-22 Sample Time: 1000

Personnel: Tony

Weather Conditions: cloudy
Air Temperature: 67°

- 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
Equipment? Dedicated Field/off-site Cleaned

Total Depth: 20.04 ft Depth to water: 5.8 ft Water Column Height: (total depth - Depth to water) = 14.24 ft

Purge Volume: (Water Column Height) * 0.163 = 2.32 gal

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

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	16.6	7.9	367	-38	5.1	Turbid
1	16.2	7.35	338	-34	3.5	cloudy
2	16.0	7.2	321	-61	4.1	cloudy
3	16.1	7.2	340	-55	4.0	cloudy
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.

[Signature]
Signature

11-1-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW19

Date: 11-1-22 Time: 0900

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: clear
Odor: Yes No
Temperature: 13.7 pH: 8.1 Spec. Conductivity: 3780 DO: 13.4 ORP: 107

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

11-1-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW3

Sample Date: 10-31-22 Sample Time: 0930

Personnel: Tony

Weather Conditions: cloudy / rain
Air Temperature: 62°

- 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: 23.45 ft. Depth to water: 23.45 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:

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

10-31-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW1

Sample Date: 10-31-22 Sample Time: 0830

Personnel: Tony

Weather Conditions: cloudy / rain
Air Temperature: 67

- 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: 24.8 ft Depth to water: 24.8 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: 0900 Number of Purged Volumes: 0

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 is empty 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
Signature

10-31-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW13

Date: 10-27-22 Time: 0900

Weather Conditions: cloudy
Air Temperature: 55°

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: 13.7 pH: 8.4 Spec. Conductivity: 380 DO: 13.2 ORP: 183

LABORATORY ANALYSES

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

REMARKS:

SW15

Date: 10-27-22 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: _____ 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.

Tony
Signature

10-27-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW9
 Date: 10-26-22 Time: 1015 Weather Conditions: cloudy
 Personnel: Tony Air Temperature: 60°

- 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: 14.1 pH: 8.2 Spec. Conductivity: 459 DO: 15.9 ORP: 145

LABORATORY ANALYSES

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

REMARKS:

SW3R2
 Date: 10-26-22 Time: 1040 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: 13.9 pH: 8.4 Spec. Conductivity: 693 DO: 18.2 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 DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

Tony
 Signature

10-26-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW14

Date: 10-25-22 Time: 0900

Weather Conditions: clear

Personnel: Tony

Air Temperature: 46

- 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: 9.5 pH: 9.35 Spec. Conductivity: 2295 DO: 16.1 ORP: 126

LABORATORY ANALYSES

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

REMARKS:

RAW Duplicate on this location labeled SW14D

SW28

Date: 10-25-22 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

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 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

10-25-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW27

Date: 10-24-22 Time: 1050

Weather Conditions: clear

Personnel: Tony

Air Temperature: 49°

- 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 Low Flow
Odor: Yes No
Temperature: 11.6 pH: 8.02 Spec. Conductivity: 1510 DO: 6.7 ORP: 50

LABORATORY ANALYSES

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

REMARKS:

very low water flow

SW24

Date: 10-25-22 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: cloudy
Odor: Yes No
Temperature: 9.3 pH: 8.4 Spec. Conductivity: 2300 DO: 7.2 ORP: 127

LABORATORY ANALYSES

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

REMARKS:

very 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.

Tony
Signature

10-24-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW25

Date: 10-24-22 Time: 0940

Weather Conditions: clear

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: cloudy
 Odor: Yes No
 Temperature: 10.1 pH: 8.2 Spec. Conductivity: 1850 DO: 9.2 ORP: 130

LABORATORY ANALYSES

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

REMARKS:

low flow

SW26

Date: 10-24-22 Time: 1010

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: Low Flow
 Odor: Yes No
 Temperature: 9.8 pH: 7.95 Spec. Conductivity: 2040 DO: 9.0 ORP: 22

LABORATORY ANALYSES

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

REMARKS:

very 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

10-24-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW7

Date: 10-21-22 Time: 1030

Weather Conditions: ☐ clear

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: cloudy
 Odor: Yes No
 Temperature: 7.6 pH: 8.3 Spec. Conductivity: 3053 DO: 17. ORP: 115

LABORATORY ANALYSES

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

REMARKS:

SW18

Date: 10-24-22 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 low flow
 Odor: Yes No
 Temperature: 9.9 pH: 7.9 Spec. Conductivity: 1855 DO: 9.5 ORP: 23

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

10-21-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW 323
 Date: 10-24-22 Time: 0800
 Personnel: Tony Weather Conditions: clear
 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: _____
 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

SW 23
 Date: 10-24-22 Time: 0815
 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

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

10-24-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW17

Date: 10-21-22 Time: 0830

Weather Conditions: clear

Personnel: Tony

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:

crack is dry no water to sample

SW8R

Date: 10-21-22 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

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: 8.0 Spec. Conductivity: 572 DO: 11.0 ORP: 196

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

10-21-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW 11

Date: 10-20-22 Time: 1000

Weather Conditions: clear

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: 9.1 pH: 8.2 Spec. Conductivity: 734 DO: 15.3 ORP: 126

LABORATORY ANALYSES

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

REMARKS:

SW 10R (SW 12)

Date: 10-21-22 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: 10.3 pH: 8.5 Spec. Conductivity: 783 DO: _____ ORP: 125

LABORATORY ANALYSES

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

REMARKS:

Sample was labeled wrong its SW 12 not SW 10R

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

10-20-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW 5

Date: 10-20-22 Time: 0900

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

LABORATORY ANALYSES

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

REMARKS:

check is dry no water to sample

SW 16

Date: 10-20-22 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: 11.9 pH: 8.1 Spec. Conductivity: 721 DO: 11.4 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 DEFINED WITHIN THE CURRENT WASTEWATER MANAGEMENT PROGRAM PLAN.

[Signature]
 Signature

10-20-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW6

Date: 10-18-22 Time: 1030 Weather Conditions: cloudy
 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: 14.0 pH: 7.4 Spec. Conductivity: 715 DO: 14.4 ORP: 137

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

REMARKS:

SW4

Date: 10-20-22 Time: 0840 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: 7.6 pH: 8.4 Spec. Conductivity: 504 DO: 11.2 ORP: 138

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 10-18-22 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW-2

Date: 10-18-22 Time: 0945

Weather Conditions: cloudy
Air Temperature: 46°

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: _____
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

SWR

Date: 10-18-22 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

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

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

10-18-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW 1

Date: 10-18-22 Time: 0920

Weather Conditions: cloudy 42°

Personnel: Tony

Air Temperature: 42°

- 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: CREEK IS DRY NO WATER TO SAMPLE
 Odor: Yes No
 Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

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

REMARKS:

SW-22

Date: 10-18-22 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: 10.8 pH: 6.3 Spec. Conductivity: 724 DO: 8.5 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

10-18-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW11
 Date: 11-30-22 Time: 1015 Weather Conditions: cloudy
 Personnel: Tony Air Temperature: 60°
 Does location have water present? Yes No
 Is water depth sufficient for sampling? Yes No
 Are irrigation fields active within area? Yes No
24hr rain total
1.36"

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: 13.1 pH: 8.1 Spec. Conductivity: 445 DO: 15.8 ORP: 93

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

REMARKS: Heavy Rain Event 2022

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

11-30-22
 Date

Heavy Rain Event 2022

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW16

Date: 11-30-22 Time: 0915

Weather Conditions: cloudy

Personnel: Tony

Air Temperature: 61°

- 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
1.36"

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: 8.1 Spec. Conductivity: 479 DO: 16.7 ORP: 80

LABORATORY ANALYSES

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

REMARKS:

Heavy Rain Event 2022

SW12

Date: 11-30-22 Time: _____

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

24 hr Rain Total
1.36"

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: 12.6 pH: 8.3 Spec. Conductivity: 378 DO: 16.5 ORP: 83

LABORATORY ANALYSES

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

REMARKS:

Heavy Rain Event 2022

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

11-30-22
Date

Heavy Rain Event 2022

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW8R

Date: 11-30-22 Time: 0820

Personnel: Tony

Weather Conditions: cloudy

Air Temperature: 61°

- 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
1.36"

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: 13.5 pH: 8.3 Spec. Conductivity: 355 DO: 15.0 ORP: 66

LABORATORY ANALYSES

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

REMARKS: Heavy Rain Event 2022

SW6

Date: 11-30-22 Time: 0950

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

24 hr RAIN total
1.36"

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: 14.5 pH: 7.8 Spec. Conductivity: 664 DO: 15.2 ORP: 69

LABORATORY ANALYSES

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

REMARKS: Heavy Rain Event 2022

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

11-30-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW 7

Sample Date: 12-30-22 Sample Time: 1030

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: 24.61 ft Depth to water: Full

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

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

Purge Start Time: 1015 Purge End Time: 1045

Number of Purged Volumes: 3

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	16.9	7.1	2692			
1	17.1	7.1	2700	20	10.5	Grey
2	17.0	7.2	2686	20	9.5	Cloudy
3	17.2	7.2	2614	17	9.0	Cloudy
Sample Data (if purged dry)				15	-9.5	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:

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

12-30-22

Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW6

Sample Date: 12-30-22 Sample Time: 1000

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

Total Depth: 24.80 ft Depth to water: 24.00 ft Water Column Height: (total depth - Depth to water) = 0.80 ft

Purge Volume: (Water Column Height) * 0.163 = 0.13 gal

Purge Start Time: 0945 Purge End Time: 1015 Number of Purged Volumes: 0

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

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.

[Signature]
Signature

12-30-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW4
 Sample Date: 12-30-22 Sample Time: 0845
 Personnel: Tony

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? Bailer Submersible Pump
 Total Depth: 24.95 ft Depth to water: 22.3 ft Water Column Height: (total depth - Depth to water) = 2.55 ft
 Purge Volume: (Water Column Height) * 0.163 = 0.4 gal
 Purge Start Time: 0930 Purge End Time: 0930 Number of Purged Volumes: 1
 Equipment? Dedicated Field/off-site Cleaned

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	14.8	9.4	363	93	9.2	clear
1						
2						
3						
Sample Data (if purged qty):						

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:

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.

Tony
 Signature

12-30-22
 Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW14

Sample Date: 12-29-22 Sample Time: 1030

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: 19.75 ft Depth to water: 9.6 ft Water Column Height: (total depth - Depth to water) = 10.15 ft

Purge Volume: (Water Column Height) * 0.163 = 1.65 gal

Purge Start Time: 1200 Purge End Time: 1045 Number of Purged Volumes: 1

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0						
1	<u>16.2</u>	<u>7.7</u>	<u>548</u>	<u>-5</u>	<u>11.2</u>	<u>Clear</u>
2						
3						
Sample Data (if purged only):						

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:

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.

Tony
Signature

12-29-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW12
 Sample Date: 12-29-22 Sample Time: 1000
 Personnel: Tony Weather Conditions: clear
 Air Temperature: 41°

- 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
 Total Depth: 20.04 ft Depth to water: 6.7 ft Water Column Height: (total depth - Depth to water) = 13.7 ft
 Purge Volume: (Water Column Height) * 0.163 = 2.23 gal
 Purge Start Time: 0945 Purge End Time: 1020 Number of Purged Volumes: 3
 Equipment? Dedicated Field/off-site Cleaned

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	13.8	7.9				
1	14.1	7.8	332	-120	10.2	Gray
2	14.2	7.8	361	-90	9.9	Gray
3			355	-92	10.1	Gray
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:

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

12-29-22
 Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW13

Sample Date: 12-20-22 Sample Time: 0830

Personnel: Tony

Weather Conditions: cloudy
Air Temperature: 33°

- 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: 24.68 ft Depth to water: 24.60 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 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]
Signature

12-20-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW2

Sample Date: 12-19-22 Sample Time: 1000

Personnel: Tony

Weather Conditions: clear
Air Temperature: 31°

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

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

12-19-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW 3

Sample Date: 12-19-22 Sample Time: 0930

Personnel: Tony

Weather Conditions: clear
Air Temperature: 30°

- 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: 23.45 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 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

12-19-22
Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW1
 Sample Date: 12-19-22 Sample Time: 0900
 Personnel: Tom

Weather Conditions: clear
 Air Temperature: 8 27°

- 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
 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: _____ 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]
 Signature

12-19-22
 Date

GROUNDWATER SAMPLE - FIELD DATA SHEET

MW 11

Sample Date: 12-19-22 Sample Time: 0800

Personnel: Tony

Weather Conditions: clear
Air Temperature: 22°

- 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

Equipment? Dedicated Field/off-site Cleaned

Total Depth: 24.57 ft Depth to water: Full ft

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

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

Purge Start Time: 0800 Purge End Time: _____ Number of Purged Volumes: _____

Volume	Temperature	pH	Specific Conductivity	ORP	DO	Color
0	12.7	7.9	470	-193	11.0	clear
1	13.4	7.7	455	-213	9.7	clear
2	13.4	7.5	463	-200	8.1	clear
3	13.1	7.5	471	-187	9.3	clear
Sample Data (if purged city)						

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

12-19-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW9

Date: 12-14-22 Time: 1000

Weather Conditions: cloudy
Air Temperature: 49°

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: 10.3 pH: 8.5 Spec. Conductivity: 443 DO: 16.6 ORP: 193

LABORATORY ANALYSES

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

REMARKS:

SW55B

Date: 12-14-22 Time: 0900

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 with 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.

Tony
Signature

12-14-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW18

Date: 12-14-22 Time: 0930

Personnel: Tony

Weather Conditions: cloudy

Air Temperature: 44°

- 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: 9.6 pH: 8.3 Spec. Conductivity: 1699 DO: 15.3 ORP: 161

LABORATORY ANALYSES

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

REMARKS:

SW19

Date: 12-14-22 Time: 0930

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

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: 8.5 Spec. Conductivity: 2980 DO: 19.7 ORP: 129

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

12-14-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW17

Date: 12-13-22 Time: 0930

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

LABORATORY ANALYSES

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

REMARKS:

no water to sample

SW14

Date: 12-13-22 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

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: 8.5 pH: 8.1 Spec. Conductivity: 1761 DO: _____ ORP: 171

LABORATORY ANALYSES

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

REMARKS:

Ran duplicate sample from this location under SW14 D

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

12-13-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW13

Date: 12-13-22 Time: 0830

Personnel: Tony

Weather Conditions: clear

Air Temperature: 31°

- 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: 10.2 pH: 8.4 Spec. Conductivity: 332 DO: 19 ORP: 103

LABORATORY ANALYSES

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

REMARKS:

SW15

Date: 12-13-22 Time: 0900

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

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: 8.5 Spec. Conductivity: 328 DO: 20 ORP: 103

LABORATORY ANALYSES

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

REMARKS:

BRUCE DAM Below sample location water backed up

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

12-13-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW24

Date: 12-12-22 Time: 0940

Personnel: Tony

Weather Conditions: cloudy

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: _____
Odor: Yes No
Temperature: 11.1 pH: 8.3 Spec. Conductivity: 2100 DO: 13.2 ORP: 92

LABORATORY ANALYSES

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

REMARKS:

SW16

Date: 12-12-22 Time: 1015

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

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: 13.5 pH: 8.3 Spec. Conductivity: 912 DO: 18.4 ORP: 87

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

12-12-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW 5

Date: 12-12-22 Time: 0900

Personnel: Tony

Weather Conditions: cloudy

Air Temperature: 60°

- 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:

NO water to sample

SW26

Date: 12-12-22 Time: 0915

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

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: 11.3 pH: 7.9 Spec. Conductivity: 1550 DO: 12.0 ORP: 101

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

12-12-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW25

Date: 12-8-22 Time: 1000

Weather Conditions: cloudy

Personnel: Tony

Air Temperature: 64°

- 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
0.88"

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: 13.8 pH: 8.2 Spec. Conductivity: 1300 DO: 1.9 ORP: 77

LABORATORY ANALYSES

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

REMARKS:

SW27

Date: 12-8-22 Time: 1030

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

24 hr rain total
0.88"

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: 14.2 pH: 8.3 Spec. Conductivity: 667 DO: 15.0 ORP: 54

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

12-8-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW8R

Date: 12-8-22 Time: 0815

Weather Conditions: cloudy

Personnel: Tony

Air Temperature: 63°

- 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
0.98"

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: 7.8 Spec. Conductivity: 457 DO: 17.2 ORP: 114

LABORATORY ANALYSES

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

REMARKS:

SW7

Date: 12-8-22 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

24 hr rain total
0.98"

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 sulfur odor No
 Temperature: 13.9 pH: 7.9 Spec. Conductivity: 1696 DO: 15.8 ORP: 58

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

12-8-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW72 upgenoc

Date: 12-6-22 Time: 0925

Personnel: Tony

Weather Conditions: RAIN

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

24 hr rain total

0.71"

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: 11.0 pH: 8.4 Spec. Conductivity: 382 DO: 21 ORP: 100

LABORATORY ANALYSES

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

REMARKS:

SW11 downgenoc

Date: 12-6-22 Time: 1000

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

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: 10.6 pH: 8.2 Spec. Conductivity: 447 DO: 17 ORP: 136

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

12-6-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW2

Date: 12.6.22 Time: 0815

Personnel: Tony

Weather Conditions: RAIN
Air Temperature: 46°

- 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
0.71"

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:

Not enough water to sample

SW4

Date: 12.6.22 Time: 0840

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

24 hr RAIN total
0.71"

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: 8.4 Spec. Conductivity: 390 DO: 18.1 ORP: 91

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

12-6-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW6

Date: 12-5-22 Time: 10:50 Weather Conditions: cloudy
 Personnel: Tony Air Temperature: 37°

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: 13.5 pH: 8.0 Spec. Conductivity: 836 DO: 18.0 ORP: 62

LABORATORY ANALYSES

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

REMARKS:

SWR

Date: 12-6-22 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

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:

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.

[Signature]
 Signature

12-6-22
 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW3R3

Date: 12-5-22 Time: 1000

Personnel: Tony

Weather Conditions: cloudy

Air Temperature: 35°

- 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:

SW23 crack is dry no water to sample

Date: 12-5-22 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

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:

SW23 crack 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
Signature

12-5-22
Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW22

Date: 12-5-22 Time: 0920 Weather Conditions: cloudy
 Personnel: Tony Air Temperature: 30°

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: 77 pH: 7.9 Spec. Conductivity: 414 DO: 12 ORP: 78

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: 77 pH: 7.9 Spec. Conductivity: 414 DO: 12 ORP: 78

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 12.5.22 Date

SURFACE WATER SAMPLE - FIELD DATA SHEET

SW1
 Date: 12-5-22 Time: 0840 Weather Conditions: cloudy
 Personnel: Tony 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: _____
 Odor: Yes No
 Temperature: _____ pH: _____ Spec. Conductivity: _____ DO: _____ ORP: _____

LABORATORY ANALYSES

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

REMARKS:

check is dry no water to sample

SW3R2
 Date: 12-5-22 Time: 0900 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: 7.5 pH: 8.1 Spec. Conductivity: 606 DO: 14.1 ORP: 61

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

12-5-22
 Date



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0577

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill RD
Dandridge, TN 37725

Project Name: Permit Irrigation Water

Project / PO Number: N/A
Received: 04/13/2022
Reported: 04/21/2022

Analytical Testing Parameters

Client Sample ID:	SW1 Rain	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	04/13/2022 8:10
Lab Sample ID:	R2D0577-01		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		04/13/22 1524	04/14/22 1648	TXN
Escherichia coli	>2419.6	1	MPN/100mL	1		04/13/22 1524	04/14/22 1648	TXN
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	K1	04/14/22 1823	04/19/22 1326	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		04/15/22 1001	04/15/22 1509	EXC
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.531	0.100	mg/L	1			04/13/22 1756	CSE
Nitrite as N	<0.100	0.100	mg/L	1			04/13/22 1756	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	119	5.00	mg CaCO3/L	1			04/14/22 1445	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	10.0	6.2	mg/L	1			04/14/22 1240	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		04/15/22 1001	04/15/22 1509	EXC



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0577

Client Sample ID:	SW22 Rain	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	04/13/2022 8:30
Lab Sample ID:	R2D0577-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	1299.7	1	MPN/100mL	1		04/13/22 1524	04/14/22 1648	TXN
Escherichia coli	198.9	1	MPN/100mL	1		04/13/22 1524	04/14/22 1648	TXN
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	K1	04/14/22 1823	04/19/22 1326	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		04/15/22 1001	04/15/22 1511	EXC
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.205	0.100	mg/L	1		04/13/22 1811	04/13/22 1811	CSE
Nitrite as N	<0.100	0.100	mg/L	1		04/13/22 1811	04/13/22 1811	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	136	5.00	mg CaCO3/L	1			04/14/22 1445	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	<6.2	6.2	mg/L	1			04/14/22 1240	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		04/15/22 1001	04/15/22 1511	EXC



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0577

Client Sample ID:	SW2 Rain	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	04/13/2022 8:50
Lab Sample ID:	R2D0577-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		04/13/22 1524	04/14/22 1648	TXN
Escherichia coli	>2419.6	1	MPN/100mL	1		04/13/22 1524	04/14/22 1648	TXN
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	K1	04/14/22 1823	04/19/22 1326	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		04/15/22 1001	04/15/22 1513	EXC
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.328	0.100	mg/L	1		04/13/22 1827	04/13/22 1827	CSE
Nitrite as N	<0.100	0.100	mg/L	1		04/13/22 1827	04/13/22 1827	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	94.0	5.00	mg CaCO3/L	1			04/14/22 1445	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	41.8	6.2	mg/L	1			04/14/22 1240	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		04/15/22 1001	04/15/22 1513	EXC



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0577

Client Sample ID:	SWR Rain	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	04/13/2022 9:15
Lab Sample ID:	R2D0577-04		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	1011.2	1	MPN/100mL	1		04/13/22 1524	04/14/22 1648	TXN
Escherichia coli	1011.2	1	MPN/100mL	1		04/13/22 1524	04/14/22 1648	TXN
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	K1	04/14/22 1823	04/19/22 1326	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		04/15/22 1001	04/15/22 1515	EXC
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.325	0.100	mg/L	1		04/13/22 1842	04/13/22 1842	CSE
Nitrite as N	<0.100	0.100	mg/L	1		04/13/22 1842	04/13/22 1842	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	94.0	5.00	mg CaCO3/L	1			04/14/22 1445	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	42.8	6.2	mg/L	1			04/14/22 1240	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		04/15/22 1001	04/15/22 1515	EXC



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0577

Client Sample ID:	SW4 Rain	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	04/13/2022 9:45
Lab Sample ID:	R2D0577-05		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	435.2	1	MPN/100mL	1		04/13/22 1524	04/14/22 1648	TXN
Escherichia coli	102.2	1	MPN/100mL	1		04/13/22 1524	04/14/22 1648	TXN
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	K1	04/14/22 1823	04/19/22 1326	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		04/15/22 1001	04/15/22 1517	EXC
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.869	0.100	mg/L	1		04/13/22 1929	04/13/22 1929	CSE
Nitrite as N	<0.100	0.100	mg/L	1		04/13/22 1929	04/13/22 1929	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	202	5.00	mg CaCO3/L	1			04/14/22 1445	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	<6.2	6.2	mg/L	1			04/14/22 1240	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		04/15/22 1001	04/15/22 1517	EXC



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0577

Client Sample ID: SW6 Rain	Collected By: Tony Bryant
Sample Matrix: Wastewater	Collection Date: 04/13/2022 10:00
Lab Sample ID: R2D0577-06	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	1732.9	1	MPN/100mL	1		04/13/22 1524	04/14/22 1648	TXN
Escherichia coli	613.1	1	MPN/100mL	1		04/13/22 1524	04/14/22 1648	TXN
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	K1	04/14/22 1823	04/19/22 1326	JPA
Calculation								
Total Nitrogen	1.59	1.00	mg/L	1		04/15/22 1001	04/15/22 1526	EXC
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.59	0.100	mg/L	1		04/13/22 1945	04/13/22 1945	CSE
Nitrite as N	<0.100	0.100	mg/L	1		04/13/22 1945	04/13/22 1945	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	241	5.00	mg CaCO3/L	1			04/14/22 1445	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	8.8	6.2	mg/L	1			04/14/22 1240	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		04/15/22 1001	04/15/22 1526	EXC

Definitions

- K1:** Unseeded dilution blank depletion exceeds 0.2 mg/L.
- 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:

Paige Drouillard
Quality Assurance Specialist
Reported: 04/21/2022 09:49

Microbac Laboratories, Inc.

505 East Broadway Avenue | Maryville, TN 37804-5744 | 865-977-1200 p | www.microbac.com



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 2 D 0 5 7 7

Bush Brothers & Company
 PM: Paige Drouillard

Project ID: _____

Permit #: _____

If drinking water, State Reported? Yes No

Sampler: Tony Beyant

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 #: _____

ANALYSIS REQUIRED

EColi
Nitrate AS N
ALKALINITY
TSS
BOD5
Total Nitrogen
Nitrate Nitrite

FOR LAB CHECK-IN ONLY

Temp Recd 4.1 °C

Properly Preserved: Yes No

Remarks: 2651330-1

Sample #

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts.	EColi	Nitrate AS N	ALKALINITY	TSS	BOD5	Total Nitrogen	Nitrate Nitrite
<u>SW1 Rain</u>	<u>4-13-22</u>	<u>0810</u>	<u>GENS</u>	<u>4</u>	X	X	X	X	X	X	X
<u>SW2 Rain</u>	<u>4-13-22</u>	<u>0830</u>	<u>GENS</u>	<u>4</u>	X	X	X	X	X	X	X
<u>SW2 Rain</u>	<u>4-13-22</u>	<u>0850</u>	<u>GENS</u>	<u>4</u>	X	X	X	X	X	X	X
<u>SW6 Rain</u>	<u>4-13-22</u>	<u>0915</u>	<u>GENS</u>	<u>4</u>	X	X	X	X	X	X	X
<u>SW4 Rain</u>	<u>4-13-22</u>	<u>0945</u>	<u>GENS</u>	<u>4</u>	X	X	X	X	X	X	X
<u>SW6 Rain</u>	<u>4-13-22</u>	<u>1000</u>	<u>GENS</u>	<u>4</u>	X	X	X	X	X	X	X

Please Mark Testing Required (X)

Priority Standard
 Next Day
 2-3 Day

Special Instructions / Comments...

Relinquished By: _____

Date: 4-13-22

Time: 1115

Received By: Michelle E. Johnson

Relinquished By: _____

Date: _____

Time: _____

Received By: _____

Relinquished By: _____

Date: _____

Time: _____

Received By: _____

Relinquished By: _____

Date: _____

Time: _____

Received By: _____

Customer #:
 Job Temp.:
 Project:



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1531

Project Description

Bush Brothers WWTP

For:

Terry Dockery

Bush Brothers & Company

3304 Chestnut Hill RD

Dandridge, TN 37725

Client Relationships Lead

Samantha Simpson

Wednesday, April 6, 2022

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc., Maryville. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1531

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill RD
Dandridge, TN 37725

Project Name: Bush Brothers WWTP

Project / PO Number: N/A
Received: 03/30/2022
Reported: 04/06/2022

Case Narrative

E. coli analysis Laboratory Control Standard (LCS) was failing with a high bias on 3/30/22. All other quality control measures were within specification. A non-conformance was opened and is available upon request.-SLB 4/6/22

Sample Summary Report

<u>Sample Name</u>	<u>Laboratory ID</u>	<u>Client Matrix</u>	<u>Sample Type</u>	<u>Sample Begin</u>	<u>Sample Taken</u>	<u>Lab Received</u>
SW17	R2C1531-01	Aqueous	Grab		03/30/22 08:00	03/30/22 11:45
SW19	R2C1531-02	Aqueous	Grab		03/30/22 08:45	03/30/22 11:45
SW26	R2C1531-03	Aqueous	Grab		03/30/22 09:30	03/30/22 11:45



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1531

Analytical Testing Parameters

Client Sample ID: SW17	Collected By: Tony Bryant
Sample Matrix: Aqueous	Collection Date: 03/30/2022 8:00
Lab Sample ID: R2C1531-01	

Microbiology	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: SM 9223 B (Collert Quanti-Tray)-2004									
Escherichia coli	2419.6	1	1	MPN/100mL	1		03/30/22 1405	03/31/22 0954	CSE
Inorganics Total	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: BOD Preparation/SM 5210 B-2011									
Biochemical Oxygen Demand (BOD5)	2.00	2.00	2.00	mg/L	1	K1	03/31/22 1908	04/05/22 1310	JPA
Method: Calculation									
Total Nitrogen	5.00	0.254	1.00	mg/L	1		03/31/22 1552	03/31/22 1552	TXN
Method: EPA 300.0, Rv. 2.1 (1993)									
Nitrate as N	3.07	0.00970	0.100	mg/L	1		03/30/22 1625	03/30/22 1625	CSE
Nitrite as N	<0.100	0.00850	0.100	mg/L	1		03/30/22 1625	03/30/22 1625	CSE
Method: SM 2320 B-1997									
Alkalinity to pH 4.5, Total	387	5.00	5.00	mg CaCO3/L	1			03/30/22 1405	TXN
Method: SM 2540 D-2011									
Total Suspended Solids (TSS)	56.2		6.8	mg/L	1			04/04/22 1239	AMG
General Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 351.2, Rv. 2 (1993)									
Total Kjeldahl Nitrogen (TKN)	1.93	0.254	1.00	mg/L	1		03/31/22 1552	03/31/22 1552	TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1531

Client Sample ID: SW19	Collected By: Tony Bryant
Sample Matrix: Aqueous	Collection Date: 03/30/2022 8:45
Lab Sample ID: R2C1531-02	

Microbiology	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: SM 9223 B (Colilert Quanti-Tray)-2004									
Escherichia coli	686.7	1	1	MPN/100mL	1		03/30/22 1405	03/31/22 0954	CSE

Inorganics Total	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: BOD Preparation/SM 5210 B-2011									
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	2.00	mg/L	1	K1	03/31/22 1908	04/05/22 1310	JPA

Method: Calculation									
Total Nitrogen	3.85	0.254	1.00	mg/L	1		03/31/22 1554	03/31/22 1554	TXN

Method: EPA 300.0, Rv. 2.1 (1993)									
Nitrate as N	2.93	0.00970	0.100	mg/L	1		03/30/22 1640	03/30/22 1640	CSE
Nitrite as N	<0.100	0.00850	0.100	mg/L	1		03/30/22 1640	03/30/22 1640	CSE

Method: SM 2320 B-1997									
Alkalinity to pH 4.5, Total	223	5.00	5.00	mg CaCO3/L	1			03/30/22 1405	TXN

Method: SM 2540 D-2011									
Total Suspended Solids (TSS)	<6.2		6.2	mg/L	1			03/30/22 1511	AMG

General Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 351.2, Rv. 2 (1993)									
Total Kjeldahl Nitrogen (TKN)	<1.00	0.254	1.00	mg/L	1		03/31/22 1554	03/31/22 1554	TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1531

Client Sample ID: SW26	Collected By: Tony Bryant
Sample Matrix: Aqueous	Collection Date: 03/30/2022 9:30
Lab Sample ID: R2C1531-03	

Microbiology	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: SM 9223 B (Colilert Quanti-Tray)-2004									
Escherichia coli	151.5	1	1	MPN/100mL	1		03/30/22 1405	03/31/22 0954	CSE
Inorganics Total									
Method: BOD Preparation/SM 5210 B-2011									
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	2.00	mg/L	1	K1	03/31/22 1908	04/05/22 1310	JPA
Method: Calculation									
Total Nitrogen	0.569	0.254	1.00	mg/L	1		03/31/22 1556	03/31/22 1556	TXN
Method: EPA 300.0, Rv. 2.1 (1993)									
Nitrate as N	0.112	0.00970	0.100	mg/L	1		03/30/22 1656	03/30/22 1656	CSE
Nitrite as N	<0.100	0.00850	0.100	mg/L	1		03/30/22 1656	03/30/22 1656	CSE
Method: SM 2320 B-1997									
Alkalinity to pH 4.5, Total	250	5.00	5.00	mg CaCO3/L	1			03/30/22 1405	TXN
General Parameters									
Method: EPA 351.2, Rv. 2 (1993)									
Total Kjeldahl Nitrogen (TKN)	<1.00	0.254	1.00	mg/L	1		03/31/22 1556	03/31/22 1556	TXN

Definitions

- K1:** Unseeded dilution blank depletion exceeds 0.2 mg/L.
- 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

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 4.1°C



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1531

Cooler Inspection Checklist

Ice Present or not required?	Yes	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not recd.?	Yes		

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:

Samantha Simpson
Client Relationships Lead
Reported: 04/06/2022 14:27

Microbac Laboratories, Inc.



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 2 C 1 5 3 1
 Bush Brothers & Company
 P.M.: Samantha Simpson

Project ID: _____
 Permit #: _____
 If drinking water, State Reported? Yes No
 Sampler: Tony Beyers
 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@bushlabs.com

Invoice To: SAME
 P.O. #: _____
 Quote #: _____

EColi
Nitrate as N
Alkalinity
TSS
BOD 5
Total Nitrogen
Nitrate Nitrite

ANALYSIS REQUIRED

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts.	EColi	Nitrate as N	Alkalinity	TSS	BOD 5	Total Nitrogen	Nitrate Nitrite
SW17	3-30-22	0800	6008	4	X	X	X	X	X	X	X
SW19	3-30-22	0815	6008	4	X	X	X	X	X	X	X
SW26	3-30-22	0930	6008	4	X	X	X	X	X	X	X

Please Mark Testing Required (X)

FOR LAB CHECK-IN ONLY
 Temp Rec'd 4.1 °C
 Property Preserved: Yes No
 Remarks: on ice

Priority: _____
 Standard: _____
 Next Day: _____
 2-3 Day: _____
 Special Instructions / Comments: _____

Relinquished By: <u>[Signature]</u>	Date: <u>3-30-22</u>	Time: <u>1145</u>	Received By: <u>[Signature]</u>	Relinquished By: _____	Date: _____	Time: _____	Received By: _____
Relinquished By: _____	Date: _____	Time: _____	Received By: _____	Relinquished By: _____	Date: _____	Time: _____	Received By: _____

Customer #: _____
 Job Temp.: _____
 Project: _____



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0145

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill RD
Dandridge, TN 37725

Project / PO Number: N/A
Received: 04/01/2022
Reported: 04/11/2022

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: SW27, Sample Matrix: Aqueous, Lab Sample ID: R2D0145-01, Collected By: Tony Bryant, Collection Date: 04/01/2022 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)-2004, Inorganics Total, BOD Preparation/SM 5210 B-2011, Calculation, EPA 300.0, Rv. 2.1 (1993), EPA 350.1, Rv. 2 (1993), SM 2320 B-1997, and General Parameters.



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0145

Client Sample ID:	SW24	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	04/01/2022 9:30
Lab Sample ID:	R2D0145-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	>2419.6	1	MPN/100mL	1		04/01/22 1549	04/02/22 1555	LJG
Inorganics Total								
	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	5.50	2.00	mg/L	1	G3	04/01/22 1857	04/06/22 1315	JPA
Calculation								
Total Nitrogen	6.16	1.00	mg/L	5		04/07/22 0832	04/07/22 1440	MTN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.835	0.500	mg/L	5		04/01/22 1555	04/01/22 1555	CSE
Nitrite as N	<0.500	0.500	mg/L	5		04/01/22 1555	04/01/22 1555	CSE
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	0.475	0.200	mg/L	1		04/05/22 1051	04/05/22 1541	EXC
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	1640	10.0	mg CaCO3/L	2			04/06/22 1430	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	210	31.2	mg/L	6			04/06/22 1446	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	5.32	1.00	mg/L	1		04/07/22 0832	04/07/22 1440	MTN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0145

Client Sample ID:	SW15	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	04/01/2022 10:00
Lab Sample ID:	R2D0145-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	>2419.6	1	MPN/100mL	1		04/01/22 1549	04/02/22 1555	LJG
Inorganics Total								
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		04/01/22 1857	04/06/22 1315	JPA
Calculation								
Total Nitrogen	1.07	1.00	mg/L	1		04/07/22 0832	04/07/22 1446	MTN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.07	0.100	mg/L	1		04/01/22 1610	04/01/22 1610	CSE
Nitrite as N	<0.100	0.100	mg/L	1		04/01/22 1610	04/01/22 1610	CSE
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		04/05/22 1051	04/05/22 1544	EXC
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		04/07/22 0832	04/07/22 1446	MTN

Definitions

- G3: BOD result estimated due to inconsistent oxygen depletion.
- 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:

Samantha Simpson
 Client Relationships Lead
 Reported: 04/11/2022 16:16

Microbac Laboratories, Inc.

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MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 2 D 0 1 4 5
 Bush Brothers & Company
 PW: Samantha Simpson

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@bushbro.com

Invoice To: SAME
 P.O. #: _____
 Quote #: _____

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts
5W27	4-1-22	0900	Gens	4
5W24	4-1-22	0930	Gens	4
5W15	4-1-22	1000	Gens	4

ANALYSIS REQUIRED

EColi	
Nitrate as N	
Alkalinity	
TSS	
BOD 5	
Total Nitrogen	
Nitrate Nitrite	

FOR LAB CHECK-IN ONLY
 Temp Recd 5.5 C
 Properly Preserved: Yes No
 Remarks: on ice

Special Instructions / Comments: _____

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts	EColi	Nitrate as N	Alkalinity	TSS	BOD 5	Total Nitrogen	Nitrate Nitrite
5W27	4-1-22	0900	Gens	4	X	X	X	X	X	X	X
5W24	4-1-22	0930	Gens	4	X	X	X	X	X	X	X
5W15	4-1-22	1000	Gens	4	X	X	X	X	X	X	X

Priority Standard Next Day 2-3 Day

Relinquished By: [Signature] Date: 4-1-22 Time: 1010
 Received By: [Signature] Date: _____ Time: _____
 Relinquished By: _____ Date: _____ Time: _____
 Received By: _____ Date: _____ Time: _____

Customer #: _____
 Job Temp.: _____
 Project: _____



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0398

Project Description

Bush Brothers WWTP

For:

Terry Dockery

Bush Brothers & Company

3304 Chestnut Hill RD

Dandridge, TN 37725

Quality Assurance Specialist

Paige Drouillard

Thursday, April 14, 2022

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc., Maryville. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

Microbac Laboratories, Inc.

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0398

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill RD
Dandridge, TN 37725

Project Name: Bush Brothers WWTP

Project / PO Number: N/A
Received: 04/08/2022
Reported: 04/14/2022

Sample Summary Report

<u>Sample Name</u>	<u>Laboratory ID</u>	<u>Client Matrix</u>	<u>Sample Type</u>	<u>Sample Begin</u>	<u>Sample Taken</u>	<u>Lab Received</u>
SW27 Resample	R2D0398-01	Wastewater	Grab		04/08/22 08:30	04/08/22 11:50
SW26 Resample	R2D0398-02	Wastewater	Grab		04/08/22 08:00	04/08/22 11:50
SW15 Resample	R2D0398-03	Wastewater	Grab		04/08/22 09:30	04/08/22 11:50



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0398

Analytical Testing Parameters

Client Sample ID: SW27 Resample	Collected By: Tony Bryant
Sample Matrix: Wastewater	Collection Date: 04/08/2022 8:30
Lab Sample ID: R2D0398-01	

Inorganics Total	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: SM 2540 D-2011									
Total Suspended Solids (TSS)	23.6		5.0	mg/L	1			04/12/22 1504	AMG

Client Sample ID: SW26 Resample	Collected By: Tony Bryant
Sample Matrix: Wastewater	Collection Date: 04/08/2022 8:00
Lab Sample ID: R2D0398-02	

Inorganics Total	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: SM 2540 D-2011									
Total Suspended Solids (TSS)	42.6		5.0	mg/L	1			04/12/22 1504	AMG

Client Sample ID: SW15 Resample	Collected By: Tony Bryant
Sample Matrix: Wastewater	Collection Date: 04/08/2022 9:30
Lab Sample ID: R2D0398-03	

Inorganics Total	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: SM 2320 B-1997									
Alkalinity to pH 4.5, Total	167	5.00	5.00	mg CaCO3/L	1			04/12/22 1047	TXN
Method: SM 2540 D-2011									
Total Suspended Solids (TSS)	<5.0		5.0	mg/L	1			04/12/22 1504	AMG

Definitions

- mg CaCO3/L:** Milligrams Calcium Carbonate per Liter
- mg/L:** Milligrams per Liter
- RL:** Reporting Limit

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 2.7°C



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0398

Cooler Inspection Checklist

Ice Present or not required?	Yes	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not recd.?	Yes		

Report Comments

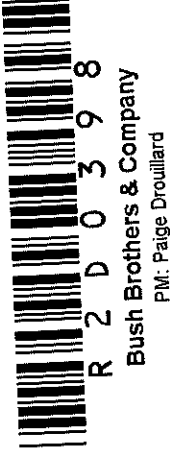
The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <<https://www.microbac.com/standard-terms-conditions>>.

Reviewed and Approved By:

Paige Drouillard
Quality Assurance Specialist
Reported: 04/14/2022 13:06

Microbac Laboratories, Inc.

CHAIN OF CUSTODY



Project ID: _____
 Permit #: _____
 if drinking water, State Reported? Yes No
 Sampler: TOM BYRANT
 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@bushbrocs.com

Invoice To: SAME
 P.O. #: _____
 Quote #: _____

FOR LAB CHECK-IN ONLY
 Temp Rec'd: 2.7
 Properly Preserved: Yes No
 Remarks: None

ANALYSIS REQUIRED

ALCALINITY	
TSS	
BOD 5	
TOTAL NITROGEN	
NITRATE NITRICE	

Please Mark Testing Required (X)

Special Instructions / Comments:

Priority
 Standard
 Next Day
 2-3 Day

Customer #: _____
 Job Temp.: _____
 Project: _____

Relinquished By: <u>[Signature]</u>	Relinquished By:	Received By: <u>[Signature]</u>	Received By:
Date: <u>4-22</u>	Date:	Date: <u>4-22</u>	Date:
Time: <u>11:50</u>	Time:	Time: <u>11:50</u>	Time:



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0463

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill RD
Dandridge, TN 37725

Project / PO Number: N/A
Received: 04/11/2022
Reported: 04/16/2022

Analytical Testing Parameters

Table with client and sample information: Client Sample ID: MW6, Sample Matrix: Aqueous, Lab Sample ID: R2D0463-01, Collected By: Tony Bryant, Collection Date: 04/11/2022 9:30

Microbiology

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: SM 9223 B (Colilert Quanti-Tray)-2004, Escherichia coli, <1, 1 MPN/100mL, 1, 04/11/22 1500, 04/12/22 1245, AMG

Inorganics Total

Calculation

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: Total Nitrogen, <1.67, 1.67 mg/L, 1, 04/15/22 1001, 04/15/22 1505, EXC

EPA 300.0, Rv. 2.1 (1993)

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: Nitrate as N, 0.130, 0.100 mg/L, 1, 04/12/22 1558, 04/12/22 1558, CSE

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: Nitrite as N, <0.100, 0.100 mg/L, 1, 04/12/22 1558, 04/12/22 1558, CSE

SM 2320 B-1997

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: Alkalinity to pH 4.5, Total, 284, 5.00 mg CaCO3/L, 1, 04/12/22 1047, TXN

General Parameters

EPA 351.2, Rv. 2 (1993)

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: Total Kjeldahl Nitrogen (TKN), <1.67, 1.67 mg/L, 1, 04/15/22 1001, 04/15/22 1505, EXC

Table with client and sample information: Client Sample ID: MW7, Sample Matrix: Aqueous, Lab Sample ID: R2D0463-02, Collected By: Tony Bryant, Collection Date: 04/11/2022 10:45

Microbiology

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: SM 9223 B (Colilert Quanti-Tray)-2004, Escherichia coli, <1, 1 MPN/100mL, 1, 04/11/22 1500, 04/12/22 1245, AMG

Inorganics Total

Calculation

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: Total Nitrogen, <1.67, 1.67 mg/L, 1, 04/15/22 1001, 04/15/22 1507, EXC

EPA 300.0, Rv. 2.1 (1993)

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: Nitrate as N, <0.100, 0.100 mg/L, 1, 04/12/22 1716, 04/12/22 1716, CSE

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: Nitrite as N, <0.100, 0.100 mg/L, 1, 04/12/22 1716, 04/12/22 1716, CSE

SM 2320 B-1997

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: Alkalinity to pH 4.5, Total, 334, 5.00 mg CaCO3/L, 1, 04/12/22 1047, TXN

General Parameters

EPA 351.2, Rv. 2 (1993)

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row: Total Kjeldahl Nitrogen (TKN), <1.67, 1.67 mg/L, 1, 04/15/22 1001, 04/15/22 1507, EXC

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0463

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:

A handwritten signature in blue ink, appearing to read "Drouillard", is written over a faint horizontal line.

Paige Drouillard
Quality Assurance Specialist
Reported: 04/16/2022 17:56

Microbac Laboratories, Inc.

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Page 2 of 3



R 2 D 0 4 6 3

Bush Brothers & Company
PM: Paige Drouillard

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 #: _____

FOR LAB CHECK-IN ONLY
Temp Rec'd 5.2 C
Properly Preserved: Yes No
Remarks: _____

Sample ID	Sample Date	Sample Time	Sample Type	# of Cont's	Special Instructions / Comments...
MW6	4-11-22	0930	GRAB	3	
MW7	4-11-22	1045	GRAB	3	

ANALYSIS REQUIRED

ALKALINITY	X	X
NITRATE AS N	X	X
TSS	X	X
BOD 5	X	X
TOTAL NITROGEN	X	X
NITRATE NITRITE	X	X

Please Mark Testing Required (X)

Customer #: _____
Job Temp.: _____
Project: _____

Relinquished By: <u>T. Bryant</u>	Date: <u>4-11-22</u>	Time: <u>1202</u>	Received By: <u>CWS</u>	Date: <u>4-11-22</u>
Relinquished By: _____	Date: _____	Time: _____	Received By: _____	Date: _____



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1206

Project Description

Bush Brothers WWTP

For:

Terry Dockery

Bush Brothers & Company

3304 Chestnut Hill RD

Dandridge, TN 37725

Client Relationships Lead

Samantha Simpson

Thursday, March 31, 2022

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc., Maryville. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

Microbac Laboratories, Inc.

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1206

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill RD
Dandridge, TN 37725

Project Name: Bush Brothers WWTP

Project / PO Number: N/A
Received: 03/22/2022
Reported: 03/31/2022

Sample Summary Report

<u>Sample Name</u>	<u>Laboratory ID</u>	<u>Client Matrix</u>	<u>Sample Type</u>	<u>Sample Begin</u>	<u>Sample Taken</u>	<u>Lab Received</u>
SW3R2	R2C1206-01	Aqueous	Grab		03/22/22 09:00	03/22/22 12:04
SW6	R2C1206-02	Aqueous	Grab		03/22/22 09:00	03/22/22 12:04



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1206

Analytical Testing Parameters

Client Sample ID:	SW3R2	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	03/22/2022 9:00
Lab Sample ID:	R2C1206-01		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	12	1	MPN/100mL	1		03/22/22 1653	03/23/22 1659	TXN
Inorganics Total								
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1	K1, K5	03/23/22 1853	03/28/22 1306	JUN
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		03/28/22 1556	03/28/22 1556	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.143	0.100	mg/L	1		03/22/22 2234	03/22/22 2234	CSE
Nitrite as N	<0.100	0.100	mg/L	1		03/22/22 2234	03/22/22 2234	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	213	5.00	mg CaCO3/L	1			03/28/22 1545	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	<8.9	8.9	mg/L	2		03/28/22 1625	03/28/22 1737	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		03/28/22 1556	03/28/22 1556	TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1206

Client Sample ID: SW6	Collected By: Tony Bryant
Sample Matrix: Aqueous	Collection Date: 03/22/2022 9:00
Lab Sample ID: R2C1206-02	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	<1	1	MPN/100mL	1		03/22/22 1653	03/23/22 1659	TXN
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	K1, K5	03/23/22 1853	03/28/22 1309	JUN
Calculation								
Total Nitrogen	2.14	1.00	mg/L	1		03/28/22 1602	03/28/22 1602	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.72	0.100	mg/L	1		03/22/22 2250	03/22/22 2250	CSE
Nitrite as N	<0.100	0.100	mg/L	1		03/22/22 2250	03/22/22 2250	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	237	5.00	mg CaCO3/L	1			03/28/22 1545	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1		03/28/22 1625	03/28/22 1737	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		03/28/22 1602	03/28/22 1602	TXN

Definitions

- DF:** Dilution Factor representing the amount the sample was diluted during analysis and may not represent preparation factors.
- K1:** Unseeded dilution blank depletion exceeds 0.2 mg/L.
- K5:** Sample did not meet the minimum dissolved oxygen remaining 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

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 3.0°C



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1206

Cooler Inspection Checklist

Ice Present or not required?	Yes	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not recd.?	Yes		

Report Comments

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Reviewed and Approved By:

Samantha Simpson
Client Relationships Lead
Reported: 03/31/2022 16:57

Microbac Laboratories, Inc.



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 2 C 1 2 0 6
 Bush Brothers & Company
 PM: Samantha Simpson

Project ID: _____
 Permit #: _____
 If drinking water, State Reported? Yes No
 Sampler: Tom Beyart
 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 3.0 C
 Properly Preserved: Yes No
 Remarks: _____

ANALYSIS REQUIRED

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts.	Remarks
SW3R2	3-22-22	0900	GCAS	4	ALKALINITY
SW6	3-22-22	0945	GCAS	4	NITRATE AS N
					TSS
					BOD5
					TOTAL NITROGEN
					NITRATE NITRIT

Please Mark Testing Required (X)

Sample #	Requested	Required
1	X	X
2	X	X
3	X	X
4	X	X
5	X	X
6	X	X
7	X	X
8	X	X
9	X	X
10	X	X
11	X	X
12	X	X
13	X	X
14	X	X
15	X	X
16	X	X
17	X	X
18	X	X
19	X	X
20	X	X
21	X	X
22	X	X
23	X	X
24	X	X
25	X	X
26	X	X
27	X	X
28	X	X
29	X	X
30	X	X
31	X	X
32	X	X
33	X	X
34	X	X
35	X	X
36	X	X
37	X	X
38	X	X
39	X	X
40	X	X
41	X	X
42	X	X
43	X	X
44	X	X
45	X	X
46	X	X
47	X	X
48	X	X
49	X	X
50	X	X

Special Instructions / Comments...

Priority Standard
 Next Day
 2-3 Day

Customer #: _____
 Job Temp.: _____
 Project: _____

Relinquished By: <u>[Signature]</u>	Date: 3-22-22	Time: 1204	Received By: <u>[Signature]</u>	Date: 3-22-22	Time: 1204
Relinquished By: _____	Date: _____	Time: _____	Received By: _____	Date: _____	Time: _____



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1272

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill RD
Dandridge, TN 37725

Project / PO Number: N/A
Received: 03/23/2022
Reported: 03/31/2022

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: SW4, Sample Matrix: Aqueous, Lab Sample ID: R2C1272-01, Collected By: Tony Bryant, Collection Date: 03/23/2022 8:30

Microbiology

Table row for SM 9223 B (Colilert Quanti-Tray)-2004, Escherichia coli, Result: 23, RL: 1, Units: MPN/100mL, DF: 1, Note: , Prepared: 03/23/22 1410, Analyzed: 03/24/22 0929, Analyst: EXC

Inorganics Total

Table row for BOD Preparation/SM 5210 B-2011, Biochemical Oxygen Demand (BOD5), Result: <2.00, RL: 2.00, Units: mg/L, DF: 1, Note: K1, K3, K5, Prepared: 03/24/22 1908, Analyzed: 03/29/22 1844, Analyst: JPA

Calculation

Table row for Total Nitrogen, Result: 1.24, RL: 1.00, Units: mg/L, DF: 1, Note: , Prepared: 03/31/22 1602, Analyzed: 03/31/22 1602, Analyst: TXN

EPA 300.0, Rv. 2.1 (1993)

Table row for Nitrate as N, Result: 0.772, RL: 0.100, Units: mg/L, DF: 1, Note: , Prepared: 03/23/22 1742, Analyzed: 03/23/22 1742, Analyst: CSE

Table row for Nitrite as N, Result: <0.100, RL: 0.100, Units: mg/L, DF: 1, Note: , Prepared: 03/23/22 1742, Analyzed: 03/23/22 1742, Analyst: CSE

SM 2320 B-1997

Table row for Alkalinity to pH 4.5, Total, Result: 186, RL: 5.00, Units: mg CaCO3/L, DF: 1, Note: , Prepared: , Analyzed: 03/28/22 1545, Analyst: TXN

SM 2540 D-2011

Table row for Total Suspended Solids (TSS), Result: <10.4, RL: 10.4, Units: mg/L, DF: 2, Note: , Prepared: 03/28/22 1625, Analyzed: 03/28/22 1737, Analyst: AMG

General Parameters

EPA 351.2, Rv. 2 (1993)

Table row for Total Kjeldahl Nitrogen (TKN), Result: <1.00, RL: 1.00, Units: mg/L, DF: 1, Note: , Prepared: 03/31/22 1602, Analyzed: 03/31/22 1602, Analyst: TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1272

Client Sample ID:	SW40	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	03/23/2022 8:30
Lab Sample ID:	R2C1272-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	25	1	MPN/100mL	1		03/23/22 1410	03/24/22 0929	EXC
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	K1, K3, K5	03/24/22 1908	03/29/22 1847	JPA
Calculation								
Total Nitrogen	1.20	1.00	mg/L	1		03/31/22 1612	03/31/22 1612	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.771	0.100	mg/L	1		03/23/22 1758	03/23/22 1758	CSE
Nitrite as N	<0.100	0.100	mg/L	1		03/23/22 1758	03/23/22 1758	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	187	5.00	mg CaCO3/L	1			03/28/22 1545	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1		03/28/22 1625	03/28/22 1737	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		03/31/22 1612	03/31/22 1612	TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1272

Client Sample ID:	SW9	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	03/23/2022 9:00
Lab Sample ID:	R2C1272-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	110	1	MPN/100mL	1		03/23/22 1410	03/24/22 0929	EXC
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	K1, K3, K5	03/24/22 1908	03/29/22 1848	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		03/31/22 1614	03/31/22 1614	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		03/23/22 1845	03/23/22 1845	CSE
Nitrite as N	<0.100	0.100	mg/L	1		03/23/22 1845	03/23/22 1845	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	148	5.00	mg CaCO3/L	1			03/28/22 1545	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1		03/28/22 1625	03/28/22 1737	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		03/31/22 1614	03/31/22 1614	TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1272

Client Sample ID:	SW12	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	03/23/2022 9:45
Lab Sample ID:	R2C1272-04		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	410	1	MPN/100mL	1		03/23/22 1410	03/24/22 0929	EXC
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	K1, K3	03/24/22 1908	03/29/22 1850	JPA
Calculation								
Total Nitrogen	1.51	1.00	mg/L	1		03/31/22 1616	03/31/22 1616	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.04	0.100	mg/L	1		03/23/22 1900	03/23/22 1900	CSE
Nitrite as N	<0.100	0.100	mg/L	1		03/23/22 1900	03/23/22 1900	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	191	5.00	mg CaCO3/L	1			03/28/22 1545	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	7.2	5.0	mg/L	1		03/28/22 1625	03/28/22 1737	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		03/31/22 1616	03/31/22 1616	TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1272

Client Sample ID:	SW11	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	03/23/2022 10:20
Lab Sample ID:	R2C1272-05		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	770	1	MPN/100mL	1		03/23/22 1410	03/24/22 0929	EXC
Inorganics Total								
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1	K1, K3	03/24/22 1908	03/29/22 1851	JPA
Calculation								
Total Nitrogen	1.50	1.00	mg/L	1		03/31/22 1618	03/31/22 1618	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.01	0.100	mg/L	1		03/23/22 1916	03/23/22 1916	CSE
Nitrite as N	<0.100	0.100	mg/L	1		03/23/22 1916	03/23/22 1916	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	191	5.00	mg CaCO3/L	1			03/28/22 1545	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	16.8	10.0	mg/L	2		03/28/22 1625	03/28/22 1737	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		03/31/22 1618	03/31/22 1618	TXN

Definitions

- K1:** Unseeded dilution blank depletion exceeds 0.2 mg/L.
- K3:** Glucose/glutamic acid recovery was above acceptance limits. The reported value is estimated.
- K5:** Sample did not meet the minimum dissolved oxygen remaining 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

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:

Samantha Simpson
 Client Relationships Lead
 Reported: 03/31/2022 21:20

Microbac Laboratories, Inc.

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MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY

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 #: _____

R 2 C 1 2 7 2
Bush Brothers & Company
 PM: Samantha Simpson



Project ID: _____
 Permit #: _____
 If drinking water, State Reported? Yes No
 Sampler: Terry Beyant
 Sample Hazards: None

ANALYSIS REQUIRED

EColi
Nitrate as N
ALKalinity
TSS
BOD 5
Total Nitrogen
Nitrate Nitrite

Please Mark Testing Required (X)

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts.	EColi	Nitrate as N	ALKalinity	TSS	BOD 5	Total Nitrogen	Nitrate Nitrite
SW4	3-23-22	0830	Geog	4	X	X	X	X	X	X	X
SW4D	3-23-22	0830	Geog	4	X	X	X	X	X	X	X
SW9	3-23-22	0900	Geog	4	X	X	X	X	X	X	X
SW12	3-23-22	1020	Geog	4	X	X	X	X	X	X	X
SW11	3-23-22	1020	Geog	4	X	X	X	X	X	X	X

FOR LAB CHECK-IN ONLY

Temp Rec'd 74 C
 Properly Preserved: Yes No
 Remarks: _____

Sample # _____

Priority Standard Next Day 2-3 Day
 Special Instructions / Comments: _____
 Relinquished By: _____ Date: _____ Time: _____
 Received By: _____ Date: _____ Time: _____
 Relinquished By: _____ Date: _____ Time: _____
 Received By: _____ Date: _____ Time: _____

Customer #: _____
 Job Temp.: _____
 Project: _____

Relinquished By: [Signature] Date: 3-23-22 Time: 1230
 Received By: [Signature] Date: _____ Time: _____
 Relinquished By: _____ Date: _____ Time: _____
 Received By: _____ Date: _____ Time: _____



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1411

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill RD
Dandridge, TN 37725

Project / PO Number: N/A
Received: 03/28/2022
Reported: 04/05/2022

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: SW28B, Sample Matrix: Aqueous, Lab Sample ID: R2C1411-01, Collected By: Tony Bryant, Collection Date: 03/28/2022 8:30

Microbiology

Table row for SM 9223 B (Colilert Quanti-Tray)-2004, Escherichia coli, Result: <1, RL: 1, Units: MPN/100mL, DF: 1, Note: , Prepared: 03/28/22 1539, Analyzed: 03/29/22 1220, Analyst: AMG

Inorganics Total

BOD Preparation/SM 5210 B-2011

Table row for Biochemical Oxygen Demand (BOD5), Result: <2.00, RL: 2.00, Units: mg/L, DF: 1, Note: K1, K7, Prepared: 03/29/22 2011, Analyzed: 04/03/22 1714, Analyst: JPA

Calculation

Table row for Total Nitrogen, Result: <1.00, RL: 1.00, Units: mg/L, DF: 1, Note: , Prepared: 03/31/22 1532, Analyzed: 03/31/22 1532, Analyst: TXN

EPA 300.0, Rv. 2.1 (1993)

Table row for Nitrate as N, Result: <0.100, RL: 0.100, Units: mg/L, DF: 1, Note: , Prepared: 03/29/22 1925, Analyzed: 03/29/22 1925, Analyst: CSE

Table row for Nitrite as N, Result: <0.100, RL: 0.100, Units: mg/L, DF: 1, Note: , Prepared: 03/29/22 1925, Analyzed: 03/29/22 1925, Analyst: CSE

SM 2320 B-1997

Table row for Alkalinity to pH 4.5, Total, Result: <5.00, RL: 5.00, Units: mg CaCO3/L, DF: 1, Note: , Prepared: , Analyzed: 03/30/22 1405, Analyst: TXN

SM 2540 D-2011

Table row for Total Suspended Solids (TSS), Result: <5.0, RL: 5.0, Units: mg/L, DF: 1, Note: , Prepared: 03/28/22 1625, Analyzed: 03/28/22 1737, Analyst: AMG

General Parameters

EPA 351.2, Rv. 2 (1993)

Table row for Total Kjeldahl Nitrogen (TKN), Result: <1.00, RL: 1.00, Units: mg/L, DF: 1, Note: , Prepared: 03/31/22 1532, Analyzed: 03/31/22 1532, Analyst: TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1411

Client Sample ID:	SW16	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	03/28/2022 9:00
Lab Sample ID:	R2C1411-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	108.1	1	MPN/100mL	1		03/28/22 1539	03/29/22 1220	AMG
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	K1, K7	03/29/22 2011	04/03/22 1714	JPA
Calculation								
Total Nitrogen	2.02	1.00	mg/L	1		03/31/22 1534	03/31/22 1534	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.43	0.100	mg/L	1		03/29/22 2012	03/29/22 2012	CSE
Nitrite as N	<0.100	0.100	mg/L	1		03/29/22 2012	03/29/22 2012	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	208	5.00	mg CaCO3/L	1			03/30/22 1405	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	7.8	5.0	mg/L	1		03/28/22 1625	03/28/22 1737	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		03/31/22 1534	03/31/22 1534	TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1411

Client Sample ID:	SW8R	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	03/28/2022 9:30
Lab Sample ID:	R2C1411-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	<1	1	MPN/100mL	1		03/28/22 1539	03/29/22 1220	AMG
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	K1, K7	03/29/22 2011	04/03/22 1714	JPA
Calculation								
Total Nitrogen	1.65	1.00	mg/L	1		03/31/22 1536	03/31/22 1536	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.16	0.100	mg/L	1		03/29/22 2027	03/29/22 2027	CSE
Nitrite as N	<0.100	0.100	mg/L	1		03/29/22 2027	03/29/22 2027	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	270	5.00	mg CaCO3/L	1			03/30/22 1405	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1		03/28/22 1625	03/28/22 1737	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		03/31/22 1536	03/31/22 1536	TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1411

Client Sample ID:	SW7	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	03/28/2022 10:00
Lab Sample ID:	R2C1411-04		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	261.3	1	MPN/100mL	1		03/28/22 1539	03/29/22 1220	AMG
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	K1, K7	03/29/22 2011	04/03/22 1714	JPA
Calculation								
Total Nitrogen	2.15	1.00	mg/L	1		03/31/22 1538	03/31/22 1538	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.40	0.100	mg/L	1		03/29/22 2043	03/29/22 2043	CSE
Nitrite as N	<0.100	0.100	mg/L	1		03/29/22 2043	03/29/22 2043	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	369	5.00	mg CaCO3/L	1			03/30/22 1405	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1		03/28/22 1625	03/28/22 1737	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		03/31/22 1538	03/31/22 1538	TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1411

Client Sample ID: SW14	Collected By: Tony Bryant
Sample Matrix: Aqueous	Collection Date: 03/28/2022 10:40
Lab Sample ID: R2C1411-05	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	8.4	1	MPN/100mL	1		03/28/22 1539	03/29/22 1220	AMG
Inorganics Total								
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1	K1, K7	03/29/22 2011	04/03/22 1714	JPA
Calculation								
Total Nitrogen	4.66	1.00	mg/L	1		03/31/22 1540	03/31/22 1540	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	3.55	0.100	mg/L	1		03/29/22 2058	03/29/22 2058	CSE
Nitrite as N	<0.100	0.100	mg/L	1		03/29/22 2058	03/29/22 2058	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	302	5.00	mg CaCO3/L	1			03/30/22 1405	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1		03/28/22 1625	03/28/22 1737	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.10	1.00	mg/L	1		03/31/22 1540	03/31/22 1540	TXN

Definitions

- K1:** Unseeded dilution blank depletion exceeds 0.2 mg/L.
- 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:

Samantha Simpson
 Client Relationships Lead
 Reported: 04/05/2022 14:48

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1471

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill RD
Dandridge, TN 37725

Project / PO Number: N/A
Received: 03/29/2022
Reported: 04/06/2022

Analytical Testing Parameters

Table with client and sample information: Client Sample ID: SW18, Sample Matrix: Aqueous, Lab Sample ID: R2C1471-01, Collected By: Tony Bryant, Collection Date: 03/29/2022 9:00

Main analytical results table with columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Includes rows for SM 9223 B (Colilert Quanti-Tray)-2004, Inorganics Total, BOD Preparation/SM 5210 B-2011, Calculation, EPA 300.0, Rv. 2.1 (1993), SM 2320 B-1997, SM 2540 D-2011, and General Parameters.



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1471

Client Sample ID:	SW25	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	03/29/2022 10:30
Lab Sample ID:	R2C1471-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	>2419.6	1	MPN/100mL	1		03/29/22 1545	03/30/22 1724	TXN
Inorganics Total								
BOD Preparation/SM 5210 B-2011	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Biochemical Oxygen Demand (BOD5)	31.8	2.00	mg/L	1	K1, K7, K8, B	03/30/22 1940	04/04/22 1341	JPA
Calculation								
Total Nitrogen	10.3	1.00	mg/L	1		03/31/22 1550	03/31/22 1550	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	8.68	0.100	mg/L	1		03/29/22 2303	03/29/22 2303	CSE
Nitrite as N	<0.100	0.100	mg/L	1		03/29/22 2303	03/29/22 2303	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	363	5.00	mg CaCO3/L	1			03/30/22 1405	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	11.8	6.2	mg/L	1			03/30/22 1511	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Total Kjeldahl Nitrogen (TKN)	1.61	1.00	mg/L	1		03/31/22 1550	03/31/22 1550	TXN

Client Sample ID:	SW1 Resample	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	03/29/2022 9:40
Lab Sample ID:	R2C1471-03		

Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	24.2	2.00	mg/L	1	K1, K7, K8, B	03/30/22 1940	04/04/22 1341	JPA

Client Sample ID:	SW22 Resample	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	03/29/2022 10:00
Lab Sample ID:	R2C1471-04		

Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	29.4	2.00	mg/L	1	K1, K7, K8, B	03/30/22 1940	04/04/22 1341	JPA



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1471

Client Sample ID:	SWR Resample	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	03/29/2022 10:10
Lab Sample ID:	R2C1471-05		

Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	20.4	2.00	mg/L	1	K1, K7, K8, B	03/30/22 1940	04/04/22 1341	JPA

Client Sample ID:	SW2 Resample	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	03/29/2022 9:50
Lab Sample ID:	R2C1471-06		

Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	25.0	2.00	mg/L	1	K1, K7, K8, B	03/30/22 1940	04/04/22 1341	JPA

Definitions

- B:** Analyte found in the blank at or above the method acceptance criteria.
- K1:** Unseeded dilution blank depletion exceeds 0.2 mg/L.
- K7:** Seed control did not meet method criteria.
- K8:** Test replicates show more than 30% difference between high and low dilutions.
- 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:



Samantha Simpson
 Client Relationships Lead
 Reported: 04/06/2022 14:42

Microbac Laboratories, Inc.

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0791

Project Description

Bush Brothers WWTP

For:

Terry Dockery

Bush Brothers & Company

3304 Chestnut Hill RD

Dandridge, TN 37725

Quality Assurance Specialist

Paige Drouillard

Tuesday, April 26, 2022

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc., Maryville. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

Microbac Laboratories, Inc.

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Microbac Laboratories, Inc., Maryville
CERTIFICATE OF ANALYSIS

R2D0791

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill RD
Dandridge, TN 37725

Project Name: Bush Brothers WWTP

Project / PO Number: N/A
Received: 04/19/2022
Reported: 04/26/2022

Sample Summary Report

<u>Sample Name</u>	<u>Laboratory ID</u>	<u>Client Matrix</u>	<u>Sample Type</u>	<u>Sample Begin</u>	<u>Sample Taken</u>	<u>Lab Received</u>
MW11	R2D0791-01	Aqueous	Grab		04/19/22 09:30	04/19/22 11:20
MW14	R2D0791-02	Aqueous	Grab		04/19/22 09:00	04/19/22 11:20
MW15	R2D0791-03	Aqueous	Grab		04/19/22 08:15	04/19/22 11:20



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0791

Analytical Testing Parameters

Client Sample ID: MW11	Collected By: Tony Bryant
Sample Matrix: Aqueous	Collection Date: 04/19/2022 9:30
Lab Sample ID: R2D0791-01	

Microbiology	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: SM 9223 B (Collert Quanti-Tray)-2004									
Escherichia coli	2	1	1	MPN/100mL	1		04/19/22 1558	04/20/22 1731	AMG

Inorganics Total	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: Calculation									
Total Nitrogen	1.92	0.254	1.00	mg/L	2		04/20/22 0736	04/25/22 1538	TXN
Method: EPA 300.0, Rv. 2.1 (1993)									
Nitrate as N	0.222	0.0194	0.200	mg/L	2		04/19/22 1747	04/19/22 1747	CSE
Nitrite as N	<0.200	0.0170	0.200	mg/L	2		04/19/22 1747	04/19/22 1747	CSE
Method: SM 2320 B-1997									
Alkalinity to pH 4.5, Total	287	5.00	5.00	mg CaCO3/L	1			04/25/22 1427	TXN

General Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 351.2, Rv. 2 (1993)									
Total Kjeldahl Nitrogen (TKN)	1.70	0.254	1.00	mg/L	1		04/20/22 0736	04/25/22 1538	TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0791

Client Sample ID: MW14	Collected By: Tony Bryant
Sample Matrix: Aqueous	Collection Date: 04/19/2022 9:00
Lab Sample ID: R2D0791-02	

Microbiology	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: SM 9223 B (Colilert Quanti-Tray)-2004									
Escherichia coli	>2419.6	1	1	MPN/100mL	1		04/19/22 1558	04/20/22 1731	AMG

Inorganics Total	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: Calculation									
Total Nitrogen	2.73	0.254	1.00	mg/L	5		04/20/22 0736	04/25/22 1540	TXN
Method: EPA 300.0, Rv. 2.1 (1993)									
Nitrate as N	<0.500	0.0485	0.500	mg/L	5		04/19/22 1834	04/19/22 1834	CSE
Nitrite as N	<0.500	0.0425	0.500	mg/L	5		04/19/22 1834	04/19/22 1834	CSE

Method: SM 2320 B-1997									
Alkalinity to pH 4.5, Total	256	5.00	5.00	mg CaCO3/L	1			04/25/22 1427	TXN

General Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 351.2, Rv. 2 (1993)									
Total Kjeldahl Nitrogen (TKN)	2.07	0.254	1.00	mg/L	1		04/20/22 0736	04/25/22 1540	TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0791

Client Sample ID: MW15	Collected By: Tony Bryant
Sample Matrix: Aqueous	Collection Date: 04/19/2022 8:15
Lab Sample ID: R2D0791-03	

Microbiology	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: SM 9223 B (Colilert Quanti-Tray)-2004									
Escherichia coli	16	1	1	MPN/100mL	1		04/19/22 1558	04/20/22 1731	AMG
Inorganics Total	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: Calculation									
Total Nitrogen	0.914	0.254	1.00	mg/L	1		04/20/22 0736	04/25/22 1542	TXN
Method: EPA 300.0, Rv. 2.1 (1993)									
Nitrate as N	0.481	0.00970	0.100	mg/L	1		04/19/22 1849	04/19/22 1849	CSE
Nitrite as N	<0.100	0.00850	0.100	mg/L	1		04/19/22 1849	04/19/22 1849	CSE
Method: SM 2320 B-1997									
Alkalinity to pH 4.5, Total	308	5.00	5.00	mg CaCO3/L	1			04/25/22 1427	TXN
General Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 351.2, Rv. 2 (1993)									
Total Kjeldahl Nitrogen (TKN)	<1.00	0.254	1.00	mg/L	1		04/20/22 0736	04/25/22 1542	TXN

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

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 4.0°C

Cooler Inspection Checklist

Ice Present or not required?	Yes	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not recd.?	Yes		



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2D0791

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 blue ink, appearing to read "Paige Drouillard".

Paige Drouillard

Quality Assurance Specialist

Reported: 04/26/2022 12:43



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 2 D 0 7 9 1
 Bush Brothers & Company
 PM: Paige Drouillard

Project ID: _____
 Permit #: _____
 If drinking water, State Reported? Yes No
 Sampler: Terry Bennett
 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
MW11	4-19-22	0930	GENS	3
MW14	4-19-22	0900	GENS	3
MW15	4-19-22	0815	GENS	3

EColi
 Nitrate as N
 Alkalinity
 TSS
 BOD 5
 Total Nitrogen
 Nitrate Nitrite

ANALYSIS REQUIRED

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts	EColi	Nitrate as N	Alkalinity	TSS	BOD 5	Total Nitrogen	Nitrate Nitrite
MW11	4-19-22	0930	GENS	3	X	X	X	X	X	X	X
MW14	4-19-22	0900	GENS	3	X	X	X	X	X	X	X
MW15	4-19-22	0815	GENS	3	X	X	X	X	X	X	X

FOR LAB CHECK-IN ONLY
 Temp Rec'd 4.0 C
 Property Preserved: Yes No
 Remarks: _____

Priority Standard Next Day 2-3 Day
 Special Instructions / Comments...
 Relinquished By: [Signature] Date: 4/19/22 Time: 1100
 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
R2C1327

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill RD
Dandridge, TN 37725

Project Name: Permit Irrigation Water

Project / PO Number: N/A
Received: 03/24/2022
Reported: 03/31/2022

Analytical Testing Parameters

Client Sample ID:	MW1	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	03/24/2022 8:20
Lab Sample ID:	R2C1327-01		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	10	1	MPN/100mL	1		03/24/22 1425	03/25/22 1026	CSE
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Calculation								
Total Nitrogen	1.88	1.25	mg/L	1		03/31/22 1514	03/31/22 1514	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.330	0.100	mg/L	1		03/24/22 2028	03/24/22 2028	CSE
Nitrite as N	<0.100	0.100	mg/L	1		03/24/22 2028	03/24/22 2028	CSE
Nitrate & Nitrite as N	0.330	0.100	mg/L	1		03/24/22 2028	03/24/22 2028	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	139	5.00	mg CaCO3/L	1			03/28/22 1545	TXN
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.55	1.25	mg/L	1		03/31/22 1514	03/31/22 1514	TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1327

Client Sample ID: MW2	Collected By: Tony Bryant
Sample Matrix: Aqueous	Collection Date: 03/24/2022 9:00
Lab Sample ID: R2C1327-02	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	490	1	MPN/100mL	1		03/24/22 1548	03/25/22 1558	CSE
Inorganics Total								
Calculation								
Total Nitrogen	4.53	1.67	mg/L	1		03/31/22 1516	03/31/22 1516	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	2.77	0.100	mg/L	1		03/24/22 2044	03/24/22 2044	CSE
Nitrite as N	<0.100	0.100	mg/L	1		03/24/22 2044	03/24/22 2044	CSE
Nitrate & Nitrite as N	2.77	0.100	mg/L	1		03/24/22 2044	03/24/22 2044	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	301	5.00	mg CaCO3/L	1			03/28/22 1545	TXN
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.76	1.67	mg/L	1		03/31/22 1516	03/31/22 1516	TXN

Client Sample ID: SW13	Collected By: Tony Bryant
Sample Matrix: Aqueous	Collection Date: 03/24/2022 10:00
Lab Sample ID: R2C1327-03	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	460	1	MPN/100mL	1		03/24/22 1425	03/25/22 1026	CSE
Inorganics Total								
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		03/25/22 1913	03/30/22 1331	JPA
Calculation								
Total Nitrogen	1.43	1.00	mg/L	1		03/31/22 1522	03/31/22 1522	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.907	0.100	mg/L	1		03/24/22 2100	03/24/22 2100	CSE
Nitrite as N	<0.100	0.100	mg/L	1		03/24/22 2100	03/24/22 2100	CSE
Nitrate & Nitrite as N	0.907	0.100	mg/L	1		03/24/22 2100	03/24/22 2100	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	151	5.00	mg CaCO3/L	1			03/28/22 1545	TXN
SM 2540 D-2011								
Total Suspended Solids (TSS)	<12.8	12.8	mg/L	3			03/30/22 1511	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		03/31/22 1522	03/31/22 1522	TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2C1327

Client Sample ID:	MW12	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	03/24/2022 10:50
Lab Sample ID:	R2C1327-04		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	3	1	MPN/100mL	1		03/24/22 1548	03/25/22 1558	CSE
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Calculation								
Total Nitrogen	2.11	1.25	mg/L	10		03/31/22 1528	03/31/22 1528	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<1.00	1.00	mg/L	10		03/24/22 2115	03/24/22 2115	CSE
Nitrite as N	<1.00	1.00	mg/L	10		03/24/22 2115	03/24/22 2115	CSE
Nitrate & Nitrite as N	<1.00	1.00	mg/L	10		03/24/22 2115	03/24/22 2115	CSE
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	166	5.00	mg CaCO3/L	1			03/28/22 1545	TXN
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.49	1.25	mg/L	1		03/31/22 1528	03/31/22 1528	TXN

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:

Samantha Simpson
 Client Relationships Lead
 Reported: 03/31/2022 21:08

Microbac Laboratories, Inc.

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MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 2 C 1 3 2 7
 Bush Brothers & Company
 PM: Samantha Simpson

Project ID: _____
 Permit #: _____
 If drinking water, State Reported? Yes No
 Sampler: Tony Bernard
 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 #: _____

ANALYSIS REQUIRED
EColi
Nitrate as N
Alkalinity
TSS
BOD 5
Total Nitrogen
Nitrate Nitrite

Please Mark Testing Required (X)

Sample ID	Sample Date	Sample Time	Sample Type	# of Conts	EColi	Nitrate as N	Alkalinity	TSS	BOD 5	Total Nitrogen	Nitrate Nitrite
MW1	3-24-22	0820	GCAS	4	X	X	X	X	X	X	X
MW2	3-24-22	0900	GCAS	4	X	X	X	X	X	X	X
MW3	3-24-22	1000	GCAS	4	X	X	X	X	X	X	X
MW12	3-24-22	1050	GCAS	4	X	X	X	X	X	X	X

FOR LAB CHECK-IN ONLY
 Temp Rec'd: 0.5 °C
 Properly Preserved: Yes No
 Remarks: _____

Priority: _____
 Standard: _____
 Next Day: _____
 2-3 Day: _____
 Special Instructions / Comments: _____

Relinquished By: <u>BZO</u>	Date: <u>3-24-22</u>	Time: <u>1320</u>	Received By: <u>WBS</u>	Relinquished By: _____	Date: _____	Time: _____	Received By: _____
Relinquished By: _____	Date: _____	Time: _____	Received By: _____	Relinquished By: _____	Date: _____	Time: _____	Received By: _____

Customer #: _____
 Job Temp.: _____
 Project: _____



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J0897

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: N/A
Received: 10/20/2022
Reported: 10/28/2022

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: SW4, Sample Matrix: Aqueous, Lab Sample ID: R2J0897-01, Collected By: tony bryant, Collection Date: 10/20/2022 8:40

Microbiology

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows include SM 9223 B (Colilert Quanti-Tray)-2004, Total coliforms (1203.3), and Escherichia coli (51.2).

Inorganics Total

BOD Preparation/SM 5210 B-2011

Table row: Biochemical Oxygen Demand (BOD5) 6.90, RL 2.00, mg/L, 1, K1, K9, 10/20/22 1936, 10/25/22 1408, JPA

Calculation

Table row: Total Nitrogen 1.17, RL 1.00, mg/L, 1, 10/23/22 1544, 10/23/22 1544, TXN

EPA 300.0, Rv. 2.1 (1993)

Table row: Nitrate as N 1.17, RL 0.100, mg/L, 1, 10/20/22 1736, 10/20/22 1736, TXN

Table row: Nitrite as N <0.100, RL 0.100, mg/L, 1, 10/20/22 1736, 10/20/22 1736, TXN

EPA 350.1, Rv. 2 (1993)

Table row: Ammonia as N <0.200, RL 0.200, mg/L, 1, 10/21/22 1449, 10/21/22 1904, AMG

SM 2320 B-1997

Table row: Alkalinity to pH 4.5, Total 216, RL 5.00, mg CaCO3/L, 1, 10/24/22 1602, 10/25/22 1602, CSE

SM 2540 D-2011

Table row: Total Suspended Solids (TSS) <5.0, RL 5.0, mg/L, 1, 10/22/22 1145, TXN

General Parameters

EPA 351.2, Rv. 2 (1993)

Table row: Total Kjeldahl Nitrogen (TKN) <1.00, RL 1.00, mg/L, 1, 10/23/22 1544, 10/23/22 1544, TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J0897

Client Sample ID:	SW16	Collected By:	tony Bryant
Sample Matrix:	Aqueous	Collection Date:	10/20/2022 9:15
Lab Sample ID:	R2J0897-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		10/20/22 1253	10/21/22 1257	EXC
Escherichia coli	85.7	1	MPN/100mL	1		10/20/22 1253	10/21/22 1257	EXC
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	K1, K9	10/20/22 1936	10/25/22 1408	JPA
Calculation								
Total Nitrogen	2.82	1.00	mg/L	1		10/23/22 1546	10/23/22 1546	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.71	0.100	mg/L	1		10/20/22 1838	10/20/22 1838	TXN
Nitrite as N	<0.100	0.100	mg/L	1		10/20/22 1838	10/20/22 1838	TXN
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		10/21/22 1449	10/21/22 1906	AMG
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	252	5.00	mg CaCO3/L	1		10/24/22 1602	10/25/22 1602	CSE
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			10/22/22 1145	TXN
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		10/23/22 1546	10/23/22 1546	TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J0897

Client Sample ID:	SW11	Collected By:	tony bryant
Sample Matrix:	Aqueous	Collection Date:	10/20/2022 10:00
Lab Sample ID:	R2J0897-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		10/20/22 1253	10/21/22 1257	EXC
Escherichia coli	224.7	1	MPN/100mL	1		10/20/22 1253	10/21/22 1257	EXC
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	K1	10/20/22 1936	10/25/22 1408	JPA
Calculation								
Total Nitrogen	3.30	1.00	mg/L	1		10/23/22 1548	10/23/22 1548	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.44	0.100	mg/L	1		10/20/22 1854	10/20/22 1854	TXN
Nitrite as N	<0.100	0.100	mg/L	1		10/20/22 1854	10/20/22 1854	TXN
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		10/21/22 1449	10/21/22 1909	AMG
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	256	5.00	mg CaCO3/L	1		10/24/22 1602	10/25/22 1602	CSE
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			10/21/22 1220	TXN
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.86	1.00	mg/L	1		10/23/22 1548	10/23/22 1548	TXN

Definitions

- K1:** Unseeded dilution blank depletion exceeds 0.2 mg/L.
- K9:** Sample has inconsistent demand. No valid dilution per method criteria. Result is estimated.
- 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:

Chris Sammons
 Operations Manager
 Reported: 10/28/2022 13:21

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J0783

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: N/A
Received: 10/18/2022
Reported: 10/28/2022

Analytical Testing Parameters

Table with client and sample information: Client Sample ID: SW6, Sample Matrix: Aqueous, Lab Sample ID: R2J0783-01, Collected By: Terry Dockery, Collection Date: 10/18/2022 10:30

Microbiology

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

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-1997

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

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).



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J0783

Client Sample ID:	SW22	Collected By:	Terry Dockery
Sample Matrix:	Aqueous	Collection Date:	10/18/2022 9:30
Lab Sample ID:	R2J0783-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		10/18/22 1412	10/19/22 1529	AMG
Escherichia coli	101	1	MPN/100mL	1		10/18/22 1412	10/19/22 1529	AMG
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	K4, K7	10/19/22 2156	10/24/22 1501	JPA
Calculation								
Total Nitrogen	1.48	1.00	mg/L	1		10/23/22 1542	10/23/22 1542	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<1.00	1.00	mg/L	1		10/18/22 2312	10/18/22 2312	AMG
Nitrite as N	<1.00	1.00	mg/L	1		10/18/22 2312	10/18/22 2312	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	0.359	0.200	mg/L	1		10/20/22 1101	10/20/22 1445	AMG
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	142	5.00	mg CaCO3/L	1			10/18/22 1646	CSE
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			10/19/22 2025	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		10/23/22 1542	10/23/22 1542	TXN

Definitions

- K4:** Sample did not meet the minimum dissolved oxygen depletion in any dilution.
- 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

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:

Chris Sammons
 Operations Manager
 Reported: 10/28/2022 12:32



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J0974

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: N/A
Received: 10/21/2022
Reported: 10/31/2022

Analytical Testing Parameters

Table with client and sample information: Client Sample ID: SW10R, Sample Matrix: Aqueous, Lab Sample ID: R2J0974-01, Collected By: Tony Bryant, Collection Date: 10/21/2022 9:15

Microbiology

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

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-1997

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

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).



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J0974

Client Sample ID:	SW8R	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	10/21/2022 10:00
Lab Sample ID:	R2J0974-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	648.8	1	MPN/100mL	1		10/21/22 1408	10/22/22 1459	TXN
Escherichia coli	4.1	1	MPN/100mL	1		10/21/22 1408	10/22/22 1459	TXN
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	K2, K7	10/21/22 1944	10/26/22 1529	JPA
Calculation								
Total Nitrogen	1.34	1.00	mg/L	1		10/23/22 1559	10/23/22 1559	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.34	0.100	mg/L	1		10/21/22 1654	10/21/22 1654	TXN
Nitrite as N	<0.100	0.100	mg/L	1		10/21/22 1654	10/21/22 1654	TXN
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		10/29/22 1330	10/29/22 1330	TXN
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	290	5.00	mg CaCO3/L	1		10/24/22 1602	10/25/22 1602	CSE
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			10/26/22 1715	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		10/23/22 1559	10/23/22 1559	TXN



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J0974

Client Sample ID:	SW7	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	10/21/2022 10:30
Lab Sample ID:	R2J0974-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		10/21/22 1408	10/22/22 1459	TXN
Escherichia coli	>2419.6	1	MPN/100mL	1		10/21/22 1408	10/22/22 1459	TXN
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	2.10	2.00	mg/L	1	K2, K7	10/21/22 1944	10/26/22 1529	JPA
Calculation								
Total Nitrogen	4.58	1.00	mg/L	2		10/23/22 1605	10/23/22 1605	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.51	0.200	mg/L	2		10/21/22 1710	10/21/22 1710	TXN
Nitrite as N	<0.200	0.200	mg/L	2		10/21/22 1710	10/21/22 1710	TXN
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	0.234	0.200	mg/L	1		10/29/22 1333	10/29/22 1333	TXN
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	908	5.00	mg CaCO3/L	1		10/24/22 1602	10/25/22 1602	CSE
SM 2540 D-2011								
Total Suspended Solids (TSS)	38.3	6.9	mg/L	1			10/26/22 1715	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	3.07	1.00	mg/L	1		10/23/22 1605	10/23/22 1605	TXN

Definitions

- K2:** Glucose/glutamic acid recovery was below acceptance limits. The reported value is estimated.
- 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

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:

Chris Sammons
 Operations Manager
 Reported: 10/31/2022 12:06

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J1016

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: N/A
Received: 10/24/2022
Reported: 11/07/2022

Analytical Testing Parameters

Table with client and sample information: Client Sample ID: SW18, Sample Matrix: Aqueous, Lab Sample ID: R2J1016-01, Collected By: Tony Bryant, Collection Date: 10/24/2022 8:30

Microbiology

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

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-1997

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

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).



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J1016

Client Sample ID: SW25	Collected By: Tony Bryant
Sample Matrix: Aqueous	Collection Date: 10/24/2022 9:40
Lab Sample ID: R2J1016-02	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		10/24/22 1510	10/25/22 1054	CSE
Escherichia coli	38.4	1	MPN/100mL	1		10/24/22 1510	10/25/22 1054	CSE
Inorganics Total								
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		10/25/22 2023	10/30/22 1541	JPA
Calculation								
Total Nitrogen	1.77	1.00	mg/L	1		10/31/22 1858	11/01/22 1123	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.04	0.100	mg/L	1		10/25/22 2157	10/25/22 2157	AMG
Nitrite as N	<0.100	0.100	mg/L	1		10/25/22 2157	10/25/22 2157	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		10/26/22 1508	10/26/22 1925	TXN
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	378	5.00	mg CaCO3/L	1		10/27/22 1214	10/28/22 1214	CSE
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			10/26/22 1715	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		10/31/22 1858	11/01/22 1123	AMG



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CERTIFICATE OF ANALYSIS

R2J1016

Client Sample ID: SW26	Collected By: Tony Bryant
Sample Matrix: Aqueous	Collection Date: 10/24/2022 10:10
Lab Sample ID: R2J1016-03	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		10/24/22 1510	10/25/22 1054	CSE
Escherichia coli	4.1	1	MPN/100mL	1		10/24/22 1510	10/25/22 1054	CSE
Inorganics Total								
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	<2.00	2.00	mg/L	1		10/25/22 2023	10/30/22 1541	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		10/31/22 1858	11/01/22 1125	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.144	0.100	mg/L	1		10/25/22 2213	10/25/22 2213	AMG
Nitrite as N	<0.100	0.100	mg/L	1		10/25/22 2213	10/25/22 2213	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	0.275	0.200	mg/L	1		10/26/22 1508	10/26/22 1928	TXN
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	452	5.00	mg CaCO3/L	1		10/27/22 1214	10/28/22 1214	CSE
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			10/26/22 1715	AMG
General Parameters								
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	<1.00	1.00	mg/L	1		10/31/22 1858	11/01/22 1125	AMG



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CERTIFICATE OF ANALYSIS

R2J1016

Client Sample ID: SW27	Collected By: Tony Bryant
Sample Matrix: Aqueous	Collection Date: 10/24/2022 10:30
Lab Sample ID: R2J1016-04	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		10/24/22 1510	10/25/22 1054	CSE
Escherichia coli	10.9	1	MPN/100mL	1		10/24/22 1510	10/25/22 1054	CSE
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		10/25/22 2023	10/30/22 1541	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		10/31/22 1858	11/01/22 1127	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.101	0.100	mg/L	1		10/25/22 2228	10/25/22 2228	AMG
Nitrite as N	<0.100	0.100	mg/L	1		10/25/22 2228	10/25/22 2228	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	0.293	0.200	mg/L	1		10/26/22 1508	10/26/22 1931	TXN
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	342	5.00	mg CaCO3/L	1		10/27/22 1214	10/28/22 1214	CSE
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			10/26/22 1715	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		10/31/22 1858	11/01/22 1127	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:

Chris Sammons
 Operations Manager
 Reported: 11/07/2022 10:52

Microbac Laboratories, Inc.

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J1061

Bush Brothers & Company

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project Name: Permit Irrigation Water

Project / PO Number: N/A
Received: 10/25/2022
Reported: 11/07/2022

Analytical Testing Parameters

Client Sample ID:	SW24	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	10/25/2022 8:30
Lab Sample ID:	R2J1061-01		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		10/25/22 1222	10/26/22 1258	CSE
Escherichia coli	770.1	1	MPN/100mL	1		10/25/22 1222	10/26/22 1258	CSE
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		10/25/22 2023	10/30/22 1541	JPA
Calculation								
Total Nitrogen	13.2	1.00	mg/L	1		10/31/22 1858	11/01/22 1129	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	8.97	0.100	mg/L	1		10/25/22 2244	10/25/22 2244	AMG
Nitrite as N	<0.100	0.100	mg/L	1	M2	10/25/22 2244	10/25/22 2244	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		10/26/22 1508	10/26/22 1941	TXN
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	740	5.00	mg CaCO3/L	1		10/27/22 1214	10/28/22 1214	CSE
SM 2540 D-2011								
Total Suspended Solids (TSS)	31.0	5.0	mg/L	1			10/27/22 0904	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	4.27	1.00	mg/L	1		10/31/22 1858	11/01/22 1129	AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J1061

Client Sample ID:	SW14	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	10/25/2022 9:00
Lab Sample ID:	R2J1061-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		10/25/22 1222	10/26/22 1258	CSE
Escherichia coli	160.7	1	MPN/100mL	1		10/25/22 1222	10/26/22 1258	CSE
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		10/25/22 2023	10/30/22 1541	JPA
Calculation								
Total Nitrogen	3.47	1.00	mg/L	1		10/31/22 1858	11/01/22 1131	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	2.20	0.100	mg/L	1			10/26/22 0018	AMG
Nitrite as N	<0.100	0.100	mg/L	1			10/26/22 0018	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		10/26/22 1508	10/26/22 1944	TXN
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	472	5.00	mg CaCO3/L	1		10/27/22 1214	10/28/22 1214	CSE
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			10/27/22 1257	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.27	1.00	mg/L	1		10/31/22 1858	11/01/22 1131	AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J1061

Client Sample ID:	SW14D	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	10/25/2022 9:00
Lab Sample ID:	R2J1061-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		10/25/22 1222	10/26/22 1258	CSE
Escherichia coli	121.1	1	MPN/100mL	1		10/25/22 1222	10/26/22 1258	CSE
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		10/25/22 2023	10/30/22 1541	JPA
Calculation								
Total Nitrogen	3.18	1.00	mg/L	1		10/31/22 1858	11/01/22 1035	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	2.09	0.100	mg/L	1		10/26/22 0033	10/26/22 0033	AMG
Nitrite as N	<0.100	0.100	mg/L	1		10/26/22 0033	10/26/22 0033	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		10/26/22 1508	10/26/22 1947	TXN
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	468	5.00	mg CaCO3/L	1		10/27/22 1214	10/28/22 1214	CSE
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			10/27/22 1257	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.09	1.00	mg/L	1		10/31/22 1858	11/01/22 1035	AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J1061

Client Sample ID:	SW28	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	10/25/2022 10:00
Lab Sample ID:	R2J1061-04		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	<1	1	MPN/100mL	1		10/25/22 1222	10/26/22 1258	CSE
Escherichia coli	<1	1	MPN/100mL	1		10/25/22 1222	10/26/22 1258	CSE
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		10/25/22 2023	10/30/22 1541	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		10/31/22 1858	11/01/22 1037	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		10/26/22 0049	10/26/22 0049	AMG
Nitrite as N	<0.100	0.100	mg/L	1		10/26/22 0049	10/26/22 0049	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		10/26/22 1508	10/26/22 1949	TXN
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	<5.00	5.00	mg CaCO3/L	1		10/27/22 1214	10/28/22 1214	CSE
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			10/27/22 1257	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		10/31/22 1858	11/01/22 1037	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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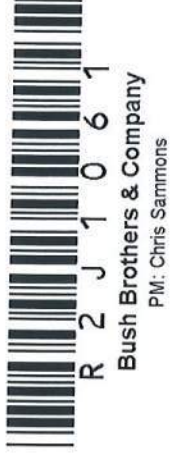
Reviewed and Approved By:

Chris Sammons
 Operations Manager
 Reported: 11/07/2022 10:56



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 2 J 1 0 6 1
 Bush Brothers & Company
 PM: Chris Sammons

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 Cont's.	ANALYSIS REQUIRED	FOR LAB CHECK-IN ONLY
SW24	10-25-22	0830	GEAR	5	ECOL N:Leak AS N ALKALINITY TSS BOD5 TOTAL Nitrogen Nitrate Nitrite	Temp Rec'd <i>11.9</i> C Properly Preserved: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Remarks:
SW14	10-25-22	0900	GEAR	5		
SW14D	10-25-22	0900	GEAR	5		
SW28	10-25-22	1000	GEAR	5		

Priority
 Standard
 Next Day
 2-3 Day

Special Instructions / Comments...

Relinquished By:	Date:	Time:	Relinquished By:	Date:	Time:	Received By:	Date:	Time:
<i>Tony Bryant</i>	10-25-22		<i>Chris Sammons</i>	10/25/22	11:24			

Customer #:
 Job Temp.:
 Project:



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J1110

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: N/A
Received: 10/26/2022
Reported: 11/07/2022

Analytical Testing Parameters

Table with client and sample information: Client Sample ID: SW9, Sample Matrix: Aqueous, Lab Sample ID: R2J1110-01, Collected By: tony bryant, Collection Date: 10/26/2022 10:15

Microbiology

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows include SM 9223 B (Colilert Quanti-Tray)-2004, Total coliforms (2419.6), and Escherichia coli (574.8).

Inorganics Total

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row includes BOD Preparation/SM 5210 B-2011 Biochemical Oxygen Demand (BOD5) with result 2.70.

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row includes Calculation Total Nitrogen with result <1.00.

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows include EPA 300.0, Rv. 2.1 (1993) for Nitrate as N and Nitrite as N.

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row includes EPA 350.1, Rv. 2 (1993) Ammonia as N with result <0.200.

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row includes SM 2320 B-1997 Alkalinity to pH 4.5, Total with result 200.

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row includes SM 2540 D-2011 Total Suspended Solids (TSS) with result <5.0.

General Parameters

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row includes EPA 351.2, Rv. 2 (1993) Total Kjeldahl Nitrogen (TKN) with result <1.00.



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J1110

Client Sample ID:	SW3R2	Collected By:	tony bryant
Sample Matrix:	Aqueous	Collection Date:	10/26/2022 10:40
Lab Sample ID:	R2J1110-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		10/26/22 1558	10/27/22 1644	AMG
Escherichia coli	416	1	MPN/100mL	1		10/26/22 1558	10/27/22 1644	AMG
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	K1, K7	10/26/22 2032	10/31/22 1559	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		11/05/22 1400	11/05/22 1400	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		10/26/22 1815	10/26/22 1815	TXN
Nitrite as N	<0.100	0.100	mg/L	1		10/26/22 1815	10/26/22 1815	TXN
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		10/29/22 1352	10/29/22 1352	TXN
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	236	5.00	mg CaCO3/L	1		10/27/22 1214	10/28/22 1214	CSE
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			10/27/22 1257	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		11/05/22 1400	11/05/22 1400	TXN

Definitions

- K1:** Unseeded dilution blank depletion exceeds 0.2 mg/L.
- 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:

Chris Sammons
 Operations Manager
 Reported: 11/07/2022 18:43

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2K0257

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: N/A
Received: 11/02/2022
Reported: 11/14/2022

Analytical Testing Parameters

Table with client and lab sample IDs, sample matrix, and collection details.

Microbiology

Table with columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows for SM 9223 B (Colilert Quanti-Tray)-2004.

Inorganics Total

Table with columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for Calculation.

Table with columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows for EPA 300.0, Rv. 2.1 (1993).

Table with columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for SM 2320 B-1997.

General Parameters

Table with columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for EPA 351.2, Rv. 2 (1993).

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:

Chris Sammons
Operations Manager
Reported: 11/14/2022 17:02

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2K0350

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: N/A
Received: 11/03/2022
Reported: 11/14/2022

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: MW7, Sample Matrix: Aqueous, Lab Sample ID: R2K0350-01, Collected By: Tony Bryant, Collection Date: 11/03/2022 8:30

Microbiology

SM 9223 B (Colilert Quanti-Tray)-2004

Table with 9 columns: Parameter, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows for Total coliforms and Escherichia coli.

Inorganics Total

Calculation

Table with 9 columns: Parameter, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for Total Nitrogen.

EPA 300.0, Rv. 2.1 (1993)

Table with 9 columns: Parameter, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows for Nitrate as N and Nitrite as N.

SM 2320 B-1997

Table with 9 columns: Parameter, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for Alkalinity to pH 4.5, Total.

General Parameters

EPA 351.2, Rv. 2 (1993)

Table with 9 columns: Parameter, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for Total Kjeldahl Nitrogen (TKN).



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CERTIFICATE OF ANALYSIS

R2K0350

Client Sample ID:	MW15	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	11/03/2022 10:15
Lab Sample ID:	R2K0350-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	3	1	MPN/100mL	1		11/03/22 1444	11/04/22 1641	AMG
Escherichia coli	<1	1	MPN/100mL	1		11/03/22 1444	11/04/22 1641	AMG
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Calculation								
Total Nitrogen	1.58	1.00	mg/L	1		11/11/22 1830	11/11/22 1830	TXN
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.131	0.100	mg/L	1		11/04/22 0255	11/04/22 0255	AMG
Nitrite as N	<0.100	0.100	mg/L	1		11/04/22 0255	11/04/22 0255	AMG
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	344	5.00	mg CaCO3/L	1			11/09/22 1520	TXN
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.45	1.00	mg/L	1		11/11/22 1830	11/11/22 1830	TXN

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:

Chris Sammons
 Operations Manager
 Reported: 11/14/2022 17:13



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2K0441

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: N/A
Received: 11/07/2022
Reported: 11/14/2022

Analytical Testing Parameters

Table with 4 columns: Client Sample ID, Sample Matrix, Lab Sample ID, Collected By, Collection Date. Values include MW14, Aqueous, R2K0441-01, Tony Bryant, 11/07/2022 9:30.

Main analytical results table with columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Includes sections for SM 9223 B, Inorganics Total, Calculation, EPA 300.0, EPA 350.1, SM 2320 B, and General Parameters.

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:

Chris Sammons
Operations Manager
Reported: 11/14/2022 17:21

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2J1162

Bush Brothers & Company

Project Name: Permit Irrigation Water

Terry Dockery
3304 Chestnut Hill Rd
Dandridge, TN 37725

Project / PO Number: N/A
Received: 10/27/2022
Reported: 11/21/2022

Analytical Testing Parameters

Table with client and sample information: Client Sample ID: SW13, Sample Matrix: Aqueous, Lab Sample ID: R2J1162-01, Collected By: tony bryant, Collection Date: 10/27/2022 9:00

Microbiology

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows include SM 9223 B (Colilert Quanti-Tray)-2004, Total coliforms, and Escherichia coli.

Inorganics Total

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row includes BOD Preparation/SM 5210 B-2011 Biochemical Oxygen Demand (BOD5).

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row includes Calculation Total Nitrogen.

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows include EPA 300.0, Rv. 2.1 (1993) for Nitrate as N and Nitrite as N.

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row includes EPA 350.1, Rv. 2 (1993) Ammonia as N.

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row includes SM 2320 B-1997 Alkalinity to pH 4.5, Total.

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row includes SM 2540 D-2011 Total Suspended Solids (TSS).

General Parameters

Table with 10 columns: Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row includes EPA 351.2, Rv. 2 (1993) Total Kjeldahl Nitrogen (TKN).



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CERTIFICATE OF ANALYSIS

R2J1162

Client Sample ID:	SW15	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	10/27/2022 9:30
Lab Sample ID:	R2J1162-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	2419.6	1	MPN/100mL	1		10/27/22 1409	10/28/22 1507	AMG
Escherichia coli	686.7	1	MPN/100mL	1		10/27/22 1409	10/28/22 1507	AMG
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	K1	10/27/22 1809	11/01/22 1407	JPA
Calculation								
Total Nitrogen	1.10	1.00	mg/L	1		10/31/22 1858	11/01/22 1143	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.691	0.100	mg/L	1		10/27/22 2010	10/27/22 2010	AMG
Nitrite as N	<0.100	0.100	mg/L	1		10/27/22 2010	10/27/22 2010	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1	M1	11/04/22 1841	11/04/22 1841	TXN
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	179	5.00	mg CaCO3/L	1			11/01/22 1557	CSE
SM 2540 D-2011								
Total Suspended Solids (TSS)	5.2	5.0	mg/L	1			10/29/22 1215	TXN
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		10/31/22 1858	11/01/22 1143	AMG

Definitions

- K1:** Unseeded dilution blank depletion exceeds 0.2 mg/L.
- 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:

Chris Sammons
Operations Manager
Reported: 11/21/2022 11:30

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Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0253

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: 12/05/2022
Reported: 12/16/2022

Analytical Testing Parameters

Client Sample ID:	SW3R	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	12/05/2022 9:00
Lab Sample ID:	R2L0253-01		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		12/05/22 1439	12/06/22 1038	TMW
Escherichia coli	48.8	1	MPN/100mL	1		12/05/22 1439	12/06/22 1038	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	K1	12/06/22 2220	12/11/22 1633	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		12/14/22 1243	12/15/22 1658	CWS
Total Organic Nitrogen	<1.00	1.00	mg/L	1		12/14/22 1243	12/15/22 1658	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		12/06/22 2343	12/06/22 2343	AMG
Nitrite as N	<0.100	0.100	mg/L	1		12/06/22 2343	12/06/22 2343	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		12/12/22 1754	12/12/22 2345	AMG
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	160	5.00	mg CaCO3/L	1		12/08/22 0033	12/08/22 0046	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	6.6	5.0	mg/L	1			12/06/22 2018	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		12/14/22 1243	12/15/22 1658	CWS



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0253

Client Sample ID:	SW22	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	12/05/2022 9:20
Lab Sample ID:	R2L0253-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		12/05/22 1439	12/06/22 1038	TMW
Escherichia coli	73.3	1	MPN/100mL	1		12/05/22 1439	12/06/22 1038	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	K1	12/06/22 2220	12/11/22 1633	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		12/14/22 1243	12/15/22 1700	CWS
Total Organic Nitrogen	<1.00	1.00	mg/L	1		12/14/22 1243	12/15/22 1700	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		12/06/22 2359	12/06/22 2359	AMG
Nitrite as N	<0.100	0.100	mg/L	1		12/06/22 2359	12/06/22 2359	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		12/12/22 1754	12/12/22 2348	AMG
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	155	5.00	mg CaCO3/L	1		12/08/22 0033	12/08/22 0046	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			12/06/22 2018	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		12/14/22 1243	12/15/22 1700	CWS



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0253

Client Sample ID:	SW6	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	12/05/2022 10:50
Lab Sample ID:	R2L0253-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		12/05/22 1439	12/06/22 1038	TMW
Escherichia coli	119.8	1	MPN/100mL	1		12/05/22 1439	12/06/22 1038	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	K1	12/06/22 2220	12/11/22 1633	JPA
Calculation								
Total Nitrogen	2.70	1.00	mg/L	1		12/14/22 1243	12/15/22 1706	CWS
Total Organic Nitrogen	<1.00	1.00	mg/L	1		12/14/22 1243	12/15/22 1706	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	2.27	0.100	mg/L	1		12/07/22 0015	12/07/22 0015	AMG
Nitrite as N	<0.100	0.100	mg/L	1		12/07/22 0015	12/07/22 0015	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		12/12/22 1754	12/12/22 2350	AMG
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	279	5.00	mg CaCO3/L	1		12/08/22 0033	12/08/22 0046	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	5.8	5.0	mg/L	1			12/06/22 2018	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		12/14/22 1243	12/15/22 1706	CWS

Definitions

- K1:** Unseeded dilution blank depletion exceeds 0.2 mg/L.
- 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:

Ehxciquiel Camacho
Customer Relationship Specialist
Reported: 12/16/2022 14:40



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0467

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: 12/08/2022
Reported: 12/21/2022

Analytical Testing Parameters

Client Sample ID:	SW8R	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	12/08/2022 8:15
Lab Sample ID:	R2L0467-01		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		12/08/22 1349	12/09/22 1403	TJM
Escherichia coli	52.9	1	MPN/100mL	1		12/08/22 1349	12/09/22 1403	TJM
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	2.20	2.00	mg/L	1	K1	12/09/22 2035	12/14/22 1458	JPA
Calculation								
Total Nitrogen	1.39	1.00	mg/L	1		12/14/22 1243	12/15/22 1734	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.02	0.100	mg/L	1		12/08/22 1804	12/08/22 1804	AMG
Nitrite as N	<0.100	0.100	mg/L	1		12/08/22 1804	12/08/22 1804	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		12/14/22 0918	12/14/22 2239	CWS
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	233	5.00	mg CaCO3/L	1			12/15/22 1507	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	26.4	5.0	mg/L	1			12/12/22 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		12/14/22 1243	12/15/22 1734	CWS



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0467

Client Sample ID:	SW7	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	12/08/2022 9:15
Lab Sample ID:	R2L0467-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		12/08/22 1349	12/09/22 1403	TJM
Escherichia coli	770.1	1	MPN/100mL	1		12/08/22 1349	12/09/22 1403	TJM
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	2.10	2.00	mg/L	1	K1	12/09/22 2035	12/14/22 1458	JPA
Calculation								
Total Nitrogen	1.86	1.00	mg/L	1		12/14/22 1243	12/15/22 1735	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.517	0.100	mg/L	1		12/08/22 1820	12/08/22 1820	AMG
Nitrite as N	<0.100	0.100	mg/L	1		12/08/22 1820	12/08/22 1820	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		12/14/22 0918	12/14/22 2247	CWS
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	367	5.00	mg CaCO3/L	1			12/15/22 1507	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	15.0	5.0	mg/L	1			12/14/22 1124	AMG
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		12/14/22 1243	12/15/22 1735	CWS



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0467

Client Sample ID:	SW25	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	12/08/2022 10:00
Lab Sample ID:	R2L0467-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		12/08/22 1349	12/09/22 1403	TJM
Escherichia coli	95.9	1	MPN/100mL	1		12/08/22 1349	12/09/22 1403	TJM
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	K1	12/09/22 2035	12/14/22 1458	JPA
Calculation								
Total Nitrogen	3.10	1.00	mg/L	1		12/14/22 1243	12/15/22 1737	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	2.07	0.100	mg/L	1		12/08/22 1835	12/08/22 1835	AMG
Nitrite as N	<0.100	0.100	mg/L	1		12/08/22 1835	12/08/22 1835	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1	M	12/19/22 1602	12/20/22 1650	CWS
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	308	5.00	mg CaCO3/L	1			12/16/22 1412	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	22.0	5.0	mg/L	1			12/14/22 1124	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.02	1.00	mg/L	1		12/14/22 1243	12/15/22 1737	CWS



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0467

Client Sample ID:	SW27	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	12/08/2022 10:30
Lab Sample ID:	R2L0467-04		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		12/08/22 1349	12/09/22 1403	TJM
Escherichia coli	1046.2	1	MPN/100mL	1		12/08/22 1349	12/09/22 1403	TJM
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	K1	12/09/22 2035	12/14/22 1458	JPA
Calculation								
Total Nitrogen	1.76	1.00	mg/L	1		12/14/22 1243	12/15/22 1739	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.456	0.100	mg/L	1		12/08/22 1851	12/08/22 1851	AMG
Nitrite as N	<0.100	0.100	mg/L	1		12/08/22 1851	12/08/22 1851	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	0.224	0.200	mg/L	1		12/19/22 1602	12/20/22 1658	CWS
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	134	5.00	mg CaCO3/L	1			12/16/22 1412	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	24.1	5.7	mg/L	1		12/15/22 1005	12/15/22 1348	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.30	1.00	mg/L	1		12/14/22 1243	12/15/22 1739	CWS


Definitions

- K1:** Unseeded dilution blank depletion exceeds 0.2 mg/L.
- 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

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Reviewed and Approved By:


 Ehxciquiel Camacho
 Customer Relationship Specialist
 Reported: 12/21/2022 10:44



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0659

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: 12/13/2022
Reported: 12/21/2022

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: SW13, Sample Matrix: Wastewater, Lab Sample ID: R2L0659-01, Collected By: Tony Bryant, Collection Date: 12/13/2022 8:30

Microbiology

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

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-1997

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

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).



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0659

Client Sample ID:	SW15	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	12/13/2022 9:00
Lab Sample ID:	R2L0659-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		12/13/22 1458	12/14/22 1808	AMG
Escherichia coli	488.8	1	MPN/100mL	1		12/13/22 1458	12/14/22 1808	AMG
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		12/14/22 2003	12/19/22 1403	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		12/16/22 0831	12/17/22 1451	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.937	0.100	mg/L	1		12/13/22 2316	12/13/22 2316	AMG
Nitrite as N	<0.100	0.100	mg/L	1		12/13/22 2316	12/13/22 2316	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		12/16/22 1552	12/19/22 1911	CWS
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	153	5.00	mg CaCO3/L	1			12/16/22 1412	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			12/20/22 1911	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		12/16/22 0831	12/17/22 1451	CWS



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0659

Client Sample ID:	SW14	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	12/13/2022 9:30
Lab Sample ID:	R2L0659-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		12/13/22 1458	12/14/22 1808	AMG
Escherichia coli	980.4	1	MPN/100mL	1		12/13/22 1458	12/14/22 1808	AMG
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	3.00	2.00	mg/L	1		12/14/22 2003	12/19/22 1403	JPA
Calculation								
Total Nitrogen	1.40	1.00	mg/L	1		12/16/22 0831	12/17/22 1453	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.721	0.100	mg/L	1		12/13/22 2332	12/13/22 2332	AMG
Nitrite as N	<0.100	0.100	mg/L	1		12/13/22 2332	12/13/22 2332	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		12/16/22 1552	12/19/22 1919	CWS
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	395	5.00	mg CaCO3/L	1			12/16/22 1412	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	6.2	5.0	mg/L	1			12/20/22 1911	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		12/16/22 0831	12/17/22 1453	CWS



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0659

Client Sample ID: SW14D	Collected By: Tony Bryant
Sample Matrix: Wastewater	Collection Date: 12/13/2022 10:00
Lab Sample ID: R2L0659-04	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		12/13/22 1458	12/14/22 1808	AMG
Escherichia coli	1413.6	1	MPN/100mL	1		12/13/22 1458	12/14/22 1808	AMG
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		12/14/22 2003	12/19/22 1403	JPA
Calculation								
Total Nitrogen	1.31	1.00	mg/L	1		12/16/22 0831	12/17/22 1459	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.717	0.100	mg/L	1		12/13/22 2347	12/13/22 2347	AMG
Nitrite as N	<0.100	0.100	mg/L	1		12/13/22 2347	12/13/22 2347	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		12/16/22 1552	12/19/22 1921	CWS
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	397	5.00	mg CaCO3/L	1			12/16/22 1412	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	5.6	5.0	mg/L	1			12/20/22 1911	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		12/16/22 0831	12/17/22 1459	CWS

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:

Ehxciquiel Camacho
 Customer Relationship Specialist
 Reported: 12/21/2022 14:21



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2K1323

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: 11/30/2022
Reported: 12/22/2022

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: SW6, Sample Matrix: Aqueous, Lab Sample ID: R2K1323-01, Collected By: Tony Bryant, Collection Date: 11/30/2022 8:50

Microbiology

Table row for SM 9223 B (Colilert Quanti-Tray)-2004, Escherichia coli, Result: 648.8, Units: MPN/100mL, Analyst: AMG

Inorganics Total

BOD Preparation/SM 5210 B-2011

Table row for Biochemical Oxygen Demand (BOD5), Result: 17.5, Units: mg/L, Note: K1, Analyst: SNF

Calculation

Table row for Total Nitrogen, Result: 2.28, Units: mg/L, Analyst: AMG

Table row for Total Organic Nitrogen, Result: <1.00, Units: mg/L, Analyst: AMG

EPA 300.0, Rv. 2.1 (1993)

Table row for Nitrate as N, Result: 1.79, Units: mg/L, Analyst: AMG

Table row for Nitrite as N, Result: <0.100, Units: mg/L, Note: M2, Analyst: AMG

EPA 350.1, Rv. 2 (1993)

Table row for Ammonia as N, Result: <0.200, Units: mg/L, Analyst: CWS

SM 2320 B-1997

Table row for Alkalinity to pH 4.5, Total, Result: 237, Units: mg CaCO3/L, Analyst: AMG

SM 2540 D-2011

Table row for Total Suspended Solids (TSS), Result: 34.8, Units: mg/L, Analyst: AMG

General Parameters

EPA 351.2, Rv. 2 (1993)

Table row for Total Kjeldahl Nitrogen (TKN), Result: <1.00, Units: mg/L, Analyst: AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2K1323

Client Sample ID:	SW8R	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	11/30/2022 8:20
Lab Sample ID:	R2K1323-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	>2419.6	1	MPN/100mL	1		11/30/22 1512	12/01/22 1750	AMG
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	28.5	2.00	mg/L	1	K1	11/30/22 2120	12/05/22 1725	SNF
Calculation								
Total Nitrogen	2.46	1.00	mg/L	1		12/01/22 1251	12/03/22 1945	AMG
Total Organic Nitrogen	1.12	1.00	mg/L	1		12/01/22 1251	12/03/22 1945	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.34	0.100	mg/L	1		11/30/22 2106	11/30/22 2106	AMG
Nitrite as N	<0.100	0.100	mg/L	1		11/30/22 2106	11/30/22 2106	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		12/01/22 1243	12/02/22 1146	CWS
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	164	5.00	mg CaCO3/L	1		12/01/22 1229	12/01/22 1328	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	64.0	5.0	mg/L	1			12/03/22 1954	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.12	1.00	mg/L	1		12/01/22 1251	12/03/22 1945	AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2K1323

Client Sample ID:	SW16	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	11/30/2022 9:15
Lab Sample ID:	R2K1323-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	>2419.6	1	MPN/100mL	1		11/30/22 1512	12/01/22 1750	AMG
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	28.4	2.00	mg/L	1	K1	11/30/22 2120	12/05/22 1725	SNF
Calculation								
Total Nitrogen	1.61	1.00	mg/L	1		12/01/22 1251	12/03/22 1730	AMG
Total Organic Nitrogen	<1.00	1.00	mg/L	1		12/01/22 1251	12/03/22 1730	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.00	0.100	mg/L	1		11/30/22 2122	11/30/22 2122	AMG
Nitrite as N	<0.100	0.100	mg/L	1		11/30/22 2122	11/30/22 2122	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		12/01/22 1243	12/02/22 1148	CWS
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	146	5.00	mg CaCO3/L	1		12/01/22 1229	12/01/22 1328	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	59.8	6.2	mg/L	1			12/03/22 1954	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		12/01/22 1251	12/03/22 1730	AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2K1323

Client Sample ID:	SW12	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	11/30/2022 9:40
Lab Sample ID:	R2K1323-04		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	>2419.6	1	MPN/100mL	1		11/30/22 1512	12/01/22 1750	AMG
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
BOD Preparation/SM 5210 B-2011								
Biochemical Oxygen Demand (BOD5)	19.9	2.00	mg/L	1	G1, K1, K5	11/30/22 2120	12/05/22 1725	SNF
Calculation								
Total Nitrogen	1.34	1.00	mg/L	1		12/01/22 1251	12/03/22 1731	AMG
Total Organic Nitrogen	<1.00	1.00	mg/L	1		12/01/22 1251	12/03/22 1731	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.636	0.100	mg/L	1		11/30/22 2137	11/30/22 2137	AMG
Nitrite as N	<0.100	0.100	mg/L	1		11/30/22 2137	11/30/22 2137	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		12/01/22 1243	12/02/22 1151	CWS
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	120	5.00	mg CaCO3/L	1		12/01/22 1229	12/01/22 1328	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	58.7	8.1	mg/L	2			12/03/22 1954	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		12/01/22 1251	12/03/22 1731	AMG



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2K1323

Client Sample ID:	SW11	Collected By:	Tony Bryant
Sample Matrix:	Aqueous	Collection Date:	11/30/2022 10:15
Lab Sample ID:	R2K1323-05		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	>2419.6	1	MPN/100mL	1		11/30/22 1512	12/01/22 1750	AMG
Inorganics Total								
BOD Preparation/SM 5210 B-2011	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Biochemical Oxygen Demand (BOD5)	29.2	2.00	mg/L	1	G1, K1, K5	11/30/22 2120	12/05/22 1725	SNF
Calculation								
Total Nitrogen	1.36	1.00	mg/L	1		12/01/22 1251	12/03/22 1733	AMG
Total Organic Nitrogen	<1.00	1.00	mg/L	1		12/01/22 1251	12/03/22 1733	AMG
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.653	0.100	mg/L	1		11/30/22 2153	11/30/22 2153	AMG
Nitrite as N	<0.100	0.100	mg/L	1		11/30/22 2153	11/30/22 2153	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		12/01/22 1243	12/02/22 1154	CWS
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	125	5.00	mg CaCO3/L	1		12/01/22 1229	12/01/22 1328	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	52.1	7.4	mg/L	1			12/03/22 1954	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		12/01/22 1251	12/03/22 1733	AMG

Definitions

- G1:** Elevated detection limit due to insufficient oxygen depletion.
- K1:** Unseeded dilution blank depletion exceeds 0.2 mg/L.
- K5:** Sample did not meet the minimum dissolved oxygen remaining in any dilution.
- 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:


 Ehxciquiel Camacho
 Customer Relationship Specialist
 Reported: 12/22/2022 17:13

Microbac Laboratories, Inc.

505 East Broadway Avenue | Maryville, TN 37804-5744 | 865-977-1200 p | www.microbac.com



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 2 K 1 3 2 3
 Bush Brothers & Company
 PM: Chris Sammons

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@bushbro.com

Quote #: _____
 P.O. #: _____

EColi
Nitrate as N
Alkalinity
TSS
BOD 5
Total Nitrogen
Nitrate Nitrite

ANALYSIS REQUIRED

Please Mark Testing Required (X)

Sample ID	Sample Date	Sample Time	Sample Type	# of Cont's.															
SW10	11-30-22	0850	604B	5															
SW8R	11-30-22	0820	604B	5															
SW16	11-30-22	0915	604B	5															
SW12	11-30-22	0940	604B	5															
SW11	11-30-22	1015	604B	5															

FOR LAB CHECK-IN ONLY
 Temp Rec'd 55 °C
 Properly Preserved: Yes No
 Remarks: _____
 Sample # _____

Priority _____
 Standard _____
 Next Day _____
 2-3 Day _____
 Special Instructions / Comments: _____

Customer #: _____
 Job Temp.: _____
 Project: _____

Relinquished By: _____	Date: <u>11-30-22</u>	Time: <u>11:44</u>	Received By: _____	Relinquished By: _____	Date: _____	Time: _____	Received By: _____
Relinquished By: <u>Wilson Buckle</u>	Date: <u>11-30-22</u>	Time: <u>11:46</u>	Received By: _____	Relinquished By: _____	Date: _____	Time: _____	Received By: _____



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0591

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: 12/12/2022
Reported: 12/24/2022

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: SW26, Sample Matrix: Wastewater, Lab Sample ID: R2L0591-01, Collected By: Tony Bryant, Collection Date: 12/12/2022 9:15

Microbiology

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

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-1997

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

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).



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0591

Client Sample ID:	SW24	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	12/12/2022 9:40
Lab Sample ID:	R2L0591-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	>2419.6	1	MPN/100mL	1		12/12/22 1359	12/13/22 1546	AMG
Escherichia coli	1732.9	1	MPN/100mL	1		12/12/22 1359	12/13/22 1546	AMG
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		12/13/22 1911	12/18/22 1533	JPA
Calculation								
Total Nitrogen	2.76	1.00	mg/L	1		12/16/22 0831	12/17/22 1418	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	1.31	0.100	mg/L	1		12/13/22 2229	12/13/22 2229	AMG
Nitrite as N	<0.100	0.100	mg/L	1		12/13/22 2229	12/13/22 2229	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	0.200	0.200	mg/L	1		12/16/22 1552	12/19/22 1833	CWS
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	580	5.00	mg CaCO3/L	1			12/16/22 1412	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	11.2	5.0	mg/L	1	H2	12/19/22 1802	12/20/22 2330	CWS
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.45	1.00	mg/L	1		12/16/22 0831	12/17/22 1418	CWS



Microbac Laboratories, Inc., Maryville
 CERTIFICATE OF ANALYSIS
 R2L0591

Client Sample ID:	SW16	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	12/12/2022 10:15
Lab Sample ID:	R2L0591-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	960.6	1	MPN/100mL	1		12/12/22 1359	12/13/22 1546	AMG
Escherichia coli	42.2	1	MPN/100mL	1		12/12/22 1359	12/13/22 1546	AMG
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		12/13/22 1911	12/18/22 1533	JPA
Calculation								
Total Nitrogen	2.53	1.00	mg/L	1		12/16/22 0831	12/17/22 1421	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	2.11	0.100	mg/L	1		12/13/22 2245	12/13/22 2245	AMG
Nitrite as N	<0.100	0.100	mg/L	1	M2	12/13/22 2245	12/13/22 2245	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		12/16/22 1552	12/19/22 1836	CWS
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	265	5.00	mg CaCO3/L	1			12/16/22 1412	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	5.2	5.0	mg/L	1			12/13/22 2145	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		12/16/22 0831	12/17/22 1421	CWS

Definitions

- H2:** Initial analysis was within holding time. Reanalysis was 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:

Ehxciquiel Camacho
 Customer Relationship Specialist
 Reported: 12/24/2022 13:02



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 2 L 0 5 9 1
 Bush Brothers & Company
 PM: Chris Sammons

Project ID: _____
 Permit #: _____
 If drinking water, State Reported? Yes No

Sampler: Tony Beyant
 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@bushbrocs.com

Invoice To: SAME
 P.O. #: _____
 Quote #: _____

FOR LAB CHECK-IN ONLY
 Temp Rec'd 43 C
 Properly Preserved: Yes No
 Remarks: _____

Sample ID	Sample Date	Sample Time	Sample Type	# of Cont's
SW26	12-12-22	0915	GRAB	5
SW24	12-12-22	0940	GRAB	5
SW16	12-12-22	1015	GRAB	5

ANALYSIS REQUIRED

Sample #	Analysis
1	ECOL
2	Nitrate as N
3	Alkalinity
4	TSS
5	BOD5
6	Total Nitrogen
7	Nitrate Nitrite

Please Mark Testing Required (X)

Sample #	ECOL	Nitrate as N	Alkalinity	TSS	BOD5	Total Nitrogen	Nitrate Nitrite
1	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X

Priority: _____
 Standard: _____
 Next Day: _____
 2-3 Day: _____

Special Instructions / Comments: _____

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
<u>Tony Beyant</u>	<u>12-12-22</u>	<u>11:32</u>			
<u>Allison Brockhoff</u>	<u>12-12-22</u>	<u>11:30</u>			

Customer #: _____
 Job Temp.: _____
 Project: _____



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0734

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: 12/14/2022
Reported: 12/28/2022

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: SW18, Sample Matrix: Wastewater, Lab Sample ID: R2L0734-01, Collected By: TOny Bryant, Collection Date: 12/14/2022 8:30

Microbiology Result RL Units DF Note Prepared Analyzed Analyst

SM 9223 B (Colilert Quanti-Tray)-2004

Table row for Escherichia coli with result 31.5, RL 1, Units MPN/100mL, DF 1, Prepared 12/14/22 1447, Analyzed 12/15/22 0920, 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, Prepared 12/15/22 1943, Analyzed 12/20/22 1345, Analyst JPA

Calculation

Table row for Total Nitrogen with result 2.81, RL 1.00, Units mg/L, DF 1, Prepared 12/16/22 0831, Analyzed 12/17/22 1509, Analyst CWS

EPA 300.0, Rv. 2.1 (1993)

Table row for Nitrate as N with result 1.97, RL 0.100, Units mg/L, DF 1, Prepared 12/14/22 2150, Analyzed 12/14/22 2150, Analyst AMG

Table row for Nitrite as N with result <0.100, RL 0.100, Units mg/L, DF 1, Prepared 12/14/22 2150, Analyzed 12/14/22 2150, Analyst AMG

EPA 350.1, Rv. 2 (1993)

Table row for Ammonia as N with result <0.200, RL 0.200, Units mg/L, DF 1, Prepared 12/22/22 1233, Analyzed 12/23/22 1251, Analyst CWS

SM 2320 B-1997

Table row for Alkalinity to pH 4.5, Total with result 342, RL 5.00, Units mg CaCO3/L, DF 1, Prepared 12/16/22 1412, Analyst AMG

SM 2540 D-2011

Table row for Total Suspended Solids (TSS) with result 39.2, RL 6.2, Units mg/L, DF 1, Prepared 12/15/22 1005, Analyzed 12/15/22 1348, 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, Prepared 12/16/22 0831, Analyzed 12/17/22 1509, Analyst CWS



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0734

Client Sample ID:	SW19	Collected By:	TOny Bryant
Sample Matrix:	Wastewater	Collection Date:	12/14/2022 9:30
Lab Sample ID:	R2L0734-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	22.6	1	MPN/100mL	1		12/14/22 1447	12/15/22 0920	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		12/15/22 1943	12/20/22 1345	JPA
Calculation								
Total Nitrogen	2.67	1.00	mg/L	1		12/16/22 0831	12/17/22 1510	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	2.15	0.100	mg/L	1		12/14/22 2205	12/14/22 2205	AMG
Nitrite as N	<0.100	0.100	mg/L	1		12/14/22 2205	12/14/22 2205	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		12/22/22 1233	12/23/22 1254	CWS
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	232	5.00	mg CaCO3/L	1			12/16/22 1412	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	6.0	5.0	mg/L	1		12/15/22 1005	12/15/22 1348	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		12/16/22 0831	12/17/22 1510	CWS



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0734

Client Sample ID:	SW9	Collected By:	TOny Bryant
Sample Matrix:	Wastewater	Collection Date:	12/14/2022 10:00
Lab Sample ID:	R2L0734-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	191.8	1	MPN/100mL	1		12/14/22 1447	12/15/22 0920	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		12/15/22 1943	12/20/22 1345	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		12/16/22 0831	12/17/22 1512	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.114	0.100	mg/L	1		12/14/22 2221	12/14/22 2221	AMG
Nitrite as N	<0.100	0.100	mg/L	1		12/14/22 2221	12/14/22 2221	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		12/22/22 1233	12/23/22 1256	CWS
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	163	5.00	mg CaCO3/L	1			12/16/22 1412	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1			12/18/22 1130	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		12/16/22 0831	12/17/22 1512	CWS



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0734

Client Sample ID: SW55B	Collected By: TOny Bryant
Sample Matrix: Wastewater	Collection Date: 12/14/2022 8:00
Lab Sample ID: R2L0734-04	

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	<1	1	MPN/100mL	1		12/14/22 1447	12/15/22 0920	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		12/15/22 1943	12/20/22 1345	JPA
Calculation								
Total Nitrogen	<1.00	1.00	mg/L	1		12/16/22 0831	12/17/22 1514	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		12/14/22 2236	12/14/22 2236	AMG
Nitrite as N	<0.100	0.100	mg/L	1		12/14/22 2236	12/14/22 2236	AMG
EPA 350.1, Rv. 2 (1993)								
Ammonia as N	<0.200	0.200	mg/L	1		12/22/22 1233	12/23/22 1259	CWS
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	<5.00	5.00	mg CaCO3/L	1			12/16/22 1412	AMG
SM 2540 D-2011								
Total Suspended Solids (TSS)	<5.0	5.0	mg/L	1		12/15/22 1005	12/15/22 1348	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		12/16/22 0831	12/17/22 1514	CWS


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:


 Ehxciquiel Camacho
 Customer Relationship Specialist
 Reported: 12/28/2022 20:59



MICROBAC LABORATORIES, INC.
 KNOXVILLE DIVISION
 505 EAST BROADWAY
 MARYVILLE, TN 37804
 FAX: (865) 984-8616

CHAIN OF CUSTODY



R 2 L 0 7 3 4
 Bush Brothers & Company
 P.M.: Chris Sammons

Project ID: _____
 Permit #: _____
 If drinking water, State Reported? Yes No
 Sampler: Tony Beyart
 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.
SW18	12-14-22	0830	GEAS	5
SW19	12-14-22	0930	GEAS	5
SW9	12-14-22	1000	GEAS	5
SW55B	12-14-22	0800	GEAS	5

EColi
Nitrate AS N
ALKALINITY
TSS
BOD 5
Total Nitrogen
Nitrate Nitrite

Please Mark Testing Required (X)

Special Instructions / Comments...

Priority Standard
 Next Day
 2-3 Day

Relinquished By: _____ Date: _____
 Relinquished By: _____ Date: _____

FOR LAB CHECK-IN ONLY
 Temp Rec'd 3.1 °C
 Properly Preserved: Yes No
 Remarks: _____

Sample #	Received By:	Date:	Time:	Relinquished By:	Date:	Time:	Received By:
	<u>WGB</u>	<u>12-14-22</u>	<u>1222</u>				

Customer #: _____
 Job Temp.: _____
 Project: _____



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L0925

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: 12/19/2022
Reported: 01/09/2023

Case Narrative

The TKN Sample were temporarily frozen and the container was compromised therefore disposed following a Sample Storage room failure on 12-25-22. The analysis was canceled as a result.-EXC 1/9/2023

Analytical Testing Parameters

Table with 4 columns: Client Sample ID, Sample Matrix, Lab Sample ID, Collected By, Collection Date. Values include SW11, Aqueous, R2L0925-01, Tony Bryant, 12/19/2022 8:00.

Main analytical results table with columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows include SM 9223 B (Colilert Quanti-Tray)-2004, Inorganics Total, BOD Preparation/SM 5210 B-2011, Calculation, EPA 300.0, Rv. 2.1 (1993), EPA 350.1, Rv. 2 (1993), SM 2320 B-1997, SM 2540 D-2011.

Definitions

- K3: Glucose/glutamic acid recovery was above acceptance limits. The reported value is estimated.
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

R2L0925

Report Comments

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Reviewed and Approved By:

A handwritten signature in blue ink, appearing to read "Ehxciquiel Camacho".

Ehxciquiel Camacho
Customer Relationship Specialist
Reported: 01/09/2023 11:49



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L1233

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: 12/29/2022
Reported: 01/13/2023

Analytical Testing Parameters

Table with client and collection information: Client Sample ID: MW12, Sample Matrix: Wastewater, Lab Sample ID: R2L1233-01, Collected By: Tony Bryant, Collection Date: 12/29/2022 10:00

Main analytical results table with columns: Microbiology, Inorganics Total, Calculation, General Parameters. Rows include Escherichia coli, Total Nitrogen, Nitrate as N, Nitrite as N, Alkalinity to pH 4.5, Total, and Total Kjeldahl Nitrogen (TKN).



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L1233

Client Sample ID:	MW14	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	12/29/2022 10:30
Lab Sample ID:	R2L1233-02		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	1	1	MPN/100mL	1		12/29/22 1413	12/30/22 0906	TMW
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Calculation								
Total Nitrogen	2.93	1.00	mg/L	1		12/29/22 2155	01/03/23 1134	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.311	0.100	mg/L	1		12/29/22 1950	12/29/22 1950	AMG
Nitrite as N	<0.100	0.100	mg/L	1		12/29/22 1950	12/29/22 1950	AMG
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	173	5.00	mg CaCO3/L	1			01/03/23 1302	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	2.62	1.00	mg/L	1		12/29/22 2155	01/03/23 1134	CWS

Client Sample ID:	MW15	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	12/29/2022 9:00
Lab Sample ID:	R2L1233-03		

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Escherichia coli	<1	1	MPN/100mL	1		12/29/22 1413	12/30/22 0906	TMW
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Calculation								
Total Nitrogen	5.07	1.67	mg/L	1		12/29/22 2155	01/03/23 1136	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	0.163	0.100	mg/L	1		12/29/22 2053	12/29/22 2053	AMG
Nitrite as N	<0.100	0.100	mg/L	1		12/29/22 2053	12/29/22 2053	AMG
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	305	5.00	mg CaCO3/L	1			01/03/23 1302	AMG
General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	4.91	1.67	mg/L	1		12/29/22 2155	01/03/23 1136	CWS

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

R2L1233

Report Comments

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Reviewed and Approved By:

A handwritten signature in blue ink, appearing to read "E. Camacho", written over a horizontal line.

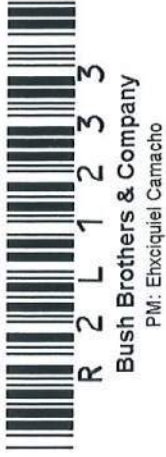
Ehxciquiel Camacho
Customer Relationship Specialist
Reported: 01/13/2023 13:50

Microbac Laboratories, Inc.

505 East Broadway Avenue | Maryville, TN 37804-5744 | 865-977-1200 p | www.microbac.com

CHAIN OF CUSTODY

Page ___ of ___



Project ID: _____
 Permit #: _____
 If drinking water, State Reported?: Yes No

(1) Sample Matrix codes
 AR = Air OL = Oil SW = Storm Water
 DW = Dr. Water PC = Paint Chip WP = Wipe
 FO = Food SB = Swab WW = Waste Water
 FT = Filter SD = Soil/Solid FB = Field Blank
 GW = Gr. Water SL = Sludge TB = Trip Blank

(2) Sample Type codes
 G = Grab C = Composite

Report To: Bush Brothers
 Address: Terry Doucety
 Phone: _____ Fax: _____
 E-mail: _____

Invoice To: _____
 Address: _____
 P.O. #: _____
 Quote #: _____

(1)	(2)	Sample Matrix	Sample Type	# of Containers	ANALYSIS REQUIRED
					AIK M. Vent. N. Test E. Col. Total Nitrogen M. Vent. N. Test
	65				
	65				
	65				

Please Mark Testing Required Below (X)

Sample Identification	Sample Date	Sample Time	Temp Rec'd: <u>6.7</u> °C	Prop. Preserved: ___ Y ___ N	Customer #:	Project:	Proj. Mgr.:	Special instructions / notes:
MW12	12-29-22	1000						
MW14	12-29-22	1030						
MW15	12-29-22	0900						

Samples collected by [please print]: [Signature]

PRIORITY: Standard Same Day Next Day 2 Day 3 Day

(addl. fee) - (+200%) (+100%) (+50%) (+25%)

All rush priority orders require prior approval.

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
<u>[Signature]</u>	12-29-22	1219	<u>[Signature]</u>		



Microbac Laboratories, Inc., Maryville

CERTIFICATE OF ANALYSIS

R2L1287

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: 12/30/2022
Reported: 01/17/2023

Analytical Testing Parameters

Table with 4 columns: Client Sample ID, Sample Matrix, Lab Sample ID, Collected By, Collection Date. Values include MW4, Wastewater, R2L1287-01, Tony Bryant, 12/30/2022 9:00.

Analyses Performed by: Microbac Laboratories, Inc. - Fayetteville

Table with 10 columns: Inorganics Total, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for SM 4500-NH3 G-2011 Ammonia as N.

Analyses Performed by: Microbac Laboratories, Inc., Maryville

Table with 10 columns: Microbiology, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows for SM 9223 B (Colilert Quanti-Tray)-2004 Total coliforms and Escherichia coli.

Table with 10 columns: Inorganics Total, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Rows for Calculation Total Nitrogen, EPA 300.0, Rv. 2.1 (1993) Nitrate and Nitrite as N, SM 2320 B-1997 Alkalinity to pH 4.5, Total.

Table with 10 columns: General Parameters, Result, RL, Units, DF, Note, Prepared, Analyzed, Analyst. Row for EPA 351.2, Rv. 2 (1993) Total Kjeldahl Nitrogen (TKN).



Microbac Laboratories, Inc., Maryville
 CERTIFICATE OF ANALYSIS
 R2L1287

Client Sample ID:	MW7	Collected By:	Tony Bryant
Sample Matrix:	Wastewater	Collection Date:	12/30/2022 10:30
Lab Sample ID:	R2L1287-02		

Analyses Performed by: Microbac Laboratories, Inc. - Fayetteville

Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 4500-NH3 G-2011								
Ammonia as N	<0.200	0.200	mg/L	1		01/14/23 1903	01/14/23 1903	KNL

Analyses Performed by: Microbac Laboratories, Inc., Maryville

Microbiology	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 9223 B (Colilert Quanti-Tray)-2004								
Total coliforms	613.1	1	MPN/100mL	1		12/30/22 1503	12/31/22 1052	AML
Escherichia coli	<1	1	MPN/100mL	1		12/30/22 1503	12/31/22 1052	AML

Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Calculation								
Total Nitrogen	<7.40	7.40	mg/L	74		01/13/23 0814	01/15/23 2021	CWS
EPA 300.0, Rv. 2.1 (1993)								
Nitrate as N	<0.100	0.100	mg/L	1		12/30/22 1728	12/30/22 1728	AMG
Nitrite as N	<7.40	7.40	mg/L	74		12/30/22 1728	12/30/22 1728	AMG
SM 2320 B-1997								
Alkalinity to pH 4.5, Total	318	5.00	mg CaCO3/L	1			01/03/23 1302	AMG

General Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 351.2, Rv. 2 (1993)								
Total Kjeldahl Nitrogen (TKN)	1.05	1.00	mg/L	1		01/13/23 0814	01/15/23 2021	CWS

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

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Reviewed and Approved By:

Ehxciquiel Camacho
 Customer Relationship Specialist
 Reported: 01/17/2023 14:25

