LANGAN

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February 28, 2025

Jonathan Rice, Chief
Industrial and General Permits Division
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230

RE: Monthly Progress Report – February 2025
Perdue AgriBusiness LLC
AI#2087, State Permit No. 15-DP-0359, NPDES Permit No. MD0000060
6906 Zion Church Road, Salisbury, Maryland 21804
Langan Project No.: 220210101

Dear Mr. Rice:

Langan Engineering and Environmental Services, LLC (Langan) has prepared this progress report for February 2025 on behalf of Perdue AgriBusiness LLC (PAB) regarding the Zion Church Road (ZCR) facility located at 6906 Zion Church Road in Salisbury, Maryland (the "Facility"). This report was prepared in response to the *Request for Action to Address PFAS in Wastewater* letter issued to PAB in November 2024, by the Maryland Department of the Environment (MDE), Water and Science Administration, Wastewater Pollution Prevention and Reclamation Program (the "Department").

The Department's November 8 letter contained the following two substantive requests:

1. ***Monitoring and Reporting:*** *As soon as possible, but no later than 15 days from the date of this letter, collect your first monthly sample at Outfall 001 for PFAS and submit it for testing using EPA Method 1633. Samples shall be collected every month until further notice. Sample results shall be provided to the Department via email to jonathan.rice@maryland.gov no later than 7 days after you receive each lab report.*

2. ***Source Identification:*** *As soon as possible, but no later than 5 days from the date of this letter, begin a comprehensive assessment of the Facility's processes, materials, and any third-party waste streams to identify sources of PFAS that may enter the Facility's discharges, stormwater runoff, or sludge. Progress reports regarding the evaluation, including any preliminary results or final findings, shall be submitted to the Department on a monthly basis. Monthly reports shall be provided to the Department via email to jonathan.rice@maryland.gov by the final date of each month, with the first report due on November 30, 2024. Based on the findings, a mitigation plan may be necessary to propose a strategy to reduce or to the extent practicable eliminate PFAS-containing materials entering the Facility's wastewater, stormwater runoff, or sludge.*

This is the fourth report submitted in accordance with the Department's request for monthly progress reports to be submitted by the final date of each month, starting on or before November 30, 2024. This monthly progress report provides a summary of per- and polyfluoroalkyl substances (PFAS) monitoring and reporting activities (Section "A" below), a summary of PFAS source assessment activities (Section "B" below), and plans and recommendations for groundwater monitoring (Section "C" below).

Langan and PAB have developed a standard operating procedure (SOP) for PFAS wastewater sampling. A copy is attached to this report.

A. Monitoring and Reporting

Langan performed a third monthly sampling event on January 15, 2025. The sample (ID WWTP_OUTFALL001_GDPTOC_C1_011525) was collected as a composite-grab alongside a field blank. The results of this sampling event were provided to the Department on February 12, 2025. The total PFAS concentration for the composite-grab sample was 58.94 ppt.

A fourth monthly sampling event occurred on February 12, 2025. Sample analysis has a standard turnaround time of 10 business days, and Langan will validate the results with an anticipated turnaround time of 5 business days. At the time of this writing, validated results of this fourth sampling event were not yet available. Sampling events will continue to occur monthly. Results will be provided to the Department within 7 days of completing data validation and management and will also be attached to the Facility's monthly DMR.

Langan may recommend replacing 'composite-grab' sampling with grab sampling, if appropriate (e.g., the source(s) of PFAS in the wastewater is/are determined to be continuous/non-transient, PFAS concentrations are stable or exhibiting steady trends based on monthly monitoring results, etc.).

B. Source Identification

At the request of MDE's Controlled Hazardous Substance Enforcement Divisions ("CHS"), Langan performed an Environmental Assessment of PFAS, on behalf of PAB, to identify potential sources of PFAS in soil and groundwater at the Facility (referred to in the report as "Areas of Interest"). The assessment methods and findings were summarized in a report titled *Environmental Assessment of PFAS, Perdue AgriBusiness LLC, Salisbury, Maryland*, which was submitted to MDE's CHS Division on January 21, 2025.

As indicated in the last monthly NPDES Progress Report and further discussed in the *Environmental Assessment of PFAS* Report, to date, PAB has not identified any PFAS-containing products or chemicals used by PAB in any of its operations at the Facility. At this time, the only known PFAS-containing product or chemical at the Facility is aqueous film-forming foam (AFFF), which is stored for use in the fire suppression system at the Soybean Extraction Plant. The fire suppression system currently contains Ansulite AFC-3B.[1] In the event of an AFFF discharge inside the Soybean Oil Extraction Plant, AFFF is directed to the Extraction Plant Containment

[1] Ansulite AFC-3B does not contain any of the six PFAS compounds for which EPA has established drinking water standards.

Sump, which leads to the facility's Wastewater Treatment Plant. PAB is evaluating other potential fire suppression systems that would not contain PFAS.

The last reported release of AFFF at the Facility was around November 2019. At that time, the AFFF in the fire suppression system was Ansulite AFC–3A. As noted above, AFFF discharged inside the Soybean Oil Extraction Plant would have been directed to the Extraction Plant Containment Sump, which leads to the facility's Wastewater Treatment Plant via underground process sewers. However, AFFF discharged via spray nozzles positioned above the Hexane Tank Enclosure and Extraction Plant Containment Sump could have fallen on the ground surrounding those structures.

The AFFF Fire Suppression System is one of nine identified PFAS AOIs. The other eight PFAS AOIs are potential secondary AOIs that were, or may have been, affected by historic discharges of AFFF. Langan and PAB are in the process of gathering additional information regarding the AFFF Fire Suppression System and associated/nearby process water infrastructure. Historical AFFF use and fire suppression system operations are also being assessed.

Initial steps have been taken to assess a comingled process sewer manhole, located near the AFFF Fire Suppression System, which MDE sampled in December 2023. Assessment is on-going, and findings will be summarized in a subsequent MDE deliverable.

Groundwater is used in the Facility's operations and therefore could be a source of PFAS in Facility wastewater. Accordingly, PAB has implemented systems for treating boiler room water, oil refinery process water, and oil refinery truck wash water.

C. Groundwater Monitoring

In July 2024, six temporary, multi-level PFAS groundwater monitoring wells were installed on the western portion of the PAB property and sampled for PFAS, under a plan that was approved by MDE in May 2024. The results were submitted to MDE in a report dated September 2024. Those wells were resampled in December 2024 as part of the quarterly monitoring schedule contemplated in the MDE-approved plan. A groundwater monitoring report for the December 2024 monitoring event was prepared and submitted to MDE on February 5, 2025.

PAB has asked Langan to prepare a workplan for initial soil and groundwater sampling at the Facility as part of its ongoing hazardous substance response site assessment. The results of sampling performed per that workplan—in addition to data obtained from the ongoing sampling of private drinking water supply wells—will inform the development of an integrated groundwater monitoring program that accounts for PAB's evolving understanding of PFAS distribution in groundwater. This integrated groundwater monitoring program will involve a more diverse network of monitoring wells representing key locations and depths and will substantively replace the ongoing groundwater monitoring previously approved by MDE. As discussed with MDE, PAB anticipates that the next quarterly sampling called for by the groundwater monitoring plan approved by MDE will be supplanted by the sampling workplan in the revised monitoring plan, also to be approved by MDE, and thus PAB hereby requests that the existing quarterly sampling protocol be discontinued in favor of the forthcoming workplan.

D. Closing

As stated above, NPDES PFAS sampling will continue to occur monthly as required in the Department's November 8 letter. Scheduling for source assessment and sampling continues to be developed, and quarterly groundwater monitoring will continue per the May 2024 groundwater monitoring plan until MDE approves otherwise.

Sincerely,
Langan Engineering and Environmental Services, LLC

Jillian Terhune
Senior Project Manager

Attachment(s): PFAS Wastewater Sampling SOP - Draft

cc: Jaclyn Mays, PAB
Herb Frerichs, PAB

PFAS Wastewater Sampling SOP - Draft

1. Statement of Issue

This standard operating procedure (SOP) has been prepared to guide sampling of treated effluent, for per- and polyfluoroalkyl substances (PFAS), from the wastewater treatment plant at the Perdue AgriBusiness, LLC (PAB) facility located at 6906 Zion Church Road in Salisbury, Wicomico County, Maryland (the "ZCR Facility" and/or the "Site"). This sampling is being performed at the request of the Maryland Department of the Environment (MDE) Water and Science Administration, Wastewater Pollution Prevention and Reclamation Program (the "Department") in response to their *Request for Action to Address PFAS in Wastewater* letter issued to PAB on November 8, 2024.

This SOP outlines methods for "grab-composite" wastewater sampling at the ZCR Facility and includes procedures and guidance that are intended to limit the potential for PFAS cross-contamination and interference from sources unrelated to PAB's wastewater. PFAS cross-contamination is of particular concern because of the prevalence of PFAS in consumer products, water supplies, the global environment, and potentially in sampling equipment.

2. Background

Process and sanitary wastewater from operations at the ZCR Facility is treated on-site and discharged under authorization of National Pollutant Discharge Elimination System (NPDES) Permit No. MD0000060 / State Permit No. 15-DP-0359. On-site wastewater treatment consists of: equalization, pH adjustment, dissolved air flotation (DAF), aeration, chlorination/de-chlorination, and clarification. Treated water is then discharged via Outfall 001 to Peggy Branch, a tributary of the Wicomico River.

This SOP is informed by EPA Method 1633, and MDE's "*PFAS Sampling Guidance Document for Wastewater Analysis*" guidance, revised September 10, 2024.

3. Methodology

3.1 Health and Safety

Langan personnel must abide by Langan's health and safety protocols when performing work-related activities. These protocols should be followed even when they are potentially in conflict with this SOP (including protocols that are intended to limit the potential for PFAS cross-contamination). When there is no appropriate protocol that is consistent both with safe work practices and with this SOP, it is acceptable to deviate from this SOP. Deviations should be documented, and equipment rinsate blanks should be collected analyzed as appropriate to assess and quantify the potential cross-contamination and other data quality issues arising from the deviation. Refer to the site-specific health and safety plan (HASP) for specific field-related activities and safe work practices.

General safety guidelines are included below:

- Wear safety glasses, protective clothing (i.e., long sleeves and pants; closed-toed, steel-toed shoes; hard hat), and disposable polyethylene or nitrile gloves during sampling.
- Avoid contact, inhalation, or ingestion of samples.
- Wash hands thoroughly, along with any other areas that may have contacted or been exposed to the sample, after sampling is complete.
- Post signage to communicate hazards to other facility personnel or isolate work areas, where applicable.

3.2 General Considerations

There are no general considerations other than those stated elsewhere in this SOP.

3.3 Field Decision Guide

Field staff should follow the tiered approach adopted by Langan in assessing unplanned conditions that could increase the risk of sample cross-contamination by site conditions and/or sampling equipment and procedures. The tiered approach considers possible impact to environmental samples when assessing an unplanned condition. The table below identifies the tiered approach to formulate a solution/response that can be discussed with the PM to confirm conformance with objectives of the sampling program.

	Definition	Questions to Consider
Tier 1	Unplanned materials or equipment that will come into direct contact or could reasonably come into direct contact with field samples	Discuss issue and proposed solution with PM Does the material or equipment directly contact field samples? Is there an alternative material or piece of equipment that would be considered acceptable and that is readily available? Is the material necessary for proper sample collection? Can steps be taken to avoid direct contact with field samples? Can a rinsate blank be collected to support an evaluation of cross contamination?
Tier 2	Unplanned materials and equipment that are not expected to come into direct contact with field samples, but present the potential for incidental contact and may contain PFAS	Issue and solution may warrant discussion with PM. Can measures be put in place to further ensure contact with the field samples is avoided? Is additional Quality Assurance/Quality Control (QA/QC) sampling warranted based on project DQO's?

Tier 3	Unplanned materials and equipment that will not come into direct contact with field samples, pose no risk of incidental contact with a sample, and are not known to contain PFAS	Discussion with the PM is not likely necessary and nor is added QA/QC Is this material necessary for the work at hand? Can it be safely and securely removed from the work area?

3.4 Sampling Documentation and Labeling

Field activities will be recorded in the field notebook. At a minimum, the following will be recorded in the field records: sample date, time, ID and sample collection procedures. Field books and writing instruments should be evaluated as potential sources of PFAS interference. In addition, evaluate the sampling containers, label paper, adhesive backing and printing ink as potential sources of PFAS interference. As a precaution, labels for PFAS sample containers should be applied after collecting the sample.

3.5 Sampling Procedure

General Procedures

- Wear nitrile gloves and change them frequently. New gloves should be donned prior to sample collection and each time the sampler handles a new tool or contacts a new surface.
- Personal care products should not be applied within the work area. Samplers should thoroughly wash hands and don new gloves after application. Review **Attachment A - Clothing/ Personal Protective Equipment (PPE) and Personal Care Products** for additional guidance.
- Use reputable equipment vendors and laboratories and seek their input on minimizing the potential for introducing PFAS and cross contamination.
- Limit contact with items that are not required for the work at hand; do not eat in the work area.
- Maintain a neat and orderly work area; do not allow sampling equipment to contact the ground (lay out plastic sheeting as necessary).
- Review the project-specific Quality Assurance and Quality Control program with the project team to understand the nuances of PFAS QA/QC as these may be significantly different than standard sampling and have specific procedures and protocols not required for other types of environmental sampling.

Sampling Wastewater

There is no specific sampling equipment associated with this SOP because samples are collected via the direct fill method whereby water flowing from the discharge pipe is collected directly in the sample bottles.

Sample containers should include:

- 1 x 500-milliliter (mL) high-density polyethylene (HDPE) bottle with linerless HDPE or polypropylene cap, for field equipment blank
- 8 x 125-mL HDPE bottles with linerless HDPE or polypropylene caps, for the grab sample aliquots

Sampling personnel should follow the procedure below for sample collection, in accordance with MDE's "*PFAS Sampling Guidance Document for Wastewater Analysis*" guidance, revised September 10, 2024:

1. Wash hands and don nitrile gloves.
2. Record the projected time of your first samples (i.e., one field blank, immediately followed by first aliquot pair) and the projected times of the three subsequent aliquot pairs. Each sampling time is separated by an interval of 2 hours and 40 minutes (8 hours in total).
3. Label the containers as follows:

Field Blank:
- WWTP_Outfall001_GDPtoC_FB1_MMDDYYYY

Aliquot Pair 1:
- WWTP_Outfall001_GDPtoC_GS1-1_MMDDYYYY
- WWTP_Outfall001_GDPtoC_GS2-1_MMDDYYYY

Aliquot Pair 2:
- WWTP_Outfall001_GDPtoC_GS1-2_MMDDYYYY
- WWTP_Outfall001_GDPtoC_GS2-2_MMDDYYYY

Aliquot Pair 3:
- WWTP_Outfall001_GDPtoC_GS1-3_MMDDYYYY
- WWTP_Outfall001_GDPtoC_GS2-3_MMDDYYYY

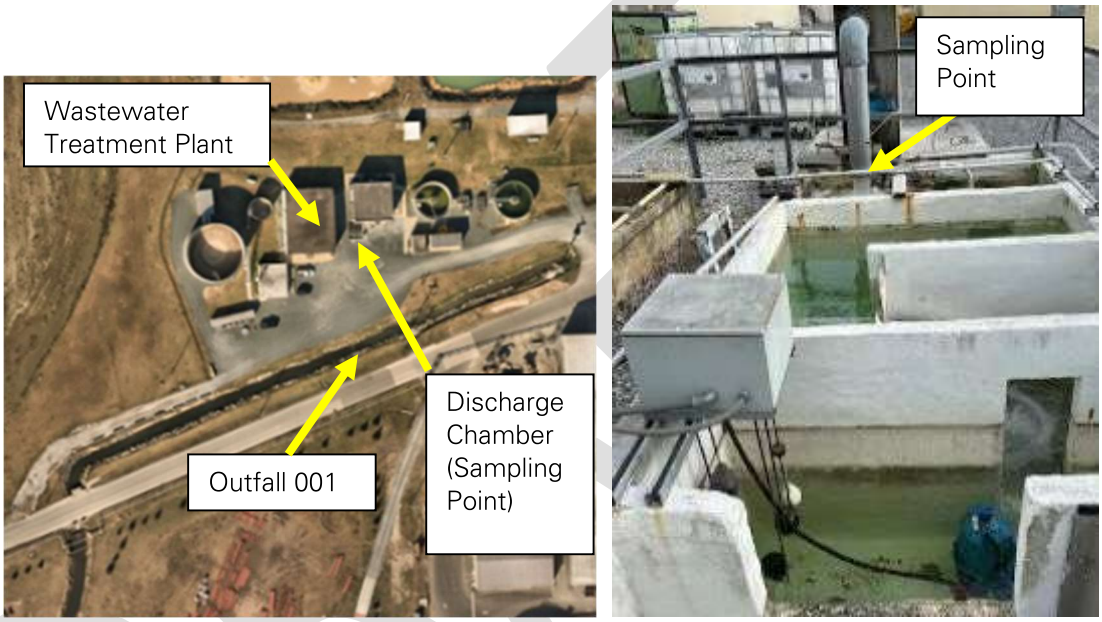
Aliquot Pair 4:
- WWTP_Outfall001_GDPtoC_GS1-4_MMDDYYYY
- WWTP_Outfall001_GDPtoC_GS2-4_MMDDYYYY

WWTP = Wastewater Treatment Plant
GDPtoC = Gray Discharge Pipe to Container
GS = Grab Sample
MMDDYYYY = Eight-digit date

4. Collect field blank and grab sample aliquots in HDPE containers at the projected sampling times from the sampling point identified below, following conventional sampling practices. Record actual times of collection. Keep containers sealed when not in use and ensure containers are tightly sealed following collection.
5. Collect samples as follows:
    a. Field blank is collected by slowly pouring 500-mL of laboratory provided PFAS-free deionized water (DI) water into a 500-mL HDPE container, taking care not to overfill the bottle.

b. Aliquot pairs are collected by filling two 125-mL HDPE containers at the sampling point (shown below) via the direct fill method whereby water flowing from the discharge pipe is collected directly in the sample bottles.

6. Note: 8 x 125-mL containers will be provided for each "composite-grab" sample (i.e., four individual grab samples collected at evenly distributed intervals within an 8-hour period), in the event that re-extraction is needed. If 8 x120-mL containers are provided, they will need to be filled slightly over the bottle's shoulder to reach 125-mL volume.



The sampling point for Outfall 001 is located to the south of the wastewater treatment plant at the wastewater discharge and sampling chamber depicted on the images above.

Immediately following each sample collection, sampling personnel will place collected samples in ice to maintain a temperature at or below 6°C (approximately 43°F); store samples in a secure location away from light; and fill out a chain of custody form to the laboratory. See Attachment B for an example chain of custody form.

Note: The four grab samples denoted GS1-X will be combined by the laboratory before analysis, and the four grab samples denoted GS2-X will likewise be combined by the laboratory before analysis. Sampling personnel note, "Composite all GS1-X samples for C1 (WWTP_Outfall001_GDPtoC_C1_MMDDYYYY) and all GS2-X samples for C2" in the comments of the chain of custody form. These will make two "composite-grab" samples, one to be analyzed and the other to be analyzed to be held in reserve for potential re-analysis in the event of a quality control issue.

Samples should be shipped as soon as practicable, with sufficient ice to maintain a temperature at or below 6°C (approximately 43°F) during transport for a period of at least 48 hours to allow for shipping delays.

Samples will be analyzed via EPA Method 1633. EPA Method 1633 is titled, "*Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS.*" LC-MS/MS refers to liquid chromatography-tandem mass spectrometry, an analytical technique with high sensitivity and specificity for identifying and quantifying compounds in a sample.

4. References

Maryland Department of the Environment Water and Science Administration Per- and polyfluoroalkyl substances (PFAS) Sampling Guidance Document for Wastewater Analysis, updated September 2024.

United States Environmental Protection Agency, Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS, January 2024.

Attachment A – Clothing/PPE and Personal Care Products

Avoid if Practicable	Acceptable
Coated Tyvek®	Uncoated Tyvek®
Water resistant, waterproof, or stain-treated clothing (including Langan's standard-issue field jacket)	PVC rain gear Pop-up tent (only contact prior to and after sample collection)
New, unlaundered, clothing Chemically treated clothing	Synthetic and natural fibers (cotton); avoid fabric softeners when laundering field clothing
Boots or clothing with Gore-Tex™ or other water proofing treatment	Steel-toed boots with polyurethane or PVC overboots/covers
Latex gloves	Disposable Nitrile Gloves (change often)
Cosmetics, moisturizers, creams	If used, thoroughly wash hands after application
Sunscreen and insect repellents that contain or may contain PFAS	Sunscreen and insect repellant products not known to contain PFAS (acceptable products listed below)

Acceptable Sunscreens*
Banana Boat® for Men Triple Defense Continuous Spray Sunscreen SPF 30
Banana Boat® for Men Triple Defense Continuous Spray Sunscreen SPF 30
Banana Boat® Sport Performance Sunscreen Lotion Broad Spectrum SPF 30
Banana Boat® Sport Performance Sunscreen Stick SPF 50

Acceptable Sunscreens*
Coppertone® Sunscreen Lotion Ultra Guard Broad Spectrum SPF 50
Coppertone® Sport High Performance AccuSpray Sunscreen SPF 30
Coppertone® Sunscreen Stick Kids SPF 55
L'Oréal® Silky Sheer Face Lotion 50
Meijer® Clear Zinc Sunscreen Lotion Broad Spectrum SPF 50
Meijer® Sunscreen Continuous Spray Broad Spectrum SPF 30
Meijer® Clear Zinc Sunscreen Lotion Broad Spectrum SPF 15, 30 and 50
Meijer® Wet Skin Kids Sunscreen Continuous Spray Broad Spectrum SPF 70
Neutrogena® Beach Defense Water+Sun Barrier Lotion SPF 70
Neutrogena® Beach Defense Water+Sun Barrier Spray Broad Spectrum SPF 30
Neutrogena® Pure & Free Baby Sunscreen Broad Spectrum SPF 60+
Neutrogena® UltraSheer Dry-Touch Sunscreen Broad Spectrum SPF 30
Acceptable Insect Repellents*
OFF® Deep Woods
Sawyer® Permethrin

*List of acceptable products was compiled by the Michigan EGLE (10/2018) and is accessible at the following link https://www.michigan.gov/pfasresponse/-/media/Project/Websites/PFAS-Response/Sampling-Guidance/QuickReference-Field-Guide.pdf?rev=9aab74b786684de6b54319d651e85d09

ATTACHMENT B

Example Chain of Custody Form

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 1/16/25

ALPHA Job #: L2502529

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Langan
Address: 1818 Market St, Suite 3300 Phila, PA 19103
Phone: 571-591-5548
Fax:
Email: awillett@langan.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Perdue AgriBusiness
Project Location: Salisbury, MD
Project #: 220210101
Project Manager:
ALPHA Quote #: Anne Willett

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☒ Add'l Deliverables → Level IV data package

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Composite all GS-1 samples for C1 (sample name: WWTP_Outfall001_GDPtoC_C1_011525) and GS-2 samples for C2 (WWTP_Outfall001_GDPtoC_C2_011525)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS USEPA Method 1633	SAMPLE HANDLING	TOTAL # BOTTLES
02529-01	WWTP-Outfall001-GDPtoC-FB1-011525	1/15/25	0607	E	MS	X		1
-02	WWTP-Outfall001-GDPtoC-GS1-1-011525	1/15/25	0610	E	MS	X		1
-03	WWTP-Outfall001-GDPtoC-GS1-2-011525	1/15/25	0610	E	MS	H		1
-04	WWTP-Outfall001-GDPtoC-GS2-1-011525	1/15/25	0850	E	MS	X		1
-05	WWTP-Outfall001-GDPtoC-GS2-2-011525	1/15/25	0850	E	MS	H		1
-06	WWTP-Outfall001-GDPtoC-GS3-1-011525	1/15/25	1135	E	MS	X		1
-07	WWTP-Outfall001-GDPtoC-GS3-2-011525	1/15/25	1135	E	MS	H		1
-08	WWTP-Outfall001-GDPtoC-GS4-1-011525	1/15/25	1410	E	MS	X		1
-09	WWTP-Outfall001-GDPtoC-GS4-2-011525	1/15/25	1410	E	MS	H		1

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)
Sample Specific Comments

Container Type	P
Preservative	A

1/16/25 06:40

Relinquished By:	Date/Time	Received By:	Date/Time
Tara Reed	1/15/25 1420		1/15/25 1420
	1/15/25 1530		1/15/25 2015
Anthony Green	1/15/25 1/16/25 0120	Anthony Green	JAN 15 2025 2315 1/16/25 0120

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

01/16/25 0320