



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4**

**Laboratory Services & Applied Science Division
Environmental Sampling Section
980 College Station Road
Athens, Georgia 30605-2720**

May 25th, 2022

MEMORANDUM

SUBJECT: Cary POTW Final Report
Cary, MS
LSASD Project ID: 22-0181

FROM: Chris McHugh, Environmental Engineer *Christopher McHugh*
Water Quality Section

THRU: Greg White, Chief
Water Quality Section

GREGORY WHITE Digitally signed by
GREGORY WHITE
Date: 2022.05.24
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TO: Jairo Castillo-Valenzuela, P.E., Chief
Wastewater Enforcement Section
Enforcement & Compliance Assistance Division

Attached is the Final Report for the Cary POTW NPDES Reconnaissance Sampling Evaluation.

If you have any questions concerning the sampling event, please call me at (706) 410-4082 or email me at mchugh.christopher@epa.gov.

Attachments:
cc (via email): Dennis Sayre, ECAD

Mission: To provide sound Science to our customers through superior environmental evaluation

Vision: To be a solutions-oriented organization, and seen as a leader in sound science through innovation, responsive customer service, and cutting-edge expertise

Project ID: 22-0181

**NPDES Reconnaissance Sampling
Evaluation Report**

Cary POTW

**30 Oak Circle
Cary, Mississippi**

Project Date: March 29-30, 2022

Report Date: May 25th, 2022

Project Leader: Chris McHugh
Environmental Engineer
Water Quality Section
Field Services Branch
Laboratory Services and Applied Science Division
U.S. EPA – Region 4
980 College Station Road
Athens, Georgia 30605-2720

The ANSI National Accreditation Board attests that U.S. EPA Region 4 Laboratory Services and Applied Science Division fulfills the requirements of ISO/IEC 17025:2017 ANAB Forensic Testing & Calibration AR 3125:2019 in the field of Forensic Testing. The activities contained in this report fall within the scope of accreditation, Certificate Number: FT-0330. Expires 31 July 2022.



LSASD
LABORATORY SERVICES & APPLIED SCIENCE DIVISION

Requestor:

Jairo Castillo Chief
Water Enforcement Branch
Enforcement and Compliance Assurance Division
U.S. EPA – Region 4
61 Forsyth Street SW
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Analytical Support:

Inorganic Chemistry Section
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Approvals:

LSASD Project Leader:

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ER MCHUGH** Digitally signed by
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Chris McHugh
Water Quality Section
Field Services Branch
Laboratory Services and Applied Science Division

Technical Reviewer:

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Derek Little
Water Quality Section
Field Services Branch
Laboratory Services and Applied Science Division

Approving Official:

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Greg White, Chief
Water Quality Section
Field Services Branch
Laboratory Services and Applied Science Division

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**NPDES Sampling Evaluation
Cary POTW (Permit No. MS0021547)**

1. Introduction

On March 29-30, 2022, representatives of the U.S. Environmental Protection Agency (U.S. EPA) Region 4 Laboratory Services and Applied Science Division (LSASD) conducted a National Pollutant Discharge Elimination System (NPDES) Reconnaissance Sampling Evaluation at Cary Publicly Owned Treatment Works (POTW) in Cary, Mississippi. The evaluation was requested by the ECAD Water Enforcement Branch as part of the agency's goal to address significant non-compliance (SNC) facilities. A 24-hr composite sample was collected and analyzed for Total Suspended Solids (TSS), Ammonia (NH₃), and Biochemical Oxygen Demand (BOD₅), listed on the issued NPDES Permit MS0021547. The inspection followed the procedures listed in the LSASD Project No. 22-00181-0183 Sample and Analysis Plan (SAP). Table 1 lists the sampling participants.

Table 1 – Personnel at Facility

Inspector	Organization	Date(s) on site
Chris McHugh	U.S. EPA Region 4 LSASD	3/29-30/2022
Asher Sampong	U.S. EPA Region 4 LSASD	3/29-30/2022
Verna Gibbs	Cary POTW Operator	3/29/2022

2. Summary

The analytical results from the effluent discharge EFF001 were all within the NPDES permitted limits. The ultrasonic flow meter was not properly operating during the time of the inspection and hadn't been calibrated since June 2015. Properly function flow meters are essential for reporting accurate flow and calculating effluent discharge loading for the primary pollutants listed on the permit.

The wastewater treatment system is an above the ground activated sludge plant. The treatment process consisted of two aeration basins and one clarifier basin, and a discharge basin, where chlorine-based disinfectant is used before final effluent discharge. Waste activated sludge (WAS) from the aeration basin is removed by a private septic company on a revolving basis determined by the facility operator. During the evaluation the operator said that the city of Cary has applied

for a grant that would fund upgrades to its facility and lift stations. Upgrades are needed to allow the facility to continue adhering to its NPDES self-monitoring permit.

3. Sample Analysis Results

Following the NPDES permit, a 24-hr time based composite sample was collected at the effluent discharge point (EFF001) after disinfection (see Figure 1). The analytical results were all within the permitted limits.

Waypoint Analytical in Jackson, MS analyzes the facilities effluent discharge samples.

Table 2 – EPA Sample Results vs. Permitted Limits

Analyte	EPA Analytical Results	Permitted Limit	Sample Location
TSS	14 mg/L *J, H-6	45 mg/L Weekly Avg.	Effluent (EFF001)
NH ₃	0.16 mg/L	1.5 mg/L Weekly Avg.	Effluent (EFF001)
BOD ₅	4.0 mg/L	4.5 mg/L Weekly Avg.	Effluent (EFF001)
pH	6.54 S.U.	6.0 S.U. < pH < 9.0 S.U.	Effluent (EFF001)
Dissolved Oxygen	8.47 mg/L	6.0 mg/L < Dissolved Oxygen	Effluent (EFF001)
Total Residual Chlorine	0.14 mg/L **	0.019 mg/L Weekly Avg.	Effluent (EFF001)

** This value is above the weekly average; however, the monitoring requirement is 5x per week to calculate the Total Residual Chlorine weekly average. The facility should evaluate the dosing to ensure that it doesn't lead to exceeding the weekly average of 0.019 mg/L.

DATA QUALIFIER DEFINITIONS

*H-6 Sample originally analyzed within holding time; some QC requirements not met. The reported result is from a second analysis performed for confirmation which occurred after the holding time expired.

*J The identification of the analyte is acceptable; the reported value is an estimate.



Figure 1 – Sample Collection Point

Appendix A

The following table lists the total number of pages for each of the Analytical Datasheets for this report. Each document is contained in the PDF portfolio.

R4LIMS ID	Lab ID	Analysis	Total Pages
22-0181	E221401-01	TSS, BOD ₅ , NH ₃	8

End of Report



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Region 4 Laboratory Services and Applied Science Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 22-0181

Project: 22-0181, Cary POTW - Reported by Kristin Trapp

April 20, 2022

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 22-0181, Cary POTW

FROM: Kristin Trapp
LSB Inorganic Chemistry Section Chief

THRU: Stacie Masters, Chief
Laboratory Services Branch

TO: Christopher McHugh

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:

Method Used:

Accreditations:

Classical/Nutrient Analyses (CNA)

Ammonia as N
Demand
Solids

EPA 350.1 (Water)
SM 5210B (Water)
USGS I-3765-85 (Water)

ISO
ISO
ISO



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Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.



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SAMPLES INCLUDED IN THIS REPORT

Project: 22-0181, Cary POTW

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
22-0181-0001	E221401-01	Municipal Eff. Wastewater	3/30/22 12:45	3/31/22 11:15



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DATA QUALIFIER DEFINITIONS

- H-6 Sample originally analyzed within holding time; some QC requirements not met. The reported result is from a second analysis performed for confirmation which occurred after the holding time expired.
- J The identification of the analyte is acceptable; the reported value is an estimate.

ACRONYMS AND ABBREVIATIONS

- CAS Chemical Abstracts Service
- Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.
- MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
- MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
- TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

- ISO Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Laboratories.
- Refer to the certificate and scope of accreditation FT-0330 at:
<http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd>
- NR Not accredited for this test.
- DW Accredited for conformance with ISO/IEC 17025:2017 and testing elements in the Fifth Edition of the Manual for the Certification of Laboratories Analyzing Drinking Water, EPA 815-R-05-004, 2005.
- Refer to the certificate and scope of accreditation AT-2628 at:
<http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd>
- ISO/DW Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Labs, and conformance with ISO/IEC 17025:2017 and testing elements in the Manual for the Certification of Laboratories Analyzing Drinking Water.



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D.A.R.T. Id: 22-0181

Project: 22-0181, Cary POTW - Reported by Kristin Trapp

Classical/Nutrient Analyses

Project: 22-0181, Cary POTW

Sample ID: 22-0181-0001

Lab ID: E221401-01

Station ID: EFF001

Matrix: Municipal Eff. Wastewater

Date Collected: 3/30/22 12:45

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	0.16		mg/L	0.050	4/04/22 18:07	4/07/22 10:48	EPA 350.1
E1640606	BOD, 5 Day	4.0		mg/L	2.0	4/01/22 11:01	4/06/22 10:10	SM 5210B
E1642818	Total Suspended Solids	14	J, H-6	mg/L	5.0	4/04/22 8:40	4/04/22 8:40	USGS I-3765-85



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Project: 22-0181, Cary POTW - Reported by Kristin Trapp

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2203098 - C SM5210 BOD

Blank (2203098-BLK1)

Prepared: 04/01/22 Analyzed: 04/06/22

SM 5210B

BOD, 5 Day U 2.0 mg/L U

LCS (2203098-BS1)

Prepared: 04/01/22 Analyzed: 04/06/22

SM 5210B

BOD, 5 Day 206.70 2.0 mg/L 198.00 104 84.6-115.4

LCS (2203098-BS2)

Prepared: 04/01/22 Analyzed: 04/06/22

SM 5210B

BOD, 5 Day 208.20 2.0 mg/L 198.00 105 84.6-115.4

LCS (2203098-BS3)

Prepared: 04/01/22 Analyzed: 04/06/22

SM 5210B

BOD, 5 Day 210.70 2.0 mg/L 198.00 106 84.6-115.4

Batch 2204004 - C 350.1 Ammonia

Blank (2204004-BLK1)

Prepared: 04/04/22 Analyzed: 04/07/22

EPA 350.1

Ammonia as N U 0.050 mg/L U

LCS (2204004-BS1)

Prepared: 04/04/22 Analyzed: 04/07/22

EPA 350.1

Ammonia as N 0.95500 0.050 mg/L 1.0000 95.5 90-110

Matrix Spike (2204004-MS1)

Source: E221401-01

Prepared: 04/04/22 Analyzed: 04/07/22

EPA 350.1

Ammonia as N 1.1240 0.050 mg/L 1.0000 0.15600 96.8 90-110

Matrix Spike (2204004-MS2)

Source: E221402-01

Prepared: 04/04/22 Analyzed: 04/07/22

EPA 350.1

Ammonia as N 7.8320 0.10 mg/L 1.0000 6.7740 106 90-110

Matrix Spike Dup (2204004-MSD1)

Source: E221401-01

Prepared: 04/04/22 Analyzed: 04/07/22

EPA 350.1

Ammonia as N 1.0980 0.050 mg/L 1.0000 0.15600 94.2 90-110 2.34 10



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Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2204004 - C 350.1 Ammonia

Matrix Spike Dup (2204004-MSD2)

Source: E221402-01

Prepared: 04/04/22 Analyzed: 04/07/22

EPA 350.1

Ammonia as N	8.0340	0.10	mg/L	1.0000	6.7740	126	90-110	2.55	10	QM-2
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MRL Verification (2204004-PS1)

Prepared: 04/04/22 Analyzed: 04/07/22

EPA 350.1

Ammonia as N	0.054000	0.050	mg/L	0.050000		108	70-130			MRL-2
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Batch 2204008 - C 2540 Solids

Blank (2204008-BLK1)

Prepared & Analyzed: 04/04/22

USGS I-3765-85

Total Suspended Solids	U	5.0	mg/L							U
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LCS (2204008-BS1)

Prepared & Analyzed: 04/04/22

USGS I-3765-85

Total Suspended Solids	95.800	5.0	mg/L	100.00		95.8	77.1-110			
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LCS Dup (2204008-BSD1)

Prepared & Analyzed: 04/04/22

USGS I-3765-85

Total Suspended Solids	96.700	5.0	mg/L	100.00		96.7	77.1-110	0.935	10	
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Duplicate (2204008-DUP1)

Source: E221402-01

Prepared & Analyzed: 04/04/22

USGS I-3765-85

Total Suspended Solids	1.8000	5.0	mg/L		1.3000			32.3	10	QM-4, U
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MRL Verification (2204008-PS1)

Prepared & Analyzed: 04/04/22

USGS I-3765-85

Total Suspended Solids	2.9000	5.0	mg/L	5.0000		58.0	57.1-130			MRL-2, U
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Notes and Definitions for QC Samples

U	The analyte was not detected at or above the reporting limit.
MRL-2	MRL verification for Non-Potable Water matrix
QM-2	Matrix Spike Recovery greater than method control limits
QM-4	Matrix Precision outside method control limits