UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
Laboratory Services & Applied Science Division
Water Quality Section
980 College Station Road
Athens, Georgia 30605-2720

November 22, 2021

MEMORANDUM

SUBJECT: Beulah POTW Final Report
Beulah, MS
LSASD Project ID: 21-0363

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: 2021.11.22 14:12:07 -05'00'

TO: Jairo Castillo-Valenzuela, P.E., Chief
Wastewater Enforcement Section
Enforcement & Compliance Assistance Division

Attached is the Final Report for the Beulah POTW NPDES Reconnaissance Sampling Inspection.

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
Sandra Aker, LSASD

Project ID: 21-0363

NPDES Reconnaissance Inspection Report

Beulah POTW

Goose Alley
Beulah, MS

Project Date: September 22, 2021

Report Date: November 22, 2021

Project Leader: Chris McHugh
Environmental Engineer
Water Quality Section
Field Services Branch
Laboratory Services and Applied Science Division
USEPA – 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.

Requestor:

Jairo Castillo, Chief
Water Enforcement Branch
Enforcement and Compliance Assurance Division
USEPA – Region 4
61 Forsyth Street SW
Atlanta, GA, 30303-8960

Analytical Support:

Inorganic Chemistry Section
Laboratory Services and Applied Science Division
980 College Station Rd Athens, GA 30605

Approvals:

LSASD Project Leader:

11/22/21

Chris McHugh
Water Quality Section
Field Services Branch
Laboratory Services and Applied Science Division

Approving Official:

GREGORY WHITE Digitally signed by GREGORY WHITE
Date: 2021.11.22 14:14:53 -05'00'

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

Table of Contents

List of Tables and Figures

NPDES Reconnaissance Inspection
Beulah POTW (Permit No. MS0042285)

1. Introduction

On September 22, 2021, a representative of the U.S. Environmental Protection Agency (USEPA) Region 4 Laboratory Services and Applied Science Division (LSASD) conducted a National Pollutant Discharge Elimination System (NPDES) Reconnaissance Inspection at Beulah Publicly Owned Treatment Works (POTW) in Beulah, 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 grab sample was collected 11:23 AM and analyzed for Total Suspended Solids (TSS), Ammonia (NH_3), and Biochemical Oxygen Demand (BOD_5), listed on the issued NPDES Permit MS00429285. The inspection followed the procedures listed in the LSASD Project No. 21-0362 and 21-0363 Sample and Analysis Plan (SAP). Table 1 lists the sampling participants.

Table 1 – Inspection Personnel

Inspector	Organization	Date(s) on site
Chris McHugh	USEPA Region 4 LSASD	9/22/21

2. Summary

The facility grounds were well maintained, and the treatment system is a lagoon with a chlorine tablet disinfection system. The sample was analyzed for the parameters listed on the facility's NPDES permit (Total Suspended Solids and Biochemical Oxygen Demand).

It is recommended that the facility consider adding baffles to the chlorine disinfection chamber to increase detention time before discharge into the receiving stream. This could prevent future short circuiting during high flow events and help keep the facility from exceeding TSS and BOD_5 during those events.

3. Grab Sampling Results

The grab sample was collected past the chlorine disinfection system as the water was discharged via 90° v-notch weir into the receiving stream. The sample results for all analytes were within the NPDES permit limits. Past violations that have resulted in SNC status are most likely due to the

small chamber size for disinfection. Significant rain events could easily increase the discharge rate and short circuit the detention time through the chamber resulting in higher TSS and BOD_5.

Table 2 – EPA Sample Results vs. Permitted Limits

Analyte	EPA Analytical Results	Permitted Limit	Sample Location
TSS	27 mg/L	45 mg/L Weekly Avg.	EFF001
BOD_5	23 mg/L *A	45 mg/L Weekly Avg.	EFF001

DATA QUALIFIER DEFINITIONS

*A - The analyte was analyzed in replicate. Reported value is an average value of the replicates.

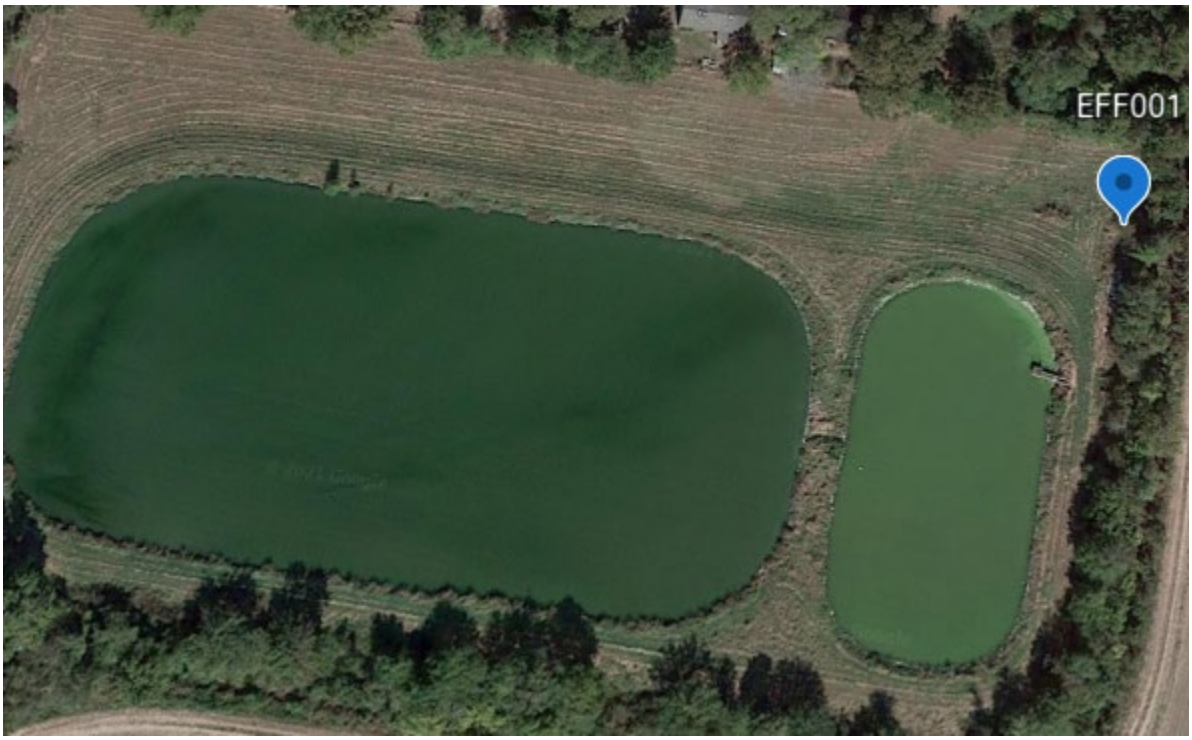

Figure 1 – Sample Collection Point
33 47'25"N, -90 58'34"W

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
21-0363	**E213906-01**	TSS	7
21-0363	**E213906-01**	BOD_5	7

End of Report

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Laboratory Services and Applied Science Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 21-0363
Project: 21-0363, Beluah POTW - Reported by Laura Ackerman

October 1, 2021

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 21-0363, Beluah POTW

FROM: Laura Ackerman
LSB Inorganic Chemistry Section Chief

THRU: John Deatrick, 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)		
Demand	SM 5210B (Water)	ISO

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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D.A.R.T. Id: 21-0363
Project: 21-0363, Beluah POTW - Reported by Laura Ackerman

SAMPLES INCLUDED IN THIS REPORT

Project: 21-0363, Beluah POTW

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
21-0363-0001	E213906-01	Wastewater	9/21/21 11:23	9/23/21 7:45

DATA QUALIFIER DEFINITIONS

A The analyte was analyzed in replicate. Reported value is an average value of the replicates.

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: 21-0363
Project: 21-0363, Beluah POTW - Reported by Laura Ackerman

Classical/Nutrient Analyses

Project: 21-0363, Beluah POTW

Sample ID: 21-0363-0001 **Lab ID:** E213906-01

Station ID: 21-0363 **Matrix:** Wastewater

Date Collected: 9/21/21 11:23

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1640606	BOD, 5 Day	23	A	mg/L	2.0	9/23/21 9:46	9/28/21 10:45	SM 5210B

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
Batch 2109048 - C SM5210 BOD										
Blank (2109048-BLK1)				Prepared: 09/23/21 Analyzed: 09/28/21						
SM 5210B										
BOD, 5 Day	U	2.0	mg/L							U
LCS (2109048-BS1)				Prepared: 09/23/21 Analyzed: 09/28/21						
SM 5210B										
BOD, 5 Day	173.00	2.0	mg/L	198.00		87.4	84.6-115.4			A

Notes and Definitions for QC Samples

U	The analyte was not detected at or above the reporting limit.
A	The analyte was analyzed in replicate. Reported value is an average value of the replicates.

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Project: 21-0363, Beluah POTW

FROM: Laura Ackerman
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Analyses Included in this report:	Method Used:	Accreditations:
Classical/Nutrient Analyses (CNA)		
Solids	USGS I-3765-85 (Water)	ISO

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D.A.R.T. Id: 21-0363
Project: 21-0363, Beluah POTW - Reported by Laura Ackerman

SAMPLES INCLUDED IN THIS REPORT

Project: 21-0363, Beluah POTW

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
21-0363-0001	E213906-01	Wastewater	9/21/21 11:23	9/23/21 7:45

DATA QUALIFIER DEFINITIONS

None

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.

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D.A.R.T. Id: 21-0363
Project: 21-0363, Beluah POTW - Reported by Laura Ackerman

Classical/Nutrient Analyses

Project: 21-0363, Beluah POTW

Sample ID: 21-0363-0001 **Lab ID:** E213906-01

Station ID: 21-0363 **Matrix:** Wastewater

Date Collected: 9/21/21 11:23

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642818	Total Suspended Solids	27		mg/L	5.0	9/23/21 10:00	9/23/21 10:00	USGS I-3765-85

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Project: 21-0363, Beluah POTW - Reported by Laura Ackerman

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
Batch 2109047 - C 2540 Solids										
Blank (2109047-BLK1)				Prepared & Analyzed: 09/23/21						
USGS I-3765-85										
Total Suspended Solids	U	5.0	mg/L							U
LCS (2109047-BS1)				Prepared & Analyzed: 09/23/21						
USGS I-3765-85										
Total Suspended Solids	99.100	5.0	mg/L	100.00		99.1	77.1-110			
LCS Dup (2109047-BSD1)				Prepared & Analyzed: 09/23/21						
USGS I-3765-85										
Total Suspended Solids	96.900	5.0	mg/L	100.00		96.9	77.1-110	2.24	10	
Duplicate (2109047-DUP1)		**Source: E213906-01**		Prepared & Analyzed: 09/23/21						
USGS I-3765-85										
Total Suspended Solids	28.800	5.0	mg/L		26.900			6.82	10	
MRL Verification (2109047-PS1)				Prepared & Analyzed: 09/23/21						
USGS I-3765-85										
Total Suspended Solids	3.5000	5.0	mg/L	5.0000		70.0	57.1-130			MRL-2, U

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