

**United States Environmental Protection Agency Region 4**

Enforcement and Compliance Assurance Division

Water Enforcement Branch

61 Forsyth Street, SW

Atlanta, Georgia 30303



**Compliance Evaluation Inspection Report**

Grenada Publicly Owned Treatment Works

NPDES Permit No. MS0020397

**Project No. CV-MS0020397-10252023**

**Facility Address:**

Gayosa Street, Grenada, MS 38901

**Inspection Date:**

10/25/2023

**Inspectors:**

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**Inspection Report Prepared by:**

Dennis Sayre

## **Title and Approval Sheet**

Title: Grenada POTW, Grenada, Mississippi Compliance Evaluation Report  
Project No. CV-MS0020397-10252023

### **Approving Official:**

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## 1. INTRODUCTION

On October 25, 2023, the U.S. Environmental Protection Agency, Region 4 and the Mississippi Department of Environmental Quality (MDEQ) conducted a Compliance Evaluation Inspection of the Grenada Publicly Owned Treatment Works (POTW) wastewater treatment lagoon (the Lagoon) located on Gayosa Street in Grenada, Mississippi. The Lagoon is owned and operated by the City of Grenada (the City). The inspection was conducted under the authority of Section 308 of the Clean Water Act (CWA), as amended. This report presents the results of the inspection.

## 2. INSPECTION PROCEDURES

The objective of this inspection was to evaluate the condition of the Lagoon and the permittee's self-monitoring program and offer compliance assistance as needed. Specific tasks included conducting an opening conference, interview City staff, conducting a site visit to the Lagoon and the receiving waters, and a closing conference.

## 3. FACILITY DESCRIPTION

The Lagoon is a three-cell wastewater treatment lagoon that treats domestic and industrial wastewater from the City of Grenada. Figure 1 shows an aerial view of the Lagoon. Cell 1 consists of six aerators along the Lagoon banks. Cell 2 consists of five aerators along the banks of the Lagoon. Cell 3 is a facultative lagoon. Chlorine gas is used to disinfect and sulfur dioxide gas is used to dechlorinate prior to discharge. All three cells are lined with a geosynthetic material to prevent seepage.



**Figure 1.** Grenada POTW

#### 4. FINDINGS AND CONCLUSIONS

##### A. PERMIT

The City's National Pollutant Discharge Elimination (NPDES) permit number MS0020397, was issued (renewed) by the State of Mississippi on May 26, 2021, and expires on April 30, 2026. The NPDES permit allows the City to discharge an average of 3.4 million gallons per day (MGD) of treated wastewater into the Yalobusha River through Outfall 001. The Permit includes effluent limits for Total Suspended Solids (TSS), 5-day Biochemical Oxygen Demand (BOD<sub>5</sub>), Total Residual Chlorine (TRC), Nitrogen, Phosphorous, copper, pH, Dissolved Oxygen (DO), Ammonia Nitrogen, and Whole Effluent Toxicity. The Permit also included Whole Effluent Toxicity limits and requirements, which the City has exceeded for two months in 2022, as noted below.

##### B. RECORDS AND REPORTS

A review of EPA's Integrated Compliance Information System database for the months of September 2020 through September 2023. Table 1 shows the summary of the City's compliance history of the NPDES permit effluent limits.

| Monitoring Period End Date | Parameter Description                                   | Permit Limit | Reported Value | Units   | Statistical Basis | Severity            |
|----------------------------|---------------------------------------------------------|--------------|----------------|---------|-------------------|---------------------|
| 7/31/2021                  | E. coli                                                 | 126          | 150            | #/100mL | MO AVG            | Effluent Exceedance |
| 10/31/2021                 | E. coli                                                 | 126          | 461            | #/100mL | MO AVG            | Effluent Exceedance |
| 10/31/2021                 | E. coli                                                 | 410          | 461            | #/100mL | MX WK AV          | Effluent Exceedance |
| 11/30/2021                 | E. coli                                                 | 410          | 921            | #/100mL | MX WK AV          | Effluent Exceedance |
| 11/30/2021                 | E. coli                                                 | 126          | 921            | #/100mL | MO AVG            | Effluent Exceedance |
| 12/31/2021                 | E. coli                                                 | 126          | 186            | #/100mL | MO AVG            | Effluent Exceedance |
| 7/31/2022                  | E. coli                                                 | 410          | 910            | #/100mL | MX WK AV          | Effluent Exceedance |
| 7/31/2022                  | E. coli                                                 | 126          | 910            | #/100mL | MO AVG            | Effluent Exceedance |
| 10/31/2022                 | E. coli                                                 | 126          | 168            | #/100mL | MO AVG            | Effluent Exceedance |
| 10/31/2022                 | E. coli                                                 | 410          | 461            | #/100mL | MX WK AV          | Effluent Exceedance |
| 11/30/2022                 | E. coli                                                 | 126          | 157            | #/100mL | MO AVG            | Effluent Exceedance |
| 12/31/2022                 | E. coli                                                 | 126          | 274            | #/100mL | MO AVG            | Effluent Exceedance |
| 12/31/2022                 | E. coli                                                 | 410          | 579            | #/100mL | MX WK AV          | Effluent Exceedance |
| 5/31/2023                  | E. coli                                                 | 126          | 151            | #/100mL | MO AVG            | Effluent Exceedance |
| 6/30/2023                  | E. coli                                                 | 126          | 348            | #/100mL | MO AVG            | Effluent Exceedance |
| 9/30/2022                  | %Effect Static Renewal 7 Day Chronic Ceriodaphnia dubia | 8.73         | 0              | %       | MINIMUM           | Effluent Exceedance |
| 12/31/2022                 | %Effect Static Renewal 7 Day Chronic Ceriodaphnia dubia | 8.73         | 0              | %       | MINIMUM           | Effluent Exceedance |
| 9/30/2022                  | %Effect Static Renewal 7Day Chronic Pimephales promelas | 8.73         | 0              | %       | MINIMUM           | Effluent Exceedance |
| 12/31/2022                 | %Effect Static Renewal 7Day Chronic Pimephales promelas | 8.73         | 0              | %       | MINIMUM           | Effluent Exceedance |

##### C. SAMPLING

Chain of custody (COC) sheets were reviewed for the months of June 2021, September 2022, and October 2022. The COC sheets were accurately completed except that the time of collection for the influent and effluent samples were not annotated on the June 2021 COC.

The Lagoon operator collects and analyzes TSS, BOD<sub>5</sub>, pH, TRC, and DO samples and sends Ammonia, Nitrogen, Phosphorous, and *E.coli* samples to a contract lab in Memphis, Tennessee.

#### D. FLOW MEASUREMENT

A Parshall flume and ultra-sonic flow meter is used to measure the effluent flow. The ultra-sonic flow meter was calibrated on August 23, 2023. The flow measuring equipment was operational and in good working condition. Flow measured 1.9 MGD during the inspection.

#### E. OPERATIONS AND MAINTENANCE (SITE FINDINGS)

Refer to Enclosure 1 for photographs.

- i. All aerators were operational in Cells 1 and 2 (See Photo 1).
- ii. The Lagoon liner appeared to be in good condition.
- iii. The chlorine contact chamber was in good condition.
- iv. The wastewater flow in the chlorine contact chamber was notably green in color due to excessive green algae growth, which was also noted in Cell 3 (See Photo 2).

#### F. EFFLUENT AND RECEIVING WATERS

The Lagoon discharges at Outfall 001 into a ditch that discharges into the Yalobusha River. Suspended green algae growth was observed in the stream water in ditch. The effluent looked clear with exception of the suspended algae in the stream (See Photo 3).

### 5. DISCUSSION

“Conventional green algae are a sign of a healthy lagoon. The oxygen they produce is necessary for bacteria to stabilize waste (and thus remove BOD) in the pond. Too much algae in the effluent can lead to TSS, BOD, and pH violations. When algae in the effluent die, settle out, and decay, they exert some oxygen demand on the receiving stream.”<sup>1</sup>

High BOD and TSS in the Lagoon can cause excessive green algae growth. Increasing mixing/aeration is one technique to control green algae growth. Excessive solids, to include algae, can also interfere with disinfection in the chlorine contact chamber, which may account for the *E.coli* exceedances noted in Table 1. Other operational tips and best practices for small lagoons can be found in EPA’s Compliance Advisory referenced in the footnotes of this page.

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<sup>1</sup> EPA Compliance Advisory, March 2022. *Compliance Tips for Small Wastewater Treatment Lagoons with Clean Water Act Discharge Permits*, <https://www.epa.gov/system/files/documents/2022-03/lagoon-complianceadvisory.pdf>.

6. ENCLOSURE 1, Photographs



Photo 1. Cell 2, operational aerators.



Photo 2. Green algae observed in the chlorine contact chamber.



Photo 3. Outfall 001.

End of Report