

LSASD Project ID: 24-0107

Murrells Inlet WWTP

NPDES Compliance Evaluation Inspection

1441 Pond Rd. Murrells Inlet, SC

Project Date(s): July 23rd, 2024

Report Date: September 23rd, 2024



Project Leader: Chris McHugh

Water Quality Section

Field Services Branch

Laboratory Services & Applied Science Division

USEPA – Region 4

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1. Introduction

On July 23rd, 2024, staff of the United States Environmental Protection Agency (EPA) Region 4, Laboratory Services and Applied Science Division (LSASD), conducted a National Pollutant Discharge Elimination System (NPDES) Compliance Evaluation Inspection (CEI) at Murrells Inlet WWTP in Murrells Inlet, South Carolina. The inspection was conducted under the authority of Section 308 of the Clean Water Act (CWA), as amended, and followed the procedures listed in the LSASD Project No. 24 – 0107 Sample and Analysis Plan (SAP). This report presents the results of the inspection. Table 1 lists the sampling participants and facility staff.

Table 1 – Inspection Personnel

Name	Organization	Date on Site	Contact Info
Asher Sampong	EPA Region 4 LSASD Inspection	07/23/2024	sampong.asher@epa.gov
Chris McHugh	EPA Region 4 LSASD Inspection	07/23/2024	mchugh.christopher@epa.gov

2. Inspection Procedures

The objective of this inspection was to evaluate the condition of the WWTP and the permittee's self-monitoring program and offer compliance assistance as needed. Specific tasks included conducting an opening conference, interviewing facility staff, conducting a facility walkthrough, conducting records review, observing the receiving waters, and conducting a closing conference.

3. Facility Description

Murrells Inlet WWTP treatment system includes two identical systems of mechanical bar screens, oxidation ditches, secondary clarifiers, and chlorine contact chambers with four feet wide rectangular weirs to measure effluent flow (see Figure 1). Waste sludge is sent via tanker truck to Pawley's Island WWTP for disposal.



Figure 1 – Facility Aerial View

4. NPDES Permit

The facility's National Pollutant Discharge Elimination (NPDES) permit number SC0040959 was issued (renewed) by the State of South Carolina on March 1st, 2024, and expires on November 30, 2026. The NPDES permits Murrell's Inlet WWTP to discharge an average of two million gallons per day (MGD) of treated wastewater through Outfall 001 to the Waccamaw River. The permit includes effluent limits for Total Suspended Solids (TSS), 5-day Biochemical Oxygen Demand (BOD₅), Total Phosphorous, pH, Dissolved Oxygen (DO), Total Ammonia Nitrogen, Mercury, Total Residual Chlorine, and E. coli.

5. Records and Reports

I. Discharge Monitoring Reports (DMR) Review

The facility has failure to report DMR from 04/01/22 – 06/30/23 listed on the EPA Enforcement and Compliance History Online (ECHO) database. The current operator did not have information regarding previous facility operator's potential reporting mistakes.

II. Records Review

The facility maintains all its discharge monitoring reports and analytical records onsite and had at least 3 years of DMR records and 5 years of sludge records available. It is not clear as to why the past years DMRs from 04/01/22 to 06/30/23 were not reported to the EPA's Integrated Compliance Information System (ICIS).

III. Flow Measurement

The facility uses a 4ft rectangular weir and ultrasonic flow meter to measure and record effluent flow rate for the two effluent discharge channels from the parallel chlorine contact chambers. Both ultrasonic flow meters were last calibrated in May 2024. An instantaneous flow check was conducted on one of the flow meters, and the secondary flow rate reading was 3% different from the primary flow rate, which is within the recommended $\pm 10\%$ difference for adequate accuracy, as referenced by the 2017 EPA NPDES Compliance Inspection Manual.

IV. Sampling Review

The facility collects and analyzes 24-hr time-based composite samples for its permit listed parameters as specified in the NPDES Permit SC0040959 and are analyzed by Murrell's Inlet Drinking Water Treatment Facility. Low level Mercury testing is handled via nearby contract laboratory. Sample Chain of Custodies were filled out completely and contained sufficient sample collection documentation per the 2017 NPDES Compliance Inspectional Manual guidelines: (<https://www.epa.gov/sites/default/files/2017-03/documents/npdesinspect-appendix-am.pdf>).

6. Operation and Maintenance

The facility is operating and working to maintain its treatment units to meet its NPDES permit requirements. At the time of the inspection, the grit chamber was not operational, and the facility stated that it is waiting for a new pump to repair the unit. There was some amount of grit seen in both oxidation ditches (Figure 2) and secondary clarifiers (Figure 3). Additionally, the secondary clarifiers had a lot of algae growth on the weir plates (Figure 3).



Figure 2 – Grit presence in Oxidation Ditch



Figure 3 – Presence of Grit in Clarifier and Algae Growth on Weir Plates

7. Effluent and Receiving Waters

The effluent discharge was clear and free of any excessive foam in the receiving stream.

8. Discussions and Findings

The following are recommendations based on the inspection:

- Facility should immediately repair the grit system to avoid grit impacts in their treatment processes, including but not limited to, accumulation of grit in tanks that

reduce treatment capacity, clogs in pipes and channels, and wear and tear on pumps, valves, and other equipment.

- Facility should upload the missing DMR data to the SC Department of Environmental Services (SCDES) electronic DMR system and/or consult with the SCDES to identify any potential data transfer issues.
- Facility should perform more routine cleaning to prevent excessive algae growth on secondary clarifier weir plates, which can lead to poor effluent water quality.

End of Report