U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION III
CLEAN WATER ACT
COMPLIANCE INSPECTION REPORT

for

Name of Facility: South Carroll High School WWTP
Facility Address: 1290 West Old Liberty Road, Eldersburg, MD 21784
Mailing Address: 225 North Center Street, Westminster, MD 21157

Report Prepared on: June 20, 2021 (*Date*) By: _____, PG Environmental Scientist (PG Environmental) (*Signature*)

Report Final as of: July 26, 2021 (*Date*) By: MARK ZOLANDZ Digitally signed by MARK ZOLANDZ Date: 2021.07.26 13:16:58 -04'00', EPA (*Signature*)

General Information

Type of Inspection:	Wastewater Treatment Facility CEI
Owner:	Carroll County Bureau of Utilities
Operator:	Carroll County Bureau of Utilities
Permittee:	Carroll County Bureau of Utilities
NPDES Permit No:	MD0024589
NPDES Permit Effective Date:	September 1, 2018
NPDES Permit Expiration Date:	August 31, 2023
Receiving Water:	Piney Run
Latitude and Longitude:	39.444192 N, 77.039396 W

On-Site Facility Inspection Overview

On May 19, 2021, representatives from U.S. Environmental Protection Agency (EPA) Region III and EPA's contract inspector, PG Environmental, (hereinafter referred to the EPA Inspection Team) inspected the South Carroll High School Wastewater Treatment Plant (hereinafter, WWTP or Facility) in Eldersburg, Maryland. At the time of the inspection, the Carroll County Bureau of Utilities was identified as the Permittee and operator of the Facility. The EPA Inspection Team was joined on the inspection by a representative from the Maryland Department of the Environment (MDE).

Approximate Entry Time: 10:00 AM (EDT) **Approximate Exit Time:** 11:30 AM (EDT)

Unique Project Identifier (UPI): 3E21WN095A

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Attachment A: Photograph Log
Attachment B: Exhibit Log
- Exhibit 1: WWTP O&M Manual Excerpts
- Exhibit 2: Monthly Operating Reports (January 2020 through date of inspection)
- Exhibit 3: EPA ICIS data (May 2016 through April 2021)
- Exhibit 4: ECHO Database Detailed Facility Report
- Exhibit 5: Facility Noncompliance Reports (January and February 2021)

Attachment C: NPDES Permit No. MD0024589

I. INTRODUCTION

On May 19, 2021, representatives from U.S. Environmental Protection Agency (EPA) Region III and EPA's contract inspector, PG Environmental, (hereinafter referred to as the EPA Inspection Team) inspected the South Carroll High School Wastewater Treatment Plant (hereinafter, WWTP or Facility) in Eldersburg, Maryland. At the time of the inspection, the Carroll County Bureau of Utilities was identified as the Permittee and operator of the Facility. The EPA Inspection Team was joined on the inspection by a representative from the Maryland Department of the Environment (MDE). The primary purpose of the inspection was to review the accuracy and reliability of the Permittee's self-monitoring and reporting program as well as the operation and maintenance of the Facility. The weather at the time of the inspection was sunny and warm, with no precipitation.

The Facility receives wastewater from South Carroll High School, Winfield Elementary School, Winfield Fire Department, and a small Carroll County Department of Public Works facility located close to the high school. The Facility is a continuous influent sequence batch reactor (SBR) style plant which provides secondary-level treatment before wastewater is routed through a flocculation and sand-filtration process for additional treatment prior to disinfection via ultraviolet (UV) light. The Facility discharges to Piney Run through Outfall 001A.

Wasted solids from the SBR process are sent to the digester chambers (one in each of the two SBR trains). Solids are pumped out of the digesters as needed and hauled to Carroll County's Freedom WWTP for further processing and disposal.

Activities at the site are regulated under National Pollutant Discharge Elimination System (NPDES) Permit No. MD0024589 (hereinafter, Permit), which became effective on September 1, 2018, and is scheduled to expire on August 31, 2023 (refer to Attachment C).

II. INSPECTION PROCESS

Inspection Opening Conference

The EPA Inspection Team arrived at the Facility at 10:00 a.m. (EDT) for the inspection. Jake Albright of PG Environmental displayed his Clean Water Act inspector credential to the Facility representatives at the outset of the inspection and explained that the purpose of the inspection was to observe compliance with the Permit. The EPA Inspection Team explained that any information that the Facility deemed to be confidential business information ("CBI") should be identified to EPA representatives during the inspection and it would be handled as CBI according to EPA's CBI procedures. Table 1 describes the individuals that participated in the inspection.

Table 1: Inspection Attendee List

Name	Affiliation	Telephone	Email
EPA Region III Inspectors and Contractors			
Jake Albright	PG Environmental	(703) 956-1957	Jake.Albright@pgenv.com
Kaitlin McLaughlin	EPA Region III	(215) 814-2393	McLaughlin.Kaitlin@epa.gov
Maryland Department of the Environment			
Mark Ecker	MDE	(301) 665-2874	mark.ecker@maryland.gov
Facility Representatives			
Kevin Stoneroad, Operator	Carroll County	-	-
Rachel Miller, Operator in Training	Carroll County	-	-

Facility Site Walk

As part of the process, the EPA Inspection Team visually observed the SBR #2 treatment train and site conditions in the presence of MDE and Facility representatives (SBR #1 was out of service). The treatment train consists of:

- Influent pumps
- Headworks (screening and comminutor)
- Fill chamber
- Aeration chamber
- Decanter
- Equalization chamber
- Alum injection and flocculator
- Tube settler
- Sand and charcoal filters
- Clear well
- UV disinfection

Onsite Solids Processing

- Solids digester chambers (in both SBR #1 and #2)

Wastewater coming into the Facility flows through an influent wet well with two influent pumps which pump water to the WWTP headworks (refer to Appendix A, DSCN 4973 and DSCN 4974). The headworks consists of a coarse bar screen and mechanical comminutor (refer to Appendix A, DSCN 4980). From the headworks, influent is routed to the SBRs. There are two SBR trains at the Facility; only SBR #2 was in use at the time of the inspection. The Facility Operator stated that SBR #1 had been down for a long time, and he could not recall a time it had ever been used (refer to Appendix A, DSCN 4994).

From the headworks, influent flows into the SBR fill chamber, which is aerated (refer to Appendix A, DSCN 4983). The SBR is a continuous influent SBR, meaning there is no dedicated fill cycle, and influent is added throughout the entire SBR process (i.e., react, settle, and decant). As more influent is added, existing wastewater in the chamber is forced under a baffle and into the aeration chamber (refer to Appendix A, DSCN 4984). After the react phase of the SBR process, effluent is decanted into an aerated equalization basin (refer to Appendix A, DSCN 4987 and DCSN 4988). If both SBRs were in service, effluent from each would equalize in the same basin. The SBR cycles were as follows at the time of the inspection:

- React (aeration) – 120 minutes
- Settle – 60 minutes
- Decant – 60 minutes

Alum is injected into the equalization basin effluent pipeline (refer to Appendix A, DSCN 4989). The pipeline conveys water from the equalization basin, into a separate building, to a flocculator and tube settler for solids precipitation and further clarification (refer to Appendix A, DSCN 5000 and DSCN 5001). From there effluent flows through sand/carbon filters, and then into an aerated clear well (refer to Appendix A, DSCN 5004, DSCN 5005, and DSCN 5009). Effluent flow is measured at the end of the clear well with an ultrasonic transducer.

From the clear well, effluent is conveyed to a separate building for disinfection via a UV light system consisting of four banks of two UV bulbs each (refer to Appendix A, DSCN 5016). The effluent composite sampler was also at this location (refer to Appendix A, DSCN 5014). After disinfection,

effluent is discharged to Piney Run through Outfall 001A (refer to Appendix A, DSCN 5021, DSCN 5023, and DSCN 5024).

Solids from the SBR process are wasted into the SBR #1 and SBR #2 digester chambers (both in use; refer to Appendix A, DSCN 4982 and DSCN 4998). The Facility Operator stated that wasted solids are removed and hauled to the County's Freedom WWTP as needed for further processing and disposal.

At the time of the inspection, the Facility had a backup generator onsite, which was being exercised weekly and under full load once per month (refer to Appendix A, DSCN 5020).

The Facility Operator or Operator in Training is onsite 7 days per week for about 3 hours each day. According to the Facility's operation and maintenance (O&M) manual, the WWTP can accommodate 17,000 gallons per day (GPD) of influent (dry weather capacity and maximum peak flow are the same; refer to Attachment B, Exhibit 1). The Facility Operator stated that COVID-19 had minimized the amount of time students had been in school, and flow for the past year had averaged closer to 2,000 to 4,000 GPD. He stated during normal times (i.e., pre-pandemic), flows were closer to 6,000 to 8,000 GPD. These are reflected in the Facility's Monthly Operating Reports (MORs; refer to Attachment B, Exhibit 2).

Records Review

The EPA Inspection Team also conducted a records review to further evaluate the Permittee's compliance with the Permit. Most of the records and reports required by the Permit were available for review onsite. The daily handwritten operational datasheets were reviewed onsite during the inspection. The Facility's electronic discharge monitoring reports (eDMRs) were provided electronically and reviewed offsite after the onsite inspection. The following documents were reviewed:

- EPA Integrated Compliance Information System (ICIS) data (May 2016 through April 2021)
- eDMRs (January 2020 through March 2021)
- MORs (January 2020 through date of inspection)
- Facility O&M Manual
- pH meter calibration log (May 2021)
- Influent pump run time log (May 2021)
- UV system daily monitoring log (May 2021)

III. SUMMARY OF OBSERVATIONS

The following section summarizes the EPA Inspection Team's observations relative to the Permit requirements, including the status of certain treatment units, operation and maintenance practices, and monitoring and reporting documentation.

Permit Status and Effluent Exceedances

Part II.A of the Permit defines effluent limitations and monitoring requirements for Outfall 001A discharges.

Observation 1. According to EPA's ICIS database, the Facility experienced 30 effluent limit exceedances from Outfall 001A between September 1, 2018 and April 30, 2021 (i.e., since the issuance of the Permit; refer to Attachment B, Exhibit 3).

EPA's Enforcement and Compliance History Online (ECHO) Database indicates the Facility was in a state of significant noncompliance (SNC) during the fourth quarter of 2018, second and third quarters of 2019, and first, third, and fourth quarters of 2020

(refer to Attachment B, Exhibit 4). Most reported exceedances were total phosphorus concentration exceedances. A few exceedances were also reported for ammonia and total suspended solids (TSS) during the period of review (see Table 2).

Table 2. Summary of Effluent Exceedances at Outfall 001A (September 1, 2018 through April 30, 2021)

Permit #	Monitoring Period End Date	Parameter Name	DMR Value	Permit Limit	Units	Limit Type
MD0024589	1/31/2021	Total Phosphorus	1.6	1.2	mg/L	Weekly Average
MD0024589	12/31/2020	Total Phosphorus	1.1	0.8	mg/L	Monthly Average
MD0024589	12/31/2020	Total Phosphorus	2.3	1.2	mg/L	Weekly Average
MD0024589	10/31/2020	Total Phosphorus	0.965	2.2	mg/L	Monthly Average
MD0024589	10/31/2020	Total Phosphorus	2.2	1.2	mg/L	Weekly Average
MD0024589	9/30/2020	Total Phosphorus	2.3	0.8	mg/L	Monthly Average
MD0024589	9/30/2020	Total Phosphorus	4.6	1.2	mg/L	Weekly Average
MD0024589	8/31/2020	TSS	32	30	mg/L	Monthly Average
MD0024589	8/31/2020	TSS	56	45	mg/L	Weekly Average
MD0024589	8/31/2020	Total Phosphorus	0.91	0.8	mg/L	Monthly Average
MD0024589	8/31/2020	Total Phosphorus	1.9	1.2	mg/L	Weekly Average
MD0024589	3/31/2020	Nitrogen, ammonia total	27	16	mg/L	Daily Average
MD0024589	3/31/2020	Total Phosphorus	2	0.8	mg/L	Monthly Average
MD0024589	3/31/2020	Total Phosphorus	4.6	1.2	mg/L	Weekly Average
MD0024589	2/29/2020	Nitrogen, ammonia total	14.5	6.9	mg/L	Monthly Average
MD0024589	2/29/2020	Nitrogen, ammonia total	24	16	mg/L	Daily Average
MD0024589	2/29/2020	Total Phosphorus	1.39	0.8	mg/L	Monthly Average
MD0024589	2/29/2020	Total Phosphorus	3.2	1.2	mg/L	Weekly Average
MD0024589	9/30/2019	Total Phosphorus	1.1	0.8	mg/L	Monthly Average
MD0024589	9/30/2019	Total Phosphorus	3.5	1.2	mg/L	Weekly Average
MD0024589	6/30/2019	Total Phosphorus	2.05	0.8	mg/L	Monthly Average
MD0024589	6/30/2019	Total Phosphorus	3.1	1.2	mg/L	Weekly Average
MD0024589	5/31/2019	Total Phosphorus	1.83	0.8	mg/L	Monthly Average
MD0024589	5/31/2019	Total Phosphorus	2.5	1.2	mg/L	Weekly Average
MD0024589	4/30/2019	Total Phosphorus	1.6	0.8	mg/L	Monthly Average
MD0024589	4/30/2019	Total Phosphorus	3.2	1.2	mg/L	Weekly Average
MD0024589	12/31/2018	Total Phosphorus	2.1	1.2	mg/L	Weekly Average
MD0024589	11/30/2018	Total Phosphorus	3.1	1.2	mg/L	Weekly Average
MD0024589	10/31/2018	Total Phosphorus	0.89	0.8	mg/L	Monthly Average
MD0024589	10/31/2018	Total Phosphorus	1.7	1.2	mg/L	Weekly Average

It should be noted that the Facility also experienced 26 effluent concentration limit exceedances between May 1, 2016 and August 31, 2018, under the previous version of the Permit (4 ammonia exceedances and 22 phosphorus exceedances; refer to Attachment B, Exhibit 3).

The Facility Operator was unable to attribute the phosphorus exceedances to a particular source and stated the ongoing issue had not been investigated to his knowledge. He stated that the County had hired an engineer to make upgrade recommendations for multiple facilities in the County, including the South Carroll High School WWTP. No formal plans or timelines for the upgrades were available at the time of the inspection.

The Facility Operator stated alum is added to the treatment process, prior to the flocculator, in an effort to precipitate phosphorus. The Facility Operator was unable to quantify the effectiveness of the precipitation process and stated that he was unsure whether the alum feed had ever been re-evaluated or adjusted.

Observation 2. Part II.A of the Permit includes a note that waste allocation calculations for the Facility were based on an annual average flow of 0.050 million gallons per day (MGD). According to the Facility's O&M manual, the capacity of the WWTP is only 0.017 MGD (refer to Appendix B, Exhibit 1), and according to the Facility Operator, current flows to the plant were closer to 0.002 and 0.003 MGD due to COVID-19 limiting the amount of time students were in school at the time of the inspection. He also stated pre-pandemic flows were closer to 0.006–0.008 MGD.

Part II.B of the Permit requires the Permittee to monitor effluent temperature at the outfall once per week.

Part II.G.2 of the Permit states, "When the effluent temperature is 68°F or less, stream monitoring is not required. Otherwise, in order to include ambient temperatures of the effluent receiving stream with the effluent temperatures for evaluation, the permittee must measure the stream temperatures in degrees Fahrenheit upstream (at least 50') of the outfall location as stated below in section 3. The permittee shall also measure the stream temperature in degrees Fahrenheit downstream (approximately 100') from the outfall location. If the recommended sampling points are not accessible; the permittee can propose an alternative location with the approval of the Department. The permittee shall submit a map showing the locations of the sampling points with latitude and longitude for each sampling point with the first monthly operating report. These locations should remain the same for the duration of the permit unless the permittee notifies the Compliance Program in advance of the need for a change."

Part II.G.3 of the Permit states, "The water temperature measurements of the effluent and the receiving stream at the sampling locations as described above in Sections 1 and 2 shall be taken on the same day in the morning between 7:00 to 10:00 AM as well as in the afternoon between 2:00 to 5:00 PM. These measurements shall be reported in degrees Fahrenheit on MOR as individual results and on DMR as a Monthly Average and Maximum Daily Average."

Observation 3. The Permittee had not performed effluent temperature monitoring according to Permit requirements during multiple months during the period of review (January 1, 2020 through date of the inspection; refer to Appendix B, Exhibit 2). Specifically, no effluent temperature monitoring was conducted during the following months:

- **2020**: January, February, March, April, December
- **2021**: January

Effluent temperature monitoring was not conducted at the required weekly frequency during the following months during the period of review.

- **2020:** May (only monitored 3 of 5 weeks), June (only monitored 3 of 4 weeks), November (only monitored 1 of 4 weeks)

- **2021:** February (only monitored 1 of 4 weeks)

The Permittee did not conduct afternoon effluent or stream temperature monitoring on July 3, 2020, even though the morning effluent temperature was above 68 degrees Fahrenheit (68.2).

Part III.B.1 of the Permit states "All discharges authorized herein shall be consistent with the terms and conditions of this permit. If, for any reason, the permittee does not comply with or will be unable to comply with any permit condition, the permittee shall, within 24 hours, notify the Department by telephone at (410) 537-3510 during work hours or at (866) 633-4686 during evenings, weekends, and holidays. The permittee shall provide the Department with the following information in writing within five days of such oral notification.

a. a description of the noncomplying discharge including the name of the stream and the impact upon the receiving waters;
b. cause of noncompliance;
c. the duration of the period of noncompliance and the anticipated time the condition of noncompliance is expected to continue;
d. steps taken by the permittee to reduce and eliminate the noncomplying discharge;
e. steps to be taken by the permittee to prevent recurrence of the condition of noncompliance;
f. a description of the accelerated or additional monitoring to determine the nature and impact of the noncomplying discharge; and
g. the results of the monitoring described in f. above."

Observation 4. According to the MDE representative onsite at the time of the inspection, the Permittee was not notifying the agency of permit noncompliance, verbally within 24-hours or in writing within 5 days. He did note that noncompliance forms were sometimes provided in the Facility's eDMRs (refer to Appendix B, Exhibit 5), submitted monthly. Examples were included in eDMR documents provided by MDE for January 2021 and February 2021. The January 2021 includes noncompliance forms for the weekly average total phosphorus concentration exceedance, stating the alum feed was down, and one for missing temperature monitoring. The Facility Operator did not mention that the alum feed was down in January 2021 at the time of the inspection. The February 2021 noncompliance form was submitted for missing temperature monitoring.

Noncompliance forms were not provided for any of the other months during the period of review. It is unclear if any others had been submitted.

Proper Operation and Maintenance

Part III.B.3 of the Permit states, "All waste collection, control, treatment and disposal facilities shall be operated in a manner consistent with the following:

a. Facilities shall be operated efficiently to minimize upsets and discharges of excessive pollutants.
b. The permittee shall provide an adequate operating staff qualified to carry out operation, maintenance and testing functions required to ensure compliance with this permit. Superintendents and operators must be certified by the Board of Waterworks and Waste Systems Operators located at Montgomery Park Business Center, 1800 Washington Boulevard, STE- 410, Baltimore, Maryland 21230 in accordance with Title 12 of Environmental Article, Annotated Code of Maryland, and Section 26.06.01 of the COMAR.

c. Facility maintenance work, which adversely affects or may adversely affect the discharge quality shall be scheduled during non-critical water quality periods."

Observation 5. At the time of inspection, SBR #1 was out of service (except for the digester chamber; refer to Appendix A, DSCN 4978 and DCSN 4997). The Facility Operator stated that he was unsure whether the unit had ever been used. He stated that controls for the unit would need to be upgraded and replaced for it to become operational.

Observation 6. The Facility's O&M manual had not been updated since 1998 (refer to Appendix B, Exhibit 2).

- The SBR phase times in the O&M manual did not match actual operations. Specifically, the react/fill phase was prescribed in the manual as 2.8 hours but was actually only being run for 2 hours at the time of the inspection. The manual describes a 48-minute (i.e., 0.8 hours) mix/fill phase that did not appear to be implemented at the time for the inspection. It was unclear if this was an intentional change made at some point in the past.
- The decant phase of the process was programmed for 60 minutes; however, the Facility Operator stated that because the Facility receives lower flows than the WWTP was designed for, and the water surface elevation is low, the decanter only collects effluent for about the final 30 minutes of the cycle.
- The Facility O&M manual (Operational Modifications, part C.2.a "Mixed Liquor Suspended Solids") states, "This is a very important measure and shows the amount of activated sludge inventory within the system. The MLSS should be determine daily during the initial operation and at least weekly thereafter. This SBR System is designed to operate with a MLSS concentration of +/- 4,100 mg/l at the BWL."

  The Facility Operator stated that he does not monitor MLSS. He stated that he does perform 30-minute settleometer testing on the aeration chamber and uses that measurement to inform solids wasting. The Facility Operator stated that his goal was to keep the measurement around 700 mL/L.

  It should be noted that the O&M manual also suggests determining mixed liquor volatile suspended solids (MLVSS), sludge volume index (SVI), and calculating food to microorganism (F/M) ratio. These metrics were not being used at the Facility.

Closing Conference

After the Facility site walk, the EPA Inspection Team met with the Director of Public Works for a closing conference and shared preliminary observations. The EPA Inspection Team reiterated that all preliminary observations discussed were not compliance determinations. Any and all preliminary observations shared were subject to further investigation by the EPA Inspection Team upon the additional review of records and documentation. Additional observations may be contained in this inspection report that were not identified at the time of the closing conference after the additional review of materials following the inspection.

The inspection concluded at approximately 11:30 AM (EDT).