



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

for

Name of Facility: Frankfort Public Service District (PSD) WWTP

Facility Location: 39.5552, -78.73750

Mailing Address: P.O. Box 80, Wiley Ford, WV 26767

Report Prepared on: July 27, 2021

Date

By: , PG
Environmental Scientist (PG Environmental)

Signature

Report Final as of: _____ By: _____, EPA

Date

Signature

General Information

Type of Inspection:	Wastewater Treatment Facility CEI
Owner:	Frankfort Public Service District (PSD)
Operator:	Frankfort PSD
Permittee:	Frankfort PSD
NPDES Permit No:	WV0105988
NPDES Permit Effective Date:	September 1, 2018
NPDES Permit Expiration Date:	June 30, 2022
Receiving Water:	Patterson Creek of the North Branch of the Potomac River
Latitude and Longitude:	39.553056, -78.734167

On-Site Facility Inspection Overview

On June 14, 2021, representatives from U.S. Environmental Protection Agency (EPA) Region III and EPA's contract inspector from PG Environmental, (hereinafter referred to as EPA Inspection Team) conducted a compliance evaluation inspection at the Frankfort PSD Wastewater Treatment Plant (hereinafter, WWTP or Facility) in Patterson Creek, WV. Frankfort PSD is identified as the Permittee and owns and operates the WWTP.

Approximate Entry Time: 10:00 AM (EDT) **Approximate Exit Time:** 3:30 PM (EDT)

Unique Project Identifier (UPI): 3E21WN018A

TABLE OF CONTENTS

	Page
I. INTRODUCTION.....	3
II. INSPECTION PROCESS	3
Inspection Opening Conference	3
Facility Site Walk.....	4
Records Review	5
Summary of Observations.....	5
Discharge Limitations and Monitoring Requirements	5
Proper Operation and Maintenance.....	8
Closing Conference	9

APPENDIX LIST

Appendix A: Photograph Log

Appendix B: Exhibit Log

- Exhibit 1 – EPA ICIS Data for Outlet 001 (September 1, 2018 through April 30, 2021)
- Exhibit 2 – EPA ECHO Detailed Facility Report
- Exhibit 3 – EPA ICIS Data for Outlet IU01 (September 1, 2018 through April 30, 2021)

Appendix C: NPDES Permit No. WV0105988

I. INTRODUCTION

On June 14, 2021, representatives from U.S. Environmental Protection Agency (EPA) Region III and EPA's contract inspector from PG Environmental, (hereinafter referred to as the EPA Inspection Team) inspected the Frankfort PSD Wastewater Treatment Plant (hereinafter, WWTP or Plant) in Patterson Creek, WV. Frankfort Public Service District (PSD) is identified as the Permittee and owns and operates the WWTP. The primary purpose of the inspection was to review WWTP operations, the accuracy and reliability of the Permittee's self-monitoring and reporting program, and to obtain information that will assist EPA in assessing the Permittee's compliance with the requirements of the Permit. The weather at the time of the inspection was sunny and warm, with no precipitation.

The WWTP is a sequence batch reactor (SBR) plant (four SBR units) with tertiary filtration and ultraviolet (UV) light disinfection. Wasted sludge from the SBR process is aerobically digested, dewatered via belt filter press, and hauled off for disposal. The treatment process is described in more detail in the "Facility Site Walk" section of this report.

The Facility is operated from 7:00 a.m. to 3:30 p.m., Monday through Friday, and approximately 4 hours on the weekends for basic rounds. The Facility has a permitted hydraulic capacity of 1.2 million gallons per day (MGD). For the month of June, influent flows ranged from 0.480 MGD (June 1st) to 1.021 MGD (June 8th).

The Facility is regulated under National Pollutant Discharge Elimination System (NPDES) Permit No. WV0105988 (hereinafter, Permit), which became effective on September 1, 2018 and is set to expire on June 30, 2022 (refer to Appendix C).

II. INSPECTION PROCESS

Inspection Opening Conference

The EPA Inspection Team arrived at the Facility at 10:00 AM (EDT) for the inspection. Stephen Clark of PG Environmental displayed his Clean Water Act inspector credential to the Facility Operator at the outset of the inspection and explained the purpose of the inspection was to observe compliance with the Permit. Table 1 describes the individuals that participated in the inspection.

Table 1. Inspection Attendee List

Name	Affiliation	Telephone	Email
EPA Inspection Team			
Stephen Clark, Inspector	PG Environmental	(720) 789-8046	stephen.clark@pgenv.com
Amanda Pruzinsky, Inspector	EPA Region III	(215) 814-5456	Pruzinsky.Amanda@epa.gov
WVDEP			
Chad Swick	WVDEP	(304) 822-7266	Chad.c.swick@wv.gov
Facility Representative			
Lon Miller, Class 2 Operator	Frankfort PSD	(304) 738-9552	--

Facility Site Walk

As part of the process, the EPA Inspection Team visually observed the treatment train and site conditions in the presence of the Operator. The treatment train consists of:

- Wet well and three influent pumps (rotated, all in service)
- Mechanical bar screen (with bypass channel for manual bar rack)
- Grit removal system with compactor
- Four SBRs (all in use)
- Equalization basin
- Eight recirculating sand filters (all in use)
- UV disinfection (six banks totaling 48 bulbs, all in use)
- Effluent Parshall flume
- Three aerobic digesters (all in use)
- Belt filter press

The Facility headworks consists of an automatic bar screen and vortex grit removal (refer to [Appendix A, Photographs 2 through 4](#)). The influent channel to the mechanical bar screen has a secondary channel that contains a manual bar rack in the event the mechanical bar screen is taken offline. Screened influent flows to the vortex grit removal system. Grit removed from the unit is run through a compactor then captured in a dumpster and disposed of at a landfill, as are the screenings from the mechanical bar screen.

After grit removal, flow is sent to one of four SBRs (refer to [Appendix A, Photographs 5 through 11](#)), where wastewater is treated in 6-hour cycles as follows, per the manufacturer's recommended setpoints:

- Mix fill (60 minutes)
- React fill (30 minutes)
- React (150 minutes)
- Settle (50 minutes)
- Decant (70 minutes)

The supervisory control and data acquisition (SCADA) system also has three pre-programmed "storm" modes for wet-weather operations.

The Facility has five blowers for the SBR units; one is used in standby mode for redundancy (refer to [Appendix A, Photograph 12](#)).

The Operator explained that an enzyme is added to the SBR units for grease control (refer to [Appendix A, Photograph 13](#)). Methanol is also added during the react fill phase as a carbon source for denitrification.

Decanted wastewater from all four SBRs flows to an equalization basin (refer to [Appendix A, Photograph 14](#)). Note there were black-colored balls on the surface of the basin to limit algae growth; the Operator stated that these were recommended by a consulting engineer.

Wastewater is then pumped to the sand filters and then flows to the UV disinfection units (refer to [Appendix A, Photographs 15 through 18](#)). Effluent flow is measured in a Parshall flume and ultrasonic flow meter (refer to [Appendix A, Photograph 19](#)) prior to being discharged to Patterson Creek of the North Branch of the Potomac River through Outlet 001 (refer to [Appendix A, Photographs 20 and 21](#)). The service sticker on the effluent flow meter display panel stated the flow meter was last calibrated on October 20, 2020. A portion of the disinfected water ("Utility Water") is used for non-potable uses at the Facility (e.g., to operate the belt filter press).

Sludge is collected from the bottom of the SBRs and sent to one of three aerobic digesters (refer to [Appendix A, Photographs 22 through 24](#)). The Facility has four blowers for the digesters; one is used in standby mode for redundancy. Digested sludge is then sent to the belt filter press for dewatering (refer to [Appendix A, Photograph 25](#)).

The WWTP also accepts filter backwash and sedimentation basin effluent from the nearby Fort Ashby Water Treatment Plant (WTP). The Permit authorizes these discharges to the POTW and requires the Permittee to monitor and limit such discharges as specified on Pages 8 and 9 of the Permit. The Permit also authorizes the Permittee to accept discharges from the West Virginia Department of Highways (WVDOH; Outlet IU03). The Operator stated that WVDOH no longer discharges to the POTW at that location which was a vehicle washing facility that had a oil/water separator.

Records Review

The EPA Inspection Team conducted a records review to evaluate the Permittee's compliance with the Permit. Most of the records and reports required by the Permit were available for review prior to and after the inspection. WWTP equipment operation and maintenance (O&M) manuals, laboratory standard operating procedures (SOPs) and calibration records were reviewed onsite. The following were reviewed:

- EPA Integrated Compliance Information System (ICIS) data during the period from September 1, 2018 through April 30, 2021;
- Effluent loading calculation sheets for April 2021;
- Various SCADA system screens that show the operational status of equipment, process control parameters, and SBR phase settings and wasting times;
- Forms that document operational runtimes for various pieces of equipment at the Facility (e.g., blowers, mixers, waste activated sludge [WAS] pumps, air compressors);
- Process control logs for pH and dissolved oxygen (DO);
- Process control laboratory bench sheets for settleability, mixed-liquor suspended solids (MLSS), mixed-liquor volatile solids (MLVS), and microscopic examination;
- Daily check sheets;
- Operator daily logbook;
- Facility standard operating procedures (SOPs);
- Various WWTP equipment O&M manuals; and
- WWTP engineering drawings.

Summary of Observations

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

Discharge Limitations and Monitoring Requirements

Part A.001 of the Permit defines discharge limitations and monitoring requirements for Outlet 001 discharges.

Observation 1. According to EPA's ICIS database, the Facility experienced 29 effluent limit exceedances from Outlet 001 between September 1, 2018 and April 1, 2021 (refer to [Appendix B, Exhibit 1](#) and Table 2 below). EPA's Enforcement and Compliance History Online (ECHO) indicates the Facility was in a state of significant

noncompliance (SNC) between October 1, 2018 and June 30, 2019 (refer to [Appendix B, Exhibit 2](#)).

The ICIS data includes significant exceedances at Outfall 001 for mercury on several occasions. As noted previously, the Facility receives sedimentation basin effluent and filter backwash from the Fort Ashby WTP which, according to monitoring data for Outlet IU01 (Fort Ashby WTP monitoring location), has had numerous exceedances for various metals, including mercury on multiple occasions (refer to [Observation 3](#)).

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

Permit #	Monitoring Period End Date	Parameter Name	DMR Value	Permit Limit	Units	Limit Type
WV0105988	9/30/2018	Dissolved oxygen	5.3	6	mg/L	Min. Daily
WV0105988	9/30/2018	Mercury, total	0.77	0.01	ug/L	Average monthly
WV0105988	9/30/2018	Mercury, total	0.77	0.02		Max. Daily
WV0105988	10/31/2018	Dissolved oxygen	5.1	6	mg/L	Instant. Min
WV0105988	10/31/2018	Mercury, total	0.81	0.01	ug/L	Average monthly
WV0105988	10/31/2018	Mercury, total	0.81	0.02	ug/L	Max. Daily
WV0105988	11/30/2018	Mercury, total	2.43	0.01	ug/L	Average monthly
WV0105988	11/30/2018	Mercury, total	2.43	0.02	ug/L	Max. Daily
WV0105988	12/31/2018	Mercury, total	1.95	0.01	ug/L	Average monthly
WV0105988	12/31/2018	Mercury, total	1.95	0.02	ug/L	Max. Daily
WV0105988	1/13/2019	Mercury, total	1.06	0.01	ug/L	Average monthly
WV0105988	1/13/2019	Mercury, total	1.06	0.02	ug/L	Max. Daily
WV0105988	2/28/2019	Mercury, total	0.0765	0.01	ug/L	Average monthly
WV0105988	2/28/2019	Mercury, total	0.0765	0.02		Max. Daily
WV0105988	6/30/2019	Fecal coliform	600	400	#/100mL	Max. Daily
WV0105988	10/31/2019	BOD, 5-day	52.12	85	%	Percent Removal
WV0105988	10/31/2019	Total suspended solids	52	85	%	Percent Removal
WV0105988	1/31/2020	BOD, 5-day,	82	85	%	Percent Removal
WV0105988	1/31/2020	Total suspended solids	80.6	85	%	Percent Removal
WV0105988	5/31/2020	Dissolved oxygen	3.9	6	mg/L	Min. Daily
WV0105988	7/31/2020	Dissolved oxygen	2.6	6	mg/L	Min. Daily
WV0105988	2/28/2021	Mercury, total	0.0104	0.01	ug/L	Average monthly
WV0105988	2/28/2021	Mercury, total	0.0104	0.02	ug/L	Max. Daily
WV0105988	3/31/2021	Mercury, total	0.75	0.01	ug/L	Average monthly
WV0105988	3/31/2021	Mercury, total	0.75	0.02	ug/L	Max. Daily
WV0105988	3/31/2021	Fecal coliform	1206.5	600	#/100mL	Max. Daily
WV0105988	3/31/2021	BOD, 5-day,	80.75	85	%	Percent Removal
WV0105988	3/31/2021	Solids, suspended	67.5	85	%	Percent Removal
WV0105988	4/30/2021	BOD, 5-day,	84	85	%	Percent Removal

Section A.001 of the Permit requires effluent samples for BOD, TSS, ammonia nitrogen, total nitrogen, total phosphorus, and metals to be collected as “Batch” samples.

Appendix A, Part III.7.d of the Permit defines “Composite sample” as the following: “a combination of individual samples obtained at regular intervals over a time period. Either the volume of each individual sample is proportional to discharge flow rates or the sampling interval (for constant volume samples) is proportional to the flow rates over the time period used to produce the composite. The maximum time period between individual samples shall be two hours.”

Observation 2. According to the Operator, the Permittee was collecting time-proportional effluent composite samples as opposed to flow-proportional effluent composite samples. He stated that the sample volume of each aliquot is the same volume and aliquots are collected once every hour during the sampling period.

Part A.IU01 of the Permit defines discharge limitations and monitoring requirements for Significant Industrial User IU01 (Fort Ashby Water Treatment Plant) and states, “During the period beginning 9/1/2018 and lasting through midnight 6/30/2022 the permittee is authorized to accept the discharge from Outlet Number(s) IU01 (Pretreatment - Significant Industrial User)” and that “Such discharges shall be limited and monitored by the permittee as specified [in the table] below.”

Observation 3. According to EPA’s ICIS database, the Facility experienced 17 effluent limit exceedances from Outlet IU01 between September 1, 2018 and April 1, 2021 (refer to Appendix B, Exhibit 3 and Table 3 below).

The Operator stated that the Frankfort PSD does not inspect or directly monitor the Fort Ashby WTP discharges from Outlet IU01. They rely on the Fort Ashby WTP staff to provide the data. The IU01 exceedances were reviewed after the onsite inspection and not discussed directly with the Operator. It is unclear if Frankfort PSD has communicated these issues with the industrial user, or whether any process changes have been recommended or completed.

Table 3. Summary of Effluent Exceedances at Outlet IU01 (September 1, 2018 through April 30, 2021)

NPDES ID	Monitoring Period End Date	Parameter	DMR Value	Permit Limit	Units	Limit Type
WV0105988	11/30/2018	Flow rate	2,649,600	250,000	gal/d	Max. Daily
WV0105988	11/30/2018	Aluminum, total recoverable	45.3	45	mg/L	Max. Daily
WV0105988	05/31/2019	Mercury, total recoverable	4.27	0.04	ug/L	Max. Daily
WV0105988	08/31/2019	Flow rate	3,366,320	250,000	gal/d	Max. Daily
WV0105988	05/31/2020	Flow rate	338,400	250,000	gal/d	Max. Daily
WV0105988	09/30/2020	Mercury, total recoverable	0.38	0.04	ug/L	Max. Daily
WV0105988	11/30/2020	Mercury, total recoverable	0.38	0.04	ug/L	Max. Daily
WV0105988	12/31/2020	Flow rate	1,242,800	250,000	gal/d	Max. Daily
WV0105988	02/28/2021	Cadmium, total	0.00065	0.0005	mg/L	Max. Daily
WV0105988	03/31/2021	Flow rate	528,000	250,000	gal/d	Max. Daily
WV0105988	03/31/2021	Iron, total recoverable	3802	8	mg/L	Max. Daily
WV0105988	03/31/2021	Nickel, total	0.65	0.06	mg/L	Max. Daily
WV0105988	03/31/2021	Zinc, total recoverable	20.7	0.3	mg/L	Max. Daily
WV0105988	03/31/2021	Aluminum, total recoverable	9107	40	mg/L	Max. Daily
WV0105988	03/31/2021	Copper, total recoverable	1.2	0.2	mg/L	Max. Daily

NPDES ID	Monitoring Period End Date	Parameter	DMR Value	Permit Limit	Units	Limit Type
WV0105988	04/30/2021	Cadmium, total	0.0034	0.0005	mg/L	Max. Daily
WV0105988	04/30/2021	Zinc, total recoverable	15.5	0.3	mg/L	Max. Daily

Proper Operation and Maintenance

Appendix A, Part II.1 of the Permit states, “The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls, and appropriate quality assurance procedures. Unless otherwise required by Federal or State law, this provision requires the operation of back-up auxiliary facilities or similar systems which are installed by the permittee only when the operation is necessary to achieve compliance with the conditions of the permit.”

Observation 4. The calibration standards used to calibrate the pH meter used for influent and effluent sampling had expiration dates of February 2018 (refer to Appendix A, Photograph 26).

Observation 5. The PSD operates a repurposed wastewater treatment lagoon system as a wet-weather equalization basin upstream of the Facility (the pond was the municipal WWTP for Fort Ashby, WV and operated by the Fort Ashby Public Service District). Operators manually control the valves that control flows to and from the lagoons. The Operator stated that wastewater may sit in the pond for extended periods of time (e.g., weeks) before being diverted back to the collection system. It was unclear if this practice adversely affected the quality of the wastewater conveyed to the WWTP and thus the operating conditions at the WWTP. The Facility’s “High Flow Procedures” SOP (refer to Appendix A, Photograph 27) states that flow should be diverted to the lagoon system when influent flows reach 2.8 MGD. When flows go back down to 2.0 MGD flows from the lagoon system should be diverted back to the WWTP “as soon as possible.”

The Operator stated that the operations daily logbook is the only location where operation of the lagoon system is documented. The EPA Inspection Team observed that from November 16, 2020 to January 26, 2021, the operations logbook documented two instances where flow was diverted to the lagoon system (November 30, 2020 and January 2, 2021). The EPA Inspection Team observed that for the November 30, 2020 entry, there was not a corresponding entry that stated flow was diverted back to the WWTP from the lagoon system. For the January 2, 2021 entry, there was a corresponding entry made on January 3, 2021 stating flow was diverted back to the WWTP.

Observation 6. The EPA Inspection Team observed sludge and solids on the surface of SBR No. 2 during the decant mode (refer to Appendix A Photographs 8 and 9). Some of the solids were green in color which appeared to be duckweed. The Permittee reported a TSS percent removal of 95% for February 2021, 67.5% for March 2021, and 86.8% for April 2021 (refer to Appendix B, Exhibit 1).

Observation 7. The Facility had been designed with an influent caustic feed system that had not been used for several years. The WWTP’s O&M Manual states that neutralization of the influent wastewater is recommended/required for pH ranges outside of 6.5 to 8.5 s.u. Note that based on influent pH data for June 2021, the influent wastewater was within the range specified in the O&M Manual.

Closing Conference

After the Facility site walk, the EPA Inspection Team met with the Operator for a closing conference and shared its preliminary observations. The EPA Inspection Team reiterated to the Operator 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 3:30 PM (EDT).