



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

for

Name of Facility: City of Keyser, WV WWTP

Facility Location: Waxler Road (north of intersection with Suter Lane), Keyser, WV 26726

Mailing Address: 111 North Davis Street, Keyser, WV 26726 (City Hall)

Report Prepared on: December 17, 2021
Date

By: Jake Albright, PG
Jake Albright
Environmental Scientist (PG Environmental)

Report Final as of: _____ By: _____, EPA
Date Signature

General Information

Type of Inspection:	Wastewater Treatment Facility CEI
Owner:	City of Keyser, WV
Operator:	City of Keyser, WV
Permittee:	City of Keyser, WV
NPDES Permit No:	WV0024392
NPDES Permit Effective Date:	June 1, 2018
NPDES Permit Expiration Date:	June 30, 2022
Receiving Water:	North Branch Potomac River
Latitude and Longitude:	39.447987, -78.954647

On-Site Facility Inspection Overview

On November 19, 2021, a representative from U.S. Environmental Protection Agency (EPA) Region III's contractor, PG Environmental, (hereinafter referred to as the Inspector) conducted a compliance evaluation inspection at the Keyser Wastewater Treatment Plant (WWTP) in Keyser, WV. The City of Keyser is identified as the Permittee and owns and operates the Facility. A staff member from the West Virginia Department of Environmental Protection (WVDEP) attended the inspection.

Approximate Entry Time: 8:30 AM (EST) **Approximate Exit Time:** 11:05 AM (EST)

Unique Project Identifier (UPI): 3E22WN028A

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APPENDIX LIST

Appendix A: Photograph Log

Appendix B: Exhibit Log

- Exhibit 1 – EPA ICIS Data for Outlet No. 001 (January 1, 2018 through October 31, 2021)
- Exhibit 2 – City of Keyser Cadmium Compliance Sampling Study (December 2018)
- Exhibit 3 – October 2021 Chronic Toxicity Bioassay Report

Appendix C: NPDES Permit No. WV0024392

I. INTRODUCTION

On November 19, 2021, a representative from U.S. Environmental Protection Agency (EPA) Region III's contractor, PG Environmental, (hereinafter referred to as the Inspector) inspected the Keyser Wastewater Treatment Plant (WWTP) in Keyser, WV. The City of Keyser (hereinafter, City) is identified as the Permittee and owns and operates the Facility. The primary purpose of the inspection was to review wastewater operations, the accuracy and reliability of the Discharger's self-monitoring and reporting program, and to obtain information that will assist EPA in assessing the Discharger's compliance with the requirements of the Permit. The weather at the time of the inspection was sunny and cold, with no precipitation.

The Keyser WWTP is a continuous-fill sequence batch reactor (SBR) plant (four SBR units) with ultraviolet (UV) light disinfection. The Keyser WWTP has a permitted hydraulic capacity of 2.4 million gallons per day (MGD). Wasted sludge from the SBR process is digested, dewatered via belt filter press, and hauled off for land application.

The treatment process is described in more detail in the "Facility Site Walk" section of this report. The WWTP is operated from 7:00 a.m. to 3:00 p.m., Monday through Friday, and for a few hours on the weekends for basic rounds.

The Facility is regulated under National Pollutant Discharge Elimination System (NPDES) Permit No. WV0024392 (hereinafter, Permit), which became effective on June 1, 2018 and was set to expire on June 30, 2022 (refer to [Appendix C](#)).

II. INSPECTION PROCESS

Inspection Opening Conference

The Inspector arrived at the Facility at 8:30 AM (EST) for the inspection. Mr. Jake Albright of PG Environmental displayed his Clean Water Act inspector credential to the Lead Plant 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 Contractor Inspector			
Jake Albright, Inspector	PG Environmental	(703) 956-1957	jake.albrigh@pgenv.com
WVDEP			
Chad Swick	WVDEP	(304) 822-7266	Michael.K.Kanehl@wv.gov
City Representatives			
Matt Lupis	Lead Plant Operator	(304) 788-2118	wwtp@cityofkeyser.com

Facility Site Walk

As part of the inspection process, the Inspector visually observed the treatment train and site conditions of the WWTP in the presence of the Lead Plant Operator.

Keyser WWTP Treatment Train:

- Rotating brush screen
- Grit removal system with compactor
- Influent wet well and four influent pumps (rotated, all in service)

- Four SBRs (all in use)
- Two flocculator tanks (no chemical addition at the time of the inspection)
- Two AquaDisk cloth filters (No. 1 in use, No. 2 out of service for repair)
- UV disinfection (two banks with 48 bulbs each, No. 1 in use, No. 2 available)
- Two aerobic digesters (both in use)
- Belt filter press (available, not running at the time of the inspection)

Most flow comes into the plant through a force main connected to the Limestone Pump Station (refer to [Appendix A, Photographs 1 and 2](#)). There is one combined sewer overflow (CSO) in the collection system, located at the Limestone Pump Station (refer to [Appendix A, Photographs 2 and 3](#)). Facility representatives stated that the CSO had not activated since February 2018, as new capacity-related upgrades had been made to the force main that services the Limestone Pump Station.

In addition to commercial and residential sources, the WWTP also accepts wastewater from one industrial facility, Quality Supplier. Quality Supplier submits a monthly oil water separator (OWS) inspection log to the Facility.

The design capacity of the plant is 2.4 million gallons per day (MGD), and according to City representatives, the average dry-weather flow at the plant at the time of the inspection was about 0.8 to 1 MGD. Facility representatives stated wet weather peaks were typically around 3 to 4 MGD, with some as high as 5.5 to 6 MGD. The WWTP underwent a major upgrade in 2016, and nearly all of the treatment systems observed at the Facility were installed at that time.

The WWTP headworks consists of an automatic rotating brush screen and grit removal system (refer to [Appendix A, Photographs 4 through 7](#)). Screened influent flows to the 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 collected in the influent wet wells and pumped evenly into the four SBRs (refer to [Appendix A, Photographs 8 through 12](#)) where wastewater is treated in 288-minute cycles as follows:

- Continuous fill
- Aeration (24 minutes x 2)
- Mix (24 minutes x 2)
- Settle (113 minutes)
- Decant (79 minutes)

The SBRs also have a pre-programmed “storm” mode for wet-weather operations that shortens the length of each phase during high flow events.

After the SBRs, wastewater flows to the flocculator tanks (refer to [Appendix A, Photograph 13](#)). The Lead Plant Operator explained that alum could be added to the flocculators for phosphorus control; however, no chemistry was being used at the time of the inspection. Wastewater was just flowing through the tank and getting mixed at the time of the inspection.

From the flocculators, wastewater flows to two AquaDisk cloth filters for tertiary treatment (refer to [Appendix A, Photographs 14 and 15](#)). Tertiary Filter No. 2 was out of service for repair at the time of the inspection. After the cloth filters, effluent is disinfected via UV light (refer to [Appendix A, Photographs 16 and 17](#)). The Lead Plant Operator explained that the Facility typically only utilizes one of the two UV banks per year under normal conditions; the two banks are rotated annually. He stated a second bank could be used in high flow scenarios, but it is not common. UV Bank No. 2 (not active at the time of the inspection) had three failing bulbs and a failing ballast at the time of the inspection.

Effluent flows from UV disinfection to the effluent tank, which has a V-notch weir and ultrasonic transducer for measuring effluent (refer to [Appendix A, Photograph 18](#)). Effluent overflows the weir and is discharged via Outlet No. 001 to the North Branch Potomac River (refer to [Appendix A, Photographs 20 and 21](#)).

Sludge is collected from the bottom of the SBRs and sent to one of two aerobic digesters (refer to [Appendix A, Photographs 22 and 23](#)). Digested sludge is dewatered via belt filter press prior to being hauled away for land application (refer to [Appendix A, Photograph 24](#)). A backup generator with capacity to power the entire plant in case of emergency was observed onsite (refer to [Appendix A, Photograph 25](#)). The Lead Plant Operator stated that the unit is exercised weekly.

The Facility has an onsite laboratory, used for compliance analysis of dissolved oxygen, pH, total suspended solids, biochemical oxygen demand (BOD), chemical oxygen demand (COD), fecal coliform, and E. coli. All other compliance samples are sent to the Facility's contract lab, Pace Environmental.

Records Review

The Inspector conducted a records review to evaluate the Discharger's compliance with the Permit. All of the records and reports required by the Permit were available onsite. Most records were provided digitally for review after the inspection. WWTP equipment operation and maintenance (O&M) manuals, laboratory standard operating procedures (SOPs), chain-of-custodies, and calibration records were reviewed onsite. The following documents were reviewed:

- EPA Integrated Compliance Information System (ICIS) data during the period from January 1, 2018 through October 31, 2021
- Contract laboratory reports and chain-of-custodies (January 2021 through October 2021)
- Operator daily logs and process control sheets (January 2021 through date of inspection)
- October 2021 Chronic Toxicity Bioassay Report
- City of Keyser Cadmium Compliance Sampling Study (December 2018)
- Quality Supplier OWS Inspection Log (July 2021 through September 2021)
- Onsite laboratory SOPs
- WWTP equipment O&M manuals and SOPs

Summary of Observations

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

Discharge Limitations and Monitoring Requirements

Section A.001 of the Permit defines discharge limitations and monitoring requirements for Keyser WWTP Outlet No. 001 discharges.

Observation 1. According to EPA's ICIS database, the Keyser WWTP experienced five effluent limit exceedances from Outlet No. 001 between January 1, 2018 and October 31, 2021 (refer to [Appendix B, Exhibit 1](#) and Table 3).

Table 3. Summary of Effluent Exceedances at Keyser WWTP Outlet No. 001 (January 1, 2018 through October 31, 2021)

Permit #	Monitoring Period End Date	Parameter Name	DMR Value	Permit Limit	Units	Limit Type
WV0024392	9/30/2021	Chronic toxicity (ceriodaphnia)	4	3.1	TUc	Average monthly
WV0024392	6/30/2021	Cadmium, total recoverable	0.0015	0.0002	mg/L	Average monthly
WV0024392	6/30/2021	Cadmium, total recoverable	0.0015	0.0006	mg/L	Max. daily
WV0024392	11/30/2020	Coliform, fecal general	2,419.6	400	#/100mL	Max. daily
WV0024392	9/30/2019	Chronic toxicity (ceriodaphnia)	4	3.1	TUc	Average monthly

Observation 2. The Facility experienced total cadmium exceedances in June 2021. The Permittee conducted a Cadmium Compliance Sampling Study in December 2018, which asserts that the source of cadmium historically detected near the WWTP outlet is from New Creek, which connects to the North Branch Potomac River upstream of the WWTP and is used for the City's water supply (refer to [Appendix B, Exhibit 2](#)). The study also shows cadmium concentrations exceeding the WWTP's effluent limits were detected in the potable water supply.

Observation 3. The Facility experienced a chronic toxicity exceedance for ceriodaphnia dubia in September 2021. The Facility retested within 30 days, as required by Section C.22.f the Permit, which resulted in a TUc for survival of 0.0 (refer to [Appendix B, Exhibit 3](#)).

Observation 4. Section A.001 of the permit requires the Permittee to report percent removal data for BOD and TSS during dry and wet weather. According to EPA's ICIS database, the Facility did not provide any data for BOD or TSS percent removal during wet weather for the following months:

- 2019: January, April, June, July
- 2018: January, March, August, October

Based on a review of the other data entries in ICIS, it seems likely a wet weather sampling event did not occur during these months and the Permittee should have reported these as no discharge events to prevent them from being interpreted as 0% removal and considered exceedances (refer to [Appendix B, Exhibit 1](#)).

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 5. Several treatment units were down for maintenance or repair at the time of the inspection:

- The variable frequency drives (VFDs) for Pump Nos. 1 and 2 at the influent pump station were not working properly at the time of the inspection. The pumps were being run at fixed speed at the time of the inspection. The Lead Plant Operator stated that the issue was related to electrical surges coming from the power grid.
- Tertiary Filter No. 2 was offline for repair at the time of the inspection (refer to [Appendix A, Photographs 14 and 15](#)). Contractors were onsite repairing the unit at the time of the inspection.
- UV Bank No. 2 was out of service, awaiting a parts shipment, at the time of the inspection (refer to [Appendix A, Photographs 16 and 17](#)). Three bulbs and one ballast had failed. The Facility representative stated that the needed parts were sitting in a nearby warehouse, delayed by the U.S. Customs process. He stated that the bank could still be used in an emergency.
- Blower No. 1 for the digesters was out of service in order to repair a blown seal at the time of the inspection (refer to [Appendix A, Photograph 23](#)). The Lead Plant Operator stated that the Facility can run with only two blowers in service.

Combined Sewer Overflow (CSO)

Section E.01 of the Permit states, “Outlet Number(s) C002, listed below, serves as a combined sewer relief point. Combined sewer overflows (CSOs) are allowed only when flows in the combined sewers exceed the conveyance and/or treatment capacities during wet weather periods. Wet weather shall be defined for this requirement as any period in which flows within the combined sewer system, or portion thereof, are being substantially influenced by rainfall, snowmelt, and/or other natural phenomena. Dry weather overflow events from any CSO are prohibited. The permittee shall ensure that all CSO events comply with the requirements found in Section D and any other pertinent portions of this permit. The requirements in this permit shall not supersede the 1994 CSO Policy or the recommended EPA Guidance for Nine Minimum Controls.”

Observation 6. The Lead Plant Operator stated that the CSO had not activated since February 2018. He stated that the 2018 overflow occurred because one of the two new force mains coming from the Limestone Pump Station had not been opened after construction in 2016; the line was subsequently opened. The CSO regulator weir had several feet of freeboard at the time of the inspection (refer to [Appendix A, Photograph 3](#)).

Although not a primary focus of the inspection, the Lead Plant Operator stated while the CSO is not expected to activate unless there is a significant intense wet-weather event, sanitary sewer overflows (SSOs) occur on a more frequent basis during wet weather at two manholes located on Water Street, which runs along New Creek.

Closing Conference

After the Facility walk-through, the Inspector met with the Lead Plant Operator for a closing conference and shared his preliminary observations. The Inspector reiterated that all preliminary observations discussed were not compliance determinations. Any and all preliminary observations shared were subject to further investigation by the Inspector 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 11:05 AM (EST).