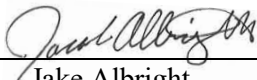




**U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION III
CLEAN WATER ACT
COMPLIANCE INSPECTION REPORT**

for

Name of Facility: City of Charles Town, WV WWTPs
Charles Town WWTP Location: 39.278951, -77.855956
Tuscawilla WWTP Location: 39.28367, -77.90172
Mailing Address: 661 South George Street, Suite 101

Report Prepared on: September 10, 2021 By: , PG
Date *Signature*
Environmental Scientist (PG Environmental)

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

General Information

Type of Inspection:	Wastewater Treatment Facility CEI
Owner:	City of Charles Town, WV
Operator:	City of Charles Town, WV
Permittee:	City of Charles Town, WV
NPDES Permit No:	WV0022349
NPDES Permit Effective Date:	July 21, 2016
NPDES Permit Expiration Date:	June 30, 2021 (administratively extended)
Receiving Water:	Shenandoah River
Latitude and Longitude:	Charles Town WWTP: 39.278951, -77.855956 Tuscawilla WWTP: 39.28367, -77.90172

On-Site Facility Inspection Overview

On August 10, 2021, a representative from U.S. Environmental Protection Agency (EPA) Region III's contractor, PG Environmental, (hereinafter referred to as the Inspector) conducted compliance evaluation inspections at the Charles Town and Tuscawilla Wastewater Treatment Plants (WWTPs) in Charles Town, WV. The City of Charles Town is identified as the Permittee and owns and operates both facilities under the supervision and management of the Charles Town Utilities Board (CTUB). A staff member from the West Virginia Department of Environmental Protection (WVDEP) attended the inspection.

Approximate Entry Time: 8:45 AM (EDT) **Approximate Exit Time:** 1:45 PM (EDT)

Unique Project Identifier (UPI): 3E21WN035A

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- Exhibit 2 – Tuscarwilla WWTP Flow Schematic
- Exhibit 3 – EPA ICIS Exceedance Data (August 1, 2016 through June 30, 2021)
- Exhibit 4 – EPA ECHO Detailed Facility Report
- Exhibit 5 – CTUB Wastewater Treatment Facilities Renewal and Replacement Project Summary (June 2020)
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- Exhibit 7 – Permit Modification No. 8 (March 1, 2019)
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- Exhibit 9 – Collection System Manhole and Cleanout Repair Summary (updated August 2, 2021)
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Appendix C: NPDES Permit No. WV0022349

I. INTRODUCTION

On August 10, 2021, a representative from U.S. Environmental Protection Agency (EPA) Region III's contractor, PG Environmental, (hereinafter referred to as the Inspector) inspected the Charles Town and Tuscawilla Wastewater Treatment Plants (WWTPs) in Charles Town, WV. The City of Charles Town (hereinafter, City) is identified as the Permittee and owns and operates both facilities under the supervision and management of the Charles Town Utilities Board (CTUB). 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 warm, with no precipitation.

The Charles Town WWTP is a continuous-fill sequence batch reactor (SBR) plant (three SBR units) with ultraviolet (UV) light disinfection. The Charles Town WWTP has a permitted hydraulic capacity of 1.75 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 Tuscawilla WWTP is a biological nutrient removal (BNR) plant with membrane bio-reactors (MBRs) and UV light disinfection. The Tuscawilla WWTP has a permitted hydraulic capacity of 0.5 MGD. Wasted solids from the Tuscawilla WWTP are digested, then hauled to the Charles Town WWTP for further processing and dewatering. Solids from the Tuscawilla WWTP are land applied, intermingled with the solids from the Charles Town WWTP.

The treatment processes are described in more detail in the "Facility Site Walk" section of this report. The WWTPs are operated from 7:00 a.m. to 4:00 p.m., Monday through Friday, and for a few hours on the weekends for basic rounds.

Both facilities are regulated under National Pollutant Discharge Elimination System (NPDES) Permit No. WV0022349 (hereinafter, Permit), which became effective on July 21, 2016 and was set to expire on June 30, 2021 but was administratively extended at the time of the inspection (refer to Appendix C). The permit was reissued on August 23, 2021, with an effective date of October 1, 2021.

II. INSPECTION PROCESS

Inspection Opening Conference

The Inspector arrived at the Facility at 8:45 AM (EDT) for the inspection. Jake Albright of PG Environmental displayed his Clean Water Act inspector credential to the Utility General Manager and 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			
Michael Kanehl	WVDEP	(304) 822-7266	Michael.K.Kanehl@wv.gov
City Representatives			
Kristen Stolipher	Utility General Manager	(304) 724-7080	kstolipher@ctubwv.com
Joe Burris	Lead Plant Operator (both WWTPs)	--	--

Facility Site Walk

As part of the process, the Inspector visually observed the treatment train and site conditions of both plants in the presence of the Lead Plant Operator and Utility General Manager.

Charles Town WWTP Treatment Train (refer to Appendix A, Photographs 1 through 32):

- Mechanical bar screen (with bypass channel for manual bar rack)
- Grit removal system with compactor
- Influent wet well and three influent pumps (rotated, all in service)
- Three SBRs with polyaluminum chloride (PAC) addition (all in use)
- UV disinfection (three banks with 40 bulbs, all in use)
- Effluent wet well with three effluent pumps (rotated, all in service)
- Three waste activated sludge (WAS) pits (functioning as aerobic digesters; WAS Pit No. 1 in standby)
- Belt filter press with lime addition

Flow comes into the plant through an influent junction structure, which combines flows from the main interceptors with flow from the Samuel Street Pump Station (refer to [Appendix A, Photograph 1](#)). The design capacity of the plant is 1.75 MGD, and according to City representatives, the average dry-weather flow at the plant at the time of the inspection was about 1.2 MGD.

The headworks consists of an automatic bar screen and grit removal system (Pista Grit; refer to [Appendix A, Photographs 3 through 5](#)). 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 well and pumped to the SBR splitter box where it is split into one of the three SBRs (refer to [Appendix A, Photographs 6 through 11](#)) where wastewater is treated in 4-hour cycles as follows, per the manufacturer's recommended setpoints (refer to [Appendix A, Photographs 12 and 13](#)):

- Continuous fill
- React (120 minutes)
- Settle (60 minutes)
- Decant (60 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 (refer to [Appendix A, Photograph 13](#)).

The WWTP has five blowers for the SBR units; Blower No. 2 was out of service for a motor repair/replacement at the time of the inspection (refer to [Appendix A, Photograph 14](#)).

The Lead Plant Operator explained that PAC is added to the SBR units for phosphorus control (refer to [Appendix A, Photograph 15](#)).

The Inspector observed an out-of-service sand filtration system that City representatives explained was no longer used (refer to [Appendix A, Photograph 16](#)). They stated that when it was in operation, it treated flow coming from the SBRs prior to entering the UV disinfection system.

Decanted wastewater from each of the SBRs flows through the UV disinfection units (refer to [Appendix A, Photograph 17](#)). Effluent flow is measured with an ultrasonic flow meter in the UV channel (refer to

Appendix A, Photograph 18) prior to being sent to the effluent wet well and subsequently pumped into Evitts Run through Outlet No. 001 (refer to Appendix A, Photographs 19 through 21).

Sludge is collected from the bottom of the SBRs and sent to one of three WAS pits, which were functioning as aerobic digesters at the time of the inspection (refer to Appendix A, Photographs 22 through 24). Decant water from the pits is sent back the SBR splitter box. WAS Pit No. 1 was in standby at the time of the inspection. Additionally, the WWTP had an existing digester tank equipped with air diffusers as well as a sludge thickening tank that were not online at the time of the inspection (refer to Appendix A, Photographs 25 and 26). City representatives explained that they hoped to bid a project by the end of the year to bring the digester system online.

Digested sludge is dewatered via belt filter press prior to being hauled away for land application (refer to Appendix A, Photograph 27).

Refer to Appendix B, Exhibit 1 for a flow schematic of the Charles Town WWTP.

In addition to commercial and residential sources, the WWTP also accepts wastewater from the following industrial facilities:

Table 2. Charles Town WWTP Industrial Users¹

Facility Name	Description	Outlet Designation
Charles Town Water Treatment Plant	Slurry from the water treatment process hauled in and discharged directly to WWTP digesters.	IU01
Rockwool	Stone wool insulation manufacturing. The discharge consists of reverse osmosis brine and water softener waste from water purification needed in the manufacturing process.	IU02
USDA	Agricultural research facility. Historical user. No monitoring required.	IU03
DALB, Inc.	Process water from industrial printing operations.	IU04
Apple Valley Waste	Pretreated wastewater from truck washing.	IU05
Jefferson County Board of Education	Wash water from bus washing. No monitoring required; however, the user is required to maintain an oil/water separator log.	IU06
Hollywood Casino	Non-domestic wastewater from water softener regeneration.	IU07

Tuscowilla WWTP Treatment Train (refer to Appendix A, Photographs 33 through 52):

- Mechanical bar screen (with bypass channel for manual bar rack)
- Grit removal system with compactor
- Influent wet well and four influent pumps (rotated, all in service)

¹ Industrial user outlet designations as defined in the newly reissued (at the time of the inspection) and yet to be effective version of the Permit (to become effective October 1, 2021).

- Two rotary fine screens (rotated, both in use)
- Two BNR reactor trains (Train No. 1 in use, Train No. 2 in standby)
- Three MBR modules (No. 1 and No. 3 in use; No. 2 in standby)
- UV light disinfection
- Effluent pump station (for discharges to Outlet No. 202 or Outlet No. 203)
- Aerobic digester

All flow comes into the plant through an influent junction manhole located upstream of the headworks building. The design capacity of the plant is 0.5 MGD, and according to City representatives, the average dry-weather flow at the plant at the time of the inspection was about 0.12 MGD. The headworks consists of an automatic bar screen and grit removal system (Pista Grit; refer to [Appendix A, Photographs 34 and 35](#)). 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 well and pumped to the rotary fine screens (refer to [Appendix A, Photographs 36 through 38](#)). The influent wet well also has the ability to direct influent to an overflow holding pond during extreme high flow events or plant failures (refer to [Appendix A, Photograph 39](#)).

After the rotary screens, flow enters a distribution box and is directed to BNR Train No.1 (refer to [Appendix A, Photograph 40](#)). BNR Train No. 2 was in standby, as the capacity was not needed at the time of the inspection (refer to [Appendix A, Photograph 41](#)). The BNR process consists of three zones of treatment (pre-anoxic, oxic, and post-anoxic). Return activated sludge (RAS) is returned to the head of the oxic zone. At the time of the inspection, effluent from the BNR process was directed evenly to two MBRs (of three total; refer to [Appendix A, Photographs 42 through 44](#)). MBR No. 2 was in standby, as the capacity was not needed at the time of the inspection. The Facility has three blowers each for the BNR process and MBRs (refer to [Appendix A, Photograph 45](#)).

Effluent from the MBRs is disinfected via UV light (refer to [Appendix A, Photograph 46](#)) prior to being sent to the effluent pump station and subsequently pumped into the Tusawilla West Golf Course irrigation pond (Outlet No. 202) or to Evitts Run through Outlet No. 203, which is located just under 1 mile north of the plant (refer to [Appendix A, Photographs 48 and 49](#)). The Permit also includes Outlet No. 002, which is the total load discharged from the Tusawilla WWTP, regardless of whether it is discharged to Evitts Run (Outlet No. 203) or used for spray irrigation at the golf course (Outlet No. 202). Per the Permit, the effluent sampler was observed to be positioned at the effluent pump station in a location to take composite samples composed of all discharges leaving the Tusawilla WWTP (i.e., Outlet No. 002; refer to [Appendix A, Photograph 47](#)).

Solids at the plant are collected in RAS and WAS chambers and returned or wasted as needed (refer to [Appendix A, Photograph 50](#)). Wasted sludge is sent to the aerobic digester (refer to [Appendix A, Photographs 51 and 52](#)). Digested sludge is removed from the digester as needed and hauled to the Charles Town WWTP for further dewatering and processing for land application.

Refer to [Appendix B, Exhibit 2](#) for a flow schematic of the Tusawilla WWTP.

Charles Town and Tusawilla WWTP Interconnection

Flows in the collection system can be diverted from the Charles Town WWTP to the Tusawilla WWTP by redirecting flow from the Weirick Street or Huntfield Pump Stations (refer to [Appendix A, Photograph 53](#)). City representatives stated that this mechanism would only be used in rare circumstances, primarily to accommodate extended treatment shutdowns for plant maintenance.

Outlet No. 003

The Permit includes limits for an additional non-physical outlet, Outlet No. 003, described as the total load discharged to Evitts Run from both WWTPs. This outlet represents the calculated sum of the loads determined from Outlet No. 001 (Charles Town) and Outlet No. 203 (Tuscawilla).

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), and calibration records were reviewed onsite. The following documents were reviewed:

- EPA Integrated Compliance Information System (ICIS) data during the period from August 1, 2016 through July 31, 2021 (both plants)
- Contract laboratory reports and chain-of-custodies (Pace Analytical (both plants); January 2021 through July 2021)
- Permit Modification Nos. 1 through 9
- Operator daily logs and process control sheets (both plants; January 2021 through July 2021);
- Onsite laboratory SOPs (both plants)
- Various WWTP equipment O&M manuals and SOPs (both plants)
- WWTP engineering drawings (both plants)
- CTUB 2021-2024 Sewer Strategic Plan
- CTUB Condition Assessment Report (November 2019)
- CTUB Wastewater Treatment Facilities Renewal and Replacement Project Summary (June 2020)
- Collection system manhole and cleanout repair tracking (updated August 2, 2021)
- CTUB 2016 Wastewater Asset Management Plan
- Charles Town WWTP Stormwater Pollution Prevention Plan (SWPPP; 2018)

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

Part A.001 of the Permit defines discharge limitations and monitoring requirements for Charles Town WWTP Outlet No. 001 discharges. Part A.002 of the Permit defines discharge limitations and monitoring requirements for Tuscawilla WWTP Outlet No. 002 discharges.

Observation 1. According to EPA's ICIS database, the Charles Town WWTP experienced 29 effluent limit exceedances from Outlet No. 001, and the Tuscawilla WWTP experienced 26 effluent limit exceedances from Outlet No. 002, between August 1, 2016 and June 30, 2021 (refer to [Appendix B, Exhibit 3](#) and Tables 3 and 4 below). EPA's Enforcement and Compliance History Online (ECHO) database indicates the City's facilities were in a state of significant noncompliance (SNC) between October 1, 2019 and March 31, 2020 as well as between January 1, 2021 and March 31, 2021 (refer to [Appendix B, Exhibit 4](#)).

Table 3. Summary of Effluent Exceedances at Charles Town WWTP Outlet No. 001 (August 1, 2016 through June 30, 2021)

Permit #	Monitoring Period End Date	Parameter Name	DMR Value	Permit Limit	Units	Limit Type
WV0022349	11/30/2020	Nitrogen, ammonia total [as N]	8.5	8.2	mg/L	Max. Daily
WV0022349	7/31/2020	Fecal coliform	1,178	400	#/100mL	Max. Daily
WV0022349	2/29/2020	Nitrogen, ammonia total [as N]	4.98	4.1	mg/L	Average monthly
WV0022349	2/29/2020	Nitrogen, ammonia total [as N]	9.8	8.2	mg/L	Max. Daily
WV0022349	1/31/2020	Nitrogen, ammonia total [as N]	117	60	lbs/day	Average monthly
WV0022349	1/31/2020	Nitrogen, ammonia total [as N]	139	120	lbs/day	Max. Daily
WV0022349	1/31/2020	Nitrogen, ammonia total [as N]	11.08	4.1	mg/L	Average monthly
WV0022349	1/31/2020	Nitrogen, ammonia total [as N]	13.3	8.2	mg/L	Max. Daily
WV0022349	12/31/2019	Nitrogen, ammonia total [as N]	126	120	lbs/day	Max. Daily
WV0022349	12/31/2019	Nitrogen, ammonia total [as N]	4.73	4.1	mg/L	Average monthly
WV0022349	12/31/2019	Nitrogen, ammonia total [as N]	11.9	8.2	mg/L	Max. Daily
WV0022349	7/31/2019	Nitrogen, ammonia total [as N]	8.99	8.2	mg/L	Max. Daily
WV0022349	4/30/2019	Fecal coliform	712	400	#/100mL	Max. Daily
WV0022349	2/28/2019	Nitrogen, ammonia total [as N]	88	60	lbs/day	Average monthly
WV0022349	2/28/2019	Nitrogen, ammonia total [as N]	6.1	4.1	mg/L	Average monthly
WV0022349	8/31/2018	Nitrogen, ammonia total [as N]	63	60	lbs/day	Average monthly
WV0022349	8/31/2018	Nitrogen, ammonia total [as N]	5.35	4.1	mg/L	Average monthly
WV0022349	1/31/2018	Nitrogen, ammonia total [as N]	123	120	lbs/day	Max. Daily
WV0022349	1/31/2018	Nitrogen, ammonia total [as N]	5.71	4.1	mg/L	Average monthly
WV0022349	1/31/2018	Nitrogen, ammonia total [as N]	14.5	8.2	mg/L	Max. Daily
WV0022349	12/31/2017	Fecal coliform	529	400	#/100mL	Max. Daily
WV0022349	1/31/2017	Fecal coliform	1010	400	#/100mL	Max. Daily
WV0022349	12/31/2016	BOD, 5-day, 20 deg. C	354	301	lbs/day	Average monthly
WV0022349	12/31/2016	BOD, 5-day, 20 deg. C	944	601	lbs/day	Max. Daily
WV0022349	12/31/2016	BOD, 5-day, 20 deg. C	38	20.6	mg/L	Average monthly
WV0022349	12/31/2016	BOD, 5-day, 20 deg. C	104	41.2	mg/L	Max. Daily
WV0022349	12/31/2016	TSS	32.1	30	mg/L	Average monthly
WV0022349	12/31/2016	TSS	92	60	mg/L	Max. Daily
WV0022349	12/31/2016	Nitrogen, ammonia total [as N]	10.9	8.2	mg/L	Max. Daily

Table 4. Summary of Effluent Exceedances at Tuscowilla WWTP Outlet No. 002 (August 1, 2016 through June 30, 2021)

Permit #	Monitoring Period End Date	Parameter Name	DMR Value	Permit Limit	Units	Limit Type
WV0022349	2/28/2021	BOD, 5-day, 20 deg. C	27	10	mg/L	Average monthly
WV0022349	2/28/2021	BOD, 5-day, 20 deg. C	27	20	mg/L	Max. Daily
WV0022349	2/28/2021	Nitrogen, ammonia total [as N]	8.44	8.3	lbs/day	Average monthly
WV0022349	2/28/2021	Nitrogen, ammonia total [as N]	25.16	16.7	lbs/day	Max. Daily
WV0022349	2/28/2021	Nitrogen, ammonia total [as N]	12.69	2	mg/L	Average monthly
WV0022349	2/28/2021	Nitrogen, ammonia total [as N]	37.9	4	mg/L	Max. Daily
WV0022349	1/31/2021	Nitrogen, ammonia total [as N]	7.5	2	mg/L	Average monthly
WV0022349	1/31/2021	Nitrogen, ammonia total [as N]	7.5	4	mg/L	Max. Daily
WV0022349	8/31/2020	Nitrogen, ammonia total [as N]	13.75	2	mg/L	Average monthly
WV0022349	8/31/2020	Nitrogen, ammonia total [as N]	27.2	4	mg/L	Max. Daily
WV0022349	11/30/2019	Nitrogen, ammonia total [as N]	4.97	2	mg/L	Average monthly
WV0022349	11/30/2019	Nitrogen, ammonia total [as N]	9.4	4	mg/L	Max. Daily
WV0022349	10/31/2019	Nitrogen, ammonia total [as N]	4.08	2	mg/L	Average monthly
WV0022349	11/31/2019	Nitrogen, ammonia total [as N]	9.3	4	mg/L	Max. Daily
WV0022349	2/28/2019	Nitrogen, ammonia total [as N]	9.53	8.3	lbs/day	Average monthly
WV0022349	2/28/2019	Nitrogen, ammonia total [as N]	21.3	16.7	lbs/day	Max. Daily
WV0022349	2/28/2019	Nitrogen, ammonia total [as N]	6.1	2	mg/L	Average monthly
WV0022349	2/28/2019	Nitrogen, ammonia total [as N]	13.3	4	mg/L	Max. Daily
WV0022349	12/31/2018	Nitrogen, ammonia total [as N]	5.15	4	mg/L	Max. Daily
WV0022349	9/30/2018	Dissolved oxygen	1.48	6	mg/L	Instantaneous Min.
WV0022349	7/31/2018	BOD, 5-day, 20 deg. C	30	10	mg/L	Average monthly
WV0022349	7/31/2018	BOD, 5-day, 20 deg. C	30	20	mg/L	Max. Daily
WV0022349	12/31/2016	BOD, 5-day, 20 deg. C	79	85	%	Percent removal
WV0022349	12/31/2016	Nitrogen, ammonia total [as N]	5.51	2	mg/L	Average monthly
WV0022349	12/31/2016	Nitrogen, ammonia total [as N]	13.7	4	mg/L	Max. Daily
WV0022349	12/31/2016	BOD, 5-day, 20 deg. C	16	10	mg/L	Average monthly

As shown by the data in Tables 3 and 4, both WWTPs have a history of ammonia effluent exceedances. City representatives explained that the biology at both facilities become less effective at nitrification, and subsequently denitrification, in the colder winter months, which has led to most of the exceedances. The Lead Plant Operator (for both WWTPs) stated that the operators increase mixed liquor suspended solids (MLSS) at the Charles Town WWTP from 2,500-3,000 mg/L during the warmer months to 4,000-4,500 mg/L in the colder months in an effort to combat this. Seasonal operational changes relative to ammonia control are not necessarily made at the Tusawilla WWTP. MLSS is kept at 10,000-15,000 mg/L year-round, primarily to support the MBR process.

Table Nos. 3 and 4 also show ammonia exceedances at the Charles Town WWTP in August 2019 and at the Tusawilla WWTP in August 2020. It is unclear what caused these exceedances during the summer months.

According to CTUB's June 2020 renewal and replacement summary (refer to [Appendix B, Exhibit 5](#)), "The Membrane Bio-Reactors (MBR) system [at the Tusawilla WWTP] consistently produces high quality effluent; however, the MBR modules have reached the end of their useful life and are in need of replacement. The membrane manufacturer, Toray, produces a new thinner module which will enable each membrane reactor to double its capacity within the same footprint. Newer designed MBR aeration headers will help eliminate sludge buildup on the modules." At the time of the inspection, the City had recently replaced the MBR modules in MBR No. 3 (refer to [Appendix A, Photograph 42](#)).

Modification No. 5 (June 15, 2018) to the Permit updated limitations and requirements for industrial discharges related to the Charles Town Water Plant slurry (IU01), including the effluent limits in Part A.IU01 of the Permit (refer to [Appendix B, Exhibit 6](#)).

Observation 2. According to EPA's ICIS database, the Charles Town Water Treatment Plant had a slurry discharge event of 25,000 gallons per day in June 2018, exceeding the Permit limit of 10,000 gallons per day (refer to [Appendix B, Exhibit 3](#)). City representatives stated that the slurry is hauled into the Charles Town WWTP and accepted in the digesters.

Modification No. 8 (March 1, 2019) to the Permit established limitations and requirements for industrial discharges related to the Rockwool facility (IU02); effluent limits incorporated as Part A.IU02 of the Permit (refer to [Appendix B, Exhibit 7](#)).

Observation 3. According to EPA's ICIS database, the Rockwool facility experienced a maximum daily effluent aluminum concentration of 33.6 mg/L in April 2021, which exceeds the Permit limitation of 25 mg/L (refer to [Appendix B, Exhibit 3](#)). City representatives stated that the Rockwall facility had only recently started discharging at the time of the inspection, and they were unsure what the exact cause of the exceedance was.

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. According to City representatives, the collection system has a history of inflow and infiltration (I&I) issues. In 2019, the City contracted an engineering firm to conduct a collection system condition assessment through smoke testing (refer to [Appendix B. Exhibit 8](#)). The results of the smoke testing were used to recommend additional follow-up action, such as manhole inspection, dye testing, and closed-circuit television inspection (CCTV). To date, the City has primarily performed manhole inspection and repair (e.g., installing inserts and liners) in the recommended areas. The City provided information showing that the smoke testing found 328 manholes with “significant issues,” and that 230 had been repaired (refer to [Appendix B. Exhibit 9](#)). The information also shows 326 cleanouts were repaired to address I&I. The Utility General Manager stated that the repairs had resulted in a reduction in the impact of influent flow to the plants during wet weather.

Additionally, according to CTUB’s 2021-2024 Sewer Strategic Plan (refer to [Appendix B. Exhibit 10](#)), the City has constructed two new pump stations, rehabilitated two pump stations, and completed the Route 9 sewer project (two pump stations, 9,400 linear feet of gravity line and 16,000 linear feet of force main) since 2018 in an effort to improve collection system performance.

Observation 5. The Inspector made the following observations relative to O&M at the Charles Town WWTP:

- Solids and scum were observed floating in SBR No. 2 during the settling phase (refer to [Appendix A. Photographs 9 and 10](#)). Vegetation was also observed growing out of the SBR No. 2 decant trough.
- Algae was observed growing over the rocks at Outlet No. 001 (refer to [Appendix A. Photographs 19 and 20](#)). The Lead Plant Operator stated the area is cleaned as time allows, but not on a set frequency.
- A valve was broken on WAS Pit No. 2, and a portable pump had been placed at the location in case solids needed to be transferred out of the pit while the valve was awaiting repair (refer to [Appendix A. Photograph 23](#)). At the time of the inspection, the Lead Plant Operator stated that the valve had not been broken long and would be fixed within a few days.
- The Inspector observed an empty digester at the plant (refer to [Appendix A. Photographs 25 and 26](#)). The Utility General Manager stated that the City hoped to start a project to bring the digester online in the months after the inspection. The project is expected to improve solids processing at the plant. CTUB’s 2021-2024 Sewer Strategic Plan recommends optimizing sludge digestion as a means to extend the service life of the existing facility, enhance process operations, provide additional capacity, and improve treatment efficiencies (refer to [Appendix B. Exhibit 10](#)).
- The City’s June 2020 renewal and replacement summary includes the following recommended upgrades/replacements at the Charles Town Plant (refer to [Appendix B. Exhibit 5](#)). A definitive timeline for completion of all projects was not provided at the time of the inspection.
 - Upgrade primary screening to fine screens.
 - Replace the grit removal system due to age (30 years old). The summary also indicates that the compactor was broken. This was not readily apparent at the time of the inspection, and City representatives did not state the unit was broken during the inspection.

- UV disinfection system replacement with panel-mounted ballasts. The summary states the UV channel has flooded in the past, causing the ballasts to fail and need replacement as they are close to the water surface (refer to [Appendix A, Photograph 17](#)). There have been three fecal coliform exceedances in the five years prior to the inspection, with the most recent exceedance in July 2020 (the other two were in 2017).
- Addition of a redundant dewatering system (e.g., additional belt filter press or centrifuge).
- A variety of electrical and control upgrades, including a SCADA system upgrade.
- CTUB's 2021-2024 Sewer Strategic Plan indicates the Charles Town WWTP would likely need to be expanded within the next 10 years and recommended design efforts should be started in 2024/2025 (refer to [Appendix B, Exhibit 10](#)).

Observation 6. The Inspector made the following observations relative to O&M at the Tuscawilla WWTP:

- Only one of two BNR trains and two of three MBR modules were in use at the time of the inspection (refer to [Appendix A, Photographs 41 and 44](#)). The Lead Plant Operator stated the additional capacity was not needed.
- As mentioned previously, The City's June 2020 renewal and replacement summary states that the MBR modules have reached the end of their useful life and are in need of replacement (refer to [Appendix B, Exhibit 5](#)). At the time of the inspection, the modules for MBR No. 3 had recently been replaced.
- The City's June 2020 renewal and replacement summary states that the fine screens were recommended for replacement due to age and corrosion. The summary also states the screens overflow when influent flows exceed 0.5 MGD, which is the plant's designed capacity. This information was reviewed after the onsite inspection; it is unclear how often the fine screens actually overflow. City representatives stated that the plant averages about 0.12 MGD of influent flow during dry weather.

Stormwater

Modification No. 7 (November 16, 2018) to the Permit established limitations and requirements for untreated stormwater discharges from the Charles Town WWTP at Outlet No. 004 (refer to [Appendix B, Exhibit 11](#)). The modification also requires the City to develop and implement a SWPPP for the Charles Town WWTP.

Observation 7. A stormwater catch basin was observed near the offline sandfilter treatment units and the electrical and compressor buildings in the eastern portion of the Charles Town WWTP (refer to [Appendix A, Photographs 30 through 32](#)). The catch basin and associated outfall were not included in the facility's SWPPP (refer to [Appendix B, Exhibit 12](#)). The catch basin was connected to an unpermitted outlet structure that discharged onto a gravel road in the southeastern portion of the WWTP site, about 50 to 60 feet upgradient of a wetland area directly adjacent to Evitts Run.

Closing Conference

After walking both plants, the Inspector met with the Utility General Manager and the Lead Plant Operator for a closing conference and shared its 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 1:45 PM (EDT).