Pennsylvania
Department of
Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0082341**
Facility Type	**Municipal**	APS ID	**1186**
Major / Minor	**Minor**	Authorization ID	**1516176**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Hopewell Borough Bedford County**	Facility Name	**Hopewell Borough STP**
Applicant Address	PO Box 160	Facility Address	411 Broad Street
	Hopewell, PA 16650-0160		Hopewell, PA 16650-0160
Applicant Contact	Matthew Horton	Facility Contact	Chris Cooper
Applicant Phone	(814) 928-0044	Facility Phone	(814) 928-0044
Client ID	62687	Site ID	248543
Ch 94 Load Status		Municipality	Hopewell Borough
Connection Status		County	Bedford
Date Application Received	February 17, 2025	EPA Waived?	Yes
Date Application Accepted	February 19, 2025	If No, Reason	

Purpose of Application: This is an application request for NPDES renewal.

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineer Nick Hong (via electronic signature)	February 26, 2025
x		Daniel W. Martin, P.E. / Environmental Engineer Manager Maria D. Bebenek for	March 17, 2025
x		Maria D. Bebenek, P.E. / Environmental Program Manager Maria D. Bebenek	March 17, 2025

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Hopewell Borough WWTP located at 411 Broad Street, Hopewell, PA 16650 in Bedford County, municipality of Hopewell Township. The existing permit became effective on September 1, 2020 and expires(d) on August 31, 2025. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on February 17, 2025.

The purpose of this Fact Sheet is to present the basis of information used for establishing the proposed NPDES permit effluent limitations. The Fact Sheet includes a description of the facility, a description of the facility's receiving waters, a description of the facility's receiving waters attainment/non-attainment assessment status, and a description of any changes to the proposed monitoring/sampling frequency. Section 6 provides the justification for the proposed NPDES effluent limits derived from technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), total maximum daily loading (TMDL), antidegradation, anti-backsliding, and/or whole effluent toxicity (WET). A brief summary of the outlined descriptions has been included in the Summary of Review section.

The subject facility is a 0.0325 MGD treatment facility. The applicant does not anticipate any proposed upgrades to the treatment facility in the next five years. The NPDES application has been processed as a Minor Sewage Facility (Level 1) due to the type of sewage and the design flow rate for the facility. The applicant disclosed the Act 14 requirement to Bedford County Commissioners and Hopewell Borough and the notice was received by the parties on February 11, 2025. A planning approval letter was not necessary as the facility is neither new or expanding.

Utilizing the DEP's web-based Emap-PA information system, the receiving waters has been determined to be the Raystown Branch Juniata River. The sequence of receiving streams that the Raystown Branch Juniata River discharges into are the Juniata River and the Susquehanna River which eventually drains into the Chesapeake Bay. The subject site is subject to the Chesapeake Bay implementation requirements. The receiving water has protected water usage for trout stocking fishes (TSF) and migratory fishes (MF). No Class A Wild Trout fisheries are impacted by this discharge. The absence of high quality and/or exceptional value surface waters removes the need for an additional evaluation of anti-degradation requirements.

The Raystown Branch Juniata River is a Category 2 stream listed in the 2024 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an attaining stream that supports aquatic life, potable water supply, and fish consumption. The receiving waters is not subject to a total maximum daily load (TMDL) plan to improve water quality in the subject facility's watershed.

The existing permit and proposed permit differ as follows:

- **TRC has been eliminated**
- **UV monitoring shall be required**
- **Due to the EPA triennial review, monitoring for E.coli shall be required.**

Sludge use and disposal description and location(s): Altoona Water Authority, Westerly WWTF, Allegheny Township, Blair County

The proposed permit will expire five (5) years from the effective date.

Based on the review in this report, it is recommended that the permit be drafted. DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Any additional information or public review of documents associated with the discharge or facility may be available at PA DEP Southcentral Regional Office (SCRO), 909 Elmerton Avenue, Harrisburg, PA 17110. To make an appointment for file review, contact the SCRO File Review Coordinator at 717.705.4700.

1.0 Applicant

1.1 General Information

This fact sheet summarizes PA Department of Environmental Protection's review for the NPDES renewal for the following subject facility.

Facility Name:	Hopewell Borough Wastewater Treatment Facility
NPDES Permit #	PA0082341
Physical Address:	411 Broad Street Hopewell, PA 16650
Mailing Address:	PO Box 160 Hopewell, PA 16650
Contact:	Matt Horton President hopewellboro@gmail.com (814) 928-0044
Consultant:	Kathryn Swope Environmental Engineer Gwin, Dobson, and Foreman, Inc kswope@gdfengineers.com (814) 943-5214

1.2 Permit History

Description of Facility

The WWTF underwent a rehabilitation project in 2024.The project included the installation of one (1) EQ tank. The new WWTF has two (2) treatment trains each containing two (2) aeration tanks, one (1) sludge holding tank, and one (1) clarifier. The project also included installation of one (1) UV disinfection channel, one (1) post aeration tank. The chlorine disinfection system was removed entirely.

Permit submittal included the following information.

- NPDES Application
- Effluent Sample Data

2.0 Treatment Facility Summary

2.1.1 Site location

The physical address for the facility is 411 Broad Street, Hopewell, PA 16650. A topographical and an aerial photograph of the facility are depicted as Figure 1 and Figure 2.

Figure 1: Topographical map of the subject facility

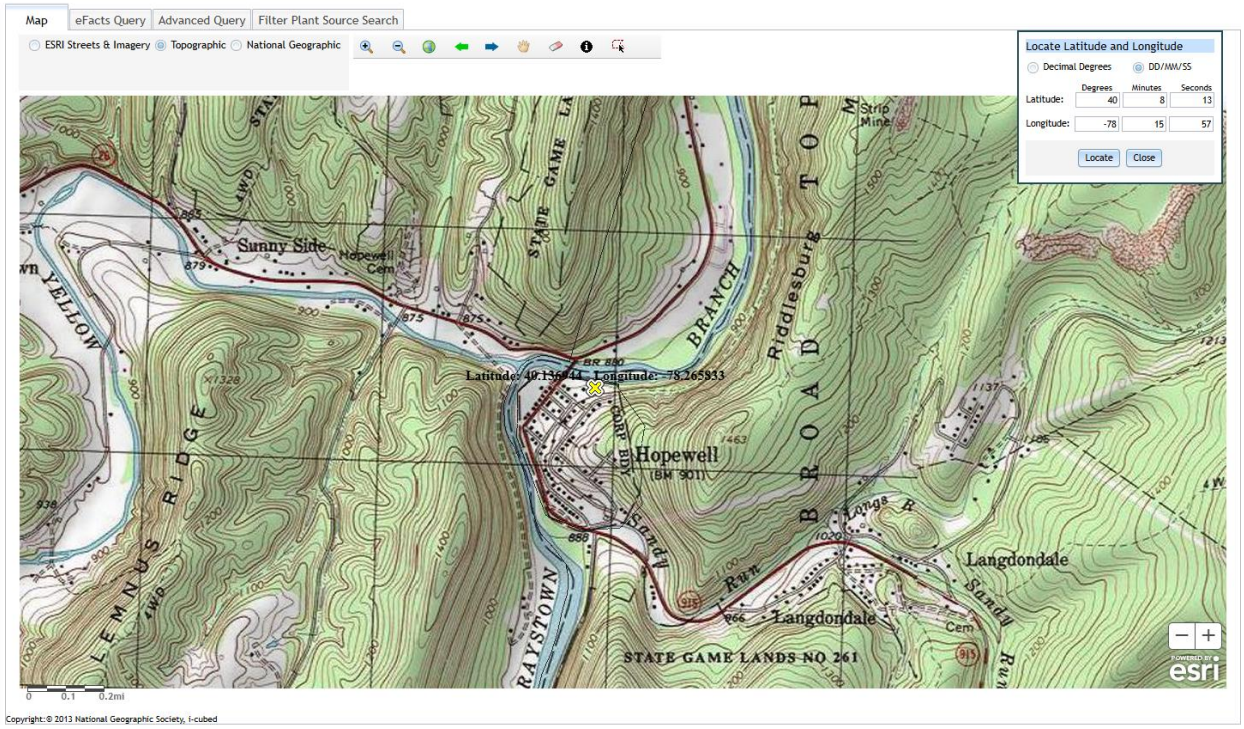
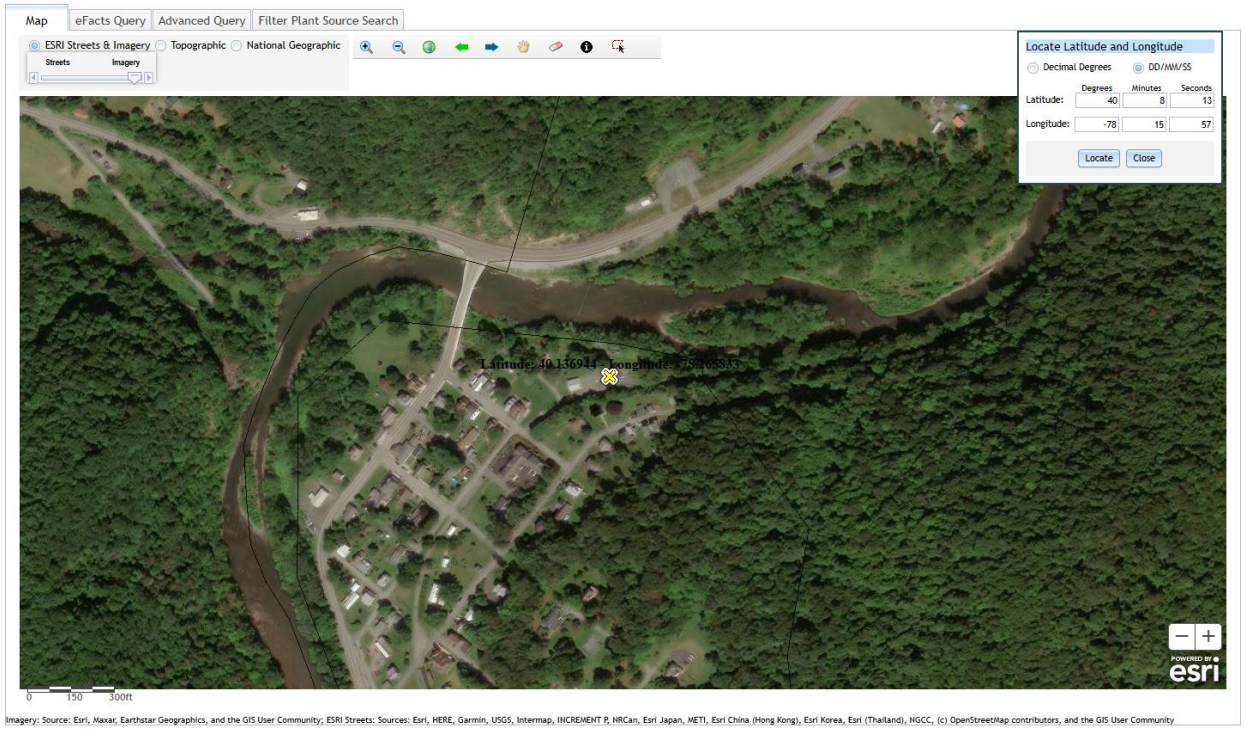


Figure 2: Aerial Photograph of the subject facility



2.1.2 Sources of Wastewater/Stormwater

The treatment plant received 100% of the wastewater contribution from Hopewell Borough.

The WWTP receives wastewater from Thomas Auto Care. That facility has an average wastewater flow of 0.001 MGD.

The facility did not receive hauled in wastes in the past three years and does not anticipate receiving hauled0in wastes in the next five years.

2.2 Description of Wastewater Treatment Process

The subject facility is a 0.0325 MGD design flow facility. The subject facility treats wastewater using one (1) EQ tank. The new WWTF has two (2) treatment trains each containing two (2) aeration tanks, one (1) sludge holding tank, and one (1) clarifier, one (1) UV disinfection channel, one (1) post aeration tank prior to discharge through the outfall. The facility is being evaluated for flow, pH, dissolved oxygen, TRC, CBOD5, TSS, fecal coliform, nitrogen species, and phosphorus. The existing permits limits for the facility is summarized in Section 2.4.

The treatment process is summarized in the table.

Treatment Facility Summary

Treatment Facility Name: Hopewell STP

WQM Permit No.	Issuance Date
0586401	07/29/2022

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Ultraviolet	0.0325

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0325	81			

2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

Outfall No. 001 **Design Flow (MGD)** .0325
Latitude 40º 8' 13.86" **Longitude** -78º 15' 55.89"
Wastewater Description: Sewage Effluent

The subject facility outfall is within the vicinity of another sewage/wastewater outfall. The downstream outfall is Six Mile Run WWTP (PA0088609) which is about 2 miles from the subject facility.

2.3.1 Operational Considerations- Chemical Additives

Chemical additives are chemical products introduced into a waste stream that is used for cleaning, disinfecting, or maintenance and which may be detected in effluent discharged to waters of the Commonwealth. Chemicals excluded are those used for neutralization of waste streams, the production of goods, and treatment of wastewater.

The subject facility utilizes the following chemicals as part of their treatment process.

- Aluminum sulfate for sludge settling efficiency

2.4 Existing NPDES Permits Limits

The existing NPDES permit limits are summarized in the table.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001 , **Latitude** 40° 8' 13.86" , **Longitude** 78° 15' 55.89" , **River Mile Index** 48 , **Stream Code** 13349

Receiving Waters: Raystown Branch Juniata River (TSF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **September 1, 2020** through **August 31, 2025**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	8-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5)	6.8	10.8	XXX	25.0	40.0	50	2/month	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	Grab
Total Suspended Solids	8.1	12.2	XXX	30.0	45.0	60	2/month	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab

Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Nitrate-Nitrite as N	XXX	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	Calculation
Ammonia-Nitrogen	XXX	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	8-Hr Composite
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	8-Hr Composite
Total Phosphorus	0.5	XXX	XXX	2.0	XXX	4	2/month	8-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

3.0 Facility NPDES Compliance History

3.1 Summary of Inspections

A summary of the most recent inspections during the existing permit review cycle is as follows.

The DEP inspector noted the following during the inspection.

05/25/2022:

- The borough was recently awarded a large grant to fund the construction of a new wastewater treatment plant. The new plant has been designed and permits applications have been submitted to the Department. The current system will be replaced with a "Mack" package plant.
- The metal digester tank has a few small rust holes near the top and should be repaired to prevent an accidental spill.
- A review of DMRs showed a reporting error on the May 2021 sludge disposal supplemental form. The operator reported the gallons of sludge removed during the month but did not report the dry tons. The sludge was also not analyzed for % solids.
- The quarterly DMRs do not include supplement reports. Each quarterly DMR needs to have an Annual Chesapeake Bay spreadsheet attached to the report.

05/10/2023:

- A review of monitoring reports shows that the Chesapeake Bay Spreadsheet is not being submitted with semi-annual DMRs. The reports include a monthly effluent supplemental form. That form should be replaced with the Chesapeake Bay Supplemental form.

08/09/2023:

- One of the two main blowers is out of service. John stated that blower motor was replaced earlier this week but the unit still had electrical problems and needs new contacts and a circuit breaker. The parts have been ordered and will be installed when they arrive.
- John said the leak is from an air line manifold and that the borough has not been able to find someone to make the repair yet. The pipe has been leaking since late July.
- The borough worked with PRWA last fall to conduct a smoke test of the collection system to help identify sources of I & I. A major leak was found and repaired near the Front Street bridge. Other sources found include broken clean out caps and leaking lateral pipes. Some system repairs have been made and some still need to be completed. The Department recently issued the borough a Notice of Violation for exceeding the effluent limit for Phosphorus in February, May, June, and July 2023. The violations were attributed to insufficient alum dosing.

10/24/2023:

- Effluent samples taken during my inspection on August 9, 2023 showed a phosphorus result of 8.5 mg/ L, which exceeds the IMAX permit limit of 4.0 mg/L. The facility also reported exceedances of the phosphorus limit on DMRs for February, April, May, and June 2023. John stated that the first effluent sample submitted this month had a phosphorus result of 2.5 mg/L, which is slightly above the monthly average of 2.0 mg/L. John is unsure what is causing the high result. He will be submitting an influent and digester supernatant sample tomorrow and have them analyzed for phosphorus.
- DEP observed that the clarifiers had a thick layer of sludge on the service. John reported that the surface skimmers are currently clogged with leaves and that he would be clearing them out today. John also mentioned that there is an electrical problem with blowers and that they occasionally trip off. He believes the blower motors need repair parts and he will be working on them. A clogged liquid chlorine feed line was repaired earlier today.

09/13/2024:

- The clarifier units need maintenance. The skimmers are clogged and the overflow troughs contain an abundance of weeds and moss. The blower cut off problem reported last fall was solved by adding a fan to the control panel.

John was unable to locate any recent sludge hauling records, but a logbook entry notes that sludge was hauled in March 2024. A sludge disposal form needs to be submitted for sludge hauled in March 2024.

- A review of a recent DMR showed reporting errors for TRC. Some of the TRC results recorded on the facility's bench sheet for March 2024 did not match the results reported on the effluent supplemental report for the month. None of the results exceeded the facility's permit limit.
- Construction of the replacement treatment plant is estimated to be completed in December of this year. The new Mack plant will consist of an EQ tank, four aeration tanks, two clarifiers, UV lights, and two sludge digesters. The influent wet well and back-up generator will also be replaced

12/17/2024:

- The new treatment plant was put in service today and is now receiving influent. The tanks are still filling up and there was no effluent discharge during the inspection. The new MACK brand treatment plant consists of a bar screen, EQ tank, aeration tanks, secondary clarifiers, UV disinfection, and sludge holding. Other additions include a new influent wet well, new blowers and controls, auto-samplers, and a new back-up generator.
- The new blowers and back-up generator will be tested and put online tomorrow. The outfall pipe and one influent wet well were not replaced and remain in use.
- After all the sludge is removed, the old treatment plant will be demolished and removed.
- During a previous inspection the operator was unable to locate the past five years of sludge hauling records, except for sludge hauled in March 2024. Maggie was unable to find the records today but informed me the borough thinks they have records and will be searching for them.
- A revised sludge disposal supplemental report form for March 2024 was received.
- A flow reporting error on the April 2024 DMR was corrected. Since the facility switched from chlorine to UV disinfection, code GG should be used for reporting chlorine results on the DMRs. The parameters will be changed when the NPDES permit is renewed

01/07/2025:

- Sludge disposal records not available during the last inspection are now on site and extend back five years.
- DEP could not access the outfall due to snow and ice.
- The new blowers are now on line.
- A work crew was on site to demolish the old treatment plant tanks.
- The previous operator, John Dobrota, no longer works at the treatment plant. Chris Cooper is the new lead operator and Maggie Weitzel is the back-up operator.

3.2 Summary of DMR Data

A review of approximately 1-year of DMR data shows that the monthly average flow data for the facility below the design capacity of the treatment system. The maximum average flow data for the DMR reviewed was 0.024 MGD in April 2024. The design capacity of the treatment system is 0.0325 MGD.

The off-site laboratory used for the analysis of the parameters was Pace Labs Analytical located at 2019 Ninth Avenue, Altoona, PA 16603.

DMR Data for Outfall 001 (from January 1, 2024 to December 31, 2024)

Parameter	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24
Flow (MGD) Average Monthly	0.0082	0.007	0.007	0.005	0.006	0.004	0.004	0.009	0.024	0.016	0.009	0.021
Flow (MGD) Daily Maximum	0.022	0.014	0.014	0.009	0.023	0.007	0.008	0.046	0.115	0.084	0.019	0.065
pH (S.U.) Instantaneous Minimum	6.6	6.4	6.4	6.7	6.7	6.9	6.8	6.6	6.6	6.6	6.7	6.5
pH (S.U.) Instantaneous Maximum	7.4	7.3	7.5	7.1	7.4	7.8	7.5	7.6	7.4	7.3	7.6	7.1
DO (mg/L) Instantaneous Minimum	5.1	5.7	2.9	5.1	5.1	3.5	5.6	5.0	5.2	5.3	5.3	5.1
TRC (mg/L) Average Monthly	0.5	0.4	0.5	0.46	0.4	< 0.4	0.4	0.5	0.5	0.4	0.5	0.16
CBOD5 (lbs/day) Average Monthly	< 0.3	< 0.1	< 0.2	< 0.1	< 0.1	0.3	< 0.07	< 0.13	0.4	< 0.3	0.2	< 0.3
CBOD5 (lbs/day) Weekly Average	0.4	< 0.2	< 0.3	< 0.1	< 0.2	0.3	< 0.07	0.27	0.7	< 0.4	0.2	< 0.4
CBOD5 (mg/L) Average Monthly	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	11.7	< 3.0	< 3.0	< 3.0	< 3.0	3.7	< 3.8
CBOD5 (mg/L) Weekly Average	3.44	< 3.0	< 3.0	< 3.0	< 3.0	15.3	< 3.0	< 3.0	< 3.0	< 3.0	4.1	< 4.7
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	35	10	14	7	6	5.2	6.5	16	18.3	24	15.7	28.4
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	53	12	16	8	8	7.2	6.7	21	28.3	25	20.1	51.2
BOD5 (mg/L) Raw Sewage Influent Average Monthly	365	283	216	209	209	182	26.1	336	163	214	287	247.5
TSS (lbs/day) Average Monthly	0.5	0.2	0.4	0.1	0.07	0.2	< 0.04	0.12	0.4	0.5	0.15	0.3
TSS (lbs/day) Raw Sewage Influent Average Monthly	22	5.5	9	5	5	2.2	3.5	5	11.6	16	8.6	16.2

TSS (lbs/day) Raw Sewage Influent Daily Maximum	25	6	11	7	5	3.3	4.5	7	18.6	16	10.0	26.9
TSS (lbs/day) Weekly Average	0.7	0.2	0.4	0.1	0.09	0.3	< 0.04	0.16	0.7	0.7	0.22	0.4
TSS (mg/L) Average Monthly	6.0	5.0	6.0	3.0	2.0	8.6	< 1.6	2.8	2.8	4.0	3.0	5.4
TSS (mg/L) Raw Sewage Influent Average Monthly	242	172	131	160	160	73	141	105	98.5	140	159.5	162
TSS (mg/L) Weekly Average	9.2	5.0	6.0	4.0	2.0	10.5	< 1.6	4.0	3.2	6.0	4.4	9.2
Fecal Coliform (No./100 ml) Geometric Mean	< 8.0	< 13	< 10	< 10.0	< 59	449	10	< 4	< 4.0	6.0	< 4.0	278.2
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 10	16.4	< 10	< 10.0	> 9678.4	9678	12.4	< 4	< 4.0	8.0	< 4.0	9678
Nitrate-Nitrite (mg/L) Semi-Annual Average	< 7.16						14.3					
Total Nitrogen (mg/L) Semi-Annual Average	< 30.2						< 19.3					
Ammonia (mg/L) Semi-Annual Average	18.14						< 0.1					
TKN (mg/L) Semi-Annual Average	< 23.1						< 0.5					
Total Phosphorus (lbs/day) Average Monthly	0.1	0.09	0.05	0.06	0.05	0.13	0.5	0.09	0.06	0.1	0.03	0.05
Total Phosphorus (mg/L) Average Monthly	1.38	2.48	0.62	1.73	1.04	4.6	2.0	2.7	1.2	1.0	0.6	0.4

3.3 Non-Compliance

3.3.1 Non-Compliance- NPDES Effluent

A summary of the non-compliance to the permit limits for the existing permit cycle is as follows.

From the DMR data beginning in September 1, 2020 to February 25, 2026, the following were observed effluent non-compliances.

Summary of Non-Compliance with NPDES Effluent Limits
Beginning September 1, 2020 and ending February 25, 2025

NON_COMPLIANCE_DATE	NON_COMPL_TYPE_DESC	NON_COMPL_CATEGORY_DESC	PARAMETER	SAMPLE_VALUE	VIOLATION_CONDITION	PERMIT_VALUE	UNIT_OF_MEASURE	STAT_BASE_CODE	DISCHARGE_COMMENTS	FACILITY_COMMENTS
11/28/2020	Violation of permit	Effluent	Total Phosphorus	2.2	>	2.0	mg/L	Average Monthly		Decreased chemical feed
12/31/2020	Late DMR	Other Violations								
5/3/2021	Late DMR	Other Violations								
5/21/2021	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.7	>	.5	mg/L	Average Monthly		Adjusted Chemical Feed Dosage Rate. Lower dosage results have been recorded the first half of May indicating the CA has appropriately addressed the non compliance.
8/27/2021	Violation of permit condition	Effluent	Fecal Coliform	631	>	200	No./100 ml	Geometric Mean		Upon the fecal results and noticeably low Cl2 residuals we began feeding CL2 directly from the day tank without dilution. This did not raise the CL2 level. A CL2 sample was taken directly from the 100% CL2 solution and result was extremely low. It is unknown if this is due to extreme temperature or defective CL2 delivered by supplier. New CL2 ordered and delivered. August residuals are up.
8/27/2021	Violation of permit condition	Effluent	Fecal Coliform	9678	>	1000	No./100 ml	Instantaneous Maximum		Upon the fecal results and noticeably low Cl2 residuals we began feeding CL2 directly from the day tank without dilution. This did not raise the CL2 level. A CL2 sample was taken directly from the 100% CL2 solution and result was extremely low. It is unknown if this is due to extreme temperature or defective CL2 delivered by supplier. New CL2 ordered and delivered. August residuals are up.
9/24/2021	Violation of permit	Effluent	Fecal Coliform	10462	>	1000	No./100 ml	Instantaneous Maximum		refilled daytank with new cl2
9/24/2021	Violation of permit	Effluent	Fecal Coliform	414	>	200	No./100 ml	Geometric Mean		ordered new chemical
10/28/2021	Violation of permit	Effluent	Fecal Coliform	1379.2	>	1000	No./100 ml	Instantaneous Maximum		
10/28/2021	Violation of permit	Effluent	Fecal Coliform	270	>	200	No./100 ml	Geometric Mean		
10/28/2021	Violation of permit	Effluent	Total Phosphorus	6.02	>	2.0	mg/L	Average Monthly		
1/26/2022	Violation of permit	Effluent	Total Phosphorus	2.8	>	2.0	mg/L	Average Monthly		increased alum feed
4/28/2022	Violation of permit	Effluent	Total Phosphorus	2.6	>	2.0	mg/L	Average Monthly		increased alum feed
5/30/2022	Late DMR	Other Violations								
5/30/2022	Violation of permit	Effluent	Total Residual Chlorine (TRC)	0.66	>	.5	mg/L	Average Monthly		
7/29/2022	Late DMR	Other Violations								
2/1/2023	Late DMR	Other Violations								
9/28/2022	Violation of permit condition	Effluent	Fecal Coliform	2420	>	1000	No./100 ml	Instantaneous Maximum		Electrical Problems persist. New Plant permits in to DEP awaiting approval. Expected to go to bid this fall. Additional Sampling performed
11/29/2022	Late DMR	Other Violations								
12/30/2022	Late DMR	Other Violations								
12/30/2022	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.57	>	.5	mg/L	Average Monthly		Trouble regulating pumps. Pump did burn up in December. The Borough Plans to go to bid for the new treatment plant upon DEP approval of Chapter 106 permit which was submitted in to DEP in May 2022. The new treatment plant will replace Chlorine with UV disinfection.
2/1/2023	Late DMR	Other Violations								
2/1/2023	Sample type not in	Other Violations	Total Residual Chlorine (TRC)							

2/28/2023	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.7	>	.5	mg/L	Average Monthly		One blower down causing plant disruption and increase in CL2. Had GDF electrical engineers to plant to troubleshoot problem. Broken check valve and failed thermostat on blowers. Blower repaired and back in working order in late February
3/6/2023	Violation of permit	Effluent	Total Phosphorus	2.4	>	2.0	mg/L	Average Monthly		Increased Alum feed after sampling result received. No exceedance in Phos loading for the month.
3/6/2023	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.6	>	.5	mg/L	Average Monthly		CL2 slightly over monthly average limit. Did not exceed instantaneous max. Chemical reduced. CL2 being replaced with UV during plant upgrade.
4/17/2023	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.6	>	.5	mg/L	Average Monthly		It was determined the Chlorine Pump was not holding its setting causing randomly high Chlorine levels throughout the past couple of months. The Chlorine injection pump was replaced the first week of April 2023.
5/28/2023	Violation of permit	Effluent	Total Phosphorus	2.7	>	2.0	mg/L	Average Monthly		increased alum feed
5/28/2023	Violation of permit	Effluent	Total Residual Chlorine (TRC)	0.6	>	.5	mg/L	Average Monthly		
6/28/2023	Violation of permit	Effluent	Total Phosphorus	3.6	>	2.0	mg/L	Average Monthly		Increased Alum Feed. We are now consistently adding 1 gallon of liquid alum daily, up from 0.5 gallon.
7/26/2023	Violation of permit condition	Effluent	Total Phosphorus	7.0	>	2.0	mg/L	Average Monthly		Historically average Alum feed concentrations have been 0.5 gal per day. We are now feeding 1 gallon per day expecting the second half of the month's phosphorus result to be lower however it was even higher. Once again Alum dosing has been increased. July's first sample of the month for phosphorus was 0.55 mg/L.
9/29/2023	Late DMR	Other Violations								
11/20/2023	Violation of permit	Effluent	Total Phosphorus	4.0	>	2.0	mg/L	Average Monthly		
6/11/2024	Violation of permit	Effluent	Total Phosphorus	2.7	>	2.0	mg/L	Average Monthly		Increased Alum. Second sampling event for the month Phos was below 2.0 mg/L.
8/27/2024	Violation of permit condition	Effluent	Dissolved Oxygen	3.5	<	5.0	mg/L	Instantaneous Minimum		During the high temperatures of July the blowers were malfunctioning due to overheating of blowers and electrical components. Repairs were made initially and Borough council member was coming to manually run the blowers. Since this time the new blowers associated with the WWTF upgrade have now been installed and the plant is no longer utilizing blowers from the 1980s.
8/27/2024	Violation of permit	Effluent	Fecal Coliform	449	>	200	No./100 ml	Geometric Mean		midge/mosquito larva in cl2 maze. cl2 increased. maze to be abandoned and switched to UV disinfection in fall of 2024.
8/27/2024	Violation of permit	Effluent	Fecal Coliform	9678	>	1000	No./100 ml	Instantaneous Maximum		midge/mosquito larva in cl2 maze. cl2 increased. maze to be abandoned and switched to UV disinfection in fall of 2024.
8/27/2024	Violation of permit	Effluent	Total Phosphorus	4.6	>	2.0	mg/L	Average Monthly		Due to high temperatures and increase phosphorus chemical feed was increased.
1/20/2025	Violation of permit condition	Effluent	Fecal Coliform	> 9678.4	>	1000	No./100 ml	Instantaneous Maximum		Lab reported greater than (>) value for unknown reasons (Result >9678.4). Re-ran Fecal coliform test 3 days later for confirmation. Result was <1.0 no operational changes made.
12/26/2024	Violation of permit	Effluent	Total Phosphorus	2.48	>	2.0	mg/L	Average Monthly		Alum dosage increased. December numbers below limit. New WWTF now online, Alum feed occurs 24/7 and is not diluted.

3.3.2 Non-Compliance- Enforcement Actions

A summary of the non-compliance enforcement actions for the current permit cycle is as follows:

Beginning in September 1, 2020 to February 2, 2025, the following were observed enforcement actions.

Summary of Enforcement Actions
Beginning September 1, 2020 and ending February 25, 2025

ENF ID	ENF TYPE DESC	DATE	EXECUTED DATE	VIOLATIONS	ENF FINAL STATUS	DATE
399074	Notice of Violation	11/16/2021	11/16/2021	92A.44	Comply/Closed	12/14/2021
418626	Notice of Violation	08/09/2023	08/07/2023	92A.44	Comply/Closed	08/24/2023
406818	Notice of Violation	09/01/2022	09/01/2022	92A.44	Comply/Closed	09/12/2022

3.4 Summary of Biosolids Disposal

A summary of the biosolids disposed of from the facility is as follows.

2024
Sewage Sludge / Biosolids Production Information

Hauled Off-Site			
Date (YEAR)	Gallons	% Solids	Dry Tons
January			
February			
March	16,500	3.2	2.2
April			
May			
June			
July			
August			
September			
October			
November			
December	55,188	2.2	5.06

Notes:
Altoona Water Authority, Westerly WWTF, Allegheny Township, Blair County

3.5 Open Violations

No open violations existed as of February 2025.

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

The receiving waters has been determined to be the Raystown Branch Juniata River. The sequence of receiving streams that the Raystown Branch Juniata River discharges into are the Juniata River and the Susquehanna River which eventually drains into the Chesapeake Bay.

4.2 Public Water Supply (PWS) Intake

The closest PWS to the subject facility is Saxton Municipal Water Authority (PWS ID #4050021) located approximately 9 miles downstream of the subject facility on the Juniata River. Based upon the distance and the flow rate of the facility, the PWS should not be impacted.

4.3 Class A Wild Trout Streams

Class A Wild Trout Streams are waters that support a population of naturally produced trout of sufficient size and abundance to support long-term and rewarding sport fishery. DEP classifies these waters as high-quality coldwater fisheries.

The information obtained from EMAP suggests that no Class A Wild Trout Fishery will be impacted by this discharge.

4.4 2024 Integrated List of All Waters (303d Listed Streams)

Section 303(d) of the Clean Water Act requires States to list all impaired surface waters not supporting uses even after appropriate and required water pollution control technologies have been applied. The 303(d) list includes the reason for impairment which may be one or more point sources (i.e. industrial or sewage discharges) or non-point sources (i.e. abandoned mine lands or agricultural runoff and the pollutant causing the impairment such as metals, pH, mercury or siltation).

States or the U.S. Environmental Protection Agency (EPA) must determine the conditions that would return the water to a condition that meets water quality standards. As a follow-up to listing, the state or EPA must develop a Total Maximum Daily Load (TMDL) for each waterbody on the list. A TMDL identifies allowable pollutant loads to a waterbody from both point and non-point sources that will prevent a violation of water quality standards. A TMDL also includes a margin of safety to ensure protection of the water.

The water quality status of Pennsylvania's waters uses a five-part categorization (lists) of waters per their attainment use status. The categories represent varying levels of attainment, ranging from Category 1, where all designated water uses are met to Category 5 where impairment by pollutants requires a TMDL for water quality protection.

The receiving waters is listed in the 2024 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 waterbody. The surface waters is an attaining stream that supports aquatic life, potable water supply and fish consumption. The designated use has been classified as protected waters for cold water fishes (TSF) and migratory fishes (MF).

4.5 Low Flow Stream Conditions

Water quality modeling estimates are based upon conservative data inputs. The data are typically estimated using either a stream gauge or through USGS web based StreamStats program. The NPDES effluent limits are based upon the combined flows from both the stream and the facility discharge.

A conservative approach to estimate the impact of the facility discharge using values which minimize the total combined volume of the stream and the facility discharge. The volumetric flow rate for the stream is based upon the seven-day, 10-year low flow (Q710) which is the lowest estimated flow rate of the stream during a 7 consecutive day period that occurs once in 10 -year time period. The facility discharge is based upon a known design capacity of the subject facility.

The closest WQN station to the subject facility is the Raystown Branch Juniata River station at Saxton, PA (WQN223). This WQN station is located approximately 10 miles downstream of the subject facility.

The closest gauge station to the subject facility is the Raystown Branch Juniata River station at Saxton, PA (USGS station number 1562000). This gauge station is located approximately 10 miles downstream of the subject facility.

For WQM modeling, pH and stream water temperature data from the water quality network station was used. pH was estimated to be 8.0 and the stream water temperature was estimated to be 23.3 C.

The hardness of the stream was estimated from the water quality network to be 96 mg/l $CaCO_3$.

The low flow yield and the Q710 for the subject facility was estimated as shown below.

Gauge Station Data			
USGS Station Number	1562000		
Station Name	Raystown Branch Juniata River at Saxton, PA		
Q710	67.1	ft^3/sec	
Drainage Area (DA)	756	mi^2	
Calculations			
The low flow yield of the gauge station is:			
Low Flow Yield (LFY) = Q710 / DA			
LFY =	(9.4 ft^3/sec / 172 mi^2)		
LFY =	0.0888	$ft^3/sec/mi^2$	
The low flow at the subject site is based upon the DA of		723	mi^2
Q710 = (LFY@gauge station)(DA@Subject Site)			
Q710 = (0.0888 $ft^3/sec/mi^2$)(723 mi^2)			
Q710 =	64.171	ft^3/sec	

4.6 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.0325
Latitude	40º 8' 15.96"	Longitude	-78º 16' 10.33"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		

Receiving Waters	Raystown Branch Juniata River (TSF)	Stream Code	13349
NHD Com ID	65844207	RMI	50.2
Drainage Area	723	Yield (cfs/mi^2)	0.0888
Q_{7-10} Flow (cfs)	64.171	Q_{7-10} Basis	StreamStats/stream gauge
Elevation (ft)	856	Slope (ft/ft)	
Watershed No.	11-D	Chapter 93 Class.	TSF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s) supports aquatic life, potable water supply, and fish consumption		
Cause(s) of Impairment	Not appl.		
Source(s) of Impairment	Not appl.		
TMDL Status	Not appl.	Name	

Background/Ambient Data		Data Source
pH (SU)	8.0	WQN223; median July to Sept
Temperature (°C)	23.3	WQN223; median July to Sept
Hardness (mg/L)	96	WQN223; median historical
Other:		

Nearest Downstream Public Water Supply Intake		Saxton Municipal Water Authority	
PWS Waters	Juniata River	Flow at Intake (cfs)	
PWS RMI	41	Distance from Outfall (mi)	9

5.0: Overview of Presiding Water Quality Standards

5.1 General

There are at least six (6) different policies which determines the effluent performance limits for the NPDES permit. The policies are technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), antidegradation, total maximum daily loading (TMDL), anti-backsliding, and whole effluent toxicity (WET) The effluent performance limitations enforced are the selected permit limits that is most protective to the designated use of the receiving waters. An overview of each of the policies that are applicable to the subject facility has been presented in Section 6.

5.2.1 Technology-Based Limitations

TBEL treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act (40 CFR 125.3). Available TBEL requirements for the state of Pennsylvania are itemized in PA Code 25, Chapter 92a.47.

The presiding sources for the basis for the effluent limitations are governed by either federal or state regulation. The reference sources for each of the parameters is itemized in the tables. The following technology-based limitations apply, subject to water quality analysis and best professional judgement (BPJ) where applicable:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

5.2.2 Mass Based Limits

For publicly owned treatment works (POTW), mass loadings are calculated based upon design flow rate of the facility and the permit limit concentration. The generalized calculation for mass loadings is shown below:

$$Quantity\left(\frac{lb}{day}\right) = (MGD)(Concentration)(8.34)$$

5.3 Water Quality-Based Limitations

WQBEL are based on the need to attain or maintain the water quality criteria and to assure protection of designated and existing uses (PA Code 25, Chapter 92a.2). The subject facility that is typically enforced is the more stringent limit of either the TBEL or the WQBEL.

Determination of WQBEL is calculated by spreadsheet analysis or by a computer modeling program developed by DEP. DEP permit engineers utilize the following computing programs for WQBEL permit limitations: (1) MS Excel worksheet for Total Residual Chorine (TRC); (2) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen Version 1.1 (WQM Model) and (3) Toxics using DEP Toxics Management Spreadsheet for Toxics pollutants.

The modeling point nodes utilized for this facility are summarized below.

General Data 1	***(Modeling Point #1) Hopewell WWTP***	***(Modeling Point #2) Six Mile Run***	***(Modeling Point #3) Point Downstream***	***Units***
Stream Code	13349	13349	13349	
River Mile Index	50.2	48.32	48.15	miles
Elevation	856	849	848	feet
Latitude	40.136944	40.15971	40.16203	
Longitude	-78.265833	-78.255426	-78.255179	
Drainage Area	723	724	725	sq miles
Low Flow Yield	0.0888	0.0888	0.0888	cfs/sq mile

5.3.1 Water Quality Modeling 7.0

The WQM Model is a computer model that is used to determine NPDES discharge effluent limitations for Carbonaceous BOD (CBOD5), Ammonia Nitrogen (NH3-N), and Dissolved Oxygen (DO) for single and multiple point source discharges scenarios. WQM Model is a complete-mix model which means that the discharge flow and the stream flow are assumed to instantly and completely mixed at the discharge node.

WQM recommends effluent limits for DO, CBOD5, and NH_3-N in mg/l for the discharge(s) in the simulation.

Four types of limits may be recommended. The limits are

(a) a *minimum concentration for DO in the discharge as 30-day average;*
(b) a 30-day average concentration for CBOD5 in the discharge;
(c) a 30-day average concentration for the NH_3-N in the discharge;
(d) *24-hour average concentration for NH_3-N in the discharge*.

The WQM Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

The applicable WQM Effluent Limit Type are discussed in Section 6 under the corresponding parameter which is either DO, CBOD, or ammonia-nitrogen.

5.3.2 Toxics Modeling

The Toxics Management Spreadsheet model is a computer model that is used to determine effluent limitations for toxics (and other substances) for single discharge wasteload allocations. This computer model uses a mass-balance water quality analysis that includes consideration for mixing, first-order decay, and other factors used to determine recommended water quality-based effluent limits. Toxics Management Spreadsheet does not assume that all discharges completely mix with the stream. The point of compliance with water quality criteria are established using criteria compliance times (CCTs). The available CCTs are either acute fish criterion (AFC), chronic fish criterion (CFC), or human health criteria (THH & CRL).

Acute Fish Criterion (AFC) measures the criteria compliance time as either the maximum criteria compliance time (i.e.15 minutes travel time downstream of the current discharge) or the complete mix time whichever comes first. AFC is evaluated at Q710 conditions.

Chronic Fish Criterion (CFC) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CFC is evaluated at Q710 conditions.

Threshold Human Health (THH) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the estimated travel time downstream to the nearest potable water supply intake whichever comes first. THH is evaluated at Q710 conditions.

Cancer Risk Level (CRL) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CRL is evaluated at Qh (harmonic mean or normal flow) conditions.

The Toxics Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

5.3.2.1 Determining if NPDES Permit Will Require Monitoring/Limits in the Proposed Permit for Toxic Pollutants

To determine if Toxics modeling is necessary, DEP has developed a Toxics Management Spreadsheet to identify toxics of concern. Toxic pollutants whose maximum concentrations as reported in the permit application or on DMRs are greater than the most stringent applicable water quality criterion are pollutants of concern. A Reasonable Potential Analysis was utilized to determine (a) if the toxic parameters modeled would require monitoring or (b) if permit limitations would be required for the parameters. The toxics reviewed for reasonable potential were the following pollutants: Lead, zinc, and copper.

The NPDES application collected one (1) sample.

Based upon the SOP- Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants (Revised January 10, 2019), monitoring and/or limits will be established as follows.

(a) When reasonable potential is demonstrated, establish limits where the maximum reported concentration equals or exceeds 50% of the WQBEL.
(b) For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.
(c) For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

Applicable monitoring or permit limits for toxics are summarized in Section 6.

The Toxics Management Spreadsheet output has been included in Attachment B.

5.3.3 Whole Effluent Toxicity (WET)

The facility is not subject to WET.

5.4 Total Maximum Daily Loading (TMDL)

5.4.1 TMDL

The goal of the Clean Water Act (CWA), which governs water pollution, is to ensure that all of the Nation's waters are clean and healthy enough to support aquatic life and recreation. To achieve this goal, the CWA created programs designed to regulate and reduce the amount of pollution entering United States waters. Section 303(d) of the CWA requires states to assess their waterbodies to identify those not meeting water quality standards. If a waterbody is not meeting standards, it is listed as impaired and reported to the U.S. Environmental Protection Agency. The state then develops a plan to clean up the impaired waterbody. This plan includes the development of a Total Maximum Daily Load (TMDL) for the pollutant(s) that were found to be the cause of the water quality violations. A Total Maximum Daily Load (TMDL) calculates the maximum amount of a specific pollutant that a waterbody can receive and still meet water quality standards.

A TMDL for a given pollutant and waterbody is composed of the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background levels. In addition, the TMDL must include

an implicit or explicit margin of safety (MOS) to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody. The TMDL components are illustrated using the following equation:

$$TMDL = \Sigma WLAs + \Sigma LAs + MOS$$

Pennsylvania has committed to restoring all impaired waters by developing TMDLs and TMDL alternatives for all impaired waterbodies. The TMDL serves as the starting point or planning tool for restoring water quality.

5.4.1.1 Local TMDL

The subject facility does not discharge into a local TMDL.

5.4.1.2 Chesapeake Bay TMDL Requirement

The Chesapeake Bay Watershed is a large ecosystem that encompasses approximately 64,000 square miles in Maryland, Delaware, Virginia, West Virginia, Pennsylvania, New York and the District of Columbia. An ecosystem is composed of interrelated parts that interact with each other to form a whole. All of the plants and animals in an ecosystem depend on each other in some way. Every living thing needs a healthy ecosystem to survive. Human activities affect the Chesapeake Bay ecosystem by adding pollution, using resources and changing the character of the land.

Most of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the federal Water Pollution Control Act ("Clean Water Act"), 33 U.S.C. § 1313(d). While the Chesapeake Bay is outside the boundaries of Pennsylvania, more than half of the State lies within the watershed. Two major rivers in Pennsylvania are part of the Chesapeake Bay Watershed. They are (a) the Susquehanna River and (b) the Potomac River. These two rivers total 40 percent of the entire Chesapeake Bay watershed.

The overall management approach needed for reducing nitrogen, phosphorus and sediment are provided in the Bay TMDL document and the Phase I, II, and III WIPs which is described in the Bay TMDL document and Executive Order 13508.

The Bay TMDL is a comprehensive pollution reduction effort in the Chesapeake Bay watershed identifying the necessary pollution reductions of nitrogen, phosphorus and sediment across the seven Bay watershed jurisdictions of Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia to meet applicable water quality standards in the Bay and its tidal waters.

The Watershed Implementation Plans (WIPs) provides objectives for how the jurisdictions in partnership with federal and local governments will achieve the Bay TMDL's nutrient and sediment allocations.

Phase 3 WIP provides an update on Chesapeake Bay TMDL implementation activities for point sources and DEP's current implementation strategy for wastewater. The latest revision of the supplement was September 13, 2021.

The Chesapeake Bay TMDL (Appendix Q) categorizes point sources into four sectors:

- Sector A- significant sewage dischargers;
- Sector B- significant industrial waste (IW) dischargers;
- Sector C- non-significant dischargers (both sewage and IW facilities); and
- Sector D- combined sewer overflows (CSOs).

All sectors contain a listing of individual facilities with NPDES permits that were believed to be discharging at the time the TMDL was published (2010). All sectors with the exception of the non-significant dischargers have individual wasteload allocations (WLAs) for TN and TP assigned to specific facilities. Non-significant dischargers have a bulk or aggregate allocation for TN and TP based on the facilities in that sector that were believed to be discharging at that time and their estimated nutrient loads.

Cap Loads will be established in permits as Net Annual TN and TP loads (lbs/yr) that apply during the period of October 1 – September 30. For facilities that have received Cap Loads in any other form, the Cap Loads will be modified accordingly when the permits are renewed.

Offsets have been incorporated into Cap Loads in several permits issued to date. From this point forward, permits will be issued with the WLAs as Cap Loads and will identify Offsets separately to facilitate nutrient trading activities and compliance with the TMDL.

Based upon the supplement the subject facility has been categorized as a Sector C discharger. The supplement defines Sector C as a non-significant dischargers include sewage facilities (Phase 4 facilities: ≥ 0.2 MGD and < 0.4 MGD and Phase 5 facilities: > 0.002 MGD and < 0.2 MGD), small flow/single residence sewage treatment facilities (≤ 0.002 MGD), and non-significant IW facilities, all of which may be covered by statewide General Permits or may have individual NPDES permits.

At this time, there are approximately 850 Phase 4 and 5 sewage facilities, approximately 715 small flow sewage treatment facilities covered by a statewide General Permit, and approximately 300 non-significant IW facilities.

For Phase 5 sewage facilities with individual permits (average annual design flow on August 29, 2005 > 0.002 MGD and < 0.2 MGD), DEP will issue individual permits with monitoring and reporting for TN and TP throughout the permit term at a frequency no less than annually, unless 1) the facility has already conducted at least two years of nutrient monitoring and 2) a summary of the monitoring results are included in the next permit's fact sheet. If, however, Phase 5 facilities choose to expand, the renewed or amended permits will contain Cap Loads based on the lesser of a) existing TN/TP concentrations at current design average annual flow or b) 7,306 lbs/yr TN and 974 lbs/yr TP.

If no data are available to determine existing concentrations for expanding Phase 4 or 5 facilities, default concentrations of 25 mg/l TN and 4 mg/l TP may be used (these are the average estimated concentrations of all non-significant sewage facilities).

DEP will not issue permits to existing Phase 4 and 5 facilities containing Cap Loads unless it is done on a broad scale or unless the facilities are expanding.

For new Phase 4 and 5 sewage discharges, in general DEP will issue new permits containing Cap Loads of "0" and new facilities will be expected to purchase credits and/or apply offsets to achieve compliance, with the exception of small flow and single residence facilities.

Due to the Chesapeake Bay WIP, monitoring for nitrogen and phosphorus shall be at least 2x/yr.

5.5 Anti-Degradation Requirement

Chapter 93.4a of the PA regulations requires that surface water of the Commonwealth of Pennsylvania may not be degraded below levels that protect the existing uses. The regulations specifically state that *Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected*. Antidegradation requirements are implemented through DEP's guidance manual entitled Water Quality Antidegradation Implementation Guidance (Document #391-0300-02).

The policy requires DEP to protect the existing uses of all surface waters and the existing quality of High Quality (HQ) and Exceptional Value (EV) Waters. Existing uses are protected when DEP makes a final decision on any permit or approval for an activity that may affect a protected use. Existing uses are protected based upon DEP's evaluation of the best available information (which satisfies DEP protocols and Quality Assurance/Quality Control (QA/QC) procedures) that indicates the protected use of the waterbody.

For a new, additional, or increased point source discharge to an HQ or EV water, the person proposing the discharge is required to utilize a nondischarge alternative that is cost-effective and environmentally sound when compared with the cost of the proposed discharge. If a nondischarge alternative is not cost-effective and environmentally sound, the person must use the best available combination of treatment, pollution prevention, and wastewater reuse technologies and assure that any discharge is nondegrading. In the case of HQ waters, DEP may find that after satisfaction of intergovernmental coordination and public participation requirements lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In addition, DEP will assure that cost-effective and reasonable best management practices for nonpoint source control in HQ and EV waters are achieved.

The subject facility's discharge will be to a non-special protection waters and the permit conditions are imposed to protect existing instream water quality and uses. Neither HQ waters or EV waters is impacted by this discharge.

5.6 Anti-Backsliding

Anti-backsliding is a federal regulation which prohibits a permit from being renewed, reissued, or modified containing effluent limitations which are less stringent than the comparable effluent limitations in the previous permit (40 CFR 122.l.1 and 40

CFR 122.l.2). A review of the existing permit limitations with the proposed permit limitations confirm that the facility is consistent with anti-backsliding requirements. The facility has proposed effluent limitations that are as stringent as the existing permit.

6.0 NPDES Parameter Details

The basis for the proposed sampling and their monitoring frequency that will appear in the permit for each individual parameter are itemized in this Section. The final limits are the more stringent of technology based effluent treatment (TBEL) requirements, water quality based (WQBEL) limits, TMDL, antidegradation, anti-degradation, or WET.

The reader will find in this section:

a) a justification of recommended permit monitoring requirements and limitations for each parameter in the proposed NPDES permit;
b) a summary of changes from the existing NPDES permit to the proposed permit; and
c) a summary of the proposed NPDES effluent limits.

6.1 Recommended Monitoring Requirements and Effluent Limitations

A summary of the recommended monitoring requirements and effluent limitations are itemized in the tables. The tables are categorized by (a) Conventional Pollutants and Disinfection, (b) Nitrogen Species and Phosphorus, (c) Toxics, and (d) Non-Conventional Pollutants, and (e) Chapter 92a.61 targeted parameters

6.1.1 Conventional Pollutants and Disinfection

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection
Hopewell Borough; PA0082341

Parameter	Permit Limitation Required by[1]:	Recommendation	
pH (S.U.)	TBEL	Monitoring:	The monitoring frequency shall be daily as a grab sample (Table 6-3).
		Effluent Limit:	Effluent limits may range from pH = 6.0 to 9.0
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 95.2(1).
Dissolved Oxygen	BPJ	Monitoring:	The monitoring frequency shall be daily as a grab sample (Table 6-3).
		Effluent Limit:	Effluent limits shall be greater than 5.0 mg/l.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by best professional judgement.
CBOD	TBEL	Monitoring:	The monitoring frequency shall be 2x/month as an 8-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 6.8 lbs and 25 mg/l as an average monthly.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(1). WQM modeling indicates that the TBEL is more stringent than the WQBEL. Thus, the permit limit is confined to TBEL.
TSS	TBEL	Monitoring:	The monitoring frequency shall be 2x/month as an 8-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 8.1 lbs and 30 mg/l as an average monthly.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(1). While there is no WQM modeling for this parameter, the permit limit for TSS is generally assigned similar effluent limits as CBOD or BOD.
UV disinfection	SOP	Monitoring:	The monitoring frequency is 1/day. The facility will be required to record the UV intensity.
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised January 10, 2019), the facility will be required to have routine monitoring for UV transmittance, UV dosage, or UV intensity.
Fecal Coliform	TBEL	Monitoring:	The monitoring frequency shall be 2x/month as a grab sample (Table 6-3).
		Effluent Limit:	Summer effluent limits shall not exceed 200 No./100 mL as a geometric mean. Winter effluent limits shall not exceed 2000 No./100 mL as a geometric mean.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(4) and 92a.47(a)(5).

Notes:

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.0325 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.1.2 Nitrogen Species and Phosphorus

Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus

Hopewell Borough; PA0082341

Parameter	Permit Limitation Required by[1]:	Recommendation	
Ammonia-Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/yr as a 24-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/yr.
Nitrate-Nitrite as N	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/yr as a 24-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/yr.
Total Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/yr as a 24-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/yr.
TKN	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/yr as a 24-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/yr.
Total Phosphorus	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/month as an 8-hr composite sample
		Effluent Limit:	Effluent limits shall not exceed 0.5 lbs and 2 mg/l as an average monthly.
		Rationale:	Due to anti-backsliding, the current phosphorus limit shall continue to the proposed permit. The effluent limit was developed to protect Raystown Lake.

Notes:

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.0325 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.1.3 Toxics

Modeling was conducted using Toxics Management Spreadsheet (TMS). No reasonable potential was observed.

6.1.3.1 Implementation of Regulation- Chapter 92a.61

Chapter 92a.61 provides provisions to DEP to monitor for pollutants that may have an impact on the quality of waters of the Commonwealth.

Based upon DEP policy directives the following pollutants shall be monitored:

- Consistent with DEP Management directives issued on March 22, 2021 and in conjunction with EPA's 2017 Triennial Review, monitoring for E. Coli shall be required. The monitoring frequency is based upon flow rate.

Summary of Proposed NPDES Parameter Details for polluants monitored under Chapter 92a.61			
Hopewell Borough; PA0082341			
Parameter	**Permit Limitation Required by[1]:**	**Recommendation**	
E. Coli	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/year as a grab sample (SOP).
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised Febraury 5, 2024) and under the authority of Chapter 92a.61, the facility will be required to monitor for E.Coli.
Notes:			
1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other			
2 Monitoring frequency based on flow rate of 0.0325 MGD.			
3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97			
4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)			
5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021			

6.2 Summary of Changes From Existing Permit to Proposed Permit

A summary of how the proposed NPDES permit differs from the existing NPDES permit is summarized as follows.

- **TRC has been eliminated**
- **UV monitoring shall be required**
- **Due to the EPA triennial review, monitoring for E.coli shall be required.**

6.3.1 Summary of Proposed NPDES Effluent Limits

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

The proposed NPDES effluent limitations are summarized in the table below.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001 , **Latitude** 40º 8' 13.86" , **Longitude** 78º 15' 55.89" , **River Mile Index** 50.2 , **Stream Code** 13349

Receiving Waters: Raystown Branch Juniata River (TSF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	6.8	10.8	XXX	25.0	40.0	50	2/month	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	Grab
Total Suspended Solids	8.1	12.2	XXX	30.0	45.0	60	2/month	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ultraviolet light intensity (mW/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Nitrate-Nitrite as N	XXX	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	Calculation
Ammonia-Nitrogen	XXX	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	8-Hr Composite
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	8-Hr Composite
Total Phosphorus	0.5	XXX	XXX	2.0	XXX	4	2/month	8-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- UV Monitoring Conditions
- Hauled-in Waste Restrictions
- Chesapeake Bay Nutrient Definitions
- Solids Management for Lagoons

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP:
☐	Other:

Attachment A

Stream Stats/Gauge Data

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
01561000	Brush Creek at Gapsville, Pa.	39.956	-78.254	36.8	N
01562000	Raystown Branch Juniata River at Saxton, Pa.	40.216	-78.265	756	N
01562500	Great Trough Creek near Marklesburg, Pa.	40.350	-78.130	84.6	N
01563200	Raystown Branch Juniata River below Rays Dam nr Huntingdon, Pa.	40.429	-77.991	960	Y
01563500	Juniata River at Mapleton Depot, Pa.	40.392	-77.935	2,030	Y
01564500	Aughwick Creek near Three Springs, Pa.	40.213	-77.925	205	N
01565000	Kishacoquillas Creek at Reedsville, Pa.	40.655	-77.583	164	N
01565700	Little Lost Creek at Oakland Mills, Pa.	40.605	-77.311	6.52	N
01566000	Tuscarora Creek near Port Royal, Pa.	40.515	-77.419	214	N
01566500	Cocolamus Creek near Millerstown, Pa.	40.566	-77.118	57.2	N
01567000	Juniata River at Newport, Pa.	40.478	-77.129	3,354	Y
01567500	Bixler Run near Loysville, Pa.	40.371	-77.402	15.0	N
01568000	Sherman Creek at Shermans Dale, Pa.	40.323	-77.169	207	N
01568500	Clark Creek near Carsonville, Pa.	40.460	-76.751	22.5	LF
01569000	Stony Creek nr Dauphin, Pa.	40.380	-76.907	33.2	N
01569800	Letort Spring Run near Carlisle, Pa.	40.235	-77.139	21.6	N
01570000	Conodoguinet Creek near Hogestown, Pa.	40.252	-77.021	470	LF
01570500	Susquehanna River at Harrisburg, Pa.	40.255	-76.886	24,100	Y
01571000	Paxton Creek near Penbrook, Pa.	40.308	-76.850	11.2	N
01571500	Yellow Breeches Creek near Camp Hill, Pa.	40.225	-76.898	213	N
01572000	Lower Little Swatara Creek at Pine Grove, Pa.	40.538	-76.377	34.3	N
01572025	Swatara Creek near Pine Grove, Pa.	40.533	-76.402	116	N
01572190	Swatara Creek near Inwood, Pa.	40.479	-76.531	167	N
01573000	Swatara Creek at Harper Tavern, Pa.	40.403	-76.577	337	N
01573086	Beck Creek near Cleona, Pa.	40.323	-76.483	7.87	N
01573160	Quittapahilla Creek near Bellegrove, Pa.	40.343	-76.562	74.2	N
01573500	Manada Creek at Manada Gap, Pa.	40.397	-76.709	13.5	N
01573560	Swatara Creek near Hershey, Pa.	40.298	-76.668	483	N
01574000	West Conewago Creek near Manchester, Pa.	40.082	-76.720	510	N
01574500	Codorus Creek at Spring Grove, Pa.	39.879	-76.853	75.5	Y
01575000	South Branch Codorus Creek near York, Pa.	39.921	-76.749	117	Y
01575500	Codorus Creek near York, Pa.	39.946	-76.755	222	Y
01576000	Susquehanna River at Marietta, Pa.	40.055	-76.531	25,990	Y
01576085	Little Conestoga Creek near Churchtown, Pa.	40.145	-75.989	5.82	N
01576500	Conestoga River at Lancaster, Pa.	40.050	-76.277	324	N
01576754	Conestoga River at Conestoga, Pa.	39.946	-76.368	470	N
01578310	Susquehanna River at Conowingo, Md.	39.658	-76.174	27,100	Y
01578400	Bowery Run near Quarryville, Pa.	39.895	-76.114	5.98	N
01580000	Deer Creek at Rocks, Md.	39.630	-76.403	94.4	N
01581500	Bynum Run at Bel Air, Md.	39.541	-76.330	8.52	N
01581700	Winters Run near Benson, Md.	39.520	-76.373	34.8	N
01582000	Little Falls at Blue Mount, Md.	39.604	-76.620	52.9	N
01582500	Gunpowder Falls at Glencoe, Md.	39.550	-76.636	160	Y
01583000	Slade Run near Glyndon, Md.	39.495	-76.795	2.09	N
01583100	Piney Run at Dover, Md.	39.521	-76.767	12.3	N

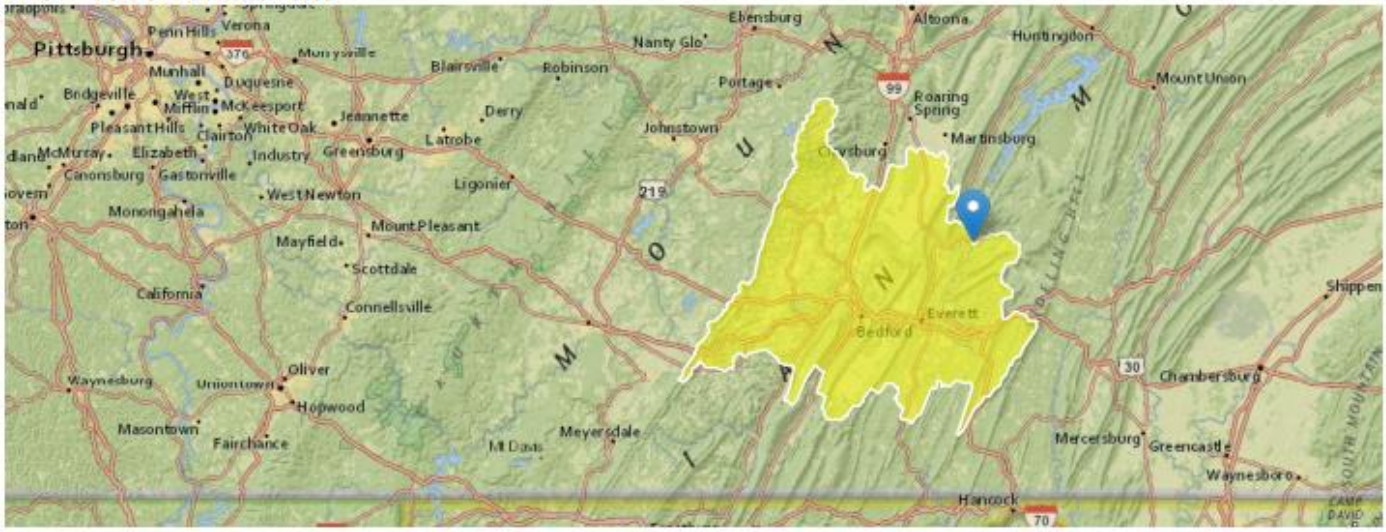
Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft³/s)	7-day, 10-year (ft³/s)	7-day, 2-year (ft³/s)	30-day, 10-year (ft³/s)	30-day, 2-year (ft³/s)	90-day, 10-year (ft³/s)
01546000	1912–1934	17	1.8	2.2	6.8	3.7	12.1	11.2
01546400	1986–2008	23	13.5	14.0	19.6	15.4	22.3	18.7
01546500	1942–2008	67	26.8	29.0	41.3	31.2	44.2	33.7
01547100	1969–2008	40	102	105	128	111	133	117
01547200	1957–2008	52	99.4	101	132	106	142	115
01547500	[2]1971–2008	38	28.2	109	151	131	172	153
01547500	[3]1956–1969	14	90.0	94.9	123	98.1	131	105
01547700	1957–2008	52	.5	.6	2.7	1.1	3.9	2.2
01547800	1971–1981	11	1.6	1.8	2.4	2.1	2.9	3.5
01547950	1970–2008	39	12.1	13.6	28.2	17.3	36.4	23.8
01548005	[2]1971–2000	25	142	151	206	178	241	223
01548005	[3]1912–1969	58	105	114	147	125	165	140
01548500	1920–2008	89	21.2	24.2	50.1	33.6	68.6	49.3
01549000	1910–1920	11	26.0	32.9	78.0	46.4	106	89.8
01549500	1942–2008	67	.6	.8	2.5	1.4	3.9	2.6
01549700	1959–2008	50	33.3	37.2	83.8	51.2	117	78.4
01550000	1915–2008	94	6.6	7.6	16.8	11.2	24.6	18.6
01551500	[2]1963–2008	46	520	578	1,020	678	1,330	919
01551500	[3]1901–1961	61	400	439	742	523	943	752
01552000	1927–2008	80	20.5	22.2	49.5	29.2	69.8	49.6
01552500	1942–2008	67	.9	1.2	3.1	1.7	4.4	3.3
01553130	1969–1981	13	1.0	1.1	1.5	1.3	1.8	1.7
01553500	[2]1968–2008	41	760	838	1,440	1,000	1,850	1,470
01553500	[3]1941–1966	26	562	619	880	690	1,090	881
01553700	1981–2008	28	9.1	10.9	15.0	12.6	17.1	15.2
01554000	[2]1981–2008	28	1,830	1,990	3,270	2,320	4,210	3,160
01554000	[3]1939–1979	41	1,560	1,630	2,870	1,880	3,620	2,570
01554500	1941–1993	53	16.2	22.0	31.2	25.9	35.7	31.4
01555000	1931–2008	78	33.5	37.6	58.8	43.4	69.6	54.6
01555500	1931–2008	78	4.9	6.5	18.0	9.4	24.3	16.6
01556000	1918–2008	91	43.3	47.8	66.0	55.1	75.0	63.7
01557500	1946–2008	63	2.8	3.2	6.3	4.2	8.1	5.8
01558000	1940–2008	69	56.3	59.0	79.8	65.7	86.2	73.7
01559000	1943–2008	66	104	177	249	198	279	227
01559500	1931–1958	28	9.3	10.5	15.0	12.4	17.8	15.8
01559700	1963–1978	16	.1	.1	.2	.1	.3	.2
01560000	1941–2008	68	8.5	9.4	15.6	12.0	20.2	16.2
01561000	1932–1958	27	.4	.5	1.6	.8	2.5	1.7
01562000	1913–2008	96	64.1	67.1	106	77.4	122	94.5
01562500	1931–1957	27	1.1	1.6	3.8	2.3	5.4	3.7
01563200	[2]1974–2008	35	—	—	—	112	266	129
01563200	[3]1948–1972	25	10.3	28.2	86.1	64.5	113	95.5
01563500	[2]1974–2008	35	384	415	519	441	580	493
01563500	[3]1939–1972	34	153	242	343	278	399	333
01564500	1940–2008	69	3.6	4.2	10.0	6.2	14.4	10.6

StreamStats Report

Region ID: PA
Workspace ID: PA20250224165735170000
Clicked Point (Latitude, Longitude): 40.13764, -78.26585
Time: 2025-02-24 11:58:07 -0500



Hopewell Borough WWTP PA0082341 Modeling Point #1 February 2025

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	16.51	percent
DRNAREA	Area that drains to a point on a stream	723	square miles
PRECIP	Mean Annual Precipitation	38	inches
ROCKDEP	Depth to rock	4.3	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	2.34	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	16.51	percent	0	99
DRNAREA	Drainage Area	723	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	38	inches	35	50.4
ROCKDEP	Depth to Rock	4.3	feet	3.32	5.65
STRDEN	Stream Density	2.34	miles per square mile	0.51	3.1

Low-Flow Statistics Flow Report [Low Flow Region 2]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	76.2	ft^3/s	38	38
30 Day 2 Year Low Flow	98.1	ft^3/s	33	33
7 Day 10 Year Low Flow	43	ft^3/s	51	51
30 Day 10 Year Low Flow	55.9	ft^3/s	46	46
90 Day 10 Year Low Flow	78.8	ft^3/s	36	36

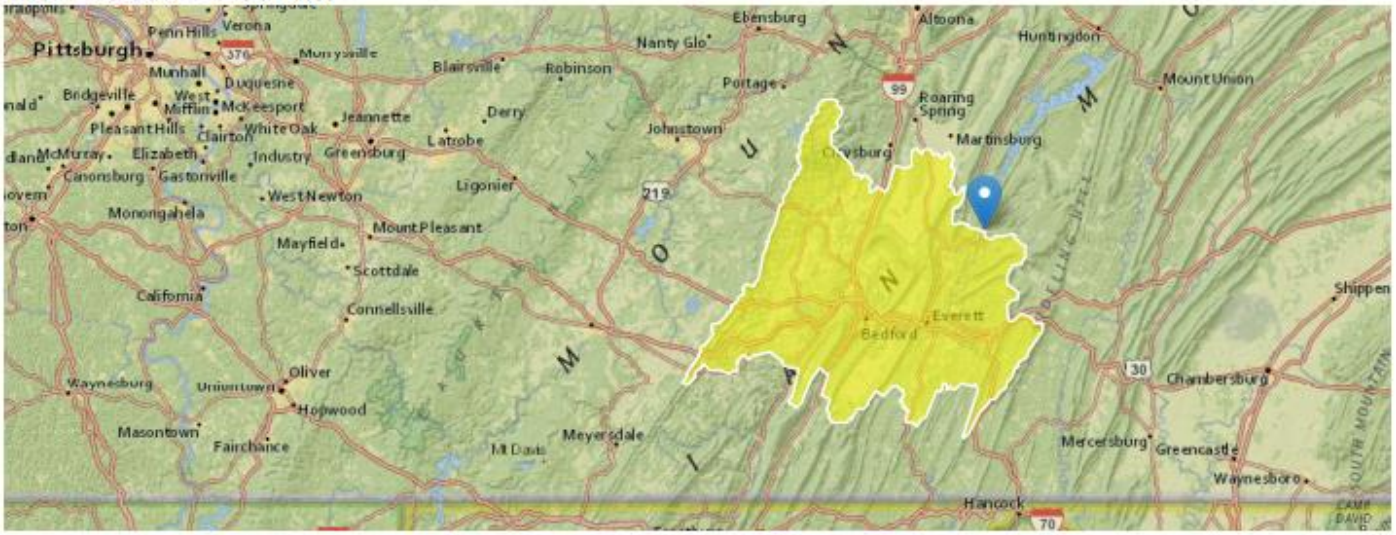
Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.27.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20250224171319771000
Clicked Point (Latitude, Longitude): 40.15966, -78.25566
Time: 2025-02-24 12:13:54 -0500



Hopewell Borough WWTP PA0082341 Modeling Point #2- Six Mile Run February 2025

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	16.49	percent
DRNAREA	Area that drains to a point on a stream	724	square miles
PRECIP	Mean Annual Precipitation	38	inches
ROCKDEP	Depth to rock	4.3	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	2.34	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	16.49	percent	0	99
DRNAREA	Drainage Area	724	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	38	inches	35	50.4
ROCKDEP	Depth to Rock	4.3	feet	3.32	5.65
STRDEN	Stream Density	2.34	miles per square mile	0.51	3.1

Low-Flow Statistics Flow Report [Low Flow Region 2]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	76.3	ft^3/s	38	38
30 Day 2 Year Low Flow	98.2	ft^3/s	33	33
7 Day 10 Year Low Flow	43.1	ft^3/s	51	51
30 Day 10 Year Low Flow	56	ft^3/s	46	46
90 Day 10 Year Low Flow	78.9	ft^3/s	36	36

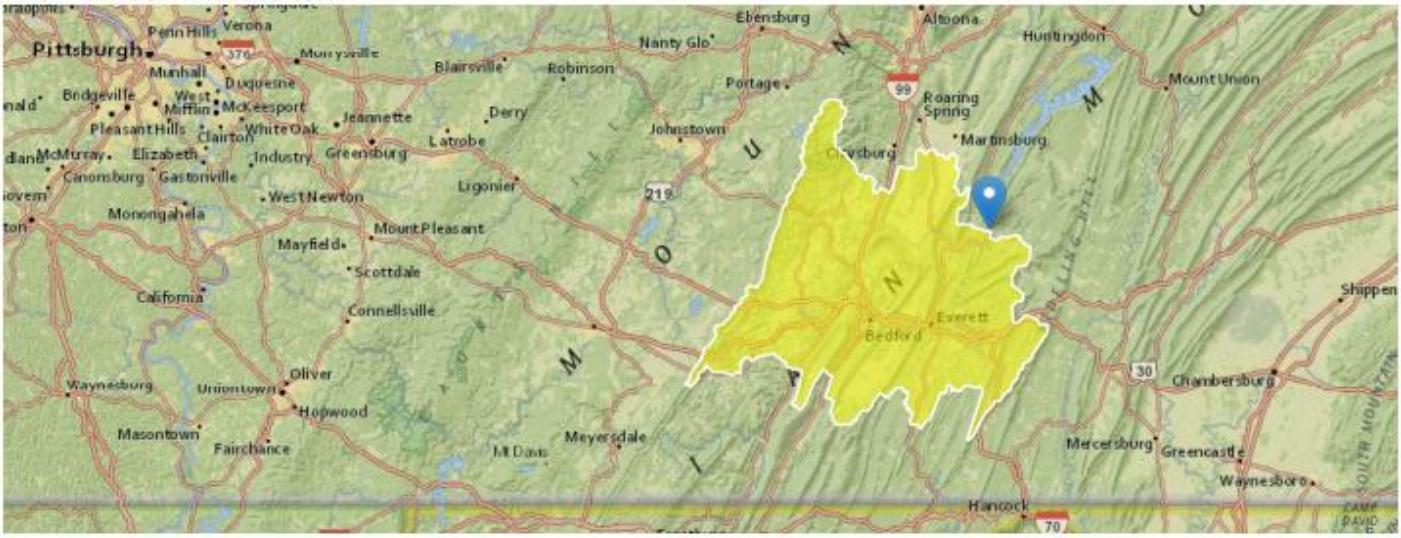
Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.27.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20250224170442963000
Clicked Point (Latitude, Longitude): 40.16203, -78.25529
Time: 2025-02-24 12:05:08 -0500



Hopewell Borough WWTP PA0082341 Modeling Point #3 - Point Down Stream February 2025

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	16.49	percent
DRNAREA	Area that drains to a point on a stream	724	square miles
PRECIP	Mean Annual Precipitation	38	inches
ROCKDEP	Depth to rock	4.3	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	2.34	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	16.49	percent	0	99
DRNAREA	Drainage Area	724	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	38	inches	35	50.4
ROCKDEP	Depth to Rock	4.3	feet	3.32	5.65
STRDEN	Stream Density	2.34	miles per square mile	0.51	3.1

Low-Flow Statistics Flow Report [Low Flow Region 2]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	76.3	ft^3/s	38	38
30 Day 2 Year Low Flow	98.2	ft^3/s	33	33
7 Day 10 Year Low Flow	43.1	ft^3/s	51	51
30 Day 10 Year Low Flow	56	ft^3/s	46	46
90 Day 10 Year Low Flow	78.9	ft^3/s	36	36

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.27.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment B

WQM 7.0 Modeling Output Values
Toxics Management Spreadsheet Output Values

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
11D	13349	RAYSTOWN BRANCH JUNIATA RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
50.200	Hopewell WWTP	PA0082341-25	0.032	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
48.320	Six Mile Run	PA0088609-25	0.083	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
11D	13349	RAYSTOWN BRANCH JUNIATA RIVER

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
50.200	Hopewell WWTP	2.99	50	2.99	50	0	0
48.320	Six Mile Run	3.01	50	3.03	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
50.200	Hopewell WWTP	.63	25	.63	25	0	0
48.320	Six Mile Run	.63	25	.64	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
50.20	Hopewell WWTP	25	25	25	25	5	5	0	0
48.32	Six Mile Run	25	25	25	25	5	5	0	0

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
11D	13349	RAYSTOWN BRANCH JUNIATA RIV	**50.200**	856.00	723.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.089	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.30	8.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Hopewell WWTP	PA0082341-25	0.0325	0.0325	0.0325	0.000	25.00	7.02

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
11D	13349	RAYSTOWN BRANCH JUNIATA RIV	**48.320**	849.00	724.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.089	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.30	8.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Six Mile Run	PA0088609-25	0.0833	0.0833	0.0833	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
11D	13349	RAYSTOWN BRANCH JUNIATA RIV	**48.150**	848.00	725.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.089	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.30	8.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
11D	13349	RAYSTOWN BRANCH JUNIATA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
50.200	0.032	23.301	7.997
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
142.889	1.089	131.227	0.413
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.02	0.012	0.02	0.902
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.240	1.469	Tsivoglou	5
Reach Travel Time (days)			
0.278			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.028	2.02	0.02	7.76
0.056	2.02	0.02	7.76
0.083	2.02	0.02	7.76
0.111	2.01	0.02	7.76
0.139	2.01	0.02	7.76
0.167	2.01	0.02	7.76
0.195	2.01	0.02	7.76
0.223	2.01	0.02	7.76
0.250	2.01	0.02	7.76
0.278	2.01	0.02	7.76

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
48.320	0.116	23.305	7.989
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
140.516	1.082	129.916	0.424
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.06	0.044	0.07	0.903
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.759	2.384	Tsivoglou	5
Reach Travel Time (days)			
0.024			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.002	2.06	0.06	7.76
0.005	2.06	0.06	7.76
0.007	2.06	0.06	7.76
0.010	2.06	0.06	7.76
0.012	2.06	0.06	7.76
0.015	2.05	0.06	7.76
0.017	2.05	0.06	7.76
0.020	2.05	0.06	7.76
0.022	2.05	0.06	7.76
0.024	2.05	0.06	7.76

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
11D	13349	RAYSTOWN BRANCH JUNIATA RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
50.200	64.20	0.00	64.20	.0503	0.00071	1.089	142.89	131.23	0.41	0.278	23.30	8.00
48.320	64.29	0.00	64.29	.1791	0.00111	1.082	140.52	129.92	0.42	0.024	23.30	7.99
Q1-10 Flow												
50.200	61.63	0.00	61.63	.0503	0.00071	NA	NA	NA	0.40	0.285	23.30	8.00
48.320	61.72	0.00	61.72	.1791	0.00111	NA	NA	NA	0.41	0.025	23.30	7.99
Q30-10 Flow												
50.200	73.83	0.00	73.83	.0503	0.00071	NA	NA	NA	0.45	0.257	23.30	8.00
48.320	73.93	0.00	73.93	.1791	0.00111	NA	NA	NA	0.46	0.023	23.30	7.99

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☐
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.96	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.15	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

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Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Hopewell Boro WWTP** NPDES Permit No.: **PA0082341** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Sewage Effluent**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.0325	100	7.02						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L											
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L		0.0154									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	mg/L	<	0.008									
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	mg/L		0.1									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Hopewell Boro WWTP, NPDES Permit No. PA0082341, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: _____ No. Reaches to Model: 1

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	013349	50.2	856	723			Yes
End of Reach 1	013349	48.15	848	725			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	50.2	0.0888										96	8		
End of Reach 1	48.15	0.0888										96	8		

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	50.2														
End of Reach 1	48.15														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Hopewell Boro WWTP, NPDES Permit No. PA0082341, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All | ○ Inputs | ○ Results | ○ Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.129 Analysis Hardness (mg/l): 96.024 Analysis pH: 7.98

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	12.935	13.5	2,232	Chem Translator of 0.96 applied
Total Lead	0	0		0	61.789	77.5	12,842	Chem Translator of 0.797 applied
Total Zinc	0	0		0	113.221	116	19,174	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 720 PMF: 0.893 Analysis Hardness (mg/l): 96.004 Analysis pH: 8.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	8.649	9.01	10,285	Chem Translator of 0.96 applied
Total Lead	0	0		0	2.407	3.02	3,448	Chem Translator of 0.797 applied
Total Zinc	0	0		0	114.126	116	132,132	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 720 PMF: 0.893 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	N/A	N/A	N/A	

Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Copper	1,430	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	3.45	mg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	12.3	mg/L	Discharge Conc ≤ 10% WQBEL