



Application Type
Facility Type
Major / Minor

Renewal
Municipal
Minor

Application No. PA0247073
APS ID 471689
Authorization ID 1523660

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Applicant and Facility Information

Applicant Name	<u>Hopewell Township Bedford County</u>	Facility Name	<u>Hopewell Township Sunnyside STP</u>
Applicant Address	<u>2759 Raystown Road</u>	Facility Address	<u>121 Langdon Drive</u>
	<u>Hopewell, PA 16650-7638</u>		<u>Hopewell, PA 16650-7638</u>
Applicant Contact	<u>Melissa Douglas</u>	Facility Contact	<u>Melissa Douglas</u>
Applicant Phone	<u>(814) 652-5743</u>	Facility Phone	<u>(814) 652-5743</u>
Client ID	<u>39558</u>	Site ID	<u>609338</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Hopewell Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Bedford</u>
Date Application Received	<u>March 3, 2025</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>March 17, 2025</u>	If No, Reason	
Purpose of Application	<u>This is an application for NPDES renewal.</u>		

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineer Nick Hong (via electronic signature)	April 30, 2025
X		Daniel W. Martin, P.E. / Environmental Engineer Manager Maria D. Bebenek for	June 12, 2025
X		Maria D. Bebenek, P.E. / Environmental Program Manager Maria D. Bebenek	June 12, 2025

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Sunnyside STP located at 121 Langdon Drive, 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 March 3, 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 0.021 MGD treatment facility. The applicant does not anticipate any proposed upgrades to the treatment facility in the next five years are anticipated. 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 Township Supervisors and the notice was received by the parties on February 11, 2025 and February 19, 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 Raystown Branch Juniata River. The sequence of receiving streams that the Raystown Branch Juniata River discharges into are 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, fish consumption, and potable water supply. 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:

- Monitoring shall be required for E. Coli.
- Monitoring for Ammonia-Nitrogen has increased to 2x/month

Sludge use and disposal description and location(s):

- Tatesville WWTP in Hopewell Township Bedford County as sewage sludge
- Walter's Septic AG Site in Hanover Township Dauphin County as sewage sludge
- Annville Township Authority in Annville Township Lebanon County as sewage sludge

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: Sunnyside STP

NPDES Permit #: PA0247073

Physical Address: 121 Langdon Drive
Hopewell, PA 16650

Mailing Address: 2759 Raystown Road
Hopewell, PA 16650

Contact: Melissa Douglass
Secretary
mthomas@hopewell.comcastbiz.net
(814) 652-5743

Consultant: Brock Bowers
Keller Engineers, Inc.
bbowers@keller-engineers.com
(814) 696-7430

1.2 Permit History

Permit submittal included the following information.

- NPDES Application
- Flow Diagrams
- Influent Sample Data
- Effluent Sample Data

2.0 Treatment Facility Summary

2.1.1 Site location

The physical address for the facility is 121 Langdon Drive, 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

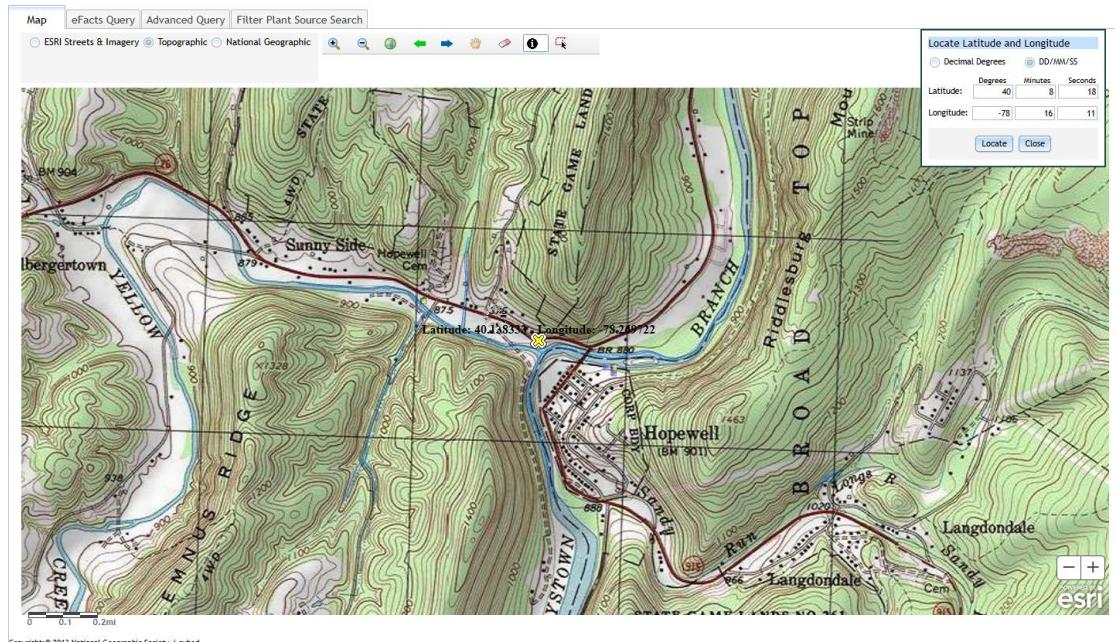
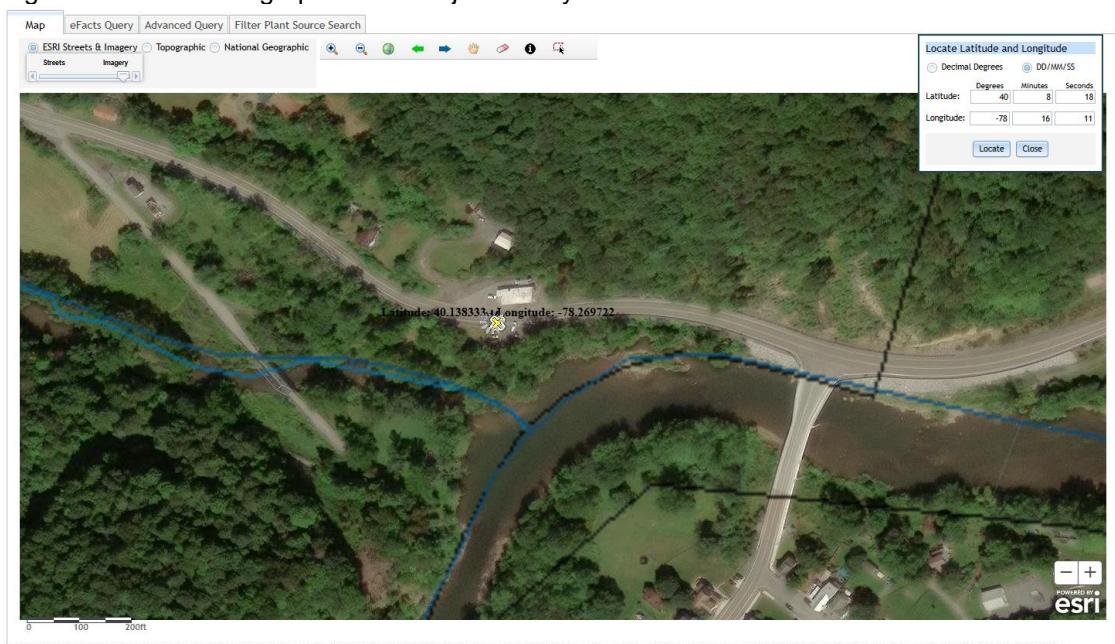


Figure 2: Aerial Photograph of the subject facility



2.1.2 Sources of Wastewater/Stormwater

The treatment plant received 100% of their wastewater contributions from Hopewell Township.

2.2 Description of Wastewater Treatment Process

The subject facility is a 0.021 MGD design flow facility. The subject facility treats wastewater using the Purestream Biologically Engineered Single Sludge Treatment (BESST), alternating between aeration, anoxic and clarification stages. Disinfection occurs through UV disinfection. Discharge occurs through the outfall to Raystown Branch Juniata River. The facility is being evaluated for flow, pH, dissolved oxygen, CBOD5, TSS, fecal coliform, UV, and 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: Sunnyside STP				
WQM Permit No.	Issuance Date			
0503403	09/12/2003			
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Total Nitrogen Reduction	Extended Aeration	Ultraviolet	0.021
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.021	42	Not Overloaded	Aerobic Digestion	Other WWTP

2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

Outfall No. 001
Latitude 40° 8' 18.00"

Design Flow (MGD) .021
Longitude -78° 16' 11.00"

Wastewater Description: Sewage Effluent

The subject facility outfall is within the vicinity of another sewage/wastewater outfall. The downstream outfall is the Six Mile Run STP (PA0088609) which is about 3 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.

- On the NPDES renewal application, the facility did not report any chemicals/additives used for the treatment process.

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' 18.00", Longitude 78° 16' 11.00", River Mile Index 48, Stream Code 13349								
Receiving Waters:	Raystown Branch Juniata River							
Type of Effluent:	Sewage Effluent							
1. The permittee is authorized to discharge during the period from <u>September 1, 2020</u> through <u>August 31, 2025</u> . 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	Instantaneous 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	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	4.3	7.0	XXX	25	40	50	8-Hr 2/month	Composite
Biochemical Oxygen Demand (BOD5)								
Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	Grab 8-Hr Composite
Total Suspended Solids	5.2	7.8	XXX	30	45	60	2/month	
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	Grab
Fecal Coliform (No./100 ml)				2000				
Oct 1 - Apr 30	XXX	XXX	XXX	Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml)				200				
May 1 - Sep 30	XXX	XXX	XXX	Geo Mean	XXX	1000	2/month	Grab
Ultraviolet light intensity (mW/cm ²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded 8-Hr Composite
Nitrate-Nitrite as N	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	

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	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum			
Total Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Ammonia-Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	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.

04/13/2022:

- DEP observed some fine solids carryover from the clarifier and the effluent had slightly cloudy appearance. The operator believes the change in temperature is affecting the water quality. The facility exceeded the permit limits for TSS and Fecal Coliform in February 2022. The operator attributed the violations to freezing problems at the plant.
- The pH buffers bottles on site are refilled with stock from the Tatesville STP. The bottles labels need to show the expiration date of the stock buffers.
- The Biosolids Disposal supplemental forms submitted with the February DMR shows that 0.15 dt of sludge was removed from the plant, but the form does not indicate where the sludge was taken.
- The treatment plant's standard operating procedures (SOP) needs to be updated to include instructions for when and how to waste sludge. Process control testing requirements should also be reviewed

07/07/2023:

- The MLSS has a dark brown color and the test result for the 30 minute settleability test has been greater than 900 for the past five weeks. This is an indication that solids need to be removed from the system.

09/05/2024:

- There were no laboratory results available at the treatment plant for 2024. Jeff said they are now stored at the township office. DEP requested that copies be stored at the treatment plant for review at any time. Daily test results for pH and DO are stored on computer spreadsheets.

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 above the design capacity of the treatment system. The maximum average flow data for the DMR reviewed was 0.0801 MGD in March 2024. The design capacity of the treatment system is 0.021 MGD. There was not three consecutive months of average monthly flow rates above 0.021 MGD.

The off-site laboratory used for the analysis of the parameters was Pace Analytical located at 2019 9th Avenue, Altoona, PA 16602.

DMR Data for Outfall 001 (from February 1, 2024 to January 31, 2025)

Parameter	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24
Flow (MGD) Average Monthly	0.0071	0.0064	0.0053	0.0039	0.0033	0.0042	0.0034	0.0048	0.0054	0.0085	0.0801	0.0059
Flow (MGD) Daily Maximum	0.0110	0.0134	0.0084	0.0084	0.0051	0.0119	0.0078	0.0088	0.012	0.02771	0.1955	0.0109
pH (S.U.) Instantaneous Minimum	7.2	7.0	6.9	7.2	7.0	7.4	6.8	6.8	6.9	6.5	6.5	6.3
pH (S.U.) Instantaneous Maximum	7.8	7.6	7.5	8.0	7.6	7.9	7.8	7.5	7.6	7.4	7.3	7.4
DO (mg/L) Instantaneous Minimum	8.1	8.1	7.2	8.6	6.4	6.4	6.3	6.1	6.8	8.4	7.9	7.3
CBOD5 (lbs/day) Average Monthly	< 1.2	< 0.2	< 0.2	< 0.07	< 0.09	< 0.09	< 0.08	< 0.1	< 0.2	1.0	5.4	0.2
CBOD5 (lbs/day) Weekly Average	2.2	< 0.2	< 0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3	1.8	5.9	0.3
CBOD5 (mg/L) Average Monthly	< 22	< 3.0	< 3	< 3	< 3	< 3	< 3	< 3	< 7	9	8	4
CBOD5 (mg/L) Weekly Average	41	3	< 3	< 3	< 3	< 3	< 3	4	11	14	8	6
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	13	25	16	10	9	18	8	7	14	20	8	20
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	15	30	20	11	10	20	8	8	14	26	13	30
BOD5 (mg/L) Raw Sewage Influent Average Monthly	189	401	263	515	311	667	291	288	305	246	207	305
TSS (lbs/day) Average Monthly	1.4	0.3	0.2	< 0.04	< 0.06	< 0.05	< 0.08	< 0.1	0.2	0.7	4.8	0.5

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Hopewell Township Sunnyside STP

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TSS (lbs/day) Raw Sewage Influent Average Monthly	9	15	6	18	1	23	6	3	8	11	4	14
TSS (lbs/day) Raw Sewage Influent Daily Maximum	9	20	8	35	2	36	6	4	10	18	6	21
TSS (lbs/day) Weekly Average	1.5	0.4	0.3	0.05	0.09	< 0.07	0.1	0.1	0.3	0.9	4.8	0.7
TSS (mg/L) Average Monthly	21	5	4	< 2	< 2	< 2	< 3	< 3	7	8	7	7
TSS (mg/L) Raw Sewage Influent Average Monthly	135	231	105	1248	45	987	224	108	163	112	102	205
TSS (mg/L) Weekly Average	28	6	5	2	2	< 2	4	5	9	8	8	8
Fecal Coliform (No./100 ml) Geometric Mean	< 134	< 21	< 10	< 14	< 10	< 19	< 25	7	< 4	684	1016	< 9
Fecal Coliform (No./100 ml) Instantaneous Maximum	24196	109	< 10	20	< 10	92.4	306.8	12.4	4	2317.6	1379.2	20.8
UV Intensity (mW/cm ²) Instantaneous Minimum	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.6	1.6	1.5	1.5	1.6
Nitrate-Nitrite (mg/L) Annual Average		< 3.84										
Total Nitrogen (mg/L) Annual Average		< 5.54										
Ammonia (mg/L) Annual Average		< 0.01										
TKN (mg/L) Annual Average		1.7										
Total Phosphorus (mg/L) Annual Average		1.55										

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 March 18, 2025, the following were observed effluent non-compliances.

Summary of Non-Compliance with NPDES Effluent Limits Beginning September 1, 2020 and Ending March 18, 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	FACILITY_COMMENTS
3/25/2021	Violation of permit condition	Effluent	Fecal Coliform	15419	>	2000	No./100 ml	Geometric Mean	We lost power at the plant. The generator came on, but the transfer switch failed. The plant was without power for 5 to 6 hours, which caused the biomass to die off. The power was restored. The operator has been re-seeding the activated sludge process to rebuild the biomass.
3/25/2021	Violation of permit condition	Effluent	Fecal Coliform	48392	>	10000	No./100 ml	Instantaneous Maximum	We lost power at the plant. The generator came on, but the transfer switch failed. The plant was without power for 5 to 6 hours, which caused the biomass to die off. The power was restored. The operator has been re-seeding the activated sludge process to rebuild the biomass.
5/26/2021	Violation of permit condition	Effluent	Total Suspended Solids	31	>	30	mg/L	Average Monthly	Tank and filter needed to be cleaned. Tank and filter were cleaned, and sludge was hauled away.
5/26/2021	Violation of permit condition	Effluent	Total Suspended Solids	49	>	45	mg/L	Weekly Average	Tank and filter needed to be cleaned. Tank and filter were cleaned, and sludge was hauled away.
10/18/2021	Violation of permit condition	Effluent	Fecal Coliform	9678.4	>	1000	No./100 ml	Instantaneous Maximum	100 year storm occurrence. Shut off RAS, WAS, and blowers to preserve activated sludge microorganisms until flows returned to normal.
3/14/2022	Violation of permit condition	Effluent	Fecal Coliform	2298	>	2000	No./100 ml	Geometric Mean	The plant was experiencing freezing of the lines in the month of February
3/14/2022	Violation of permit condition	Effluent	Total Suspended Solids	33	>	30	mg/L	Average Monthly	The plant was experiencing freezing of the lines in the month of February
5/12/2022	Violation of permit condition	Effluent	Total Suspended Solids	38	>	30	mg/L	Average Monthly	Due to fluctuating temperatures the solids were not settling correctly at time of sampling.
5/12/2022	Violation of permit condition	Effluent	Total Suspended Solids	59	>	45	mg/L	Weekly Average	Due to fluctuating temperatures the solids were not settling correctly at time of sampling
4/18/2023	Violation of permit condition	Effluent	Total Suspended Solids	56	>	45	mg/L	Weekly Average	Operator is currently making adjustments to how we are wasting sludge at the plant to get better results from the plant and finding a balance in total suspended solids.
4/15/2024	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	5.4	>	4.3	lbs/day	Average Monthly	Operator is looking into issue
11/25/2024	Other	Other Violations							
2/25/2025	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	41	>	40	mg/L	Weekly Average	Freezing temps in January
2/25/2025	Violation of permit condition	Effluent	Fecal Coliform	24196	>	10000	No./100 ml	Instantaneous Maximum	Freezing temps in January

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 March 18, 2025, there were no observed enforcement actions.

3.4 Summary of Biosolids Disposal

A summary of the biosolids disposed of from the facility is as follows. DEP suspects there were data entry errors by the facility. Supplemental reports reported 55 gallons of sludge disposed in May 2024. Other months throughout the year were 5,500 gallons.

2024			
Sewage Sludge / Biosolids Production Information			
Hauled Off-Site			
Date (YEAR)	Gallons	% Solids	Dry Tons
January	5,500	0.68	0.156
February			
March	5,500	0.68	0.156
April			
May	55	0.68	0.002
June	5,500	0.68	0.156
July	5,500	0.68	0.156
August			
September	5,500	0.68	0.156
October			
November			
December			

Notes:	Sewage sludge disposed at:
	Tatesville WWTP in Hopewell Township Bedford County as sewage sludge
	Walter's Septic AG Site in Hanover Township Dauphin County as sewage sludge
	Annville Township Authority in Annville Township Lebanon County as sewage sludge

3.5 Open Violations

As of March 2025, an open violation existed for Tatesville STP. This is the same applicant as Sunnyside STP. The final executed NPDES permit may be withheld until the open violation is remediated.

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

The receiving waters has been determined to be Raystown Branch Juniata River. The sequence of receiving streams that the Raystown Branch Juniata River discharges into are 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 trout stocking 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 (WQN223). This WQN station is located approximately 11 miles downstream of the subject facility.

The closest gauge station to the subject facility is the Raystown Branch Juniata (USGS station number 1562000). This gauge station is located approximately 11 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 CaCO₃.

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

$$LFY = (67.1 \text{ ft}^3/\text{sec} / 756 \text{ mi}^2)$$

$$LFY = 0.0888 \text{ ft}^3/\text{sec}/\text{mi}^2$$

The low flow at the subject site is based upon the DA of 723 mi²

$$Q710 = (LFY @ \text{gauge station})(DA @ \text{Subject Site})$$

$$Q710 = (0.0888 \text{ ft}^3/\text{sec}/\text{mi}^2)(723 \text{ mi}^2)$$

$$Q710 = 64.171 \text{ ft}^3/\text{sec}$$

4.6 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.021
Latitude	40° 8' 16.58"	Longitude	-78° 16' 11.50"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Raystown Branch Juniata River	Stream Code	13349
NHD Com ID	65844081	RMI	50.7
Drainage Area	723	Yield (cfs/mi ²)	0.0888
Q ₇₋₁₀ Flow (cfs)	64.171	Q ₇₋₁₀ Basis	Streamstats/streamgauge
Elevation (ft)	859	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 applicable		
Source(s) of Impairment	Not applicable		
TMDL Status	Not applicable	Name	
Background/Ambient Data		Data Source	
pH (SU)	8.0	WQN223; medial July to Sept	
Temperature (°C)	23.3	WQN223; medial July to Sept	
Hardness (mg/L)	96	WQN223; historical median	
Other:			
Nearest Downstream Public Water Supply Intake	Saxton Municipal Water Authority		
PWS Waters	Juniata River	Flow at Intake (cfs)	
PWS RMI	41.6	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:

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

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 Chlorine (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.

<i>General Data 1</i>	<i>(Modeling Point #1)</i>	<i>(Modeling Point #2)</i>	<i>(Modeling Point #3)</i>	<i>Units</i>
Stream Code	13349	13349	13349	
River Mile Index	50.7	48.56	45.58	miles
Elevation	859	848	821	feet
Latitude	40.138333	40.159852	40.192035	
Longitude	-78.269722	-78.255367	-78.25541	
Drainage Area	723	724	743	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 NH₃-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 NH₃-N in the discharge*;
- (d) *24-hour average concentration for NH₃-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 facility does not receive wastewater contributions from industrial/commercial facilities.

The facility is not subject to toxics modeling.

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:

$$\text{TMDL} = \sum \text{WLAs} + \sum \text{LAs} + \text{MOS}$$

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, this facility is subject to Sector C monitoring requirements. Monitoring for nitrogen species and phosphorus shall be at least 1x/year.

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 122.1.1 and 40 CFR 122.1.2). 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 Sunnyside WWTP, PA0247073		
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 4.3 lbs/day 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 2/mo as an 8-hr composite sample (Table 6-3).
		Effluent Limit: Effluent limits shall not exceed 5.2 lbs/day 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 recording 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 0.021 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

Sunnyside WWTP, PA0247073

Parameter	Permit Limitation Required by ¹ :	Recommendation	
Ammonia-Nitrogen	Table 6-3; Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/month as an 8-hr composite sample (Table 6-3).
		Effluent Limit:	No effluent requirements.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3
Nitrate-Nitrite as N	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as an 8-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 1x/yr.
Total Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as a calculation
		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 1x/yr.
TKN	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as an 8-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 1x/yr.
Total Phosphorus	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as an 8-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 1x/yr.

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 0.021 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

6.1.3.1 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 pollutants monitored under Chapter 92a.61 Sunnyside WWTP, PA0247073		
Parameter	Permit Limitation Required by ¹ :	Recommendation
E. Coli	SOP; Chapter 92a.61	<p>Monitoring: The monitoring frequency shall be 1x/yr as a grab sample (SOP).</p> <p>Effluent Limit: No effluent requirements.</p> <p>Rationale: Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised February 5, 2024) and under the authority of Chapter 92a.61, the facility will be required to monitor for E.Coli.</p>
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 0.021 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 Implementation 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.

- Monitoring shall be required for E. Coli.
- Monitoring for Ammonia-Nitrogen has increased to 2x/month

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 40° 8' 18.00", Longitude 78° 16' 11.00", River Mile Index 50.7, Stream Code 13349

Receiving Waters: Raystown Branch Juniata River

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	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	4.3	7.0	XXX	25	40	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	5.2	7.8	XXX	30	45	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	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ultraviolet light intensity (mW/cm ²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Nitrate-Nitrite as N	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	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 Non-Lagoon Treatment Systems

Tools and References Used to Develop Permit	
<input checked="" type="checkbox"/>	WQM for Windows Model (see Attachment [REDACTED])
<input type="checkbox"/>	Toxics Management Spreadsheet (see Attachment [REDACTED])
<input type="checkbox"/>	TRC Model Spreadsheet (see Attachment [REDACTED])
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment [REDACTED])
<input type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
<input type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 386-2000-002, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
<input type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
<input type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
<input type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Design Stream Flows, 386-2000-003, 9/98.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
<input type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input checked="" type="checkbox"/>	SOP: [REDACTED]
<input type="checkbox"/>	Other: [REDACTED]

Attachment A

Stream Stats/Gauge Data

14 Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

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 (mi ²)	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 Belle Grove, 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

26 Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

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 (ft ³ /s)	7-day, 10-year (ft ³ /s)	7-day, 2-year (ft ³ /s)	30-day, 10-year (ft ³ /s)	30-day, 2-year (ft ³ /s)	90-day, 10-year (ft ³ /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

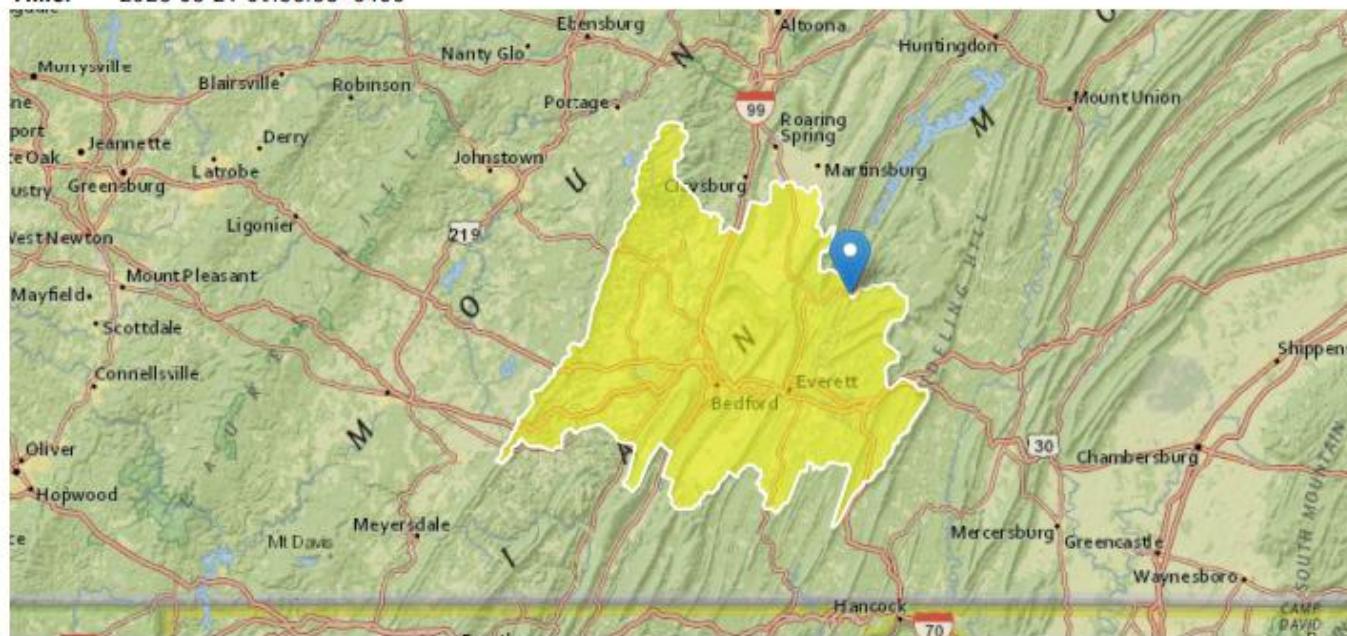
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Time: 2025-03-21 09:38:38 -0400



Sunnyside WWTP PA0247073 Modeling Point #1 March 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

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
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, PseudoR²: 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/>)

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Application Version: 4.28.0

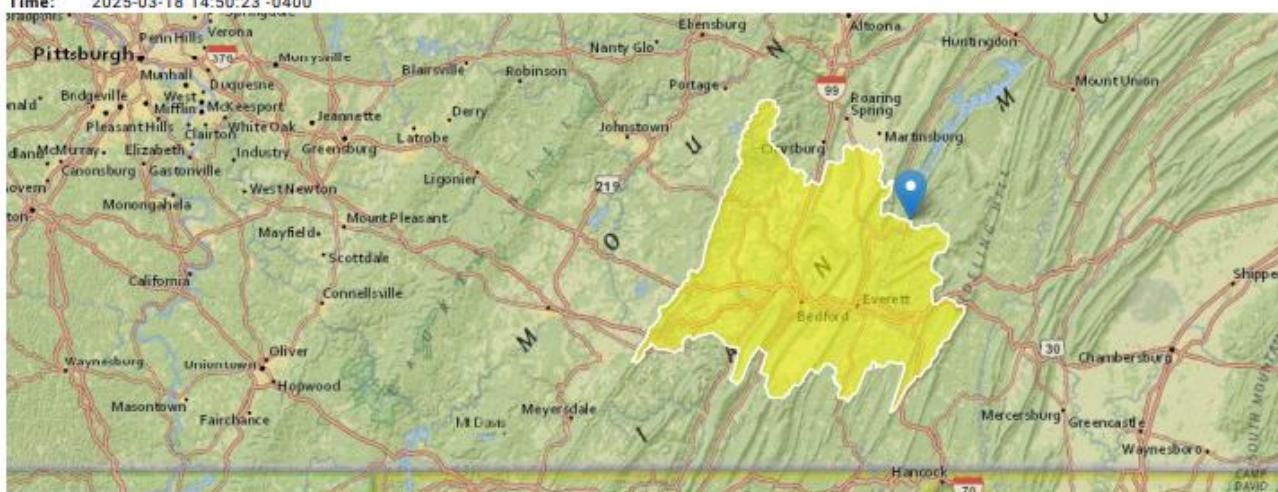
StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

Modeling Point #2

StreamStats Report

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Workspace ID: PA20250318184947363000
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Time: 2025-03-18 14:50:23 -0400



[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, PseudoR²: 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

Statistic	Value	Unit	SE	ASEp
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/>)

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Application Version: 4.28.0

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

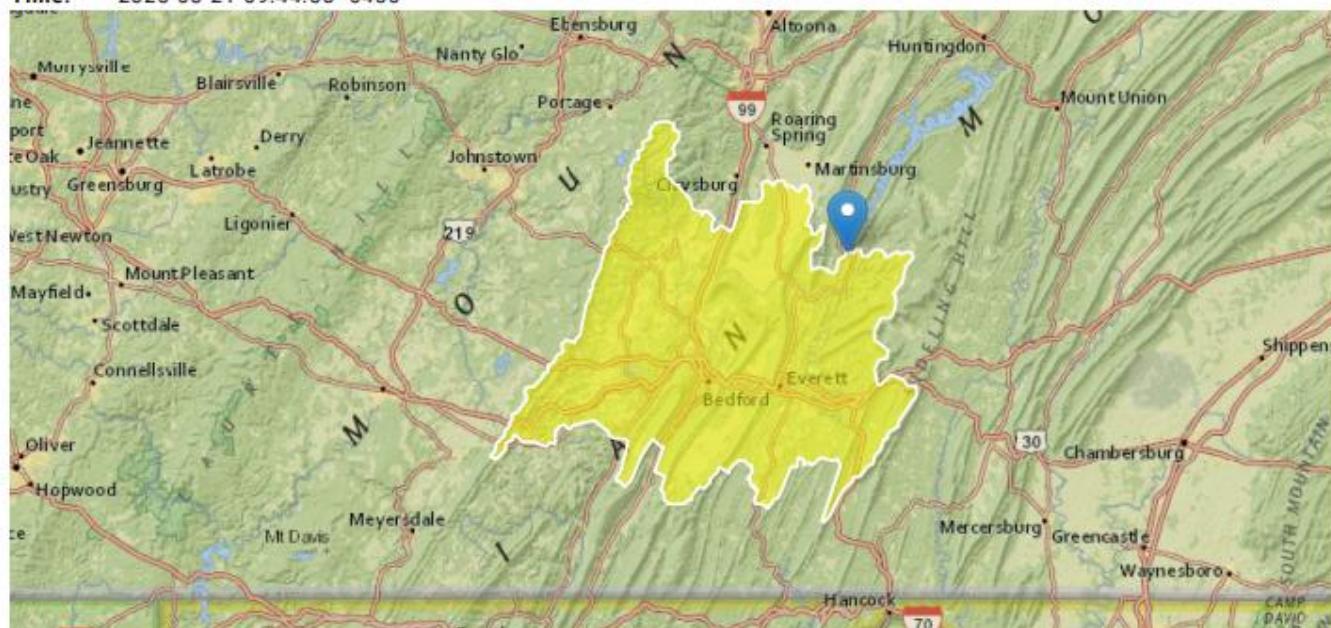
StreamStats Report

Region ID: PA

Workspace ID: PA20250321134410208000

Clicked Point (Latitude, Longitude): 40.19192, -78.25559

Time: 2025-03-21 09:44:55 -0400



Sunnyside WWTP PA0247073 Modeling Point #3 March 2025

[Collapse All](#)

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	16.08	percent
DRNAREA	Area that drains to a point on a stream	743	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	2.33	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	16.08	percent	0	99

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	743	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	2.33	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, PseudoR²: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	78.5	ft ³ /s	38	38
30 Day 2 Year Low Flow	101	ft ³ /s	33	33
7 Day 10 Year Low Flow	44.3	ft ³ /s	51	51
30 Day 10 Year Low Flow	57.6	ft ³ /s	46	46
90 Day 10 Year Low Flow	81.2	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/>)

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Application Version: 4.28.0

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

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>					
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)
50.700	Sunnyside	PA0247073	0.021	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)
48.560	Six Mile Run	PA0088609-5	0.083	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
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
50.700	Sunnyside	2.97	50	2.97	50	0	0
48.560	Six Mile Run	3.02	50	3.02	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
50.700	Sunnyside	.63	25	.63	25	0	0
48.560	Six Mile Run	.63	25	.63	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
50.70	Sunnyside	25	25	25	25	5	5	0	0
48.56	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	50.700	859.00	723.00	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Stream pH	Stream Temp (°C)	Stream pH
	(cfsm)	(cfs)	(cfs)									
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
Sunnyside	PA0247073	0.0210	0.0210	0.0210	0.000	23.00	8.00
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	48.560	848.00	724.00	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD	Rch Width	Rch Depth	Tributary Temp	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)	(°C)	(°C)
Q7-10	0.089	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.30	8.00	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	PA0088609-5	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	45.580	821.00	743.00	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	pH	Stream Temp (°C)	pH
	(cfs/m)	(cfs)	(cfs)									
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	0.00	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

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
11D	13349	RAYSTOWN BRANCH JUNIATA RIVER		
<u>RMI</u> 50.700	<u>Total Discharge Flow (mgd)</u> 0.021	<u>Analysis Temperature (°C)</u> 23.300	<u>Analysis pH</u> 8.000	
<u>Reach Width (ft)</u> 141.092	<u>Reach Depth (ft)</u> 1.083	<u>Reach WDRatio</u> 130.252	<u>Reach Velocity (fps)</u> 0.420	
<u>Reach CBOD5 (mg/L)</u> 2.01	<u>Reach Kc (1/days)</u> 0.007	<u>Reach NH3-N (mg/L)</u> 0.01	<u>Reach Kn (1/days)</u> 0.902	
<u>Reach DO (mg/L)</u> 8.241	<u>Reach Kr (1/days)</u> 2.064	<u>Kr Equation</u> Tsivoglou	<u>Reach DO Goal (mg/L)</u> 5	
<u>Reach Travel Time (days)</u> 0.311	<u>Subreach Results</u>			
	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
	0.031	2.01	0.01	7.76
	0.062	2.01	0.01	7.76
	0.093	2.01	0.01	7.76
	0.124	2.01	0.01	7.76
	0.156	2.01	0.01	7.76
	0.187	2.01	0.01	7.76
	0.218	2.01	0.01	7.76
	0.249	2.01	0.01	7.76
	0.280	2.01	0.01	7.76
	0.311	2.01	0.01	7.76
<u>RMI</u> 48.560	<u>Total Discharge Flow (mgd)</u> 0.104	<u>Analysis Temperature (°C)</u> 23.303	<u>Analysis pH</u> 7.992	
<u>Reach Width (ft)</u> 137.667	<u>Reach Depth (ft)</u> 1.078	<u>Reach WDRatio</u> 127.714	<u>Reach Velocity (fps)</u> 0.434	
<u>Reach CBOD5 (mg/L)</u> 2.05	<u>Reach Kc (1/days)</u> 0.030	<u>Reach NH3-N (mg/L)</u> 0.06	<u>Reach Kn (1/days)</u> 0.903	
<u>Reach DO (mg/L)</u> 7.759	<u>Reach Kr (1/days)</u> 3.760	<u>Kr Equation</u> Tsivoglou	<u>Reach DO Goal (mg/L)</u> 5	
<u>Reach Travel Time (days)</u> 0.419	<u>Subreach Results</u>			
	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
	0.042	2.05	0.06	7.76
	0.084	2.05	0.06	7.76
	0.126	2.04	0.05	7.76
	0.168	2.04	0.05	7.76
	0.210	2.04	0.05	7.76
	0.252	2.03	0.05	7.76
	0.294	2.03	0.05	7.76
	0.335	2.03	0.04	7.76
	0.377	2.03	0.04	7.76
	0.419	2.02	0.04	7.76

WQM 7.0 Hydrodynamic Outputs

SWP Basin			Stream Code			Stream Name								
11D			13349			RAYSTOWN BRANCH JUNIATA RIVER								
RM	Stream Flow	PWS With	Net Stream Flow	Disc Analysis	Reach Slope	Depth	Width	W/D Ratio	Velocity	Reach Trav Time	Analysis Temp	Analysis pH		
	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft)	(ft)		(fps)	(days)	(°C)			
Q7-10 Flow														
50.700	64.20	0.00	64.20	.0325 0.00097		1.083	141.09	130.25	0.42	0.311	23.30	8.00		
48.560	64.29	0.00	64.29	.1614 0.00172		1.078	137.67	127.71	0.43	0.419	23.30	7.99		
Q1-10 Flow														
50.700	58.42	0.00	58.42	.0325 0.00097		NA	NA	NA	0.40	0.328	23.30	8.00		
48.560	58.50	0.00	58.50	.1614 0.00172		NA	NA	NA	0.41	0.442	23.30	7.99		
Q30-10 Flow														
50.700	71.91	0.00	71.91	.0325 0.00097		NA	NA	NA	0.45	0.292	23.30	8.00		
48.560	72.01	0.00	72.01	.1614 0.00172		NA	NA	NA	0.46	0.394	23.30	7.99		

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.91	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.12	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		