pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0083569**
Facility Type	**Non-Municipal**	APS ID	**277725**
Major / Minor	**Minor**	Authorization ID	**1445310**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Riverview Homeowners Association**	Facility Name	**Riverview Estates Development**
Applicant Address	656 Excavating Drive	Facility Address	Riverview Road
	Roaring Spring, PA 16673-8538		Everett, PA 15537
Applicant Contact	Phillip Keith	Facility Contact	Andrew Meloy
Applicant Phone	(814) 329-0118	Facility Phone	(814) 329-8811
Client ID	36829	Site ID	447409
Ch 94 Load Status	Not Overloaded	Municipality	West Providence Township
Connection Status		County	Bedford
Date Application Received	June 24, 2023	EPA Waived?	Yes
Date Application Accepted	July 19, 2023	If No, Reason	

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

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineer Nick Hong (via electronic signature)	October 2, 2023
x		Daniel W. Martin, P.E. / Environmental Engineer Manager Maria D. Bebenek	October 11, 2023
x		Maria D. Bebenek, P.E. / Environmental Program Manager Maria D. Bebenek	October 11, 2023

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Riverview Estates located at Riverview Road, Everett, PA 15537 in Bedford County, municipality of West Providence. The existing permit became effective on June 1, 2019 and expires(d) on May 31, 2024. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on June 24, 2023.

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 0.015 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 and West Providence Township and the notice was received by the parties on June 22, 2023. 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 fish (TSF) and migratory fish (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 2022 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an attaining stream that supports aquatic life. 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 for pH, DO, and TRC shall be reduced to 5x/week
- Due to the EPA triennial review, monitoring for E. Coli shall be 1x/year.

Sludge use and disposal description and location(s): Biosolids / sewage sludge disposed at Orchard Lane Ex located in Blair County under permit number PA007005

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:	Riverview Estates
NPDES Permit #	PA0083569
Physical Address:	Riverview Road Everett, PA 15537
Mailing Address:	656 Excavating Drive Roaring Spring, PA 16673
Contact:	Keith Philip Owner orchardlaneinc@embarqmail.com (814) 329-0118
Consultant:	Andrew Meloy Operator ETS etsllc17@gmail.com (814) 329-8811

1.2 Permit History

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 Riverview Road, Everett, PA 15537. 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

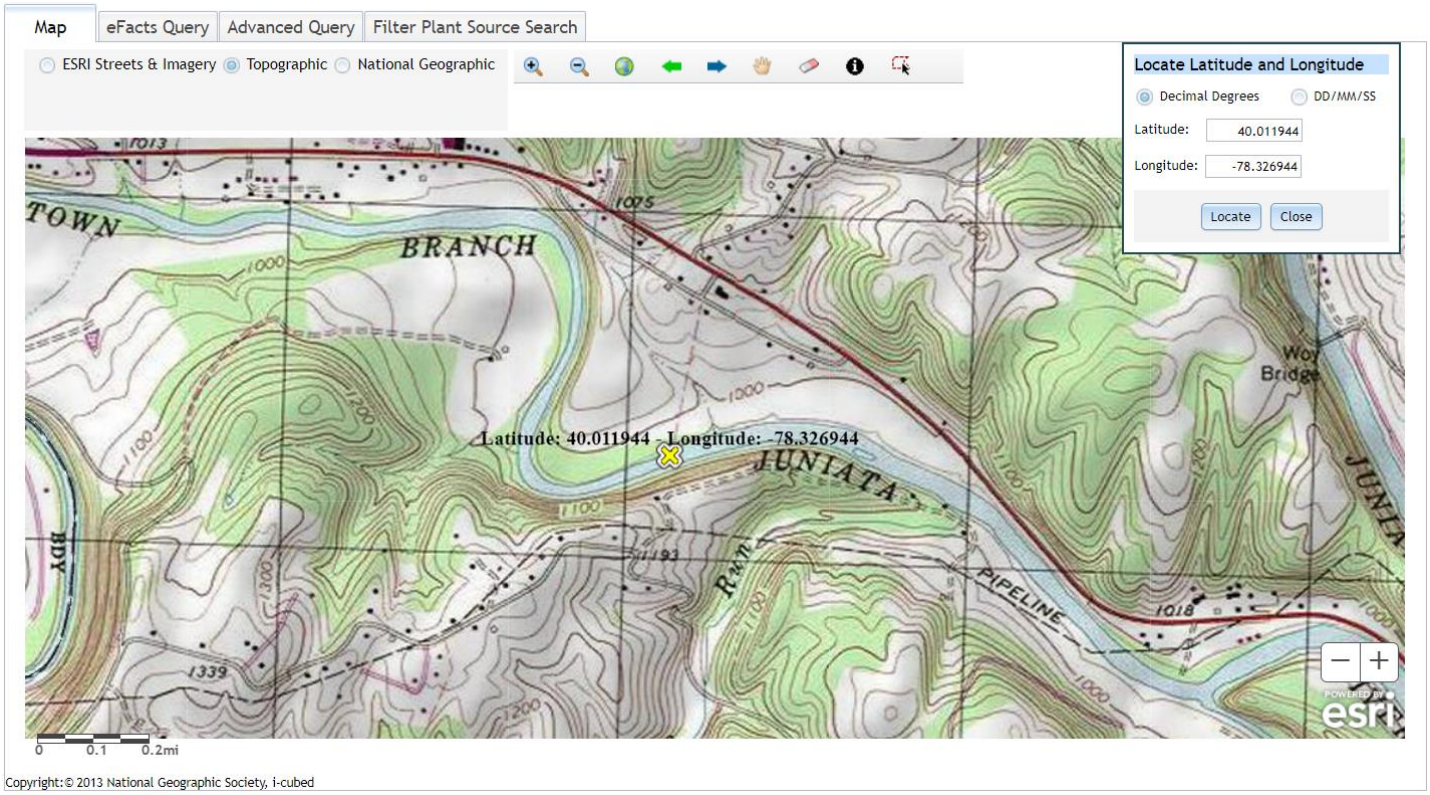
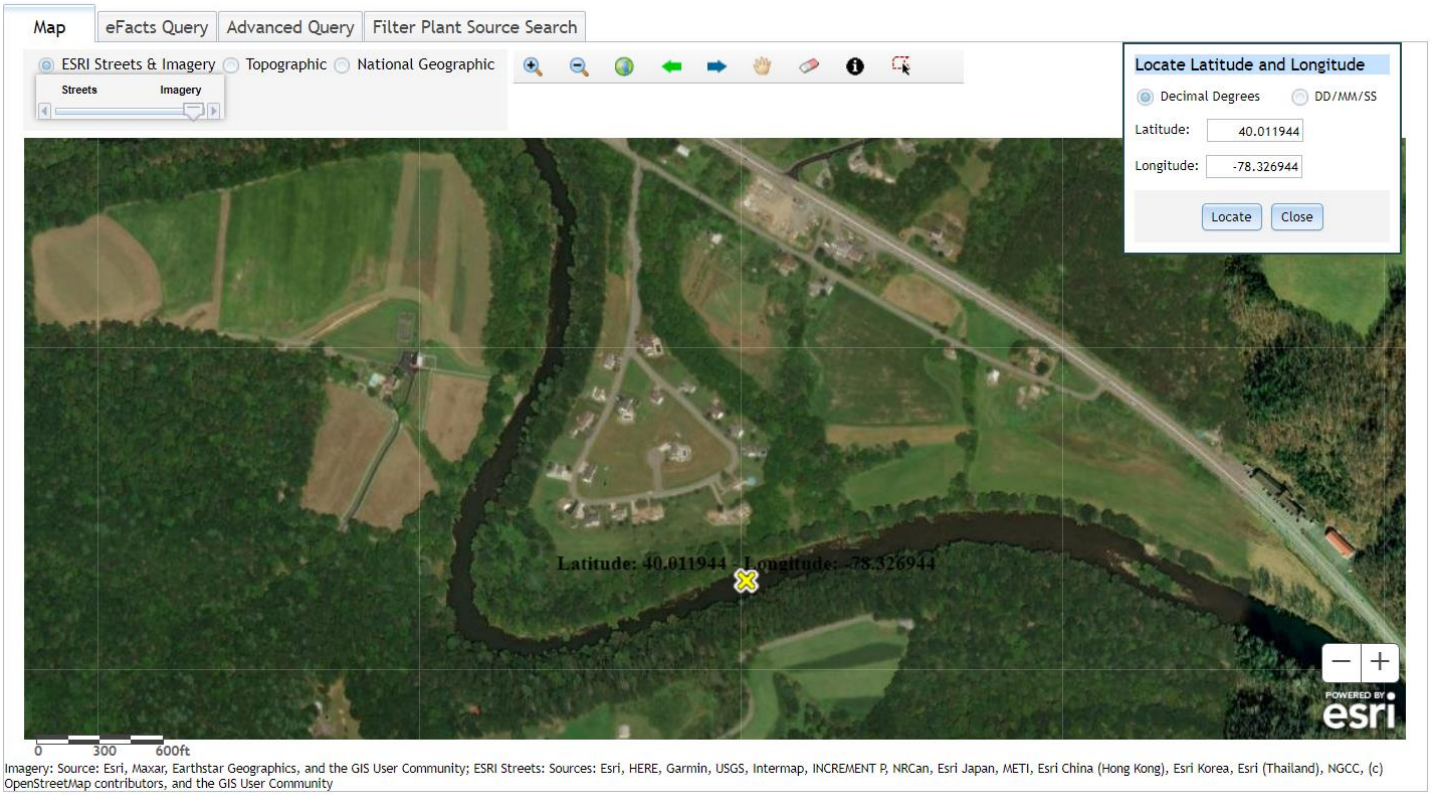


Figure 2: Aerial Photograph of the subject facility



2.2 Description of Wastewater Treatment Process

The subject facility is a 0.015 MGD design flow facility. The subject facility treats wastewater using an aeration basin, a clarifier, a dosing tank, multiple sand bed filters, a chlorine contact tank, and post aeration prior to discharge through the outfall. The facility is being evaluated for flow, pH, dissolved oxygen (DO), TRC, CBOD, TSS, fecal coliform, total nitrogen and total 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: Riverview Estates Homeowners Assoc				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Extended Aeration	Hypochlorite	
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.015		Not Overloaded	Aerobic Digestion	Combination of methods

2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

Outfall No.	001	**Design Flow (MGD)**	.015
Latitude	40º 0' 43.56"	**Longitude**	-78º 19' 37.36"
Wastewater Description:	Sewage Effluent		

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.

- Chlorine for disinfection
- Sodium sulfate for dichlorination
- Lime for pH adjustment

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° 0' 43.56" , **Longitude** 78° 19' 37.36" , **River Mile Index** 75.5 , **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 **June 1, 2019** through **May 31, 2024**.
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	Average Weekly	Minimum	Average Monthly	Maximum	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	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	25	XXX	50	2/month	8-Hr Composite
Total Suspended Solids	XXX	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
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
Nitrate-Nitrite as N	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Nitrogen (Total Load, lbs) (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Ammonia-Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite

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

04/27/2020:

- The facility was contacted by phone if there were any staffing or operational issues at the plant related to the COVID-19 outbreak. The operator reported that the treatment plant is operating normally and staffing is adequate. Routine checks at the plant were still taking place and effluent testing was being conducted as required. A review of monthly DMRs and supplemental reports showed an effluent reporting error for fecal coliform. The operator has been reporting the fecal coliform value as a monthly average instead of a geometric mean. This same error was found on the DMR's for other facilities this operator is responsible for. The miscalculated fecal coliform results were higher than they would be if the geometric mean was reported. The geometric mean should be reported on all future monitoring reports.

08/19/2020:

- An administrative inspection of the Riverview Estates STP. Reviewed past reports and DMRs.
- An inspection conducted on April 27, 2020 noted a reporting violation for fecal coliform.
- A review of the monthly discharge monitoring reports (DMRs) showed that the fecal coliform value was being reported as an average instead of a geometric mean.
- A non-compliance report attached to the DMR attributed the violations to a faulty blower and noted that the blower was repaired.

10/15/2021:

- The facility stated they recently replaced the chlorine feeds lines and that caused an overdose of chlorine. The operator stated that they diluted the chlorine in the storage container.
- The secondary clarifier contained an abundance of floating sludge on the surface and in the effluent troughs. The sludge blanket appeared to be about one foot below the water surface. The operator should investigate the cause of the excess sludge. The wasting or return rates may need to be adjusted.
- The sand bed dosing tank also contained some floating sludge and debris
- DEP was unable to locate any laboratory results or bench sheets more current that November 2020.
- 8-hour composite samples were taken by hand but the individual grab times were no longer being recorded in the log book.
- Sludge was last hauled out in May 2020.
- There were two containers with buffer solution on a shelf but there were no labels on the containers and no expiration dates.
- The outfall pipe for the treatment plant could not be located. The operator stated that the tropical storm deposited a lot of debris along the bank and may have covered it up. DEP requested that the outfall be located

11/30/2021:

- There was nothing significant to report.

10/26/2022:

- A layer of thick scum over the entire surface of the clarifier tank and sludge in the corners of three of the sand filters was observed. The operator thinks the scum in the clarifier and sludge on the sand was due to a recent plant upset. He explained that on 10/22/2022 a fire occurred in the main control panel and burned up some of the wires and switches. This caused the blowers and pumps to turn off. The facility was unsure how long the power was off. An electrician had been out to the plant since the fire but neither operator knew when the repairs would be taking place.

Operating high voltage electrical equipment without circuit breakers is unsafe and the panel should be repaired or replaced as soon as possible.

- A leak in the concrete block wall separating the aeration tank and sludge holding tank was recently repaired.
- DEP was unable to view some of the plant monitoring records. There were no recent laboratory sample results or chain of custody forms on site. The most recent sample results were from September 2021. The last receipt for sludge hauling activity was from May 5, 2020. Sludge removed from the plant on May 5, 2020 was not reported on the biosolids disposal supplemental form included with the May 2020 DMR.

02/14/2023:

- This was a follow-up inspection to check on violations noted during the inspection from October 26, 2022.
- The fire that damaged electrical components were replaced, including new controls modules, wiring, and switches. A sludge return valve was also repaired. The basket used to hold dechlorination tablets broke loose and needed to be located. The basket is lowered into an effluent manhole and the force flow caused the basket to enter the pipe and did not allow for a convenient sample point.
- Laboratory results and plant bench sheets that could not be located during last inspection are now on site and include records for the past three years.
- The four individual grab times for the composite samples were not being recorded. The log book notes the time of the first and last sample but not the time for the other two samples. The operator will begin to record all grab times.
- The most current sludge hauling record was from May 2020. The operator thinks sludge is removed from the plant about twice per year and that the association secretary probably has the receipts. Copies of sludge hauling records for past five years should be kept at the treatment plant. A sludge removal supplemental form needs to submitted for any month sludge was hauled out.

07/26/2023:

- This was a follow-up inspection to check on record keeping violations noted during the inspection on February 24, 2023. The four individual grab times for the composite sample are now being recorded in the log book.
- The missing sludge disposal records are now on site. There are sludge hauling receipts from 2020, 2021, 2022, and 2023.
- An abundance of floating sludge was observed along the clarifier weirs and in the sand bed dosing tank. The sand bed filters also have a thin layer of dried sludge on the surface. Checking the solids content of the treatment system and investigating the cause of the floating sludge was recommended. The dosing tank and sand beds should be free of sludge.
- Laboratory sample results for 2023 except for one test on June 6, 2023 was not locatable on site. Copies of lab results from January 2023 through June 2023 should be available on site for review.

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 exceeded the design capacity of the treatment system. In August 2022, the maximum average flow data for the DMR reviewed was 0.017 MGD. The design capacity of the treatment system is 0.015 MGD. The facility did not have three consecutive months of flows exceeding 0.015 MGD.

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

DMR Data for Outfall 001 (from June 1, 2022 to May 31, 2023)

Parameter	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22
Flow (MGD) Average Monthly	0.012442	0.01018	0.01254	0.0116	0.01123	0.01272	0.0122	0.01082	0.010824	0.017589	0.009983	0.009938
Flow (MGD) Daily Maximum	0.09359	0.01336	0.021273	0.0264	0.0156	0.04433	0.02974	0.01584	0.02677	0.1292	0.01554	0.01437
pH (S.U.) Instantaneous Minimum	6.75	6.92	6.99	6.94	6.88	6.92	6.85	6.69	6.73	6.72	6.83	6.58
pH (S.U.) Instantaneous Maximum	7.36	7.50	7.51	7.4	7.80	7.88	7.93	7.35	7.14	7.2	7.3	7.41
DO (mg/L) Instantaneous Minimum	6.3	7.2	8.5	9.0	8.7	8.4	7.0	6.60	5.8	5.7	5.8	6.2
TRC (mg/L) Average Monthly	< 0.2	0.3	0.2	0.4	0.40	0.3	0.3	< 0.3	0.3	0.3	0.3	0.3
TRC (mg/L) Instantaneous Maximum	1.3	1.49	0.37	0.49	0.56	0.44	0.36	0.44	0.45	0.44	0.41	0.38
CBOD5 (mg/L) Average Monthly	< 3.0	< 3.0	< 5.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 7.0	< 3.0	< 3.0	< 5
TSS (mg/L) Average Monthly	< 2.0	< 4.0	< 2.0	15	< 9.0	< 2.0	< 2.0	< 1.60	< 2	< 3.0	< 5.0	3
Fecal Coliform (No./100 ml) Geometric Mean	< 4.0	55	< 4.0	14	13	256	16	13.0	8.0	40	61	46
Fecal Coliform (No./100 ml) Instantaneous Maximum	4.0	100	< 4.0	48.8	39.2	2419	85.7	13.4	66.3	187	63.1	98.8
Nitrate-Nitrite (mg/L) Annual Average						< 40.29						
Total Nitrogen (lbs) Total Annual						< 128						
Ammonia (mg/L) Annual Average						< 1						
TKN (mg/L) Annual Average						< 0.5						

Total Phosphorus (lbs/day) Total Annual						< 11						
Total Phosphorus (mg/L) Annual Average						3.61						

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 June 1, 2019 to September 22, 2023, the following were observed effluent non-compliances.

Summary of Non-Compliance with NPDES Permit Limits
Beginning June 1, 2019 and ending September 22, 2023

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
7/26/2019	Violation of permit condition	Effluent	pH	5.94	<	6.0	S.U.	Instantaneous Minimum	LIME NEEDED TO BE INCREASED.
7/27/2020	Violation of permit condition	Effluent	Dissolved Oxygen	4.4	<	5.0	mg/L	Instantaneous Minimum	
5/29/2021	Late DMR Submission	Other Violation							
5/27/2021	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.6	>	.5	mg/L	Average Monthly	
8/28/2021	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.7	>	.5	mg/L	Average Monthly	ISSUES WITH CL2 PUMP.. REPAIRED
8/28/2023	Violation of permit condition	Effluent	Fecal Coliform	1732.9	>	1000	No./100 ml	Instantaneous Maximum	Inadequate disinfection - added more chlorin
8/28/2023	Violation of permit condition	Effluent	Fecal Coliform	323	>	200	No./100 ml	Geometric Mean	Inadequate disinfection-Added more chlorin

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 June 1, 2019 to September 22, 2023, 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.

2023
Sewage Sludge / Biosolids Production Information

Hauled Off-Site			
Date (YEAR)	Tons Dewatered	% Solids	Dry Tons
January			
February			
March			
April			
May			
June	4000	0.16	6.4
July			
August			

Notes:

Biosolids / sewage sludge disposed at Orchard Lane Excavation located in Blair County under permit number PA007005

3.5 Open Violations

As of September 2023, the table summarizes open violations.

Summary of Open Violations

INSP ID	VIOLATION ID	DATE	VIOLATION CODE	VIOLATION
3266827	933298	10/15/2021	92A.44	NPDES - Violation of effluent limits in Part A of permit
3266827	933299	10/15/2021	92A.41(A)10B	NPDES - Failure to utilize approved analytical methods
3266827	933300	10/15/2021	92A.41(A)8	NPDES - Failure to provide information or records required by
3266827	933301	10/15/2021	92A.61(F)2	NPDES - Failure to maintain records for at least 3 years
3283270	936644	11/17/2021	92A.44	NPDES - Violation of effluent limits in Part A of permit
3448336	973642	10/26/2022	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance

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 #4050221) located approximately 37 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 2022 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 2022 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 waterbody. The surface waters is an attaining stream that supports aquatic life. 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 River at Saxton, PA (WQN223). This WQN station is located approximately 38 miles downstream of the subject facility.

The closest gauge station to the subject facility is the Raystown Branch Juniata River at Saxton, PA (USGS station number 1562000). This gauge station is located approximately 38 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 =	(67.1 ft^3/sec / 756 mi^2)		
LFY =	0.0888	$ft^3/sec/mi^2$	
The low flow at the subject site is based upon the DA of		454	mi^2
Q710 = (LFY@gauge station)(DA@Subject Site)			
Q710 = (0.0888 $ft^3/sec/mi^2$)(454 mi^2)			
Q710 =	40.296	ft^3/sec	

4.6 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.015
Latitude	40º 0' 43.04"	Longitude	-78º 19' 37.15"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		

Receiving Waters	Raystown Branch Juniata River (TSF)	Stream Code	13349
NHD Com ID	65847203	RMI	75.5
Drainage Area	454	Yield (cfs/mi^2)	0.0888
Q_{7-10} Flow (cfs)	40.296	Q_{7-10} Basis	StreamStats/Streamgauge
Elevation (ft)	975	Slope (ft/ft)	
Watershed No.	11-C	Chapter 93 Class.	TSF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s) supports aquatic life.		
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; 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)	37

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)

5.3 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)*	*(Modeling Point #2)*	*Units*
Stream Code	13349	13349	
River Mile Index	75.5	74.35	miles
Elevation	975	970	feet
Latitude	40.011944	40.005797	
Longitude	-78.326944	-78.308847	
Drainage Area	454	460	sq miles
Low Flow Yield	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

Since the facility has a design flow rate not exceeding 0.1 MGD, 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:

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

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.

This facility is subject to Sector C monitoring requirements. Monitoring for nitrogen species and phosphorus shall be 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.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 and (b) Nitrogen Species and Phosphorus.

6.1.1 Conventional Pollutants and Disinfection

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection
Riverview Estates, PA0083569

Parameter	Permit Limitation Required by[1]:	Recommendation	
pH (S.U.)	TBEL	Monitoring:	The monitoring frequency shall be 5x/week as a grab sample (SOP).
		Effluent Limit:	Effluent limits may range from pH = 6.0 to 9.0
		Rationale:	The monitoring frequency has been assigned in accordance with SOP and the effluent limits assigned by Chapter 95.2(1).
Dissolved Oxygen	BPJ	Monitoring:	The monitoring frequency shall be 5x/week as a grab sample (SOP).
		Effluent Limit:	Effluent limits shall be greater than 5.0 mg/l.
		Rationale:	The monitoring frequency has been assigned in accordance with SOP 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 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 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). While there is no WQM modeling for this parameter, the permit limit for TSS is generally assigned similar effluent limits as CBOD or BOD.
TRC	TBEL	Monitoring:	The monitoring frequency shall be 5x/week as a grab sample (SOP).
		Effluent Limit:	The average monthly limit should not exceed 0.5 mg/l and/or 1.6 mg/l as an instantaneous maximum.
		Rationale: Chlorine in both combined (chloramine) and free form is extremely toxic to freshwater fish and other forms of aquatic life (Implementation Guidance Total Residual Chlorine 1). The TRC effluent limitations to be imposed on a discharger shall be the more stringent of either the WQBEL or TBEL requirements and shall be expressed in the NPDES permit as an average monthly and instantaneous maximum effluent concentration (Implementation Guidance Total Residual Chlorine 4). Based on the stream flow rate (lowest 7-day flow rate in 10 years) and the design flow rate of the subject facility calculated by the TRC Evaluation worksheet, the TBEL is more stringent than the WQBEL. The monitoring frequency has been assigned in accordance with SOP and the effluent limits assigned by Chapter 92a.48(b)(2)	
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).
E. Coli	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/yr as a grab sample (SOP).
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised March 22, 2019) 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 0.015 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

Riverview Estates, PA0083569

Parameter	Permit Limitation Required by[1]:	Recommendation	
Ammonia-Nitrogen	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.
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 0.015 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 issued on March 22, 2021 and in conjunction with EPA's 2017 Triennial Review, monitoring for E. Coli shall be required.

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.

Changes in Permit Monitoring or Effluent Quality		
Parameter	**Existing Permit**	**Draft Permit**
E. Coli	No monitoring or effluent requirements	Due to the EPA triennial, monitoring shall be required 1x/yr.
pH, DO, and TRC	Monitoring is required 1x/day	Per SOP, monitoring shall be 5x/week

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° 0' 43.56" , **Longitude** 78° 19' 37.36" , **River Mile Index** 74.5 , **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	Average Weekly	Minimum	Average Monthly	Daily Maximum	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	5/week	Grab
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	5/week	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	5/week	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	25	XXX	50	2/month	8-Hr Composite
Total Suspended Solids	XXX	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
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	XXX	1/year	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Nitrogen (Total Load, lbs) (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

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	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
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	Report Total Annual	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.

- Chlorine Minimization
- Hauled-in Waste Restrictions
- Chesapeake Bay Nutrient Definitions
- Solids Management for Non-Lagoon Treatment Systems

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

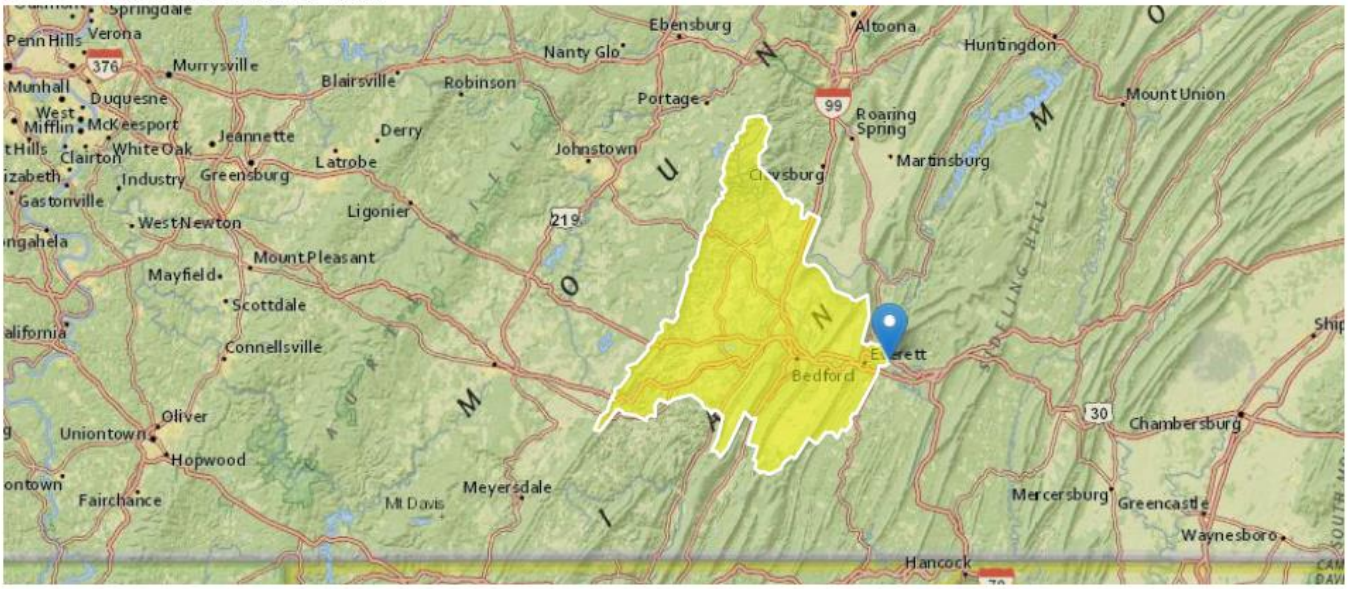
Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[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: PA20230922174343132000
Clicked Point (Latitude, Longitude): 40.01212, -78.32668
Time: 2023-09-22 13:44:09 -0400



Riverview Estates PA0083569 Modeling Point #1 September 2023

Collapse All

Basin Characteristics

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	14.92	percent
DRNAREA	Area that drains to a point on a stream	454	square miles
PRECIP	Mean Annual Precipitation	38	inches
ROCKDEP	Depth to rock	4.2	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	2.4	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [99.9 Percent (453 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	454	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	38	inches	35	50.4
STRDEN	Stream Density	2.4	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.2	feet	3.32	5.65
CARBON	Percent Carbonate	14.92	percent	0	99

Low-Flow Statistics Flow Report [99.9 Percent (453 square miles) Low Flow Region 2]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	41.9	ft^3/s	38	38

Statistic **Value** **Unit** **SE** **ASEp**

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	41.9	ft^3/s	38	38
30 Day 2 Year Low Flow	55.1	ft^3/s	33	33
7 Day 10 Year Low Flow	22.1	ft^3/s	51	51
30 Day 10 Year Low Flow	29.6	ft^3/s	46	46
90 Day 10 Year Low Flow	43.2	ft^3/s	36	36

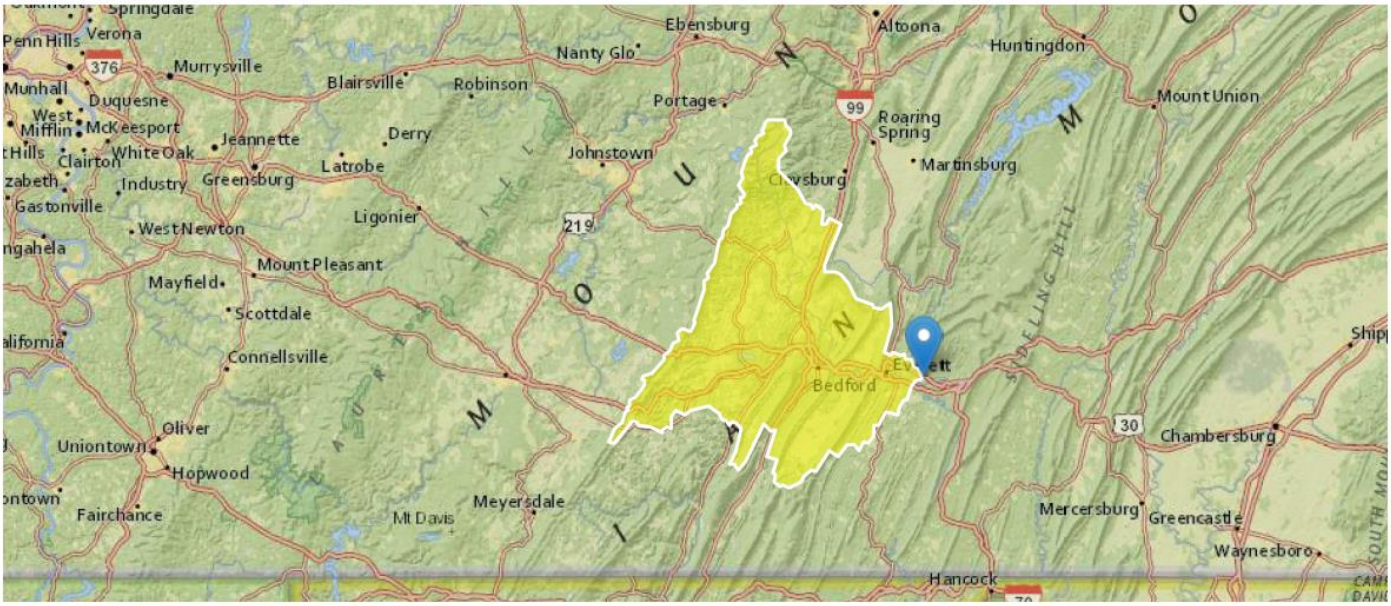
Low-Flow Statistics Citations

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/)

Application Version: 4.17.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20230922173832333000
Clicked Point (Latitude, Longitude): 40.00589, -78.30900
Time: 2023-09-22 13:38:58 -0400



Riverview Estates PA0083569 Modeling Point #2 September 2023

Collapse All

Basin Characteristics

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	14.72	percent
DRNAREA	Area that drains to a point on a stream	460	square miles
PRECIP	Mean Annual Precipitation	38	inches
ROCKDEP	Depth to rock	4.2	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	2.39	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [99.9 Percent (460 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	460	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	38	inches	35	50.4
STRDEN	Stream Density	2.39	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.2	feet	3.32	5.65
CARBON	Percent Carbonate	14.72	percent	0	99

Low-Flow Statistics Flow Report [99.9 Percent (460 square miles) Low Flow Region 2]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	42.5	ft^3/s	38	38
Statistic	**Value**	**Unit**	**SE**	**ASEp**

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	42.5	ft^3/s	38	38
30 Day 2 Year Low Flow	56	ft^3/s	33	33
7 Day 10 Year Low Flow	22.5	ft^3/s	51	51
30 Day 10 Year Low Flow	30.1	ft^3/s	46	46
90 Day 10 Year Low Flow	44	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: 4.17.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment B

WQM 7.0 Modeling 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)
75.500	Riverview	PA0083569	0.015	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
75.500	Riverview	2.98	50	2.98	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
75.500	Riverview	.63	25	.63	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)		
75.50	Riverview	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	75.500	975.00	454.00	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
Riverview	PA0083569	0.0150	0.0150	0.0150	0.000	25.00	7.15

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	74.350	970.00	460.00	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
75.500	0.015	23.301	7.998
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
108.576	0.995	109.094	0.373
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.01	0.009	0.01	0.902
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.241	1.551	Tsivoglou	5
Reach Travel Time (days)			
0.188			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.019	2.01	0.01	7.76
0.038	2.01	0.01	7.76
0.056	2.01	0.01	7.76
0.075	2.01	0.01	7.76
0.094	2.01	0.01	7.76
0.113	2.01	0.01	7.76
0.132	2.01	0.01	7.76
0.151	2.01	0.01	7.76
0.169	2.01	0.01	7.76
0.188	2.01	0.01	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												
75.500	40.32	0.00	40.32	.0232	0.00082	.995	108.58	109.09	0.37	0.188	23.30	8.00
Q1-10 Flow												
75.500	38.70	0.00	38.70	.0232	0.00082	NA	NA	NA	0.36	0.193	23.30	8.00
Q30-10 Flow												
75.500	46.36	0.00	46.36	.0232	0.00082	NA	NA	NA	0.40	0.174	23.30	8.00

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		

Attachment C

TRC Evaluation

Riverview Estates
PA0083569
October 2023

1A	B	C	D	E	F	G
2	**TRC EVALUATION**					
3	Input appropriate values in B4:B8 and E4:E7					
4	40.29550265	= Q stream (cfs)		0.5	= CV Daily	
5	0.015	= Q discharge (MGD)		0.5	= CV Hourly	
6	30	= no. samples		1	= AFC_Partial Mix Factor	
7	0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor	
8	0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
9	0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
	0	= % Factor of Safety (FOS)		0	=Decay Coefficient (K)	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	1.3.2.iii	WLA afc = 553.963		1.3.2.iii	WLA cfc = 540.063
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 206.420		5.1d	LTA_cfc = 313.967
14						
15	Source		Effluent Limit Calculations			
16	PENTOXSD TRG	5.1f	AML MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500		BAT/BPJ	
18			INST MAX LIMIT (mg/l) = 1.635			

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...** **...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...** **...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**