pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0025381**
Facility Type	**Municipal**	APS ID	**32006**
Major / Minor	**Minor**	Authorization ID	**1395951**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Saxton Borough Municipal Authority** **Bedford County**	Facility Name	**Saxton Borough STP**
Applicant Address	1002 Branch Street Saxton, PA 16678-8739	Facility Address	1002 Branch Street Saxton, PA 16678-8739
Applicant Contact	Chris Cooper	Facility Contact	Chris Cooper
Applicant Phone	(814) 635-3403	Facility Phone	(814) 635-3403
Client ID	5966	Site ID	451743
Ch 94 Load Status	Not Overloaded	Municipality	Liberty Township
Connection Status	No Limitations	County	Bedford
Date Application Received	May 10, 2022	EPA Waived?	No
Date Application Accepted	May 18, 2022	If No, Reason	Significant CB Discharge

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

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineer Nick Hong (via electronic signature)	June 24, 2022
x		Daniel W. Martin, P.E. / Environmental Engineer Manager Maria D. Bebenek for Daniel W. Martin	July 19, 2022
x		Maria D. Bebenek, P.E. / Environmental Program Manager Maria D. Bebenek	July 19, 2022

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Saxton Borough WWTP located at 1002 Branch Street, Saxton, PA 16678 in Bedford County, municipality of Liberty. The existing permit became effective on September 1, 2017 and expires(d) on August 31, 2022. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on May 18, 2022.

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 0.60 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 2) 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, Liberty Township Municipal Sewer Authority, Liberty Township Supervisors, and Saxton Borough Council. 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 Raystown Branch Juniata River discharges into are the Juniata River and the Susquehanna River which eventually drains into the Chesapeake Bay. The subject site is subject to the Chesapeake Bay implementation requirements. The receiving water has protected water usage for trout stocking fish (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 2020 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an attaining stream that supports aquatic life and fish consumption. The receiving waters is 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:

- **Due to the EPA Triennial review, monitoring for E. Coli shall be at least 1x/quarter**
- **Monitoring shall be required 1x/month for Total Copper, Total Lead, and Total Zinc.**

Sludge use and disposal description and location(s): Biosolids/sewage sludge disposed at Mostoller Landfill in Somerset, PA

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:	Saxton Borough WWTP
NPDES Permit #	PA0025381
Physical Address:	1002 Branch Street Saxton, PA 16678
Mailing Address:	1002 Branch Street Saxton, PA 16678
Contact:	Chris Cooper Chief Operator (814) 635-3403 sbma16678@gmail.com
Consultant:	Maggie Weitzel Senior Environmental Scientist Gwin, Dobson, and Foreman, Inc. 3121 Fairway Drive Altoona, PA 16602 mweitzel@gdfengineers.com

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 1002 Branch Street, Saxton, PA 16678. 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

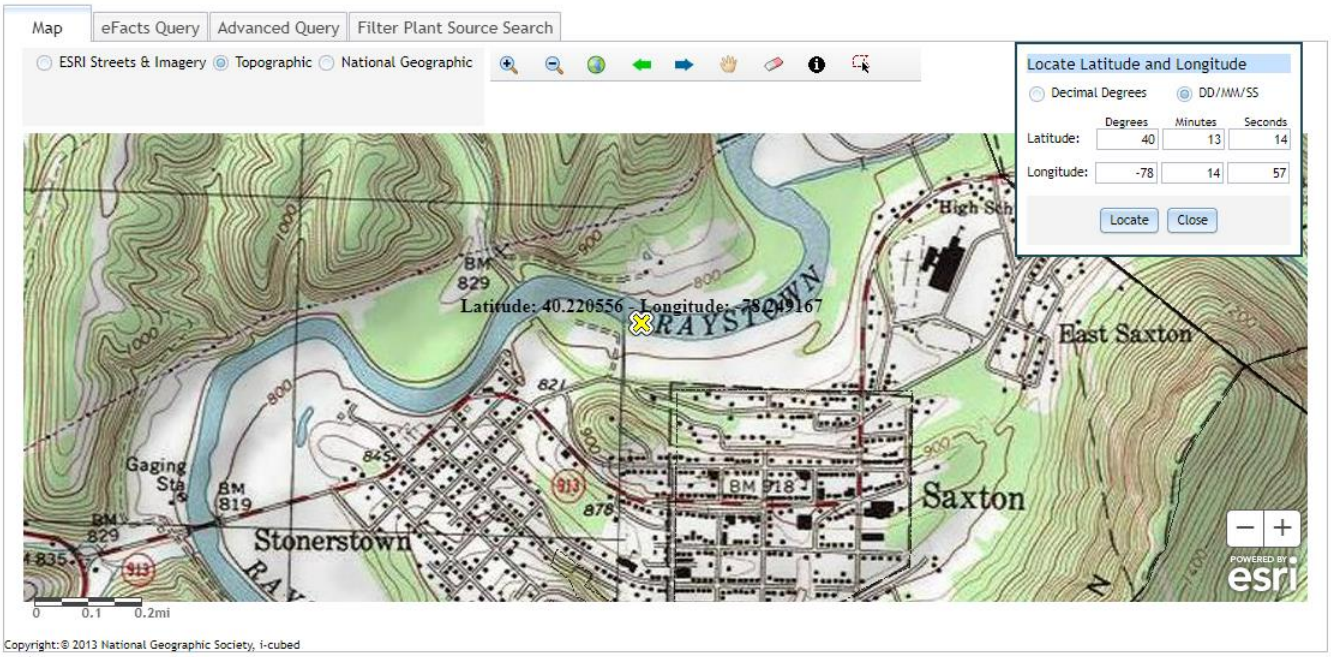
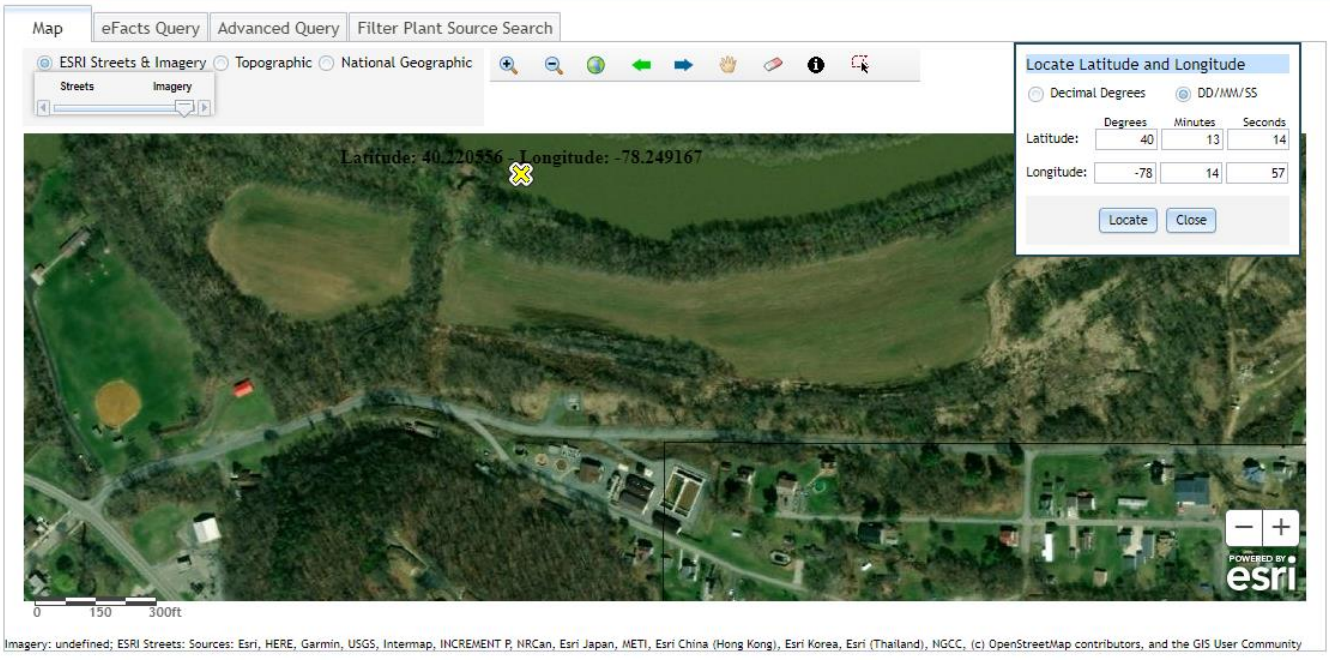


Figure 2: Aerial Photograph of the subject facility



2.1.2 Sources of Wastewater/Stormwater

The facility received wastewater contributions from three different municipalities as summarized in the table.

Municipalities Served	Flow Contribution
Saxton Borough	47%
Liberty Township	52%
Hopewell Township	1%
Total	100%

The table summarizes industrial / commercial wastewater contributions.

Business	Type of Business	SIU/NSCIU/ Hauled-in-Waste	Flow- Average GPD
Craig Angelo Car Restoration	Car Restoration		32.7
Dollar General Store	Retail Store		163
Community State Bank	Bank		98
Everett Marble & Granite Works	Monument Manufacture		30
First National Bank	Bank		60
Wine & Spirits	PA State Liquor Store		30
Saxton Floor Wall Mart	Carpet Retail Store		30
Saxton Library	Library		35
Saxton Pharmacy	Pharmacy		35
Johnson & Jenkins Insurance	Insurance Company		30
Saxton Sportsman's Club	Bar and Grill Tavern		350
Fisher's	Church		340
Saxton Borough Municipal Authority Water Treatment Plant	Water Treatment Plant		170
United Church of Christ	Church and Parsonage		246
Tussey Mountain High School	Education Institution		1960
Tussey Mountain Elem. School	Education Institution		2125
Sharton Sitch Beauty Shop	Hair Salon		245
Bubba's Pizza	Restaurant		265
Saxton Market	Grocery Store		1160
OIP	Restaurant		150
Country Blossoms	Flower Shop		30
Hairspray Kreations	Hair Salon		30
Martin Oil Company	Convenience Store		720
Dr. Michael Shuke	Dentist		240
Dr. John Snyder	Dentist		110
Wash-N-Go	Laundromat		560
Stoudnour Car Wash	Car Wash		460
Akers Funeral Chapel	Funeral Home		65
VFW Post	Bar and Grill Tavern		180
Saxton Family Practice	General Family Practitioner		50
Jan's Pet Grooming	Pet Grooming		95
McCahan's Pharmacy	Pharmacy		100
Hair By Kendal	Hair Salon		100
Saxton Borough Municipal Authority Wastewater Treatment Plant	Wastewater Treatment Plant		2,000
Green Leaf	Medical Marijuana Production Facility		4,500
First Church of God	Church		200
Saxton Methodist Church	Church		250
Titan Treats	Ice Cream Stand		100 (Seasonal)
John Swope Garage	Garage		70
Bob Horton Barber Shop	Barber Shop		35
Friendly's Tavern	Bar & Grill		35
Saxton Auto Parts	Retail Store		40
Crawshaw Printing Shop	Print Shop		35
Villa's Gym	Gymnasium		35
Saxton Treasure Emporium	Retail Store		30
Ritchey's Craft Shop	Retail Store		30

2.2 Description of Wastewater Treatment Process

The subject facility is a 0.60 MGD design flow facility. The subject facility treats wastewater using a ICEAS SBR and chlorine disinfection prior to discharge through the outfall. The facility is being evaluated for flow, pH, dissolved oxygen, TRC, CBOD5, TSS, fecal coliform, nitrogen species, and phosphorus. The existing permits limits for the facility is summarized in Section 2.4.

The treatment process is summarized in the table.

Treatment Facility Summary

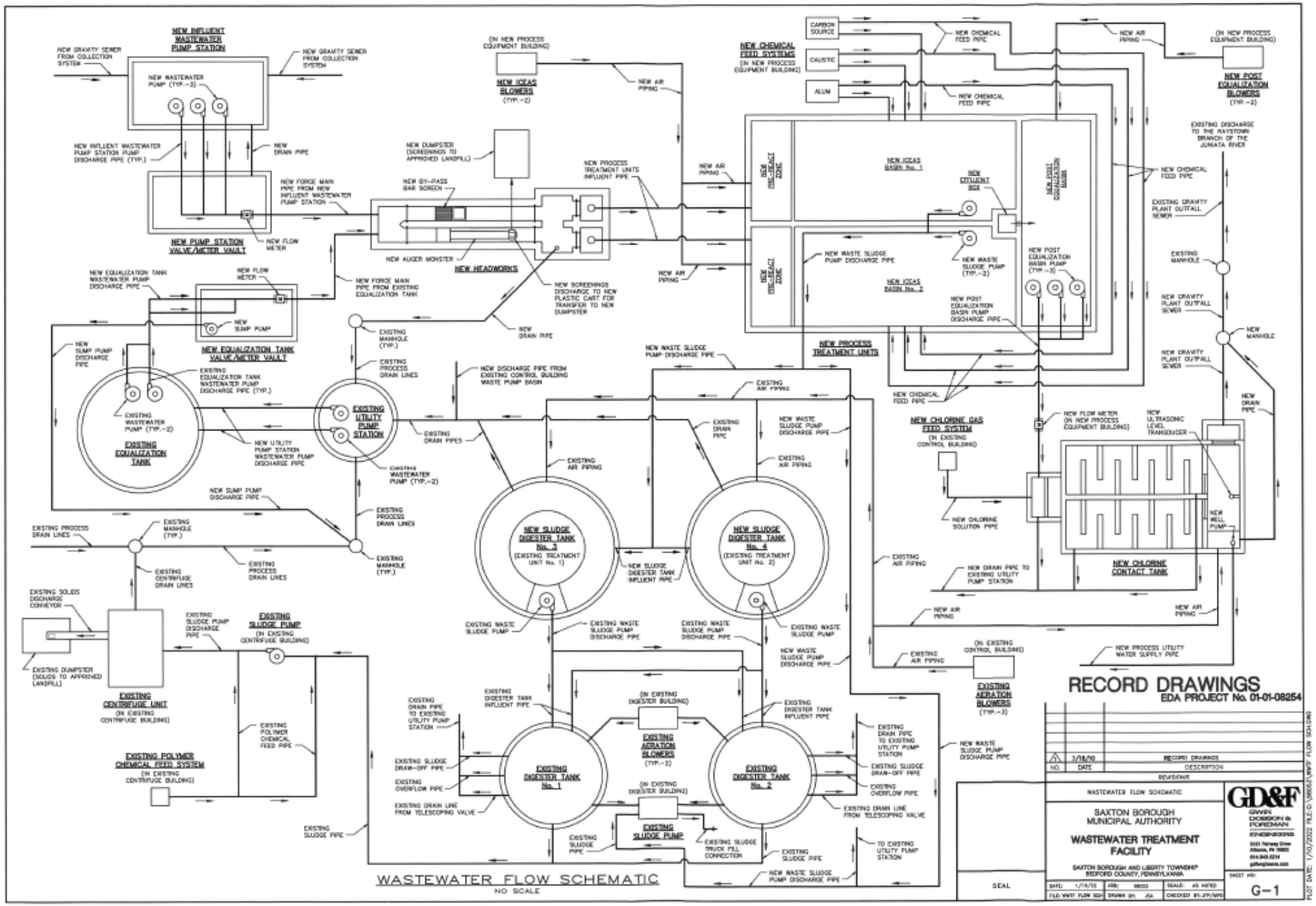
Treatment Facility Name: Saxton STP

WQM Permit No.	Issuance Date
0587402 99-1	04/19/1999
0506403	10/17/2006

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	SBR	Gas Chlorine	0.6

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.6	1251	Not Overloaded	Aerobic Digestion	Combination of methods

A schematic of the treatment process is depicted.


NEW INFLUENT WASTEWATER PUMP STATION
NEW GRAVITY SEWER FROM COLLECTION SYSTEM
NEW WASTEWATER PUMP (TYP.-3)
NEW INFLUENT WASTEWATER PUMP STATION PUMP DISCHARGE PIPE (TYP.)
NEW DRAIN PIPE
NEW PUMP STATION VALVE/METER VAULT
NEW FORCE MAIN PIPE FROM NEW INFLUENT WASTEWATER PUMP STATION
NEW FLOW METER
NEW EQUALIZATION TANK WASTEWATER PUMP DISCHARGE PIPE
NEW SUMP PUMP
NEW EQUALIZATION TANK VALVE/METER VAULT
NEW SUMP PUMP DISCHARGE PIPE
EXISTING EQUALIZATION TANK WASTEWATER PUMP DISCHARGE PIPE (TYP.)
EXISTING WASTEWATER PUMP (TYP.-2)
EXISTING EQUALIZATION TANK
NEW UTILITY PUMP STATION WASTEWATER PUMP DISCHARGE PIPE
EXISTING UTILITY PUMP STATION
EXISTING WASTEWATER PUMP (TYP.-2)
NEW SUMP PUMP DISCHARGE PIPE
EXISTING PROCESS DRAIN LINES
EXISTING MANHOLE (TYP.)
EXISTING CENTRIFUGE DRAIN LINES
EXISTING SOLIDS DISCHARGE CONVEYOR
EXISTING DUMPSTER (SOLIDS TO APPROVED LANDFILL)
EXISTING CENTRIFUGE UNIT
(IN EXISTING CENTRIFUGE BUILDING)
EXISTING SLUDGE PUMP DISCHARGE PIPE
EXISTING SLUDGE PUMP
(IN EXISTING CENTRIFUGE BUILDING)
EXISTING POLYMER CHEMICAL FEED PIPE
EXISTING POLYMER CHEMICAL FEED SYSTEM
(IN EXISTING CENTRIFUGE BUILDING)
EXISTING SLUDGE PIPE
(IN NEW PROCESS EQUIPMENT BUILDING)
NEW IDEAS BLOWERS (TYP.-2)
NEW AIR PIPING
NEW DUMPSTER (SCREENINGS TO APPROVED LANDFILL)
NEW BY-PASS BAR SCREEN
NEW AUGER MONITOR
NEW HEADWORKS
NEW SCREENINGS DISCHARGE TO NEW PLASTIC CART FOR TRANSFER TO NEW DUMPSTER
NEW FORCE MAIN PIPE FROM EXISTING EQUALIZATION TANK
NEW DRAIN PIPE
NEW PROCESS TREATMENT UNITS INFLUENT PIPE
NEW DISCHARGE PIPE FROM EXISTING CONTROL BUILDING WASTE PUMP BASIN
EXISTING MANHOLE (TYP.)
EXISTING PROCESS DRAIN LINES
EXISTING DRAIN PIPES
EXISTING AIR PIPING
EXISTING DRAIN PIPE
NEW SLUDGE DIGESTER TANK No. 3 (EXISTING TREATMENT UNIT No. 1)
NEW SLUDGE DIGESTER TANK No. 4 (EXISTING TREATMENT UNIT No. 2)
NEW SLUDGE DIGESTER TANK INFLUENT PIPE
EXISTING WASTE SLUDGE PUMP
EXISTING WASTE SLUDGE PUMP DISCHARGE PIPE
NEW WASTE SLUDGE PUMP DISCHARGE PIPE
EXISTING DIGESTER TANK INFLUENT PIPE
EXISTING DIGESTER TANK No. 1
EXISTING DIGESTER TANK No. 2
(IN EXISTING DIGESTER BUILDING)
EXISTING AERATION BLOWERS (TYP.-2)
EXISTING DRAIN PIPE TO EXISTING UTILITY PUMP STATION
EXISTING SLUDGE DRAW-OFF PIPE
EXISTING OVERFLOW PIPE
EXISTING DRAIN LINE FROM TELESCOPING VALVE
EXISTING SLUDGE PUMP
EXISTING SLUDGE TRUCK FILL CONNECTION
TO EXISTING UTILITY PUMP STATION
NEW WASTE SLUDGE PUMP DISCHARGE PIPE
CARBON SOURCE
CAUSTIC
ALUM
NEW CHEMICAL FEED SYSTEMS
(IN NEW PROCESS EQUIPMENT BUILDING)
NEW CHEMICAL FEED PIPE
NEW AIR PIPING
NEW IDEAS BASIN No. 1
NEW IDEAS BASIN No. 2
NEW DIS-CHEASE ZONE
NEW EFFLUENT BOX
NEW POST EQUALIZATION BASIN
NEW WASTE SLUDGE PUMP DISCHARGE PIPE
NEW WASTE SLUDGE PUMP (TYP.-2)
NEW POST EQUALIZATION BASIN PUMP (TYP.-3)
NEW POST EQUALIZATION BASIN PUMP DISCHARGE PIPE
NEW PROCESS TREATMENT UNITS
NEW POST EQUALIZATION BLOWERS (TYP.-2)
EXISTING DISCHARGE TO THE RAYSTOWN BRANCH OF THE JUNIATA RIVER
EXISTING GRAVITY PLANT OUTFALL SEWER
EXISTING MANHOLE
NEW GRAVITY PLANT OUTFALL SEWER
NEW MANHOLE
NEW DRAIN PIPE
NEW CHLORINE GAS FEED SYSTEM
(IN EXISTING CONTROL BUILDING)
NEW CHLORINE SOLUTION PIPE
NEW FLOW METER (IN NEW PROCESS EQUIPMENT BUILDING)
NEW ULTRASONIC LEVEL TRANSDUCER
NEW WELL PUMP
NEW CHLORINE CONTACT TANK
NEW DRAIN PIPE TO EXISTING UTILITY PUMP STATION
NEW PROCESS UTILITY WATER SUPPLY PIPE
(IN EXISTING CONTROL BUILDING)
EXISTING AERATION BLOWERS (TYP.-3)
WASTEWATER FLOW SCHEMATIC
NO SCALE
RECORD DRAWINGS
EDA PROJECT No. 01-01-08254
NO. DATE DESCRIPTION
REVISIONS
WASTEWATER FLOW SCHEMATIC
SAXTON BOROUGH MUNICIPAL AUTHORITY
WASTEWATER TREATMENT FACILITY
SAXTON BOROUGH AND LIBERTY TOWNSHIP
BEDFORD COUNTY, PENNSYLVANIA
GD&F
SEAL
SHEET NO: G-1

2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

Outfall No.	001	**Design Flow (MGD)**	.6
Latitude	40º 13' 12.57"	**Longitude**	-78º 14' 53.44"
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.

- Alum as a coagulant
- Chlorine for disinfection
- Polymer as a coagulant

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° 13' 12.57" , **Longitude** 78° 14' 53.44" , **River Mile Index** 36.4 , **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 **September 1, 2017** through **August 31, 2022**.
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)	Required
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.50	XXX	1.64	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	125	200	XXX	25.0	40.0	50	1/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	150	225	XXX	30.0	45.0	60	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	2/week	24-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)	Required
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
Total Phosphorus	10.0	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite

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

at Outfall 001

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

I. B. For Outfall 001 , **Latitude** 40° 13' 12.57" , **Longitude** 78° 14' 53.44" , **River Mile Index** 36.4 , **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 **September 1, 2017** through **August 31, 2017**.

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
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	Report	7306	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	974	XXX	XXX	XXX	XXX	1/month	Calculation

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

at Outfall 001

Footnotes:
(1) See Part C for Chesapeake Bay Requirements.
(2) This is the minimum number of sampling events required. Permittees are encouraged, and it may be advantageous in demonstrating compliance, to perform more than the minimum number of sampling events required.

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.

06/13/2017:
- The effluent refrigerator was not chilled when inspected. The refrigerator should be stored about 4 C.
- pH buffers were expired and needed to be replaced.

08/21/2018:
- The effluent refrigerator was out of service.
- An operation and maintenance plan should be developed to address key wastewater processes.

09/11/2019:
- The refrigerator temperature reading was -1.3 C. Samples were not frozen. The facility was advised to obtain a traceable thermometer.
- The influent grinder motor was recently replaced. The unit still needed a new level sensor to work in automatic mode.
- There was a leak in the chemical storage room from alum feed. Leaks in the storage room drain to a floor drain that leads to the headworks.
- The influent and effluent composites samples was 23 hours instead of 24 hours.
- An operation and maintenance plan should be developed to address key wastewater processes.

01/09/2020:

- Submission errors for DMRs were submitted for incorrect months. The monthly nutrient monitoring form for January 2019 was submitted for July 2019. The daily effluent form for July 2018 was submitted for July 2019.

12/14/2020:

- The May 2020 DMR improperly reported the average monthly concentration of ammonia at 4750 mg/l. The correct concentration should be 0.0475 mg/l.

11/15/2021:

- The level sensor that controlled the comminutor was out of service. The comminutor was currently being run full time. The facility also had planned to repair the influent screen including replacement of the auger brush.
- The facility was advised that the refrigerator temperature should be monitored and remain around 6 C.
- The facility was advised of discrepancies in the January 2020 DMR for dissolved oxygen and TRC.
- The authority recently completed collection system repair work. Liners were installed in sections of the mainline and lateral piping where leaks were detected.
- A cannabis facility that employed 150 people was added to the system. The facility generates approximately 400 gpd. The BOD is approximately 350-450 mg/l.

3.2 Summary of DMR Data

A review of approximately 1-year of DMR data shows that the monthly average flow data for the facility below the design capacity of the treatment system. The maximum average flow data for the DMR reviewed was 0.381 MGD in April 2022. The design capacity of the treatment system is 0.60 MGD.

The off-site laboratory used for the analysis of the parameters was Fairway Laboratories located at 2019 Ninth Avenue, PO Box 1925, Altoona, PA 16601.

DMR Data for Outfall 001 (from May 1, 2021 to April 30, 2022)

Parameter	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21
Flow (MGD) Average Monthly	0.381	0.296	0.342	0.233	0.164	0.188	0.192	0.355	0.252	0.209	0.272	0.248
Flow (MGD) Daily Maximum	0.68	0.388	0.828	0.495	0.305	0.3	0.389	1.854	0.839	0.385	0.677	0.479
pH (S.U.) Minimum	6.8	6.4	6.7	6.6	6.4	6.5	6.5	6.3	6.3	6.4	6.5	6.5
pH (S.U.) Daily Maximum	7.2	7.3	7.8	7.4	7.0	7.9	6.8	6.8	6.8	7.1	6.9	7.0
DO (mg/L) Minimum	8.3	9.9	9.2	8.2	8.8	8.3	7.8	4.4	1.5	6.3	7.3	7.9
TRC (mg/L) Average Monthly	0.30	0.30	0.30	0.30	0.30	0.36	0.30	0.50	0.10	0.10	0.10	0.20
TRC (mg/L) Instantaneous Maximum	0.40	0.30	0.40	0.40	1.00	0.60	0.50	0.10	0.70	0.60	0.30	0.03
CBOD5 (lbs/day) Average Monthly	< 10	< 9	< 10	< 6	< 5	< 4.0	< 4.20	< 12.7	< 10.02	< 5.5	< 7.7	< 5.0
CBOD5 (lbs/day) Weekly Average	< 14	14	19	< 7	< 8	< 5.0	< 4.60	< 21.9	< 15.64	< 9.0	< 12.5	< 6.0
CBOD5 (mg/L) Average Monthly	< 3.0	< 3.7	< 4.1	< 3.2	< 3.0	< 3.0	< 3.0	< 3.0	< 5.70	< 3.0	< 3.0	< 3.0
CBOD5 (mg/L) Weekly Average	< 0.3	7.0	7.0	< 4.0	< 3.0	< 3.0	< 3.0	< 3.0	< 12.50	< 3.0	< 3.0	< 3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	424	310	452	174	236	184	265.0	362.0	227.0	276.0	162.0	220.0
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	805	459	633	290	355	246	357.0	540.0	314.0	428.0	276.0	343.0
BOD5 (mg/L) Raw Sewage Influent Average Monthly	111	126	193	100	177	125	188.0	127.0	131.0	162.0	63.0	125.0
TSS (lbs/day) Average Monthly	< 8	< 7	< 8.0	< 3	< 4.0	< 2.3	< 2.10	< 21.88	< 15.10	4.2	11.0	< 6.1
TSS (lbs/day) Raw Sewage Influent Average Monthly	359	310	712	402	251	286	358.0	717.0	226.0	809.0	366.0	407.0

TSS (lbs/day) Raw Sewage Influent Daily Maximum	789	529	1369	1138	481	460	571.0	1021.0	366.0	1841.0	432.0	718.0
TSS (lbs/day) Weekly Average	10	12	22	4	< 8.0	< 3.3	< 2.80	< 61.29	< 27.60	5.5	18.8	< 10.5
TSS (mg/L) Average Monthly	< 2.3	< 3.1	< 3.4	< 1.9	< 2.2	< 2.3	< 1.50	< 3.5	< 8.3	2.4	2.0	< 3.3
TSS (mg/L) Raw Sewage Influent Average Monthly	107	129	299	248	188	200	253.0	292.0	150.0	447.0	160.0	231.0
TSS (mg/L) Weekly Average	4.0	6.0	9.0	2.0	3.0	< 3.3	< 2.00	< 8.4	< 20.0	3.6	7.6	< 5.2
Fecal Coliform (CFU/100 ml) Geometric Mean	< 2	3	< 3.0	< 1	< 2.0	< 2	5.0	115.0	35.0	3.0	74.0	8.0
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	5.2	24.6	51.2	< 4.0	9.7	4.1	46.4	2419.6	387.3	14.8	1413.6	72.7
Nitrate-Nitrite (mg/L) Average Monthly	4.646	4.62	4.4	4.842	2.66	3.302	< 4.9689	2.832	2.3885	4.174	3.833	3.188
Nitrate-Nitrite (lbs) Total Monthly	415	348	283	9	127	153	< 213.0	292.0	331.0	252.0	309.0	179.0
Total Nitrogen (mg/L) Average Monthly	5.184	5.0396	4.776	5.256	3.17	3.77	< 5.5577	< 3.353	5.2702	< 4.697	< 4.333	< 3.688
Total Nitrogen (lbs) Effluent Net Total Monthly	467	379	307	313	152	175	< 239.0	< 341.0	< 331.0	< 280.0	< 345.0	< 207.0
Total Nitrogen (lbs) Total Monthly	467	379	307	10	152	175	< 239.0	< 341.0	201.0	< 280.0	< 345.0	< 207.0
Total Nitrogen (lbs) Effluent Net Total Annual								< 3570				
Total Nitrogen (lbs) Total Annual								< 3570				
Ammonia (lbs/day) Average Monthly	< 0.1	4.0	< 0.1	< 0.09	< 0.07	< 0.07	< 0.07	< 0.60	< 0.90	< 0.10	< 0.1	< 0.09
Ammonia (mg/L) Average Monthly	< 0.0475	< 0.0475	< 0.0516	< 0.0475	< 0.0475	< 0.0475	< 0.0475	< 0.0638	< 0.62567	< 0.0617	< 0.048	< 0.04750
Ammonia (lbs) Total Monthly	< 0.1	< 4.0	< 3	< 3	< 2.0	< 2	< 2.0	< 8.0	< 27.0	< 3.0	< 3.0	< 3.0
Ammonia (lbs) Total Annual								< 143				

TKN (mg/L) Average Monthly	< 0.4618	< 0.4199	< 0.4643	< 0.3855	< 0.45	< 0.5	< 0.59	< 0.520	2.882	< 0.52	< 0.5	< 0.5
TKN (lbs) Total Monthly	< 43	< 31	< 30	< 22	< 22	< 23	< 25.0	< 49.0	< 129.0	< 28.0	< 36.0	< 28.0
Total Phosphorus (lbs/day) Average Monthly	4.9	3.9	3.5	2.6	1.7	1.4	1.0	< 2.0	3.0	2.0	3.0	2.0
Total Phosphorus (mg/L) Average Monthly	1.65	1.61	1.66	1.427	1.064	0.916	0.890	0.668	1.333	1.154	1.186	0.973
Total Phosphorus (lbs) Effluent Net Total Monthly	147.8	119.7	98.8	81.5	53.0	42.7	39.0	61.0	78.0	61.0	1.186	55.0
Total Phosphorus (lbs) Total Monthly	147.8	119.7	98.8	81.5	53.0	42.7	39.0	61.0	78.0	61.0	86.0	55.0
Total Phosphorus (lbs) Effluent Net Total Annual								742				
Total Phosphorus (lbs) Total Annual								742				

3.2.1 Chesapeake Bay Truing

The table summarizes the facility's compliance/noncompliance with Chesapeake Bay cap loads.

Chesapeake Bay Annual Nutrient Summary				
Saxton Borough WWTP				
PA0025381				
Year for Truing Period (Oct 1 - Sept 30)	Net Effluent Limits		Compliant with Permit Limits (Yes/No)	
	Nitrogen (lbs)	Phosphorus (lbs)	Nitrogen	Phosphorus
	7,306	***974***		
2018	5,573	327	Yes	Yes
2019	5,752	794	Yes	Yes
2020	3,785	652	Yes	Yes
2021	7,306	974	Yes	Yes

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, 2021 to April 30, 2022, the following were observed effluent non-compliances.

Effluent Violations for Outfall 001, from: June 1, 2021 To: April 30, 2022

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
DO	09/30/21	Min	4.4	mg/L	5.0	mg/L
DO	08/31/21	Min	1.5	mg/L	5.0	mg/L
Fecal Coliform	06/30/21	IMAX	1413.6	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	09/30/21	IMAX	2419.6	CFU/100 ml	1000	CFU/100 ml

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, 2017 to June 13, 2022, the following were observed enforcement actions.

Summary of Enforcement Actions
Beginning September 1, 2017 and Ending June 13, 2022

ENF ID	ENF TYPE	ENF TYPE DESC	DATE	EXECUTED DATE	INITIATED DATE	VIOLATIONS	VIOLATIONS	ENF FINAL STATUS	DATE
402699	NOV	Notice of Violation	04/11/2022	04/11/2022	04/01/2022	92A.75(A)	1	Administrative Close Out	05/10/2022

3.4 Summary of Biosolids Disposal

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

2021
Sewage Sludge / Biosolids Production Information

Hauled Off-Site			
2021	Tons Dewatered	% Solids	Dry Tons
January			
February	10.85	18.8	2.04
March			
April	26.26	17.6	4.62
May	13.66	18.1	2.48
June			
July			
August	11.97	19.1	2.29
September			
October	24.66	19.1	4.71
November			
December			

Notes:
Biosolids/sewage sludge disposed at Mostoller Landfill in Somerset, PA

3.5 Open Violations

As of June 2022, an open violation existed for the client. The Saxton WS under Permit Number PA0083143 was cited for failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance on May 11, 2022. The NPDES permit for the Saxton Borough WWTP may be withheld until the open violation has been addressed.

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 Raystown Branch Juniata River discharges into are the Juniata River and the Susquehanna River which eventually drains into the Chesapeake Bay.

4.2 Public Water Supply (PWS) Intake

The closest PWS to the subject facility is the Lake Raystown Resort (PWS ID #4310821) located approximately 11 miles downstream of the subject facility on the Raystown Lake. 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 2020 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 2020 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 waterbody. The surface waters is an attaining stream that supports aquatic life and fish consumption. The designated use has been classified as protected waters for trout stocking fish (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 station (WQN223). This WQN station is located approximately 1.2 miles upstream 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 1.2 miles upstream 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		760	mi^2
Q710 = (LFY@gauge station)(DA@Subject Site)			
Q710 = (0.0888 $ft^3/sec/mi^2$)(760 mi^2)			
Q710 =	67.455	ft^3/sec	

4.6 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.6
Latitude	40º 13' 13.83"	Longitude	-78º 14' 53.24"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Raystown Branch Juniata River (TSF)	Stream Code	13349
NHD Com ID	65842367	RMI	39
Drainage Area	760	Yield (cfs/mi^2)	0.0888
Q_{7-10} Flow (cfs)	67.4	Q_{7-10} Basis	StreamStats/Streamgauge
Elevation (ft)	793	Slope (ft/ft)	
Watershed No.	11-D	Chapter 93 Class.	TSF, MF
Existing Use	Same as Chapter 93 class	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s) supports aquatic life and fish consumption		
Cause(s) of Impairment	Not appl.		
Source(s) of Impairment	Not appl.		
TMDL Status	Not appl.	Name	

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

Nearest Downstream Public Water Supply Intake		Lake Raystown Resort	
PWS Waters	Raystown Lake	Flow at Intake (cfs)	
PWS RMI	28	Distance from Outfall (mi)	11

5.0: Overview of Presiding Water Quality Standards

5.1 General

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

5.2.1 Technology-Based Limitations

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

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

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

5.2.2 Mass Based Limits

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

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

5.3 Water Quality-Based Limitations

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

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

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

General Data 1 (Modeling Point #1)	***Input Value***	***Units***
Stream Code	13349	
River Mile Index	39	miles
Elevation	793	feet
Latitude	40.220556	
Longitude	-78.249167	
Drainage Area	760	sq miles
Low Flow Yield	0.089	cfs/sq mile
General Data 2 (Modeling Point #2)	***Input Value***	***Units***
Stream Code	13349	
River Mile Index	36.6	miles
Elevation	786	feet
Latitude	40.235251	
Longitude	-78.220221	
Drainage Area	784	sq miles
Low Flow Yield	0.089	cfs/sq mile

5.3.1 Water Quality Modeling 7.0

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

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

Four types of limits may be recommended. The limits are

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

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

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

5.3.2 Toxics Modeling

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

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

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

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

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

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

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

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

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

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

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

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

5.3.3 Whole Effluent Toxicity (WET)

The facility is not subject to WET.

5.4 Total Maximum Daily Loading (TMDL)

5.4.1 TMDL

The goal of the Clean Water Act (CWA), which governs water pollution, is to ensure that all of the Nation's waters are clean and healthy enough to support aquatic life and recreation. To achieve this goal, the CWA created programs designed to regulate and reduce the amount of pollution entering United States waters. Section 303(d) of the CWA requires states to assess their waterbodies to identify those not meeting water quality standards. If a waterbody is not meeting standards, it is listed as impaired and reported to the U.S. Environmental Protection Agency. The state then develops a plan to clean up

the impaired waterbody. This plan includes the development of a Total Maximum Daily Load (TMDL) for the pollutant(s) that were found to be the cause of the water quality violations. A Total Maximum Daily Load (TMDL) calculates the maximum amount of a specific pollutant that a waterbody can receive and still meet water quality standards.

A TMDL for a given pollutant and waterbody is composed of the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background levels. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody. The TMDL components are illustrated using the following equation:

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

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

5.4.1.1 Local TMDL

The subject facility does not discharge into a local TMDL.

5.4.1.2 Chesapeake Bay TMDL Requirement

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

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

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

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

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

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

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

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

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

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

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

Based upon the supplement the subject facility has been categorized as a Sector A discharger. The supplement defines Sector A as a sewage facility if it has a design flow of at least 0.4 MGD.

Table 5 of the Phase 3 WIP (revised September 13, 2021) presents all NPDES permits for Significant Sewage dischargers with Cap Loads. The NPDES Permit No., phase, facility name, latest permit issuance date, expiration date, Cap Load compliance start date, TN and TP Cap Loads, and TN and TP Delivery Ratios are presented. In addition, if TN Offsets were incorporated into the TN Cap Loads when the permit was issued, the amount is shown; these Offsets will be removed from Cap Loads upon issuance of renewed permits to implement Section IV of this document (i.e., a facility may use Offsets for compliance but may not register them as credits).

The total nitrogen (TN) and total phosphorus (TP) cap loads itemized by Table 5 for the subject facility are as follows:

TN Cap Load (lbs/yr)	7,306
TN Delivery Ratio	0.897
TP Cap Load (lbs/yr)	974
TP Delivery Ratio	0.436

Expansions by any Significant Sewage discharger will not result in any increase in Cap Loads. Where non-significant facilities expand to a design flow of 0.4 MGD or greater, the lesser of baseline Cap Loads of 7,306 lbs/yr TN and 974 lbs/yr TP or existing performance will be used for permits, and the load will be moved from the Non-Significant sector load to the Significant Sewage sector load. If considered necessary for environmental protection, DEP may decide to move load from the Point Source Reserve to the Significant Sewage sector in the future.

The minimum monitoring frequency for TN species and TP in new or renewed NPDES permits for Significant Sewage dischargers is 2/week.

This facility is subject to Sector A monitoring requirements. Monitoring shall be required at least 2x/wk.

Reporting

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.

Facilities with NPDES permits must use DEP's eDMR system for reporting, except small flow treatment facilities. An Annual DMR must be submitted by the end of the Truing Period, November 28. As attachments to the Annual DMR a facility must submit a completed Annual Chesapeake Bay Spreadsheet, available through DEP's Supplemental Reports website, which contains an Annual Nutrient Monitoring worksheet and an Annual Nutrient Budget worksheet. This Spreadsheet will be submitted once per Compliance Year only, and reflect all nutrient sample results (for the period October 1 – September 30), Credit transactions (including the Truing Period) and Offsets applied during the Compliance 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, (b) Nitrogen Species and Phosphorus, and (c) Toxics.

6.1.1 Conventional Pollutants and Disinfection

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection
Saxton Borough WWTP, PA0025381

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 1x/wk as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 125 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 1/wk as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 150 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. Since the TBEL is more stringent than TBEL, TBEL will apply.
TRC	TBEL	Monitoring:	The monitoring frequency shall be on a daily basis as a grab sample (Table 6-3).
		Effluent Limit:	The average monthly limit should not exceed 0.5 mg/l and/or 1.64 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 Table 6-3 and the effluent limits assigned by Chapter 92a.48(b)(2)	
Fecal Coliform	TBEL	Monitoring:	The monitoring frequency shall be 1x/wk 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/quarter 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 0.60 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

Saxton Borough WWTP, PA0025381

Parameter	Permit Limitation Required by[1]:	Recommendation	
Ammonia-Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/wk as a 24-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/wk.
Nitrate-Nitrite as N	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/wk as a 24-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/wk.
Total Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/mo as a calculation 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/mo.
TKN	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/wk as a 24-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/wk.
Total Phosphorus	Antibacksliding	Monitoring:	The monitoring frequency shall be 2x/wk as a 24-hr composite sample
		Effluent Limit:	Effluent limits shall not exceed 10 lbs/day and 2.0 mg/l as an average monthly.
		Rationale:	The phosphorus limitation of 2.0 mg/l as a monthly average was established in the previous permit to protect the Raystown Lake. Due to anti-backsliding, the phosphorus limitation has been recommended to be continued. The monitoring frequency is based upon the Chesapeake Bay WIP supplement
Net Total Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as a calculation
		Effluent Limit:	The effluent should not exceed 7,306 lbs/yr.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/yr.
Net Total Phosphorus	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as a calculation
		Effluent Limit:	The effluent should not exceed 974 lbs/yr.
		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 0.60 MGD.

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

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

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

6.1.3 Toxics

Summary of Proposed NPDES Parameter Details for Toxics

Saxton Borough WWTP, PA0025381

Parameter	Permit Limitation Required by[1]:	Recommendation	
Total Copper	WQBEL	Monitoring:	The monitoring frequency shall be 1x/month as a 24-hr composite sample
		Effluent Limit:	No effluent requirements
		Rationale:	Toxics Management Spreadsheet recommends limits. Monitoring shall be required 1x/month. Pending favorable results, monitoring may be reduced or eliminated in future renewals.
Total Lead	WQBEL	Monitoring:	The monitoring frequency shall be 1x/month as a 24-hr composite sample
		Effluent Limit:	No effluent requirements
		Rationale:	Toxics Management Spreadsheet recommends limits. Monitoring shall be required 1x/month. Pending favorable results, monitoring may be reduced or eliminated in future renewals.
Total Zinc	WQBEL	Monitoring:	The monitoring frequency shall be 1x/month as a 24-hr composite sample
		Effluent Limit:	No effluent requirements
		Rationale:	Toxics Management Spreadsheet recommends limits. Monitoring shall be required 1x/month. Pending favorable results, monitoring may be reduced or eliminated in future renewals.

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 0.60 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 requirement	Due to the EPA Triennial review, monitoring for E. Coli shall be at least 1x/quarter
Total Copper	No monitoring or effluent requirement	Toxics Management Spreadsheet recommends limits. Monitoring shall be required 1x/month to collect additional data. Pending favorable results, monitoring may be reduced or eliminated in future renewals.
Total Lead	No monitoring or effluent requirement	Toxics Management Spreadsheet recommends limits. Monitoring shall be required 1x/month to collect additional data. Pending favorable results, monitoring may be reduced or eliminated in future renewals.
Total Zinc	No monitoring or effluent requirement	Toxics Management Spreadsheet recommends limits. Monitoring shall be required 1x/month to collect additional data. Pending favorable results, monitoring may be reduced or eliminated in future renewals.

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° 13' 12.57" , **Longitude** 78° 14' 53.44" , **River Mile Index** 39 , **Stream Code** 13349

Receiving Waters: Raystown Branch Juniata River (TSF)

Type of Effluent: Sewage Effluent

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	9.0 Daily Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.50	XXX	1.64	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	125	200	XXX	25.0	40.0	50	1/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	150	225	XXX	30.0	45.0	60	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Grab
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Phosphorus	10.0	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite
Copper, Total	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Lead, Total	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Zinc, Total	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite

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

at Outfall 001

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

I. B. For Outfall 001 , **Latitude** 40° 13' 12.57" , **Longitude** 78° 14' 53.44" , **River Mile Index** 39 , **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
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	Report	7306	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	974	XXX	XXX	XXX	XXX	1/month	Calculation

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

at Outfall 001

Footnotes:
(1) See Part C for Chesapeake Bay Requirements.
(2) This is the minimum number of sampling events required. Permittees are encouraged, and it may be advantageous in demonstrating compliance, to perform more than the minimum number of sampling events required.

6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

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

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Establishing Effluent Limitations for Individual Sewage Permits, revised 3/24/2021
☐	Other:

Attachment A
Stream Stats/Gauge Data

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

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

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

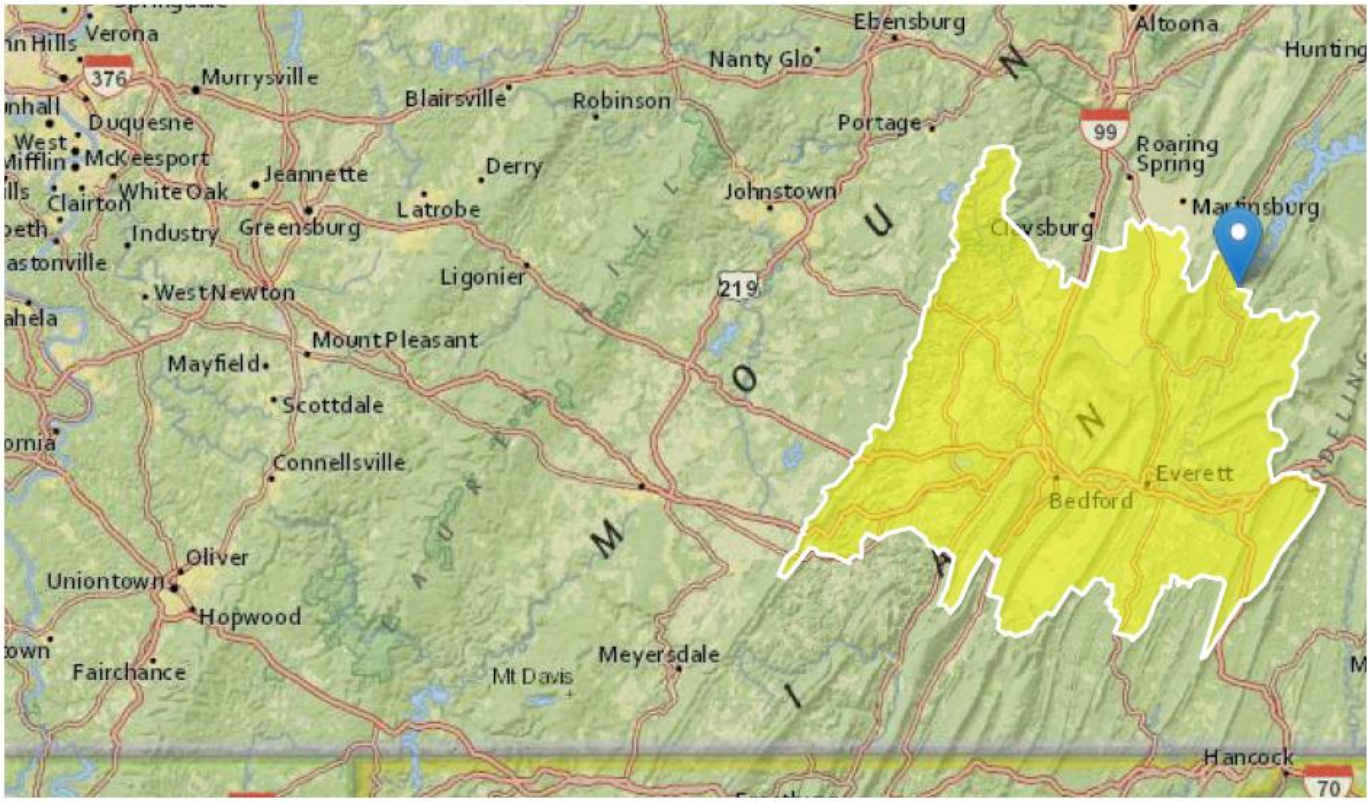
Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

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

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

StreamStats Report

Region ID: PA
Workspace ID: PA20220608142736025000
Clicked Point (Latitude, Longitude): 40.22068, -78.24907
Time: 2022-06-08 10:27:59 -0400



Saxton Borough WWTP PA0025381 Modeling Point #1 June 2022

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	15.85	percent
DRNAREA	Area that drains to a point on a stream	760	square miles
PRECIP	Mean Annual Precipitation	38	inches
ROCKDEP	Depth to rock	4.3	feet

Parameter Code	Parameter Description	Value	Unit
STRDEN	Stream Density -- total length of streams divided by drainage area	2.34	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [100.0 Percent (760 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	760	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	38	inches	35	50.4
STRDEN	Stream Density	2.34	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.3	feet	3.32	5.65
CARBON	Percent Carbonate	15.85	percent	0	99

Low-Flow Statistics Flow Report [100.0 Percent (760 square miles) Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: 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	79.9	ft^3/s	38	38
30 Day 2 Year Low Flow	103	ft^3/s	33	33
7 Day 10 Year Low Flow	45.1	ft^3/s	51	51
30 Day 10 Year Low Flow	58.7	ft^3/s	46	46
90 Day 10 Year Low Flow	82.8	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/)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

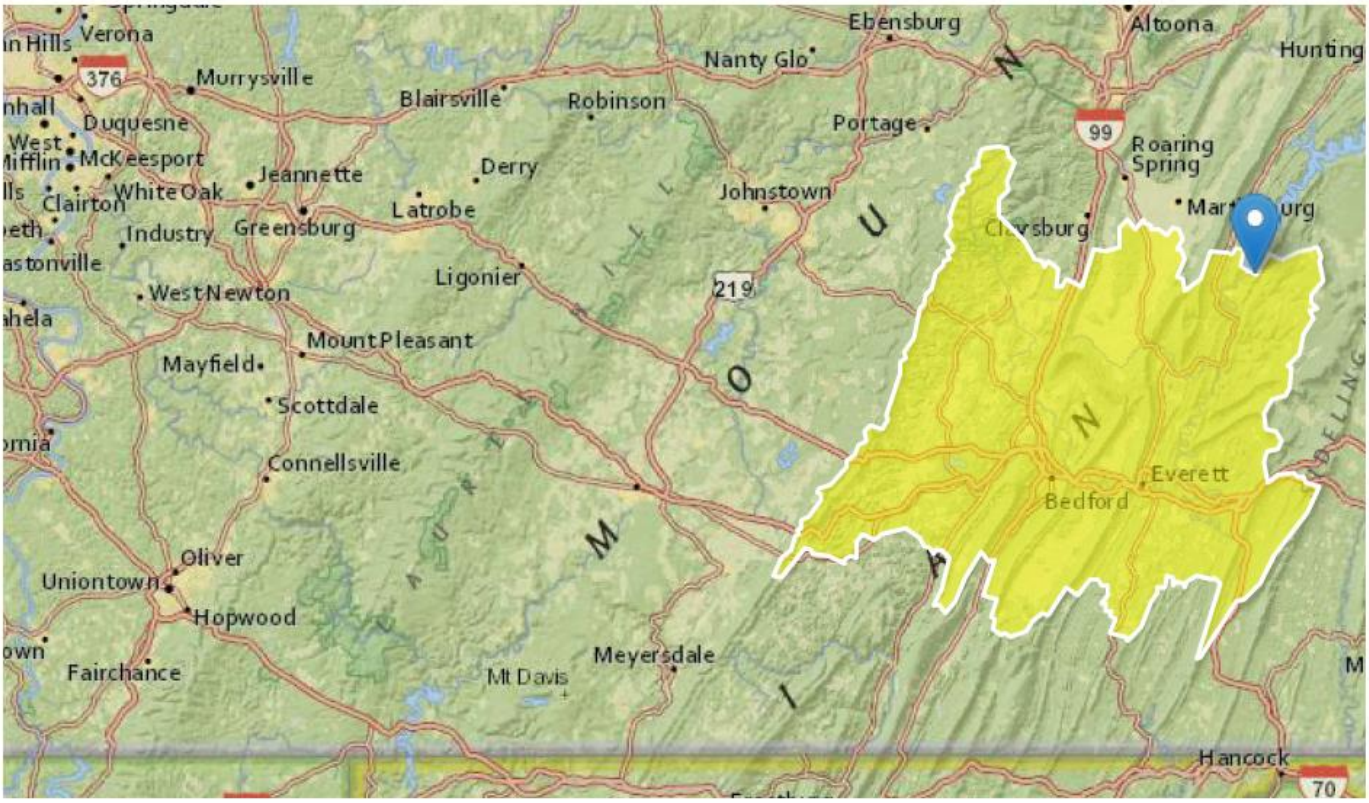
USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Survey (USGS). Although the software has been subjected to rigorous review, the USGS reserves the right to update the software as needed pursuant to further analysis and review. No warranty, expressed or implied, is made by the USGS or the U.S. Government as to the functionality of the software and related material nor shall the fact of release constitute any such warranty. Furthermore, the software is released on condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from its authorized or unauthorized use.

USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.9.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.0

StreamStats Report

Region ID: PA
Workspace ID: PA20220608143358372000
Clicked Point (Latitude, Longitude): 40.23472, -78.22036
Time: 2022-06-08 10:34:20 -0400



Saxton Borough WWTP PA0025381 Modeling Point #2 June 2022

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	15.37	percent
DRNAREA	Area that drains to a point on a stream	784	square miles
PRECIP	Mean Annual Precipitation	38	inches
ROCKDEP	Depth to rock	4.3	feet

Parameter Code	Parameter Description	Value	Unit
STRDEN	Stream Density -- total length of streams divided by drainage area	2.32	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [100.0 Percent (784 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	784	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	38	inches	35	50.4
STRDEN	Stream Density	2.32	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.3	feet	3.32	5.65
CARBON	Percent Carbonate	15.37	percent	0	99

Low-Flow Statistics Flow Report [100.0 Percent (784 square miles) Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: 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	82.8	ft^3/s	38	38
30 Day 2 Year Low Flow	107	ft^3/s	33	33
7 Day 10 Year Low Flow	46.9	ft^3/s	51	51
30 Day 10 Year Low Flow	60.9	ft^3/s	46	46
90 Day 10 Year Low Flow	86	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: 4.9.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.0

Attachment B

WQM 7.0 Modeling Output Values

Toxics Management Spreadsheet Output Values

WQM 7.0 Effluent Limits

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

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
39.000	Saxton Boro MA	PA025381	0.600	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
39.000	Saxton Boro MA	3.44	50	3.44	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
39.000	Saxton Boro MA	.69	25	.69	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)		
39.00	Saxton Boro MA	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	39.000	793.00	760.00	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
Saxton Boro MA	PA025381	0.6000	0.6000	0.6000	0.000	20.00	6.83

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	36.600	786.00	784.00	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	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

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

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
39.000	0.600	23.255	7.926
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
148.658	1.100	135.174	0.419
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.31	0.170	0.34	0.899
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.199	1.167	Tsivoglou	5
Reach Travel Time (days)			
0.350			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.035	2.30	0.33	7.77
0.070	2.28	0.32	7.77
0.105	2.26	0.31	7.77
0.140	2.25	0.30	7.77
0.175	2.23	0.29	7.77
0.210	2.22	0.28	7.77
0.245	2.20	0.27	7.77
0.280	2.19	0.26	7.77
0.315	2.17	0.25	7.77
0.350	2.16	0.25	7.77

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												
39.000	67.64	0.00	67.64	.9282	0.00055	1.1	148.66	135.17	0.42	0.350	23.26	7.93
Q1-10 Flow												
39.000	64.93	0.00	64.93	.9282	0.00055	NA	NA	NA	0.41	0.358	23.25	7.92
Q30-10 Flow												
39.000	77.79	0.00	77.79	.9282	0.00055	NA	NA	NA	0.45	0.324	23.26	7.93

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		

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Saxton Borough WWTP** NPDES Permit No.: **PA0025381** Outfall No.: **001**

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

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.6	100	6.83						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		358									
	Chloride (PWS)	mg/L		61.6									
	Bromide	mg/L		0.072									
	Sulfate (PWS)	mg/L		60.5									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	mg/L		13.3									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	mg/L		0.819									
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	mg/L		73.7									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Saxton Borough WWTP, NPDES Permit No. PA0025381, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Raystown Branch Juniata River**

No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	013349	39	793	760			Yes
End of Reach 1	013349	36.6	786	784			Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	39	0.0888										96	8		
End of Reach 1	36.6	0.0888										96	8		

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	39														
End of Reach 1	36.6														

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Saxton Borough WWTP, NPDES Permit No. PA0025381, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.118 Analysis Hardness (mg/l): 96.419 Analysis pH: 7.61

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	12.985	13.5	129	Chem Translator of 0.96 applied
Total Lead	0	0		0	62.066	77.9	744	Chem Translator of 0.796 applied
Total Zinc	0	0		0	113.615	116	1,109	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 720 PMF: 0.814 Analysis Hardness (mg/l): 96.066 Analysis pH: 7.91

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	8.654	9.01	543	Chem Translator of 0.96 applied
Total Lead	0	0		0	2.409	3.02	182	Chem Translator of 0.797 applied
Total Zinc	0	0		0	114.190	116	6,973	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 720 PMF: 0.814 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	

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

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

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

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	0.41	0.65	0.083	0.13	0.21	mg/L	0.083	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Lead	0.91	1.42	0.18	0.28	0.46	mg/L	0.18	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	3.56	5.55	0.71	1.11	1.78	mg/L	0.71	AFC	Discharge Conc ≥ 50% WQBEL (RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable

Attachment C
TRC Evaluation

Saxton Borough STP

PA0025381

June 2022

1A	B	C	D	E	F	G
2	**TRC EVALUATION**					
3	Input appropriate values in B4:B8 and E4:E7					
4	67.4	= Q stream (cfs)		0.5	= CV Daily	
5	0.6	= 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 = 23.183		1.3.2.iii	WLA cfc = 22.594
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 8.638		5.1d	LTA_cfc = 13.135
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)**