pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0083143**
Facility Type	**Industrial**	APS ID	**14510**
Major / Minor	**Minor**	Authorization ID	**1445244**

NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Applicant and Facility Information

Applicant Name	**Saxton Borough Municipal Authority Bedford County**	Facility Name	**Saxton Borough Water System**
Applicant Address	707 9th Street Saxton, PA 16678-1109	Facility Address	208 Carbaugh Lane Saxton, PA 16678-1099
Applicant Contact	Jamie Foster	Facility Contact	Daryl Replogle
Applicant Phone	(814) 635-2363	Facility Phone	(814) 635-2663
Client ID	5966	Site ID	49115
SIC Code	4941	Municipality	Saxton Borough
SIC Description	Trans. & Utilities - Water Supply	County	Bedford
Date Application Received	June 23, 2023	EPA Waived?	Yes
Date Application Accepted	July 25, 2023	If No, Reason	

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

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineer Nick Hong (via electronic signature)	May 22, 2024
x		Daniel W. Martin, P.E. / Environmental Engineer Manager Maria D. Bebenek for	May 22, 2024
x		Maria D. Bebenek, P.E. / Environmental Program Manager Maria D. Bebenek	May 22, 2024

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Saxton Borough Water System located at 208 Carbaugh Lane, Saxton, PA 16678 in Bedford County, municipality of Saxton Borough. The existing permit became effective on November 1, 2018 and expired on October 31, 2023. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on June 23, 2023. Processing times for the NPDES renewal was delayed pending a re-rate request from the facility and for the emergency repair of the lagoon liners.

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 0.045 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 an Industrial Wastewater facility due to the type of wastewater and the design flow rate for the facility. The applicant disclosed the Act 14 requirement to Bedford County Commissioners and Saxton Borough Council and the notice was received by the parties on May 31, 2022.

Utilizing the DEP's web-based Emap-PA information system, the receiving waters has been determined to be Raystown Branch Juniata River. The sequence of receiving streams that the Raystown Branch Juniata River discharges into are Juniata River and the Susquehanna River which eventually drains into the Chesapeake Bay. Since the facility is not a producer of nitrogen and phosphorus, the subject site is not 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 2024 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 not subject to a total maximum daily load (TMDL) plan to improve water quality in the subject facility's watershed.

The existing permit and proposed permit differ as follows:

- **Phosphorus was eliminated from monitoring**

Sludge use and disposal description and location(s): The facility did not report any sludge disposal.

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 MA
NPDES Permit #	PA0083143
Physical Address:	208 Carbaugh Lane Saxton, PA 16678
Mailing Address:	707 Ninth Street Saxton, PA 16678
Contact:	Janie Foster / Daryl Replogle saxtonboro@comcast.net
Consultant:	Maggie Weitzel Senior Environmental Scientist Gwin, Dobson, & Foreman (814) 943-5214

1.2 Permit History

Permit submittal included the following information.

- NPDES Application
- Flow Diagrams
- Effluent Sample Data

2.0 Treatment Facility Summary

2.1.1 Site location

The physical address for the facility is 208 Carbaugh Lane, 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

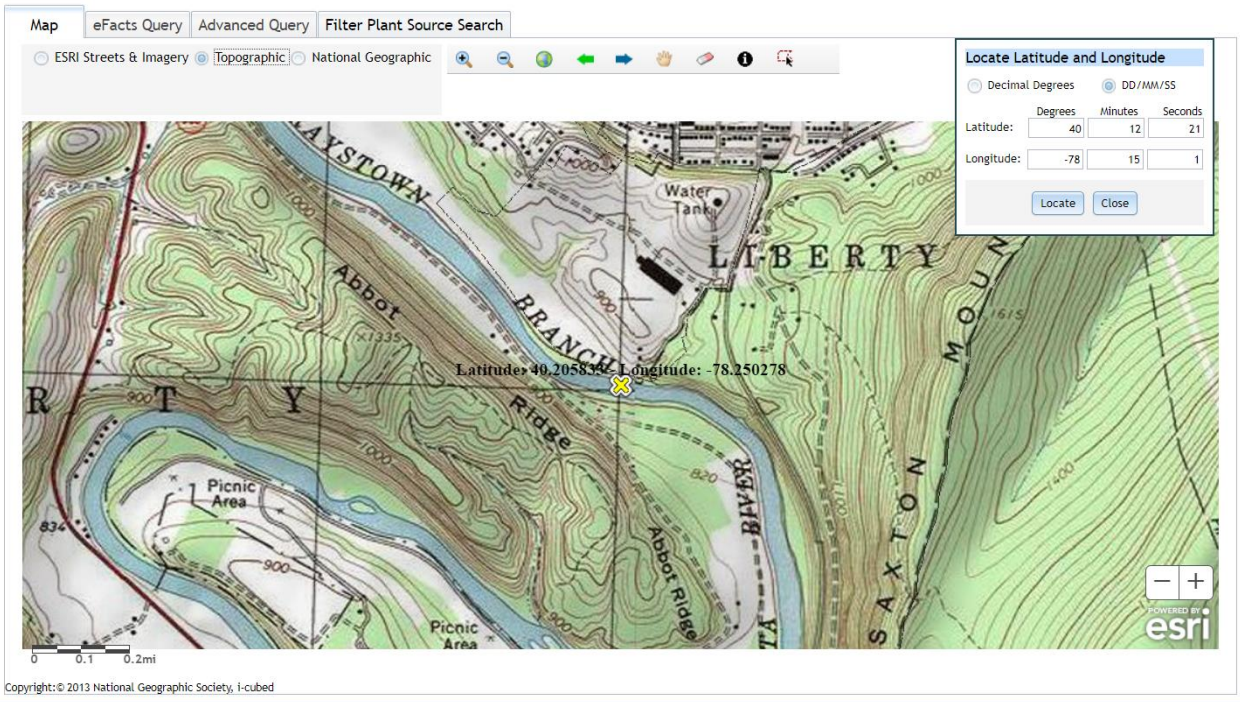
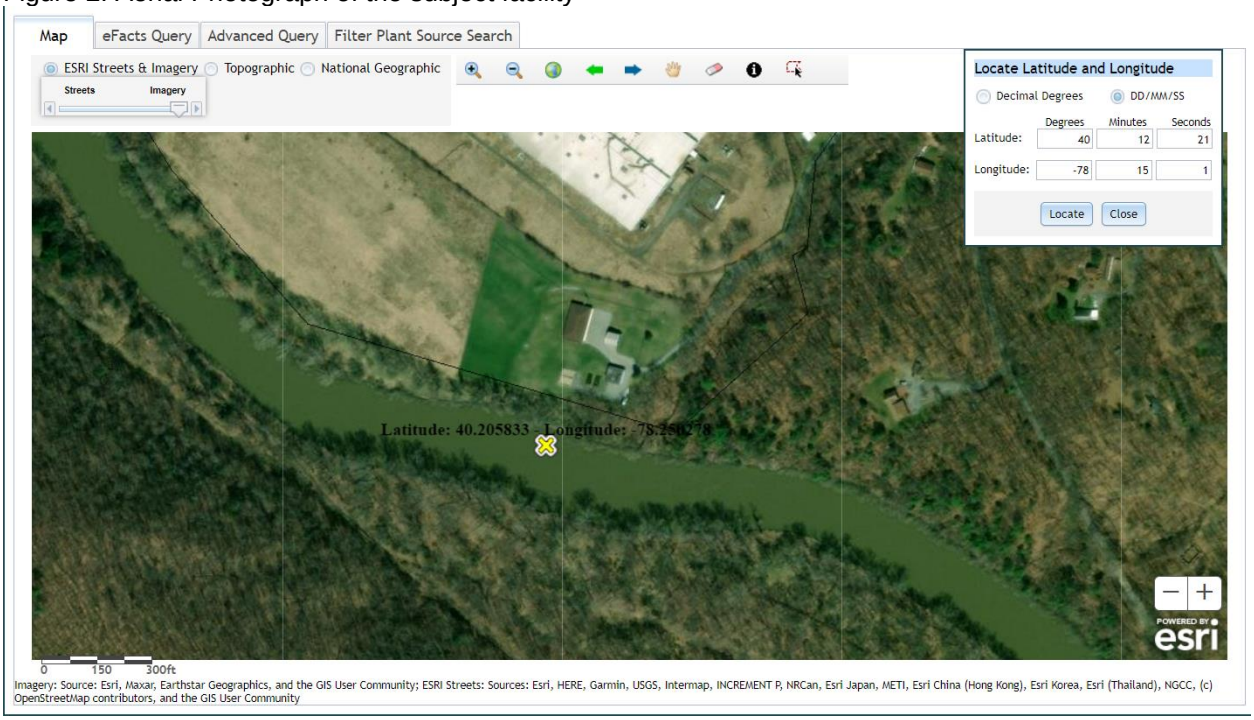


Figure 2: Aerial Photograph of the subject facility



2.2 Description of Wastewater Treatment Process

The subject facility is a 0.045 MGD design flow facility. The subject facility treats drinking water using chemical feeds (caustic, alum, polymer, and hypochlorite) and membrane filtration prior to being discharged to a distribution system to the public water supply system. Membrane backwash water is settled in a lagoon prior to discharge through the outfall. The facility is being evaluated for flow, pH, TRC, TSS, total phosphorus, aluminum, iron, and manganese. The existing permits limits for the facility is summarized in Section 2.4.

The treatment process is summarized in the table.

Treatment Facility Summary

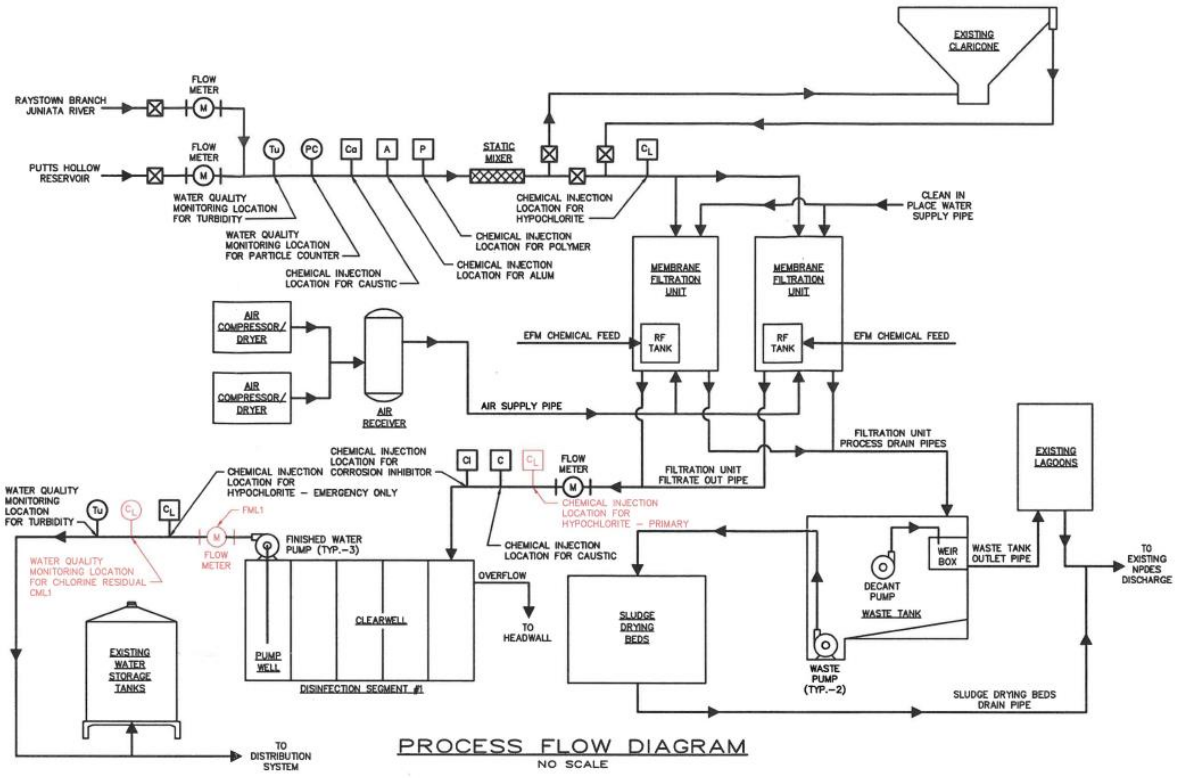
Treatment Facility Name: Saxton WS

WQM Permit No.	Issuance Date
0524404 A-1	TBD

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial			No Disinfection	0.045

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.045		Not Overloaded		

A schematic of the process is shown.



2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

Outfall No.	001	**Design Flow (MGD)**	.006
Latitude	40º 12' 21.45"	**Longitude**	-78º 15' 1.31"

Wastewater Description: IW Process Effluent without ELG

2.3.1 Operational Considerations- Chemical Additives

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

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

- Chlorine for disinfection
- Sodium hydroxide for flocculation/pH adjustment
- Orthopoly phosphate for corrosion inhibitor
- Citric acid for pH adjustment/element removal from fouled filters
- Polyaluminum chloride for coagulation

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° 12' 21.45" , **Longitude** 78° 15' 1.31" , **River Mile Index** 39 , **Stream Code** 13349

Receiving Waters: Raystown Branch Juniata River

Type of Effluent: IW Process Effluent without ELG

1. The permittee is authorized to discharge during the period from **November 1, 2018** through **October 31, 2023**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/discharge	Estimate
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	1.0	XXX	1/day	Grab
Total Suspended Solids	XXX	XXX	XXX	30	60	75	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report Appl Avg	XXX	XXX	1/year	Grab
Aluminum, Total	XXX	XXX	XXX	4.0	8.0	10	2/month	Grab
Iron, Total	XXX	XXX	XXX	2.0	4.0	5	2/month	Grab
Manganese, Total	XXX	XXX	XXX	1.0	2.0	2.5	2/month	Grab

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

at Outfall 001

3.0 Facility NPDES Compliance History

3.1 Summary of Inspections

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

The DEP inspector noted the following during the inspection.

05/11/2022:

- One settling lagoon was out of service. The lagoon needed a new liner. The liner had been out of service since 2018. The NPDES permit requires all treatment units to be in operable condition.
- Review of DMRs and laboratory records showed a reporting error on the December 2021 report. Some sample results on the effluent supplemental report were reported on the wrong date and there was one typographic error.

05/25/2023:

- Both settling lagoons were out of service. This is a violation of Part B.1.D of the NPDES permit. and failure to comply with the reporting and monitoring requirements for basin cleaning as described in Part C of the NPDES permit.
- As noted in the inspection report dated May 11, 2022, one lagoon liner had leaks and needed to be repaired. While the borough had the liners for both lagoons replaced when the lagoons were

put back on-line the new liners did not retain the wastewater. Further inspection showed separation in the seams of the new rubber liner. The borough will be working with the contractor to replace the liner and assure the system functions as designed.

- The discharge pipe from the sand filters to the river could not be accessed and the effluent could not be sampled. The operator had been retrieving samples from the settling tank for daily tests and bimonthly tests until the lagoons are back in service.
- The sludge from the settling lagoons was removed prior to the liner replacement project. The sludge was currently being stored on site under a tarp. The sludge pile is approximately 10 ft. X 15 ft. and 2 feet high. The sludge had the appearance of soil and there was no water draining from the pile. The borough was investigating ways to dispose of the sludge.
- DEP did not receive written notification of the cleaning operation and the discharge was not sampled for all permit parameters during the discharge. Prior to replacing or repairing the lagoon liners, the Borough or their engineer should contact DEP to confirm that the correct liner material is being installed.

06/08/2023:

- Both settling lagoons were out of service. This is a violation of Part B.1.D of the NPDES permit.
- Daryl stated that the newly installed liner may be repaired. The facility will expose the liners and examine them for effectiveness. Stiffler McGraw intends to submit a WQM permit application for their liner replacement. A new rubber liner was installed over both settling lagoons on July 28, 2023. One lagoon will be used at a time and will be alternated over a certain time period.
- Lagoon sludge is disposed at their wastewater treatment plant.

06/14/2023: A NOV was issued for the following violations.

A. Both settling lagoons were out of service. Failure to maintain treatment units is a violation of NPDES Permit No. PA0083143, Part B (1)(D).
B. Failure to properly notify the DEP of the basin cleaning and failure to properly sample effluent during basin dewatering is a violation of NPDES Permit No. PA0083143, Part C (Sedimentation Basin Cleaning).

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 0.042 MGD in September 2023. The design capacity of the treatment system is 0.045 MGD.

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

DMR Data for Outfall 001 (from April 1, 2023 to March 31, 2024)

Parameter	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23
Flow (MGD) Average Monthly	0.0284083	0.032291	0.03522	0.03063	0.031	0.038366	0.0420	0.03538	0.0307	0.02623	0.0229	0.02297
pH (S.U.) Instantaneous Minimum	6.8	6.82	6.68	6.74	6.61	6.45	6.53	6.73	6.66	6.67	6.64	6.59
pH (S.U.) Instantaneous Maximum	7.8	8.98	8.89	8.99	8.779	8.97	8.85	9.0	7.92	8.86	7.49	9.0
TRC (mg/L) Average Monthly	0.1	0.1	0.01	0.04	0.1	0.1	0.2	0.2	0.4	0.3	0.1	0.1
TRC (mg/L) Daily Maximum	0.88	0.74	0.71	0.09	0.23	0.54	0.98	0.54	0.6	0.66	0.23	0.62
TSS (mg/L) Average Monthly	8	< 5	< 3	5	< 4	7	11	14	< 17	16	15	6
TSS (mg/L) Daily Maximum	12	8	6.8	7	6	9.33	16	23.5	32	23	19.2	11.6
Total Phosphorus (mg/L) Annual Average				0.0774								
Total Aluminum (mg/L) Average Monthly	0.5	0.1	0.2	0.2	0.3	< 0.2	0.3	0.4	0.1	0.7	0.3	0.4
Total Aluminum (mg/L) Daily Maximum	0.832	0.158	0.17	0.287	0.508	0.213	0.0462	0.876	0.276	1.03	0.315	0.67
Total Iron (mg/L) Average Monthly	< 0.5	< 0.2	< 0.2	0.4	0.7	0.4	1.1	1.1	0.3	1.1	0.4	< 0.4
Total Iron (mg/L) Daily Maximum	0.708	< 0.2	< 0.2	0.484	1.1	0.509	1.57	1.57	0.462	1.46	0.42	0.665
Total Manganese (mg/L) Average Monthly	0.2	0.1	0.1	0.1	0.5	0.3	0.8	0.7	0.04	0.4	0.2	0.1
Total Manganese (mg/L) Daily Maximum	0.201	0.149	0.106	0.11	0.914	0.332	1.12	0.795	0.0433	0.408	0.245	0.205

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 November 1, 2018 and ending May 14, 2024, the following were observed effluent non-compliances.

Summary of Non-Compliance with NPDES Effluent Limits
Beginning November 1, 2018 and ending May 14, 2024

NON_COMPLIANCE_DATE	NON_COMPL_TYPE_DESC	NON_COMPL_CATEGORY_DESC	PARAMETER	SAMPLE_VALUE	VIOLATION_CONDITION	PERMIT_VALUE	UNIT_OF_MEASURE	STAT_BASE_CODE
11/1/2018	Late DMR Submission	Other Violations						
11/30/2018	Late DMR Submission	Other Violations						
1/29/2019	Late DMR Submission	Other Violations						
7/30/2019	Late DMR Submission	Other Violations						
10/25/2019	Violation of permit condition	Effluent	Manganese, Total	1.29	>	1.0	mg/L	Average Monthly
11/19/2019	Violation of permit condition	Effluent	Iron, Total	2.11	>	2.0	mg/L	Average Monthly
11/19/2019	Violation of permit condition	Effluent	Manganese, Total	1.222	>	1.0	mg/L	Average Monthly
12/30/2019	Late DMR Submission	Other Violations						
2/1/2021	Late DMR Submission	Other Violations						
6/1/2020	Late DMR Submission	Other Violations						
11/25/2020	ble type not in accordance with pe	Other Violations	Flow					
1/12/2021	Late DMR Submission	Other Violations						
6/1/2021	Late DMR Submission	Other Violations						
12/30/2021	Late DMR Submission	Other Violations						

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 November 1, 2018 and ending May 14, 2024, the following were observed enforcement actions.

Summary of Enforcement Actions
Beginning November 1, 2018 and Ending May 14, 2024

ENF ID	ENF TYPE DESC	ENF CREATION DATE	VIOLATIONS
416856	Notice of Violation	06/15/2023	92A.75(A)
416908	Notice of Violation	06/16/2023	92A.41(A)5; 92A.46

3.4 Summary of solids Disposal

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

The facility did not report any sludge disposal. The lagoons were dewatered in May 2023 to repair the lagoon liners.

3.5 Open Violations

As of May 2023, there were no open violations.

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

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

4.2 Public Water Supply (PWS) Intake

The closest PWS to the subject facility is Lake Raystown Resort (PWS ID #4310821) located approximately 13 miles downstream of the subject facility on the Raystown Branch Juniata River. Based upon the distance and the flow rate of the facility, the PWS should not be impacted.

4.3 Class A Wild Trout Streams

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

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

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

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

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

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

The receiving waters is listed in the 2024 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 waterbody. The surface waters is an attaining stream that supports aquatic life 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 River at Saxton, PA station (WQN223). This WQN station is located approximately 1.0 mile downstream of the subject facility.

The closest gauge station to the subject facility is the Raystown Branch Juniata River at Saxton, PA station (USGS station number 1562000). This gauge station is located approximately 1.0 mile downstream of the subject facility.

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

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

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

Gauge Station Data			
USGS Station Number	Raystown Branch Juniata River at Saxton, PA		
Station Name	1562000		
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		750	mi^2
Q710 = (LFY@gauge station)(DA@Subject Site)			
Q710 = (0.0888 $ft^3/sec/mi^2$)(750 mi^2)			
Q710 =	66.567	ft^3/sec	

4.6 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.045
Latitude	40º 12' 20.69"	Longitude	-78º 15' 1.42"
Quad Name		Quad Code	
Wastewater Description:	IW Process Effluent without ELG		

Receiving Waters	Raystown Branch Juniata River (TSF)	Stream Code	13349
NHD Com ID	65842847	RMI	39
Drainage Area	750	Yield (cfs/mi^2)	0.0888
Q_{7-10} Flow (cfs)	66.567	Q_{7-10} Basis	StreamStats/streamgauge
Elevation (ft)	809	Slope (ft/ft)	
Watershed No.	11-D	Chapter 93 Class.	TSF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s) supports aquatic life and fish consumption.		
Cause(s) of Impairment	Not appl.		
Source(s) of Impairment	Not appl.		
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	8.00	WQN223; median July to Sept
Temperature (°C)	23.3	WQN223; median July to Sept
Hardness (mg/L)	96	WQN223; median historical
Other:		

Nearest Downstream Public Water Supply Intake		Lake Raystown Resort	
PWS Waters	Raystown Branch Juniata River	Flow at Intake (cfs)	
PWS RMI	28	Distance from Outfall (mi)	13

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.

Permit limits for water treatment plant wastes are subject to handling and disposal of water treatment plant (WTP) using Best Practicable Control Technology (BPCT) currently available. Waste water from treatment of WTP sludges and filter backwash shall have the following permit limits.

Parameter	Monthly Average	Daily Max
	mg/l	mg/l
Suspended Solids	30	60
Iron (total)	2	4
Aluminum (total)	4	8
Manganese (total)	1	2
pH	6 - 9	-----
TRC	0.5	1

Notes:
Source: TECHNOLOGY-BASED CONTROL REQUIREMENTS FOR WATER TREATMENT PLANT WASTES

5.3 Water Quality-Based Limitations

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

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

The modeling point nodes utilized for this facility are summarized below

General Data 1	*(Modeling Point #1)*	*(Modeling Point #2)*	*Units*
Stream Code	13349	13349	
River Mile Index	39	36.14	miles
Elevation	809.76	790.21	feet
Latitude	40.205833	40.223956	
Longitude	-78.250278	-78.244841	
Drainage Area	750	783	sq miles
Low Flow Yield	0.088756614	0.088756614	cfs/sq mile

5.3.1 Water Quality Modeling 7.0

The facility is not subject to water quality modeling for 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 pollutants in Groups 1 and 2.

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

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

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

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

5.3.3 Whole Effluent Toxicity (WET)

The facility is not subject to WET.

5.4 Total Maximum Daily Loading (TMDL)

5.4.1 TMDL

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

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

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

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

5.4.1.1 Local TMDL

The subject facility does not discharge into a local TMDL.

5.4.1.2 Chesapeake Bay TMDL Requirement

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

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

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

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

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

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

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

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

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

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

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

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

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

For non-significant IW facilities, monitoring and reporting of TN and TP will be required throughout the permit term in renewed or amended permits anytime the facility has the potential to introduce a net TN or TP increase to the load contained within the intake water used in processing. In general, facilities that discharge groundwater and cooling water with no addition of chemicals containing N or P do not require monitoring. Monitoring for facilities with other discharges will generally conform to the following minimum sampling frequencies, with the permit writer having final discretion

Non-significant IW facilities that propose expansion or production increases and as a result will discharge at least 75 lbs/day TN or 25 lbs/day TP (on an annual average basis), will be classified as Significant IW dischargers and receive Cap Loads in their permits based on existing performance (existing TN/TP concentrations at current average annual flow).

In general, for new non-significant IW discharges (including existing facilities discharging without a permit), DEP will issue permits containing Cap Loads of "0" and these facilities will be expected to purchase credits and/or apply offsets to achieve compliance.

Since the facility is not a producer of nitrogen or phosphorus, this facility is not subject to Sector C monitoring requirements.

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 Water System, PA0083143			
Parameter	**Permit Limitation Required by[1]:**	**Recommendation**	
pH (S.U.)	TBEL	Monitoring:	The monitoring frequency shall be daily as a grab sample (Table 6-4).
		Effluent Limit:	Effluent limits may range from pH = 6.0 to 9.0
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-4 and the effluent limits assigned by Chapter 95.2(1).
TSS	TBEL	Monitoring:	The monitoring frequency shall be 2x/mo as a grab sample (Table 6-4).
		Effluent Limit:	Effluent limits should not exceed 30.0 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 6-4).
		Effluent Limit:	The average monthly limit should not exceed 0.5 mg/l and/or 1.0 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). The facility uses chlorine for disinfection thoughout the manufacturing process for drinking water. The NPDES application included a postitive results for TRC. Thus, TRC should continue to be monitored. TBEL limits from the DEP TECHNOLOGY>BASED CONTROL REQUIREMENTS FOR WATER TREATMENT PLANT WASTES guidance document applies	
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 0.045 MGD.			
3 Table 6-4 (Self Monitoring Requirements for Industrial 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 Toxics

Summary of Proposed NPDES Parameter Details for Toxics

Saxton Borough Water System, PA0083143

Parameter	Permit Limitation Required by[1]:	Recommendation	
Aluminum	DEP Guidance Document-Water Treatment Plant Wastes	Monitoring:	The monitoring frequency shall be 2x/month as a grab sample (Table 6-3).
		Effluent Limit:	The performance effluent limit shall not exceed 4 mg/l as a monthly average.
		Rationale:	Effluent limits are defined by DEP Guidance Document- Technology-Based Control Requirements for Water Treatment Plant Wastes- Waste Water from Treatment of WTP Sludges and Filter Backwash
Iron	DEP Guidance Document-Water Treatment Plant Wastes	Monitoring:	The monitoring frequency shall be 2x/month as a grab sample (Table 6-3).
		Effluent Limit:	The performance effluent limit shall not exceed 2 mg/l as a monthly average.
		Rationale:	Effluent limits are defined by DEP Guidance Document- Technology-Based Control Requirements for Water Treatment Plant Wastes- Waste Water from Treatment of WTP Sludges and Filter Backwash
Manganese	DEP Guidance Document-Water Treatment Plant Wastes	Monitoring:	The monitoring frequency shall be 2x/month as a grab sample (Table 6-3).
		Effluent Limit:	The performance effluent limit shall not exceed 1 mg/l as a monthly average.
		Rationale:	Effluent limits are defined by DEP Guidance Document- Technology-Based Control Requirements for Water Treatment Plant Wastes- Waste Water from Treatment of WTP Sludges and Filter Backwash

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 0.045 MGD.

3 Table 6-4 (Self Monitoring Requirements for Industrial Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

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

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

6.2 Summary of Changes From Existing Permit to Proposed Permit

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

- **Phosphorus is used as an ingredient in additive. NPDES application results had a maximum result of 0.56 mg/l out of fifteen samples. The phosphorus results is a low concentration. It has been eliminated from monitoring.**

6.3.1 Summary of Proposed NPDES Effluent Limits

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

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

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

I. A. For Outfall 001 , **Latitude** 40º 12' 21.45" , **Longitude** 78º 15' 1.31" , **River Mile Index** 39 , **Stream Code** 13349

Receiving Waters: Raystown Branch Juniata River (TSF)

Type of Effluent: IW Process Effluent without ELG

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/discharge	Estimate
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	1.0	XXX	1/day	Grab
Total Suspended Solids	XXX	XXX	XXX	30.0	60.0	75	2/month	Grab
Aluminum, Total	XXX	XXX	XXX	4.0	8.0	10	2/month	Grab
Iron, Total	XXX	XXX	XXX	2.0	4.0	5	2/month	Grab
Manganese, Total	XXX	XXX	XXX	1.0	2.0	2.5	2/month	Grab

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

at Outfall 001

6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- Chlorine Minimization
- Solids Management for Lagoons
- Water Basin Cleaning

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: New and Reissuance Industrial Waste and Industrial Stormwater, rev 2/5/2024
☐	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

26 Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

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

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

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (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

Attachment B

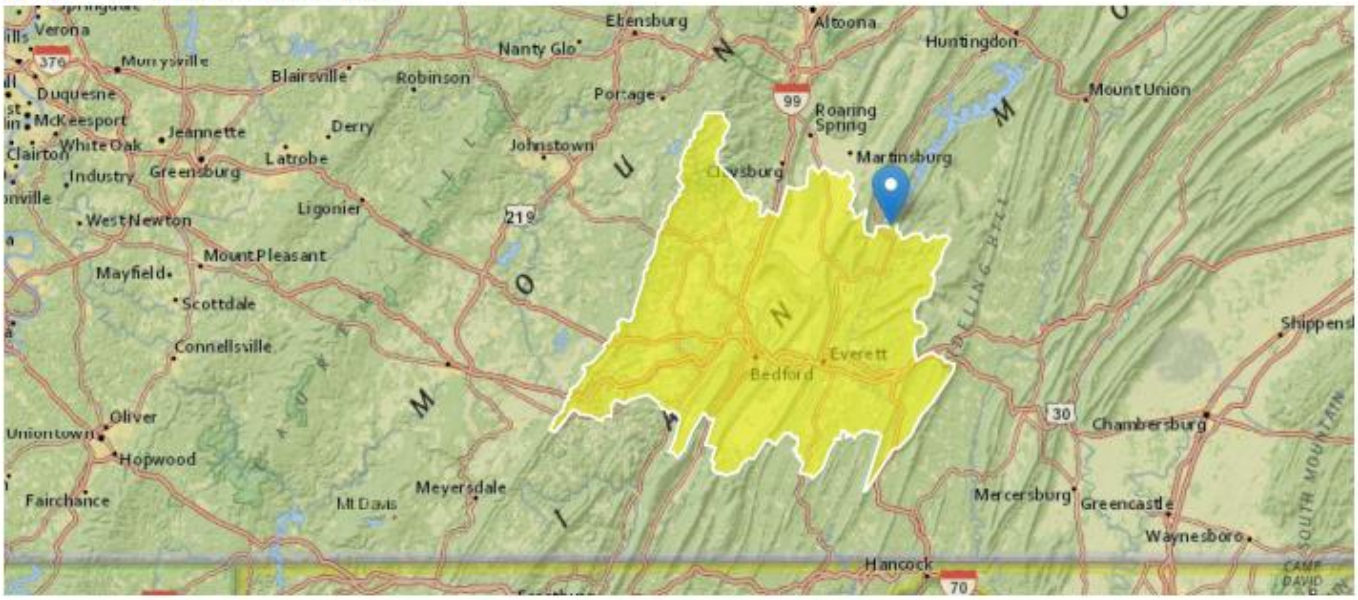
Toxics Management Spreadsheet Output Values

Attachment A

Stream Stats/Gauge Data

StreamStats Report

Region ID: PA
Workspace ID: PA20230829164830996000
Clicked Point (Latitude, Longitude): 40.20567, -78.25038
Time: 2023-08-29 12:49:41 -0400



Saxton Boro PA0083143 Bedford County Modeling Point #1

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	15.95	percent
DRNAREA	Area that drains to a point on a stream	750	square miles
PRECIP	Mean Annual Precipitation	38	inches
ROCKDEP	Depth to rock	4.3	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	2.33	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [100.0 Percent (750 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	750	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	38	inches	35	50.4
STRDEN	Stream Density	2.33	miles per square mile	0.51	3.1

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ROCKDEP	Depth to Rock	4.3	feet	3.32	5.65
CARBON	Percent Carbonate	15.95	percent	0	99

Low-Flow Statistics Flow Report [100.0 Percent (750 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	79.2	ft^3/s	38	38
30 Day 2 Year Low Flow	102	ft^3/s	33	33
7 Day 10 Year Low Flow	44.7	ft^3/s	51	51
30 Day 10 Year Low Flow	58.1	ft^3/s	46	46
90 Day 10 Year Low Flow	82	ft^3/s	36	36

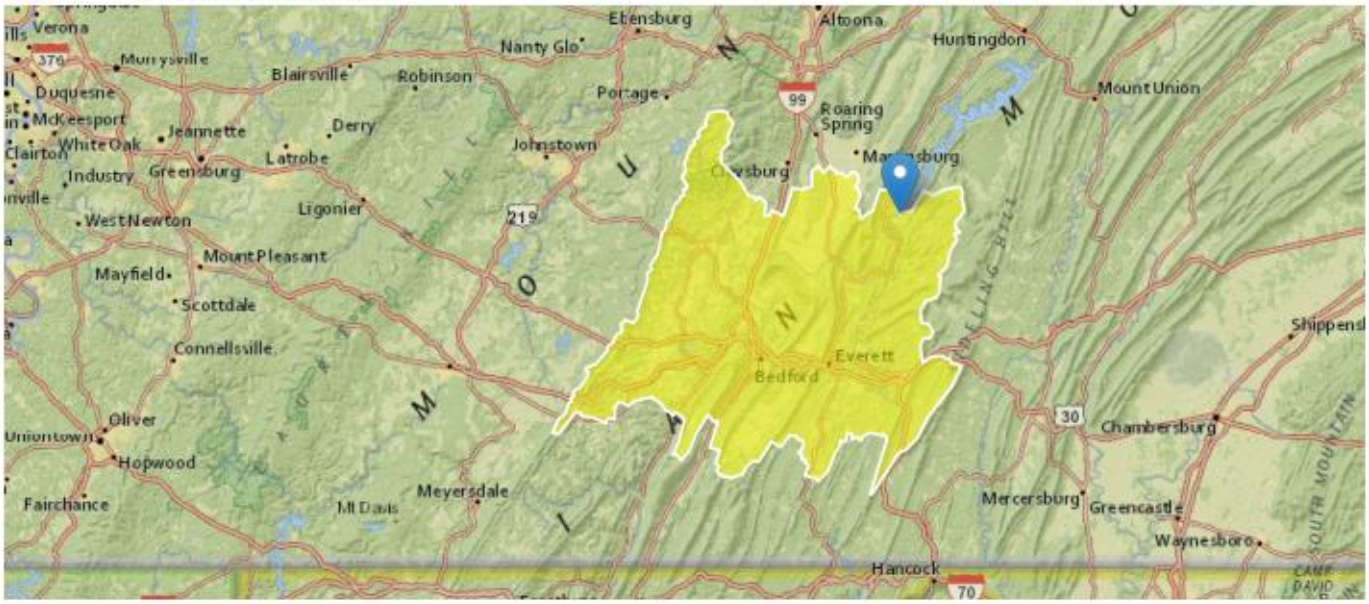
Low-Flow Statistics Citations

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: 4.16.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20230829165435211000
Clicked Point (Latitude, Longitude): 40.22391, -78.24495
Time: 2023-08-29 12:55:57 -0400



Saxton Boro PA0083143 Modeling Point #2 August 2023

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	15.39	percent
DRNAREA	Area that drains to a point on a stream	783	square miles
PRECIP	Mean Annual Precipitation	38	inches
ROCKDEP	Depth to rock	4.3	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	2.32	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [100.0 Percent (783 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	783	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

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ROCKDEP	Depth to Rock	4.3	feet	3.32	5.65
CARBON	Percent Carbonate	15.39	percent	0	99

Low-Flow Statistics Flow Report [100.0 Percent (783 square miles) Low Flow Region 2]

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	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	46.8	ft^3/s	51	51
30 Day 10 Year Low Flow	60.9	ft^3/s	46	46
90 Day 10 Year Low Flow	85.9	ft^3/s	36	36

Low-Flow Statistics Citations

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

Application Version: 4.16.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment B

Toxics Screening Analysis

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Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Saxton Boro** NPDES Permit No.: **PA0083143** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Water treatment plant backwash 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
0.045	16.6	7.64						

					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	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		92									
	Chloride (PWS)	mg/L		1.24									
	Bromide	mg/L	<	0.036									
	Sulfate (PWS)	mg/L		8.69									
	Fluoride (PWS)	mg/L	<	0.05									
Group 2	Total Aluminum	µg/L		120									
	Total Antimony	µg/L	<	0.348									
	Total Arsenic	µg/L	<	2.5									
	Total Barium	µg/L		43.3									
	Total Beryllium	µg/L	<	0.676									
	Total Boron	µg/L		52.7									
	Total Cadmium	µg/L	<	0.123									
	Total Chromium (III)	µg/L		1.99									
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L		0.236									
	Total Copper	µg/L	<	2.21									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		6									
	Dissolved Iron	µg/L	<	50									
	Total Iron	µg/L		140									
	Total Lead	µg/L		0.247									
	Total Manganese	µg/L		71.9									
	Total Mercury	µg/L	<	0.104									
	Total Nickel	µg/L	<	4									
	Total Phenols (Phenolics) (PWS)	µg/L	<	2.5									
	Total Selenium	µg/L	<	1.37									
	Total Silver	µg/L	<	0.068									
	Total Thallium	µg/L		6.01									
	Total Zinc	µg/L	<	0.2									
	Total Molybdenum	µg/L	<	1.44									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Saxton Boro, NPDES Permit No. PA0083143, 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 (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	013349	41.2	809	750			Yes
End of Reach 1	013349	38.34	790	783			Yes

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

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	41.2	0.0888										96	8		
End of Reach 1	38.34	0.0888										96	8		

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	41.2														
End of Reach 1	38.34														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Saxton Boro, NPDES Permit No. PA0083143, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.147 Analysis Hardness (mg/l): 95.441 Analysis pH: 8.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total 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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	106,503	
Total Antimony	0	0		0	1,100	1,100	156,204	
Total Arsenic	0	0		0	340	340	48,281	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	2,982,078	
Total Boron	0	0		0	8,100	8,100	1,150,230	
Total Cadmium	0	0		0	1.924	2.03	289	Chem Translator of 0.946 applied
Total Chromium (III)	0	0		0	548.399	1,735	246,439	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	2,314	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	13,490	
Total Copper	0	0		0	12.861	13.4	1,902	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	61.380	76.9	10,925	Chem Translator of 0.798 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	234	Chem Translator of 0.85 applied
Total Nickel	0	0		0	450.111	451	64,046	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	2.969	3.49	496	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	9,230	
Total Zinc	0	0		0	112.638	115	16,355	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): 95.917 Analysis pH: 8.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total 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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	210,692	
Total Arsenic	0	0		0	150	150	143,654	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	3,926,531	
Total Boron	0	0		0	1,600	1,600	1,532,305	
Total Cadmium	0	0		0	0.239	0.26	251	Chem Translator of 0.911 applied
Total Chromium (III)	0	0		0	71.627	83.3	79,763	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	9,955	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	18,196	
Total Copper	0	0		0	8.642	9.0	8,622	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,436,536	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.405	3.02	2,890	Chem Translator of 0.797 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	868	Chem Translator of 0.85 applied
Total Nickel	0	0		0	50.204	50.4	48,225	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	4,778	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	12,450	
Total Zinc	0	0		0	114.039	116	110,765	Chem Translator of 0.986 applied

☑ ***THH*** 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	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	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	5,363	
Total Arsenic	0	0		0	10	10.0	9,577	
Total Barium	0	0		0	2,400	2,400	2,298,457	
Total Boron	0	0		0	3,100	3,100	2,968,840	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	

Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	287,307	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	957,690	
Total Mercury	0	0		0	0.050	0.05	47.9	
Total Nickel	0	0		0	610	610	584,191	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	230	
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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

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

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

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

Pollutants	Governing WQBEL	Units	Comments
Total 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
Fluoride (PWS)	N/A	N/A	Discharge Conc < TQL
Total Aluminum	68,264	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	1,911,392	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	737,251	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	185	µg/L	Discharge Conc < TQL
Total Chromium (III)	79,763	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	1,483	µg/L	Discharge Conc < TQL
Total Cobalt	8,647	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	1,219	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	287,307	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	1,436,536	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	2,890	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	957,690	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	47.9	µg/L	Discharge Conc < TQL
Total Nickel	41,051	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	4,778	µg/L	Discharge Conc < TQL
Total Silver	318	µg/L	Discharge Conc < TQL
Total Thallium	230	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	10,483	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS

Attachment C

TRC Evaluation

Saxton Borough Water May 2024
PA0083146

1A	B	C	D	E	F	G
2	**TRC EVALUATION**					
3	Input appropriate values in B4:B8 and E4:E7					
4	66.56	= Q stream (cfs)		0.5	= CV Daily	
5	0.045	= 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 = 305.020		1.3.2.iii	WLA cfc = 297.363
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 113.658		5.1d	LTA_cfc = 172.873
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)**

Attachment D- Correspondence

GD&F
GWIN
DOBSON &
FOREMAN
ENGINEERS

January 10, 2024

PA Department of Environmental Protection
Clean Water Programs
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110

RE: Saxton Borough Municipal Water Authority
NPDES Permit No. PA0083143
Discharge Capacity Re-rate Request

Dear Mr. Hong:

The Saxton Water Treatment Facility design capacity of 300,000 gpd equates to a maximum treatment rate (Q_{max}) of approximately 210 gpm. The operator sets the rate based on system demand. Wastewater generated from the facility is collected in a wastewater holding tank. This tank receives all wastewater including reverse flow backwash and clean-in-place (CIP) wastewater. Wastewater Q_{max} is based on calculated volumes of wastewater and the frequency of reverse flow backwashes, based upon the membrane filter system recovery rate between 85-95% and assumes one day storage volume.

Design Flow = 300,000 gpd
Membrane Filtration System Recovery = 85%
Wastewater Volume = 300,000 x 0.15 = 45,000 gpd

As such, the Saxton Borough Water System is seeking approval to re-rate the discharge capacity of the Water Treatment Facility from 0.006 MGD to 0.045 MGD.

If you have any questions or need additional information, please do not hesitate to contact our office at your earliest convenience.

Respectfully submitted,
GWIN, DOBSON & FOREMAN, INC.

Maggie K. Weitzel

Maggie K. Weitzel, CEP-IT
Senior Environmental Scientist

Enclosures
MKW/mad
95056/Ltr/DischargeCapacityReRate_1-10-24.doc
cc: Saxton Borough
File

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