Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0026727**
Facility Type	**Municipal**	APS ID	**30611**
Major / Minor	**Major**	Authorization ID	**1498169**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Tyrone Borough Blair County**	Facility Name	**Tyrone Borough STP**
Applicant Address	1100 Logan Avenue	Facility Address	735 Birmingham Pk
	Tyrone, PA 16686-1624		Tyrone, PA 16686
Applicant Contact	Jason Harris	Facility Contact	Jason Harris
Applicant Phone	(814) 684-2110	Facility Phone	(814) 684-2110
Client ID	33177	Site ID	452053
Ch 94 Load Status	Not Overloaded	Municipality	Snyder Township
Connection Status	No Limitations	County	Blair
Date Application Received	August 30, 2024	EPA Waived?	No
Date Application Accepted	September 10, 2024	If No, Reason	Major Facility, Pretreatment, Significant CB Discharge

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)	April 2, 2025
x		Daniel W. Martin, P.E. / Environmental Engineer Manager Maria D. Bebenek for	May 22, 2025
x		Maria D. Bebenek, P.E. / Environmental Program Manager Maria D. Bebenek	May 22, 2025

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Tyrone Borough STP located at 735 Birmingham Pike in Blair County, municipality of Snyder Township. The existing permit became effective on March 1, 2020 and expired on February 28, 2025. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on August 30, 2024.

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 9.0 MGD treatment facility. The hydraulic design capacity is 13.6 MGD. The applicant anticipates proposed upgrades to the treatment facility in the next five years. The WWTP is evaluating a headworks modification for the plant including new fine screens and a new grit removal system. The consultant and DEP are currently working on an organic re-rate for the treatment plant. The NPDES application has been processed as a Major Sewage Facility due to the type of sewage and the design flow rate for the facility. The applicant disclosed the Act 14 requirement to Blair County and Antis Township, Bellwood Borough, Snyder Township, Tyrone Borough, Northern Blair County Regional Sewer Authority Board and the notice was received by the parties on August 2024. 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 Little Juniata River. The sequence of receiving streams that the Little Juniata River discharges into are Juniata River and the Susquehanna River which eventually drains into the Chesapeake Bay. The subject site is subject to the Chesapeake Bay implementation requirements. The receiving water has protected water usage for trout stocking fishes (TSF) and migratory fishes (MF). No Class A Wild Trout fisheries are impacted by this discharge. The absence of high quality and/or exceptional value surface waters removes the need for an additional evaluation of anti-degradation requirements.

The Little 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. 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:

- **The ammonia-nitrogen has been reduced to 3.5 mg/l during the summer and 10.5 mg/l during the winter.**
- **Due to the EPA triennial review, monitoring shall be required 1x/month for E. Coli.**
- **A DEP Central Office directive in January 2024 to monitor for TDS, sulfate, chloride, bromide, and 1,4-dioxane has expired. Monitoring for sulfate, chloride, and bromide have been eliminated.**
- **Monitoring for PFOA, PFOS, PFBS, and HFPO-DA**

Sludge use and disposal description and location(s):

Laurel Highlands Landfill in Jackson Township, Cambria County
Evergreen Landfill in Centre Township, Indiana County
Mostoller Landfill in Somerset Township, Somerset County

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

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

Summary of Review
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:	Tyrone Borough
NPDES Permit #	PA0026727
Physical Address:	735 Birmingham Pike Tyrone, PA 16686
Mailing Address:	1100 Logan Avenue Tyrone, PA 16686
Contact:	Jason Harris Sewer Superintendent jharris@tyroneboropa.com (814) 684-2110
Consultant:	Matthew Coleman Engineer RETTEW Associates, Inc. 330 Innovation Boulevard, Suite 104 State College, PA 16803 Matt.coleman@rettew.com (814) 308-0644

1.2 Permit History

Permit submittal included the following information.

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

The facility anticipates a re-rate of the treatment facility. The consultant and DEP are working on the organic re-rate.

2.0 Treatment Facility Summary

2.1.1 Site location

The physical address for the facility is 735 Birmingham Pike, Tyrone, PA 16686. 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

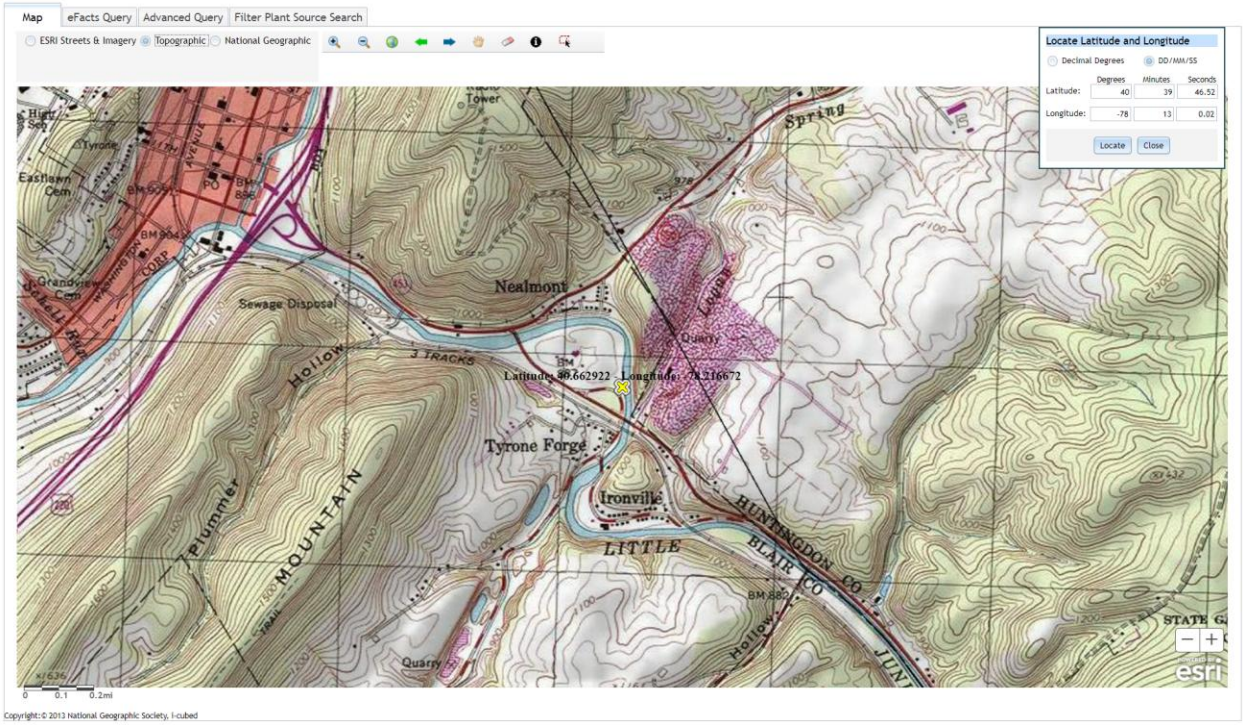
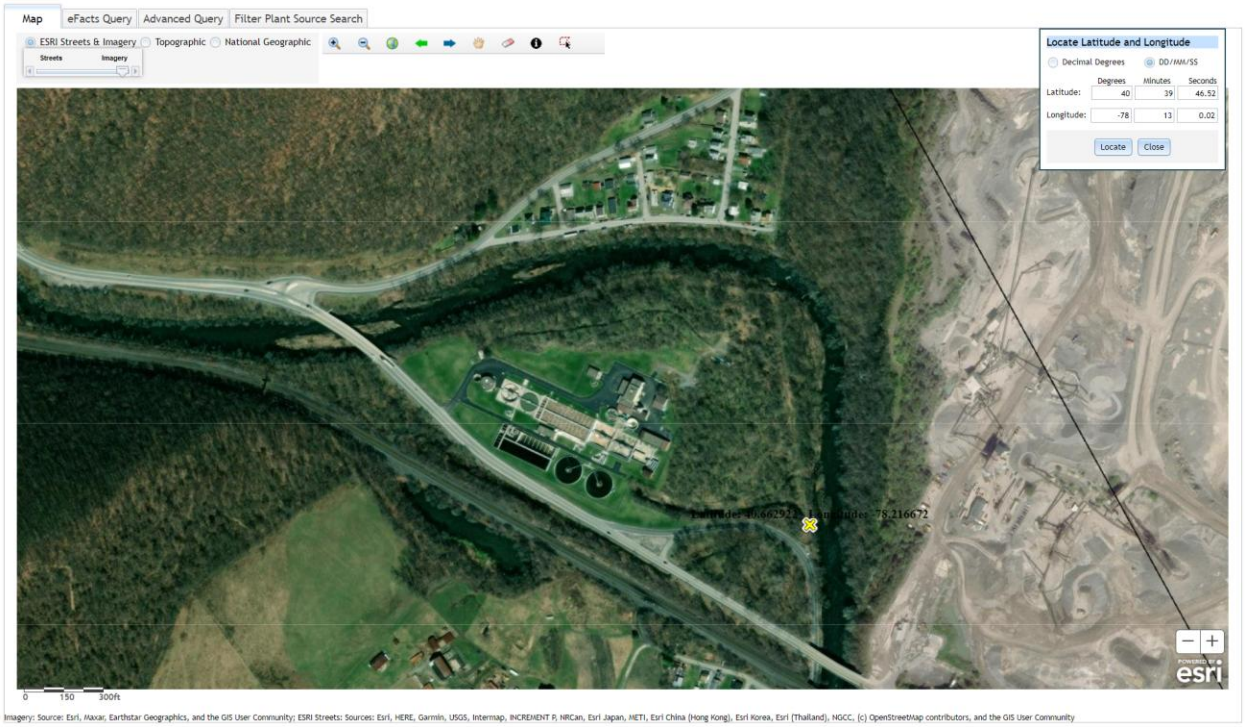


Figure 2: Aerial Photograph of the subject facility



2.1.2 Sources of Wastewater/Stormwater

The table summarizes the municipalities the wastewater treatment plant serves.

Municipalities Served	Flow Contribution	Population
Tyrone Borough	60	5,480
Snyder Township	11	3,344
Antis Township	23	6,478
Bellwood Borough	6	1,827
Total	**100**	

The facility has been implementing a pretreatment program administered by EPA beginning in May 3, 2023.

The table summarizes industrial/commercial users.

Summary of Industrial/Commercial Users

Industrial User Name	Address	Categorical Industry (Yes/No)	Description of Industry and Waste Characteristics	Significant Industrial User (Yes/No)	Non-Significant Categorical Industrial User (Yes/No)	Has an industrial user permit been issued by the POTW/permittee (Yes/No)	Wastewater Flows			
							Process	NCCW	Sanitary	Total
W.R. Grace and CO.	2858 Back Vail Road, Tyrone, PA 16686	Yes	W.R. Grace is a chemical manufacturing company with wastewater consisting of treated process wastewater, noncontact cooling water, boiler blowdown, and sanitary wastewater.	Yes	No	Yes	43,200		1,800	45,000
Chicago Rivet & Machine Co.	2728 Adams Ave, Tyrone, PA 16686	Yes	Chicago Rivet is a metal finishing operation with wastewater consisting of process wastewater and sanitary wastewater	Yes	No	Yes	36,660		2,340	39,000
Team Ten, LLC	1600 Pennsylvania Ave, Tyrone, PA 16686	Yes	Team Ten is a paper mill with wastewater consisting of process wastewater and sanitary wastewater.	Yes	No	Yes	2,678,000			2,678,000
Balfurd Cleaners, Inc	2467 Park Ave, Tipton, PA 16684	No	Balfurd Cleaners is a laundering operation with wastewater consisting of process wastewater and sanitary wastewater.	Yes	No	Yes	36,660		2,340	39,000
Kunzler & Company, Inc.	118 Poorman St, Tyrone, PA 16686	No	Kunzler is a meat processing facility with wastewater consisting of process wastewater and sanitary wastewater	Yes	No	Yes	20,000		5,000	25,000
DelGrosso Foods – Facility #1	632 Sauce Factory Rd, Tipton, PA 16684	No	DelGrosso is a food processing facility with wastewater consisting of process wastewater and sanitary wastewater.	Yes	No	Yes	43,200		4,800	48,000
DelGrosso Foods, Inc. – Facility #2	198 Kristel Lane, Altoona, PA 16601	No	DelGrosso is a food processing facility with wastewater consisting of process wastewater and sanitary wastewater. This is a new facility to the system, and it is currently under an interim operations permit until full compliance is achieved.	Yes	No	Yes				300,000

The facility did not receive any hauled-in wastes in the last three years. The facility does not anticipate hauled-in wastes in the next five years.

The facility has a storm water outfall located at Latitude 40^0 39’ 46” and Longitude -78^0 13’ 10.01”. The stormwater outfall channels to the Little Juniata River.

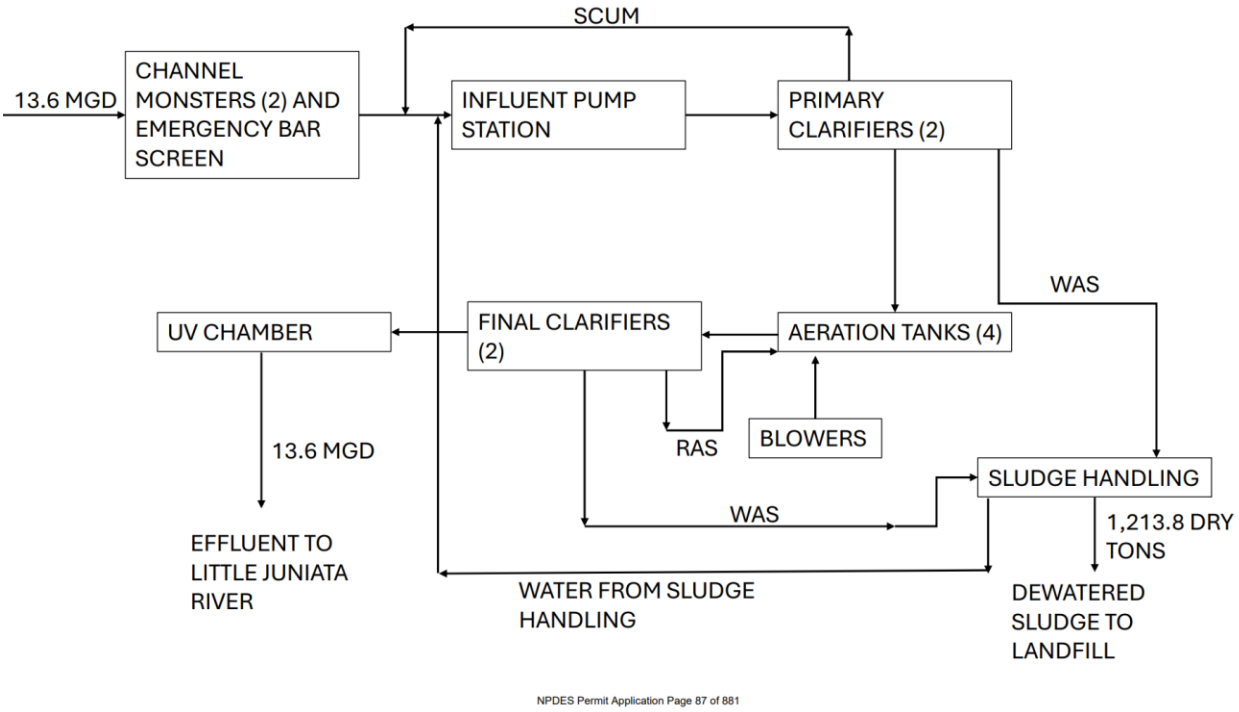
2.2 Description of Wastewater Treatment Process

The subject facility is a 9.0 MGD design flow facility. The subject facility treats wastewater using two (2) comminutors, two (2) primary clarifiers, four (4) aeration basins, and two (2) final clarifiers. Disinfection occurs using ultraviolet light prior to discharge to the Little Juniata River. The facility is being evaluated for flow, pH, dissolved oxygen, CBOD5, TSS, total dissolved solids, fecal coliform, UV light transmittance, nitrogen species, total phosphorus, antimony, cadmium, cyanide, sulfate, chloride, and bromide. 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: Tyrone Borough STP				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Ammonia Reduction	Extended Aeration	Ultraviolet	9
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
13.6	16300	Not Overloaded	Combination	Incineration

A schematic of the wastewater treatment plan is depicted.



2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

Outfall No.	001	**Design Flow (MGD)**	9
Latitude	40º 39' 46.52"	**Longitude**	-78º 13' 0.02"
Wastewater Description:	Sewage Effluent		

Outfall No.	002	**Design Flow (MGD)**	0
Latitude	40º 39' 46.00"	**Longitude**	-78º 13' 1.00"
Wastewater Description:	Stormwater		

The subject facility outfall is within the vicinity of another sewage/wastewater outfall. The upstream outfalls are Altoona WWTP (PA0027014) and the Logan WWTP (PA0032557) which are about 15 miles and 13 miles upstream from the subject facility. The downstream outfall is Grier Foundation which is about 2 miles from the subject facility.

2.3.1 Operational Considerations- Chemical Additives

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

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

- Nitrogen solution (UAN) for nutrient source for return sludge to aeration tanks.
- Ammonium polyphosphate for nutrient source for return sludge to aeration tanks.
- Polymer for thickening for belt filter press feed
- Potassium permanganate for odor control for belt filter press
- Hydrogen peroxide for control of filamentous organisms in return sludge

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° 39' 46.52" , **Longitude** 78° 13' 0.02" , **River Mile Index** 14.3 , **Stream Code** 15664

Receiving Waters: Little Juniata River (TSF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **March 1, 2020** through **February 28, 2025**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2)	Required
	Average Monthly	Weekly Average	Instantaneous 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	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	1876	3002	XXX	25	40	50	1/day	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Suspended Solids	2252	3378	XXX	30	45	60	1/day	24-Hr Composite
Total Dissolved Solids	XXX	XXX	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/day	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	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)	Required
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Ammonia-Nitrogen Nov 1 - Apr 30	900	XXX	XXX	12	XXX	24	1/day	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	338	XXX	XXX	4.5	XXX	9	1/day	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Antimony, Total	1.20	XXX	XXX	0.016	XXX	0.04	1/month	24-Hr Composite
Cadmium, Total	0.075 Avg Qrtly	XXX	XXX	0.001 Avg Qrtly	XXX	0.0025	1/quarter	24-Hr Composite
Cyanide, Free	1.1	XXX	XXX	0.015	XXX	0.0375	2/month	Grab
Sulfate, Total	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Chloride	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Bromide	XXX	XXX	XXX	Report	XXX	XXX	1/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° 39' 46.52", Longitude 78° 13' 0.02", River Mile Index 14.3, Stream Code 15664

Receiving Waters: Little Juniata River (TSF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **March 1, 2020** through **February 28, 2025**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	1/day	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	164381	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	21918	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) The permittee is authorized to use 1850 lbs/year as Total Nitrogen (TN) Offsets toward compliance with the Annual Net TN mass load limitations (Cap Loads), in accordance with Part C of this permit. These Offsets may be applied throughout the Compliance Year or during the Truing Period. The application of offsets must be reported to DEP as described in Part C. The Offsets are authorized for the following pollutant load reduction activities: Connection of 74 on-lot sewage disposal systems to the public sewer system after January 1, 2003, in which 25 lbs/year of TN offsets are granted per connection.

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.

12/01/2020:

- On November 25, 2020 the DEP received a complaint from the Blair County Emergency Management agency regarding discolored water in the little Juniata River. They reported that the river had turned red in color and thought it was caused by the American Eagle paper mill. The Pennsylvania Fish and Boat commission also contacted the Department about the incident. The Tyrone STP receives wastewater from the paper mill's pretreatment system. On November 30, 2020 Jason Harris explained that plant operators noticed that red colored wastewater had entered the plant on the morning of November 25, 2020. Jason immediately contacted the paper mill and they informed him that they used red dye for a short period of time and were unable to treat it for color. The facility has a pretreatment agreement with the mill and should have been informed about the use of the dye. Jason said that the dye did not have an adverse effect on the performance of the treatment plant and that daily test results were within the permit limits. Plant operators check

the outfall twice a day. No harm to aquatic life was observed as a result of the discolored water. A SDS for the dye was forwarded to the DEP and the product believed to have caused the discoloration is called Pergasol RED 50 L Direct Dye. Discharging substances that cause discoloration of the receiving stream is a violation of Part A of the NPDES permit.

12/03/2020:

- On December 3, 2020 Tyrone STP supervisor Jason Harris notified the DEP that dye in the waste stream has caused discoloration in the plant's final effluent. Jason said the dye caused a purple tint in some tanks but the effluent had a whitish color after mixing with the receiving stream. There was a milky white color to the effluent when it entered the river. The color extended half way across the river and was noticeable for about 150 feet downstream. The water upstream of the outfall looked normal. There did not appear to be any harm to aquatic life as a result of the dye contamination. The primary clarifiers and aeration tanks at the treatment plant and the wastewater color appeared normal. Jason said the he thinks the dye came from the American Eagle paper mill. He had contacted the mill and they reported that white colored dye was in use earlier in the morning. He told the mill it was discoloring the wastewater and effluent and asked that they cease the discharge. Jason said the dye did not have an adverse affect on the wastewater treatment process other than the discoloration. Tyrone Borough has a pretreatment agreement with the paper mill. Jason thinks that the violation notice will be issued to the mill. DEP recommended that Jason, or another official from Tyrone Borough, meet with American Eagle personnel to discuss the cause of the two dye contamination events that have occurred over the past two weeks and how future violations can be prevented.

01/14/2021:

- The facility generated 2665 phosphorus credits and 23568 nitrogen credits during the compliance year. Records show the facility sold all 2665 phosphorus credits and 9836 nitrogen credits. The C-Bay spreadsheet did not contain information regarding sale of nutrient credits. DEP contacted plant supervisor Jason Harris and requested that he upload a revised supplemental spreadsheet in the eDMR system. A corrected spreadsheet was submitted on January 13, 2020. Based on the data submitted, including credits sold, the facility has achieved compliance with its nitrogen and phosphorus annual loading limits for the 2019-2020 compliance year.

05/18/2021:

- Piping for two of the secondary clarifiers is being repaired. The drain lines from both clarifiers had extensive rust where the pipes entered the building basement. Because the utility water line is connected to one of the drain lines, it was necessary to temporarily cease the discharge. Influent was being directed by to one of the unused aeration basins.
- The operator expects that the repair of one drain line and the utility water lane to be completed by the end of the day.
- Major repairs made since the last full inspection included: the replacement of an influent pump, reconditioning of two secondary clarifiers, new air lines and diffusers in basin #1, and one blower repair.
- The Borough has plans to replace the fourth influent pump this year and may add VFDs to the aeration tank blowers.
- An inspection of the dissolved oxygen meter in the facility's laboratory showed that the expiration date for DO probe sensor had expired.
- A replacement kit was on-site and the sensor will be replaced.

- The sludge/biosolids disposal form needs to indicate how much of the sludge generated was hauled to each of the landfills listed on the form.
- A special condition in the NPDES permit requires the borough to submit a high flow management plan for DEP review by March 2021. The facility was unaware of the requirement but will construct and submit a written plan as soon as possible.

09/26/2022:

- Repairs were made to the grit screw and the belt filter press. In addition, VFDs were added to 5 blowers. Operators were currently working on the repair of one air line in an unused aeration basin. There have been problems with lines breaking since switching to schedule 80 piping. Jason stated that they may install connection couplers to reduce vibration and prevent further breaks.
- The facility reported a power outage on September 17, 2022 that resulted in loss of air to the aeration tanks for almost a day. Jason reported that outage was caused by a short in the underground electric line. The plant has two back up generators but neither unit powers the blowers. DEP recommend investigating if blowers can be tied in to one of the back up generators.
- The Borough is hoping to start sending sludge to UAJA (State College) for disposal starting sometime in 2023. They are also considering adding a fine screen unit at the head of the plant. The addition of a new treatment unit will require an amendment to the Part II permit.
- A high flow management plan was submitted to the Department on May 24, 2021

10/17/2023:

- Since last inspection one comminutor (Chanel Monster) was replaced with a new unit. Future upgrades include a new influent screen and replacing the control panel for the raw sewage pumps.

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 10.849 MGD in April 2024. The design capacity of the treatment system is 13.6 MGD.

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

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

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

Parameter	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24
Flow (MGD) Average Monthly	7.086	7.912	6.276	7.091	6.903	8.725	6.334	7.04	9.438	10.849	8.073	6.735
Flow (MGD) Daily Maximum	7.836	12.335	8.209	10.957	9.31	23.476	7.907	9.47	14.975	26.684	15.483	8.615
pH (S.U.) Instantaneous Minimum	7.3	7.4	7.1	7.3	7.3	7.26	7.2	7.2	6.7	7.2	6.3	6.6
pH (S.U.) Instantaneous Maximum	8.0	8.0	8.1	8.5	7.9	7.9	7.8	8.1	7.7	7.6	7.9	7.6
DO (mg/L) Instantaneous Minimum	6.3	6.7	6.3	5.2	5.5	5.4	5.8	5.7	5.9	6.0	5.6	5.8
CBOD5 (lbs/day) Average Monthly	< 209	< 262	< 173	< 187	< 227	< 293	< 207	< 181	< 275	< 834	< 310	< 201
CBOD5 (lbs/day) Weekly Average	< 246	< 328	< 200	< 226	< 295	< 537	< 255	< 208	< 334	2382	< 439	< 248
CBOD5 (mg/L) Average Monthly	< 4	< 4	< 3	< 3	< 4	< 4	< 4	< 3	< 4	< 7	< 4	< 4
CBOD5 (mg/L) Weekly Average	< 4	< 5	< 4	< 4	< 5	< 5	< 4	< 3	< 4	16	< 5	< 4
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	19335	9835	10955	12247	13207	12060	11200	9687	11823	12350	9524	12834
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	30323	21635	19512	32223	23205	23917	20064	20043	29286	47706	25248	68185
BOD5 (mg/L) Raw Sewage Influent Average Monthly	327	146	209	206	234	< 172	211	164	151	145	148	223
TSS (lbs/day) Average Monthly	< 203	< 340	< 137	< 158	< 143	< 369	< 176	< 111	< 257	< 534	< 320	< 186

TSS (lbs/day) Raw Sewage Influent Average Monthly	5494	4750	5390	77656	8804	10251	9892	7762	6084	6199	4982	4933
TSS (lbs/day) Raw Sewage Influent Daily Maximum	45830	16288	11305	19591	24193	38606	27655	24708	29681	24688	15586	13766
TSS (lbs/day) Weekly Average	< 233	< 383	< 245	< 261	< 235	< 985	< 228	< 110	< 558	< 1702	< 848	< 271
TSS (mg/L) Average Monthly	< 3	< 5	< 3	< 3	< 2	< 4	< 3	< 2	< 3	< 4	< 5	< 3
TSS (mg/L) Raw Sewage Influent Average Monthly	94	70	103	130	158	145	186	133	79	71	77	88
TSS (mg/L) Weekly Average	< 4	< 6	< 5	< 5	< 4	< 9	< 4	< 2	< 7	< 10	< 12	< 5
Total Dissolved Solids (mg/L) Average Monthly	479	472	458	388	384	23282	410	331	360	476	381	431
Fecal Coliform (No./100 ml) Geometric Mean	< 4	< 7	< 5	< 6	< 6	< 23	< 12	< 5	< 4	< 6	< 4	< 5
Fecal Coliform (No./100 ml) Instantaneous Maximum	20.8	39.2	30	384	29.6	< 241960	182.8	204.8	12.4	1844.4	8	1830
UV Transmittance (%) Instantaneous Minimum	94.5	85.3	89.3	91.5	96.8	97.5	95.9	96.9	97.9	97.9	98.1	94.7
Nitrate-Nitrite (mg/L) Average Monthly	< 2	< 1.78	< 1.2	< 1.2	< 1.35	< 1.33333	< 2.06956	< 1.2	< 1.5447	< 1.2	< 1.2	< 1.2
Nitrate-Nitrite (lbs) Total Monthly	< 3663.5	< 3697	< 1894.3	< 2276.1	< 2339.9	< 2875.4	< 3327.1	< 2153.4	< 3618	< 2582.8	< 2448.9	< 2473.9
Total Nitrogen (mg/L) Average Monthly	< 2.818	< 4.9294	< 2.9723	< 2.1422	< 3.62083	< 2.88326	< 4.22601	< 3.99371	< 3.22394	< 2.97	< 1.7	< 1.7
Total Nitrogen (lbs) Effluent Net Total Monthly	< 5165.9	< 9899.9	< 4766.2	< 4035.9	< 6368.5	< 6294.4	< 6750	< 7041.2	< 7609.5	< 6392.5	< 3469.3	< 3504.7
Total Nitrogen (lbs) Total Monthly	< 5165.9	< 9899.9	< 4766.2	< 4035.9	< 6368.5	< 6294.4	< 6750	< 7041.2	< 7609.5	< 6392.5	< 3469.3	< 3504.7

Total Nitrogen (lbs) Effluent Net Total Annual					< 59269							
Total Nitrogen (lbs) Total Annual					< 67012							
Ammonia (lbs/day) Average Monthly	< 6	< 112	< 45	< 12	< 73	< 11	< 45	< 69	< 45	< 27	< 7	< 6
Ammonia (mg/L) Average Monthly	< 0.10	< 1.8985	< 0.8096	< 0.2099	< 1.2139	< 0.1863	< 0.9223	< 1.3095	< 0.5231	< 0.1	< 0.1	< 0.1
Ammonia (lbs) Total Monthly	< 182.5	< 3426.6	< 1340.2	< 379.2	< 2203.4	< 423.1	< 1421.4	< 2113.2	< 1381.8	< 215.2	< 209.5	< 206.2
Ammonia (lbs) Total Annual					< 9804							
TKN (mg/L) Average Monthly	< 0.818	3.1492	1.7723	0.9422	2.27083	1.5499	2.1565	< 2.7937	< 1.6792	1.77	< 0.5	< 0.5
TKN (lbs) Total Monthly	< 1502.3	6202.9	2871.9	1759.8	4028.5	3419	3422.9	< 4887.8	< 3991.5	3809.7	< 1020.4	< 1030.8
Total Phosphorus (mg/L) Average Monthly	0.187	0.572	0.428	0.069	0.132	0.103	0.365	0.072	0.066	0.097	0.039	0.055
Total Phosphorus (lbs) Effluent Net Total Monthly	< 1502.3	1133.9	683.4	130.2	236.7	243.7	557.1	132.7	158.2	208.8	78.6	113.4
Total Phosphorus (lbs) Total Monthly	343.5	1133.9	683.4	130.2	236.7	243.7	557.1	132.7	158.2	208.8	78.6	113.4
Total Phosphorus (lbs) Effluent Net Total Annual					4177							
Total Phosphorus (lbs) Total Annual					3330							
Total Antimony (lbs/day) Average Monthly	< 0.30	< 0.60	< 0.30	0.50	< 0.30	< 0.30	< 0.30	< 0.20	< 0.50	< 0.40	< 0.30	< 0.30
Total Antimony (mg/L) Average Monthly	< 0.0054	< 0.0054	< 0.0054	0.00918	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.0054	< 0.054
Total Cadmium (lbs/day) Average Quarterly		< 0.001			0.004			0.003			< 0.007	
Total Cadmium (mg/L) Average Quarterly		< 0.000025			0.000064			0.000041			< 0.000123	

Free Cyanide (lbs/day) Average Monthly	< 0.6	< 0.7	< 0.5	< 0.6	< 0.5	< 2.2	< 0.50	< 0.6	< 0.7	< 0.8	< 0.70	< 0.5
Free Cyanide (mg/L) Average Monthly	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.028	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Free Cyanide (mg/L) Instantaneous Maximum	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	0.0450	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100
Sulfate (mg/L) Average Monthly	103.5	90.4	108.3	81	70.9	69.6	75.7	62.4	79.4	75.7	73.6	95.4
Chloride (mg/L) Average Monthly	107.5	109.2	94.7	78.7	71.7	58.8	63.1	57.2	75.2	69.1	69.7	92.2
Bromide (mg/L) Average Monthly	< 2	< 2	< 0.9	< 2	< 2	< 2	< 1.641	< 2	< 2	< 2	< 2	< 2

3.2.1 Chesapeake Bay Truing

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

Chesapeake Bay Annual Nutrient Summary
Tyrone Borough STP
PA0026727

Year for Truing Period (Oct 1 - Sept 30)	Nitrogen (lbs)					Phosphorus (lbs)					Compliant with Permit Limits (Yes/No)	
	Annual Total Mass Load	Lbs Credit Purchased	Lbs from Credits Sold	Lbs Offsets Generated	Annual Net Mass Load	Annual Total Mass Load	Lbs Credit Purchased	Lbs from Credits Sold	Lbs Offsets Generated	Annual Net Mass Load	Nitrogen	Phosphorus
2020	76,714		11,177		87,891	7,428		6,112		13,540	Yes	Yes
2021	93,102		16,973		110,075	11,427		0		11,427	Yes	Yes
2022	65,075		43,994		109,069	6,459		4,301		10,760	Yes	Yes
2023	59,269		0		59,269	4,177		0		4,177	Yes	Yes
2024	67,012		68,419		135,431	3,330		14,562		17,892	Yes	Yes

Notes:

Nitrogen Annual Net Mass CAP Load =	164381	lbs
Phosphorus Annual Net Mass CAP Load =	21918	lbs

3.3.3 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 March 1, 2020 to March 7, 2025, the following were observed effluent non-compliances.

Summary of Non-Compliance with NPDES Effluent Limits
Beginning March 1, 2020 and Ending March 7, 2025

NON_COMPLIANCE_DATE	NON_COMPL_TYPE_DESC	NON_COMPL_CATEGORY_DESC	PARAMETER	SAMPLE_VALUE	VIOLATION_CONDITION	PERMIT_VALUE	UNIT_OF_MEASURE	STAT_BASE_CODE	DISCHARGE_COMMENTS
5/20/2020	Violation of permit condition	Effluent	pH	5.9	<	6.0	S.U.	Instantaneous Minimum	
10/21/2020	Violation of permit condition	Effluent	Fecal Coliform	7945.2	>	1000	No./100 ml	Instantaneous Maximum	
3/29/2021	Late DMR Submission	Other Violations							
8/27/2021	Violation of permit condition	Effluent	Fecal Coliform	4479.6	>	1000	No./100 ml	Instantaneous Maximum	
10/26/2021	Violation of permit condition	Effluent	Fecal Coliform	6931.6	>	1000	No./100 ml	Instantaneous Maximum	
9/28/2022	Violation of permit condition	Effluent	Fecal Coliform	1740.8	>	1000	No./100 ml	Instantaneous Maximum	
10/20/2022	Violation of permit condition	Effluent	Fecal Coliform	5654.4	>	1000	No./100 ml	Instantaneous Maximum	
11/21/2022	Violation of permit condition	Effluent	Fecal Coliform	13540	>	10000	No./100 ml	Instantaneous Maximum	
12/12/2022		Unauthorized Discharges							At approximately 7:00 AM on 12/8/22 we noticed a yellow color in our tanks that was discharged to the TWWTP by the American Eagle Paper Mill. By the time we saw it the yellow was already going into the receiving stream, giving the water a slight yellow tint. This color is non-toxic. I called AEPM to notify them and they started a treatment process to clear it up. Within a couple hours their effluent was clear. Our tanks held a diminishing yellow tint the rest of the day. By 7:00 PM there was no trace of the color in the river. AEPM will be issued an NOV.
8/22/2023		Unauthorized Discharges							Ammonia Eff. limit was over on July 3 & 4. Checked with lab and the said numbers were right. We have been trying to find what in the plant could have caused this. Can't find the reason . The influent ammonia was a little high those days but it has been higher than that and not put us over the limit in the Eff. No Industries were in violation at that time for ammonia. We are going to try in house ammonia testing to try to find any high ammonia places in the plant.
8/22/2023	Sample collection less frequent than required	Other Violations							
3/14/2024	Violation of permit condition	Effluent	Antimony, Total	< 0.054	>	.016	mg/L	Average Monthly	
9/17/2024	Violation of permit condition	Effluent	Cyanide, Free	< 0.028	>	.015	mg/L	Average Monthly	
9/17/2024	Violation of permit condition	Effluent	Cyanide, Free	< 2.2	>	1.1	lbs/day	Average Monthly	
9/17/2024	Violation of permit condition	Effluent	Cyanide, Free	0.0450	>	.0375	mg/L	Instantaneous Maximum	
9/17/2024	Violation of permit condition	Effluent	Fecal Coliform	< 241960	>	1000	No./100 ml	Instantaneous Maximum	

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 March 1, 2020 to March 7, 2025, the following observed enforcement actions.

Summary of Enforcement Actions
Beginning March 1, 2020 and Ending March 7, 2025

ENF ID	ENF TYPE	ENF TYPE DESC	DATE	EXECUTED DATE	VIOLATIONS	ENF FINALSTATUS	DATE
390817	NOV	Notice of Violation	12/17/2020	12/08/2020	91.33(A); 92A.41(A)1	Comply/Closed	12/14/2020

3.4 Summary of Biosolids Disposal

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

2023
Sewage Sludge / Biosolids Production Information

Dewatered Sewage Sludge/Biosolids			
2023	Tons Dewatered	% Solids	Dry Tons
January	809.81	14.75	119.302
February	745.24	14.63	109.282
March	803.96	14.86	119.848
April	596.99	14.68	87.673
May	751.23	14.68	110.563
June	894.77	14.77	132.075
July	567.87	14.89	84.33
August	578.6	15.26	88.686
September	546.6	15.79	85.798
October	572.48	15.05	86.242
November	557.77	15	84.158
December	715.85	14.74	105.732

Notes:
Biosolids/sewage sludge disposed at:
Laurel Highlands Landfill in Jackson Township, Cambria County
Evergreen Landfill in Centre Township, Indiana County
Mostoller Landfill in Somerset Township, Somerset County

3.5 Open Violations

As of April 2025, an open violation existed in the Safe Drinking Water program. The final executed NPDES renewal may be withheld until the open violation is addressed.

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

The receiving waters has been determined to be Little Juniata River. The sequence of receiving streams that the Little 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 Mifflintown MA (PWS ID # 4340008) located approximately 79 miles downstream of the subject facility on the Juniata River. Based upon the distance and the flow rate of the facility, the PWS should not be impacted.

4.3 Class A Wild Trout Streams

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

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

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

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

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

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

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

4.5 Low Flow Stream Conditions

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

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

The closest WQN station to the subject facility is the Little Juniata River station (WQN217). This WQN station is located approximately 8 miles downstream of the subject facility.

The closest gauge station to the subject facility is the Little Juniata River at Spruce Creek, PA (USGS station number 1558000). This gauge station is located approximately 7 miles downstream of the subject facility.

For WQM modeling, pH and stream water temperature data from the water quality network station was used. pH was estimated to be 8.2 and the stream water temperature was estimated to be 17.9 C.

The hardness of the stream was estimated from the water quality network to be 106 mg/l $CaCO_3$.

The gauge station data summarized in the *Selected Streamflow Statistics for Streamgage Locations in and Near Pennsylvania* for USGS station number 1558000 was over the time period beginning in 1940 and ending in 2008. The wastewater discharged from Tyrone WWTP, Altoona WWTP, and Logan WWTP contribute to the measured flow at the gage station. To account for the WWTP flow contributions, the design flow rate from these WWTP were subtracted from the Q@station to give Q710 Adj. Using best professional judgement, the design flow rates subtracted from the gauge station were those design flow rates for the WWTP which were probable during a time frame within the 1940 to 2008 period. These flow rates were the same flow rates subtracted in the March 2012 Fact Sheet and the November 2019 Fact Sheet

The design flow rate subtracted were: (a) Tyrone WWTP was 6.5 MGD (10.06 ft^3/s), (b) Altoona WWTP was 7 MGD (10.83 ft^3/s), and (c) Logan WWTP was 0.7 MGD (1.08 ft^3/s).

Currently the design flow rates for Tyrone WWTP is 9 MGD and the current design flow for Altoona WWTP is 9 MGD and the design flow rate for Logan WWTP is 1.14 MGD. The flow rate used to adjust for the time segment coinciding with the gauge station was 0.7 MGD for Logan WWTP.

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

Gauge Station Data			
USGS Station Number	1558000		
Station Name	Little Juniata River at Spruce Creek, PA		
Q710	59	ft^3/sec	
Q@Tyrone WWTP	10.06	ft^3/sec	
Q@Altoona WWTP	10.83	ft^3/sec	
Q@Logan WWTP	1.08	ft^3/sec	
Q710 Adj	37.03	ft^3/sec	
Drainage Area (DA)	220	mi^2	
Calculations			
The low flow yield of the gauge station is:			
Low Flow Yield (LFY) = Q710 / DA			
LFY =	(37.03 ft^3/sec / 220 mi^2)		
LFY =	0.1683	$ft^3/sec/mi^2$	
The low flow at the subject site is based upon the DA of		162	mi^2
Q710 = (LFY@gauge station)(DA@Subject Site)			
Q710 = (0.1683 $ft^3/sec/mi^2$)(162 mi^2)			
Q710 =	27.266	ft^3/sec	

4.6.1 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	9
Latitude	40º 39' 46.59"	Longitude	-78º 12' 58.89"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		

Receiving Waters	Little Juniata River (TSF)	Stream Code	15664
NHD Com ID	65604568	RMI	14.4
Drainage Area	162	Yield (cfs/mi^2)	0.1683
Q_{7-10} Flow (cfs)	27.266	Q_{7-10} Basis	StreamStats/Streamgauge
Elevation (ft)	859	Slope (ft/ft)	
Watershed No.	11-A	Chapter 93 Class.	TSF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s) supports aquatic life		
Cause(s) of Impairment	Not appl.		
Source(s) of Impairment	Not appl.		
TMDL Status	Not appl.	Name	

Background/Ambient Data		Data Source
pH (SU)	8.2	WQN217; Median July to Oct
Temperature (°C)	17.9	WQN217; Median July to Oct
Hardness (mg/L)	106	WQN217; Historical median
Other:		

Nearest Downstream Public Water Supply Intake		Mifflintown MA	
PWS Waters	Juniata River	Flow at Intake (cfs)	
PWS RMI	37	Distance from Outfall (mi)	79

4.6.2 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0
Latitude	40º 39' 46.13"	Longitude	-78º 12' 58.86"
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Little Juniata River (TSF)	Stream Code	15664
NHD Com ID	65604568	RMI	

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	***(Modeling Point #1) Altoona Water***	***(Modeling Point #2) Logan Township***	***(Modeling Point #3) Tyrone Boro***	***(Modeling Point #4) Grier Foundation***	***(Modeling Point #5); Point Downstream***	***(Modeling Point #6); Point Downstream***	***Units***
Stream Code	15664	15664	15664	15664	15664	15664	
River Mile Index	29.3	27.63	14.4	12.3	5.46	0	miles
Elevation	1084	1051	859	179	734	660	feet
Latitude	40.554374	40.5755	40.664006	40.645122	40.60773	40.561156	
Longitude	-78.364086	-78.350117	-78.216715	-78.197145	-78.124618	-78.068185	
Drainage Area	21.2	37.7	162	179	334	343	
Low Flow Yield	0.1683	0.1683	0.1683	0.1683	0.1683	0.1683	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 pollutants in Groups 1 through 5.

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)

Whole effluent toxicity is the aggregate toxic effect from a facility's wastewater discharge on aquatic organisms. WET measures the effect of wastewater effluent on an organisms' ability to survive, grow, and reproduce. WET testing is either

acute or chronic. Acute testing measures lethality, the ability for an organism to survive after no more than 96 hours of exposure to an effluent. Chronic tests measures both lethality, immobility, and sublethal endpoints to exposures ranging longer than 96 hours and up to 8 days.

WET is required if the applicant satisfies any one of the following conditions.

(a) Major sewage facilities with an average annual design flow greater than or equal to 1.0 MGD (25 Pa. Code § 92a.27(a)(1)(i)).
(b) Sewage facilities with EPA-approved pretreatment programs or will be required in the permit to develop a program (25 Pa. Code § 92a.27(a)(1)(i)).
(c) Other facilities that are considered candidates for WET testing by one or more of the factors contained in 25 Pa. Code § 92a.27(a)(2).

5.3.3.1 WET Tests Review

The in-stream waste concentration and dilution series was estimated using partial mixing factor factors from Toxics Management Spreadsheet, the design flow rate for the facility, and the Q710.

The proposed NPDES permit shall utilize a chronic instream waste concentration of 34%. The complete dilution series will be 100%, 67%, 34%, 17%, and 9%.

Whole Effluent Toxicity (WET)

For Outfall 001, **Chronic** WET Testing was completed:

X	For the permit renewal application (4 tests).
	Quarterly throughout the permit term.
	Quarterly throughout the permit term and a TIE/TRE was conducted.
	Other:

The dilution series used for the tests was: 100%, 66%, 31%, 16%, and 8%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 31%.

Summary of Four Most Recent Test Results

(NOTE – Enter results into one table, depending on which data analysis method was used).

TST Data Analysis

(NOTE – In lieu of recording information below, the application manager may attach the DEP WET Analysis Spreadsheet).

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
2/12/2019	PASS	PASS	PASS	PASS
10/20/2020	PASS	PASS	PASS	PASS
10/12/2021	PASS	PASS	PASS	PASS
11/8/2022	PASS	PASS	PASS	PASS
5/16/2023				PASS
10/31/2023	PASS	PASS	PASS	

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests). YES/NO*

Comments:

No, reasonable potential

Data

PMFa =	0.379	
PMFc =	1	
Qd =	9	MGD
Q710 =	27.266	cfs

Step 1: Determine IWC - Acute (IWCa)

IWCa = [(Qd x 1.547) / ((Q7-10 x PMFa) + (Qd x 1.547))] x 100

IWCa = 57.40

Is IWCA < 1% No (Yes- acute tests required; No- chronic test required)

If the discharge is to the tidal portion of the Delaware River, indicate how the type of test was

Type of Test for Permit Renewal:

Chronic tests will be required

Step 2a: Determine Target IWCa (If acute tests required)

TIWCa = IWCA / 0.3

TIWCa = 191.33

Step 2b: Determine Target IWCc (If chronic tests required)

ICCc = [(Qd x 1.547) / ((Q7-10 x PWFc) + (Design Flow MGD x 1.547))] x 100

ICCc = 33.80

Step 3: Determine Dilution Series

Dilution Series =	100%	67%	34%	17%	9%

WET Limits

Has reasonable potential been determined ? No

Will WET limits be established in the permit No

If WET limits wil be established, identify the species and the limit values for the permit (TU).

Not applicable

If WET limits will not be established, but reasonable potential was determined, indicate the

Not applicable

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 is considered significant 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)	164,381
TN Delivery Ratio	0.683
TP Cap Load (lbs/yr)	21,918
TP Delivery Ratio	0.589

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 2x/week.

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

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, (c) Toxics, and (d) Non-Conventional Pollutants, and (e) Chapter 92a.61 targeted parameters

6.1.1 Conventional Pollutants and Disinfection

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection
Tyrone Borough, PA0026727

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/day as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 1,876 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 1x/day as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 2,252 lbs/day and 30 mg/l as an average monthly.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(1). While there is no WQM modeling for this parameter, the permit limit for TSS is generally assigned similar effluent limits as CBOD or BOD.
UV disinfection	SOP	Monitoring:	The monitoring frequency is 1/day. The facility will be required to record the UV transmittance,
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised January 10, 2019), the facility will be required to have routine monitoring for UV transmittance, UV dosage, or UV intensity.
Fecal Coliform	TBEL	Monitoring:	The monitoring frequency shall be 1x/day as a grab sample (Table 6-3).
		Effluent Limit:	Summer effluent limits shall not exceed 200 No./100 mL as a geometric mean. Winter effluent limits shall not exceed 2000 No./100 mL as a geometric mean.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(4) and 92a.47(a)(5).

Notes:

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

2 Monitoring frequency based on flow rate of 9.0 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

Ammonia nitrogen shall be reduced to 3.50 mg/l during summer months and 10.5 mg/l during winter months. Based upon the DMR from February 2024 to January 2025, the facility will have no issued meeting the new effluent limit.

Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus

Tyrone Borough, PA0026727

Parameter	Permit Limitation Required by[1]:	Recommendation	
Ammonia-Nitrogen	WQBEL	Monitoring:	The monitoring frequency shall be 1x/day as a 24-hr composite sample
		Effluent Limit:	During the months of May 1 to October 31, effluent limits shall not exceed 262 lbs/day and 3.50 mg/l. During the months of November 1 to April 30, effluent limits shall not exceed 788 lbs/day and 10.5 mg/l
		Rationale:	Modeling recommends water quality based effluent limits.
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 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 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	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.
Net Total Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as a calculation
		Effluent Limit:	Effluent limits shall not exceed 164,381 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:	Effluent limits shall not exceed 21,918 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 9.0 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

Toxics Management Spreadsheet (TMS) was conducted using data provided in the NPDES application. The following pollutants were flagged as no reasonable potential: Total aluminum, total antimony, total copper, total silver, and chloroform. The following pollutants were flagged as reasonable potential: Total cadmium and free cyanide. The TMS output has been enclosed in the attachment as Run #1.

TMS was conducted with revised data. Matt Coleman from RETTEW, summarized data for cadmium, free cyanide, and antimony. The table is shown below.

Date	Flow	Cadmium					Free Cyanide					Antimony				
		Sample Results		QL Used		Sampling Source	Sample Results		QL Used		Sampling Source	Sample Results		QL Used		Sampling Source
	(MGD)		(µg/L)		(µg/L)			(µg/L)		(µg/L)			(µg/L)		(µg/L)	
7/5/2023	6.794						<	10		10	DMR					
7/12/2023	5.467											<	5.400		5.400	DMR
7/19/2024	6.041						<	10		10	DMR					
8/9/2023	5.972						<	10		10	DMR					
8/16/2023	7.617											<	5.400		5.400	DMR
8/17/2023	6.160	<	0.123	J	2.500	MIPP Quarterly										
8/23/2023	6.260						<	10		10	DMR					
9/6/2023	5.627						<	10		10	DMR					
9/15/2023	5.261											<	5.400		5.400	DMR
9/20/2023	5.475						<	10		10	DMR					
10/4/2023	5.202						<	10		10	DMR					
10/11/2023	4.963											<	5.400		5.400	DMR
10/18/2023	6.357						<	10		10	DMR					
11/8/2023	5.810						<	10		10	DMR					
11/15/2023	5.995											<	5.400		5.400	DMR
11/16/2023	5.811	<	0.123		0.123	DMR										
11/22/2023	9.386						<	10		10	DMR					
12/6/2023	6.342						<	10		10	DMR					
12/13/2023	7.136											<	5.400		5.400	DMR
12/20/2023	6.789						<	10		10	DMR					
1/10/2024	14.396						<	10		10	DMR					
1/17/2024	7.730											<	5.400		5.400	DMR
1/24/2024	7.717						<	10		10	DMR					
2/7/2024	6.688						<	10		10	DMR					
2/14/2024	7.165											<	5.400		5.400	DMR
2/15/2024	6.365	<	0.123		0.123	DMR										
2/21/2024	6.128						<	10		10	DMR					
3/13/2024	8.639						<	10		10	DMR					
3/20/2024	6.980											<	5.400		5.400	DMR
3/27/2024	7.189						<	10		10	DMR					
4/10/2024	8.556						<	10		10	DMR					
4/17/2024	9.521											<	5.400		5.400	DMR
4/24/2024	9.674						<	10		10	DMR					
5/8/2024	8.503						<	10		10	DMR					
5/15/2024	10.402											<	5.400		5.400	DMR
5/16/2024	9.349		0.041		UNK	DMR										
5/22/2024	9.184						<	10		10	DMR					
6/12/2024	7.282						<	10		10	DMR					
6/19/2024	5.194											<	5.400		5.400	DMR
6/25/2024	5.878	<	0.500		0.500	NPDES Permit Renewal Sampling	<	0.500	J	5	NPDES Permit Renewal Sampling	<	0.200		0.200	NPDES Permit Renewal Sampling
6/26/2024	6.685						<	10		10	DMR					
7/2/2024	6.144		0.044	J	0.500	NPDES Permit Renewal Sampling	<	5.000		5	NPDES Permit Renewal Sampling	<	0.200		0.200	NPDES Permit Renewal Sampling
7/9/2024	5.721		0.035	J	0.500	NPDES Permit Renewal Sampling	<	5.000		5	NPDES Permit Renewal Sampling	<	0.200		0.200	NPDES Permit Renewal Sampling
Maximum Value		<	0.500				<	10.000				<	5.400			
Average Value		<	0.141	J	0.708		<	9.278	J	9.444		<	4.360		4.360	

For the data collected for the NPDES permit renewal, the sampling had a lower detection level for free cyanide. Run #2 incorporated the lower detection level. The output confirms free cyanide is no reasonable potential.

For cadmium, Run #1 for TMS utilized a cadmium result of <0.5 ug/l. This was the detection level result from June 25, 2024. The consultant confirmed that the <0.5 ug/ was an outlier due to the laboratory sampling detection test.

For Run #2, the maximum quarterly cadmium sampling result from DMRs was 0.162 ug/l. The output confirms that pollutant was no reasonable potential. DEP supports using the 0.162 ug/l value as it is a maximum value obtained from a time period of over 4 years. The table below summarizes the DMR monitoring data from 2020 to 2024.

DMR Received Date	Outfall	Monitoring Location	Parameter Name	Parameter Code		DMR Value	Permit Limit	Units	Statistical Base Code
07/17/2020	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
10/20/2020	001	Final Effluent	Cadmium, Total	01027		0.000044	0.001	mg/L	Average Quarterly
01/20/2021	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
04/16/2021	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
07/08/2021	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
09/21/2021	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
01/21/2022	001	Final Effluent	Cadmium, Total	01027		0.000066	0.001	mg/L	Average Quarterly
03/29/2022	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
07/26/2022	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
10/20/2022	001	Final Effluent	Cadmium, Total	01027		0.000162	0.001	mg/L	Average Quarterly
01/26/2023	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
03/27/2023	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
07/17/2023	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
10/17/2023	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
01/24/2024	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
03/14/2024	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
07/23/2024	001	Final Effluent	Cadmium, Total	01027		0.000041	0.001	mg/L	Average Quarterly
				Max		**0.000162**			

Due to anti-backsliding regulations, effluent limits for antimony, cadmium, and free cyanide will carry forward to the proposed permit. The monitoring frequency shall be 1x/quarter.

Summary of Proposed NPDES Parameter Details for Toxics

Tyrone Borough, PA0026727

Parameter	Permit Limitation Required by[1]:	Recommendation	
Total Antimony	Anti-backsliding	Monitoring:	The monitoring frequency shall be 1x/quarter as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	The effluent limit shall not exceed 1.20 lbs/day and 0.016 mg/l as a monthly average.
		Rationale:	Due to anti-backsliding regulations, the current permit limit shall continue to the proposed permit.
Total Cadmium	Anti-backsliding	Monitoring:	The monitoring frequency shall be 1x/quarter as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	The effluent limit shall not exceed 0.075 lbs/day and 0.001 mg/l as a monthly average.
		Rationale:	Due to anti-backsliding regulations, the current permit limit shall continue to the proposed permit.
Free Cyanide	Anti-backsliding	Monitoring:	The monitoring frequency shall be 1x/quarter as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	The effluent limit shall not exceed 1.1 lbs/day and 0.015 mg/l as a monthly average.
		Rationale:	Due to anti-backsliding regulations, the current permit limit shall continue to the proposed permit.

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 9.0 MGD.

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

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

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

6.1.3.1 Implementation of Regulation- Chapter 92a.61

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

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

- Consistent with DEP Management directives issued on March 22, 2021 and in conjunction with EPA's 2017 Triennial Review, monitoring for E. Coli shall be required. The monitoring frequency is based upon flow rate.
- Consistent with DEP Management directives issued on February 5, 2024, monitoring for PFAS parameters shall be required. The recommended monitoring frequency is quarterly. The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees must enter a No Discharge Indicator (NODI) Code of "GG" on DMRs.

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.

- **The ammonia-nitrogen has been reduced to 3.5 mg/l during the summer and 10.5 mg/l during the winter.**
- **Monitoring for antimony and free cyanide have been reduced to 1/quarter.**
- **Due to the EPA triennial review, monitoring shall be required 1x/month for E. Coli.**

- **A DEP Central Office directive in January 2024 to monitor for TDS, sulfate, chloride, bromide, and 1,4-dioxane has expired. Monitoring for sulfate, chloride, and bromide have been eliminated.**
- **Monitoring for PFOA, PFOS, PFBS, and HFPO-DA**

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° 39' 46.52" , **Longitude** 78° 13' 0.02" , **River Mile Index** 14.4 , **Stream Code** 15664

Receiving Waters: Little 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	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	1876	3002	XXX	25	40	50	1/day	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Suspended Solids	2252	3378	XXX	30	45	60	1/day	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/day	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2]	Required
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Ammonia-Nitrogen Nov 1 - Apr 30	900	XXX	XXX	12	XXX	24	1/day	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	338	XXX	XXX	4.5	XXX	9	1/day	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Antimony, Total	1.20 Avg Qrtly	XXX	XXX	0.016 Avg Qrtly	XXX	0.04	1/quarter	24-Hr Composite
Cadmium, Total	0.075 Avg Qrtly	XXX	XXX	0.001 Avg Qrtly	XXX	0.0025	1/quarter	24-Hr Composite
Cyanide, Free	1.1 Avg Qrtly	XXX	XXX	0.015 Avg Qrtly	0.0375 Daily Max	XXX	1/quarter	Grab
PFOA (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab

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

at Outfall 001

Footnotes:

The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees must enter a No Discharge Indicator (NODI) Code of "GG" on DMRs.

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

I. B. For Outfall 001 , **Latitude** 40° 39' 46.52" , **Longitude** 78° 13' 0.02" , **River Mile Index** 14.4 , **Stream Code** 15664

Receiving Waters: Little 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	1/day	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	164381	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	21918	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) The permittee is authorized to use 1850 lbs/year as Total Nitrogen (TN) Offsets toward compliance with the Annual Net TN mass load limitations (Cap Loads), in accordance with Part C of this permit. These Offsets may be applied throughout the Compliance Year or during the Truing Period. The application of offsets must be reported to DEP as described in Part C. The Offsets are authorized for the following pollutant load reduction activities: Connection of 74 on-lot sewage disposal systems to the public sewer system after January 1, 2003, in which 25 lbs/year of TN offsets are granted per connection.

6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- Pretreatment Program Implementation
- UV Monitoring Conditions
- High Flow Management Plan
- Chesapeake Bay Nutrient Definitions
- Solids Management for Non-Lagoon Treatment Systems
- Whole Effluent Toxicity – No Permit Limits
- Stormwater requirements
- The permittee is authorized to use 1850 lbs/year as Total Nitrogen (TN) Offsets toward compliance with the Annual Net TN mass load limitations (Cap Loads), in accordance with Part C of this permit. These Offsets may be applied throughout the Compliance Year or during the Truing Period. The application of offsets must be reported to DEP as described in Part C. The Offsets are authorized for the following pollutant load reduction activities: Connection of 74 on-lot sewage disposal systems to the public sewer system after January 1, 2003, in which 25 lbs/year of TN offsets are granted per connection.

- The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees must enter a No Discharge Indicator (NODI) Code of “GG” on DMRs.

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

Attachment A

Stream Stats/Gauge Data

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

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

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
01541303	West Branch Susquehanna River at Hyde, Pa.	41.005	-78.457	474	Y
01541308	Bradley Run near Ashville, Pa.	40.509	-78.584	6.77	N
01541500	Clearfield Creek at Dimeling, Pa.	40.972	-78.406	371	Y
01542000	Moshannon Creek at Osceola Mills, Pa.	40.850	-78.268	68.8	N
01542500	WB Susquehanna River at Karthaus, Pa.	41.118	-78.109	1,462	Y
01542810	Waldy Run near Emporium, Pa.	41.579	-78.293	5.24	N
01543000	Driftwood Branch Sinnemahoning Creek at Sterling Run, Pa.	41.413	-78.197	272	N
01543500	Sinnemahoning Creek at Sinnemahoning, Pa.	41.317	-78.103	685	N
01544000	First Fork Sinnemahoning Creek near Sinnemahoning, Pa.	41.402	-78.024	245	Y
01544500	Kettle Creek at Cross Fork, Pa.	41.476	-77.826	136	N
01545000	Kettle Creek near Westport, Pa.	41.320	-77.874	233	Y
01545500	West Branch Susquehanna River at Renovo, Pa.	41.325	-77.751	2,975	Y
01545600	Young Womans Creek near Renovo, Pa.	41.390	-77.691	46.2	N
01546000	North Bald Eagle Creek at Milesburg, Pa.	40.942	-77.794	119	N
01546400	Spring Creek at Houserville, Pa.	40.834	-77.828	58.5	N
01546500	Spring Creek near Axemann, Pa.	40.890	-77.794	87.2	N
01547100	Spring Creek at Milesburg, Pa.	40.932	-77.786	142	N
01547200	Bald Eagle Creek below Spring Creek at Milesburg, Pa.	40.943	-77.786	265	N
01547500	Bald Eagle Creek at Blanchard, Pa.	41.052	-77.604	339	Y
01547700	Marsh Creek at Blanchard, Pa.	41.060	-77.606	44.1	N
01547800	South Fork Beech Creek near Snow Shoe, Pa.	41.024	-77.904	12.2	N
01547950	Beech Creek at Monument, Pa.	41.112	-77.702	152	N
01548005	Bald Eagle Creek near Beech Creek Station, Pa.	41.081	-77.549	562	Y
01548500	Pine Creek at Cedar Run, Pa.	41.522	-77.447	604	N
01549000	Pine Creek near Waterville, Pa.	41.313	-77.379	750	N
01549500	Blockhouse Creek near English Center, Pa.	41.474	-77.231	37.7	N
01549700	Pine Creek below Little Pine Creek near Waterville, Pa.	41.274	-77.324	944	Y
01550000	Lycoming Creek near Trout Run, Pa.	41.418	-77.033	173	N
01551500	WB Susquehanna River at Williamsport, Pa.	41.236	-76.997	5,682	Y
01552000	Loyalsock Creek at Loyalsockville, Pa.	41.325	-76.912	435	N
01552500	Muncy Creek near Sonestown, Pa.	41.357	-76.535	23.8	N
01553130	Sand Spring Run near White Deer, Pa.	41.059	-77.077	4.93	N
01553500	West Branch Susquehanna River at Lewisburg, Pa.	40.968	-76.876	6,847	Y
01553700	Chillisquaque Creek at Washingtonville, Pa.	41.062	-76.680	51.3	N
01554000	Susquehanna River at Sunbury, Pa.	40.835	-76.827	18,300	Y
01554500	Shamokin Creek near Shamokin, Pa.	40.810	-76.584	54.2	N
01555000	Penns Creek at Penns Creek, Pa.	40.867	-77.048	301	N
01555500	East Mahantango Creek near Dalmatia, Pa.	40.611	-76.912	162	N
01556000	Frankstown Branch Juniata River at Williamsburg, Pa.	40.463	-78.200	291	N
01557500	Bald Eagle Creek at Tyrone, Pa.	40.684	-78.234	44.1	N
01558000	Little Juniata River at Spruce Creek, Pa.	40.613	-78.141	220	N
01559000	Juniata River at Huntingdon, Pa.	40.485	-78.019	816	LF
01559500	Standing Stone Creek near Huntingdon, Pa.	40.524	-77.971	128	N
01559700	Sulphur Springs Creek near Manns Choice, Pa.	39.978	-78.619	5.28	N
01560000	Dunning Creek at Belden, Pa.	40.072	-78.493	172	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: PA20250303151648467000
Clicked Point (Latitude, Longitude): 40.55478, -78.36391
Time: 2025-03-03 10:17:22 -0500

Logan Township / Tyrone Boro PA0032557 / PA0026727 Modeling Point #1 (Altoona Water) February 2025

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	7.75	percent
DRNAREA	Area that drains to a point on a stream	21.2	square miles
PRECIP	Mean Annual Precipitation	41	inches
ROCKDEP	Depth to rock	4	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.72	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	7.75	percent	0	99
DRNAREA	Drainage Area	21.2	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	41	inches	35	50.4
ROCKDEP	Depth to Rock	4	feet	3.32	5.65
STRDEN	Stream Density	1.72	miles per square mile	0.51	3.1

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

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	2.15	ft^3/s	38	38
30 Day 2 Year Low Flow	3	ft^3/s	33	33
7 Day 10 Year Low Flow	0.911	ft^3/s	51	51
30 Day 10 Year Low Flow	1.3	ft^3/s	46	46
90 Day 10 Year Low Flow	2.13	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: 4.28.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20250303152124892000
Clicked Point (Latitude, Longitude): 40.57526, -78.35009
Time: 2025-03-03 10:21:58 -0500

Logan Township / Tyrone Boro PA0032557 / PA0026727 Modeling Point #2 (Logan Twp) February 2025

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	8.9	percent
DRNAREA	Area that drains to a point on a stream	37.7	square miles
PRECIP	Mean Annual Precipitation	40	inches
ROCKDEP	Depth to rock	4.2	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.93	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	8.9	percent	0	99
DRNAREA	Drainage Area	37.7	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
ROCKDEP	Depth to Rock	4.2	feet	3.32	5.65
STRDEN	Stream Density	1.93	miles per square mile	0.51	3.1

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

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	3.7	ft^3/s	38	38
30 Day 2 Year Low Flow	5.04	ft^3/s	33	33
7 Day 10 Year Low Flow	1.7	ft^3/s	51	51
30 Day 10 Year Low Flow	2.35	ft^3/s	46	46
90 Day 10 Year Low Flow	3.7	ft^3/s	36	36

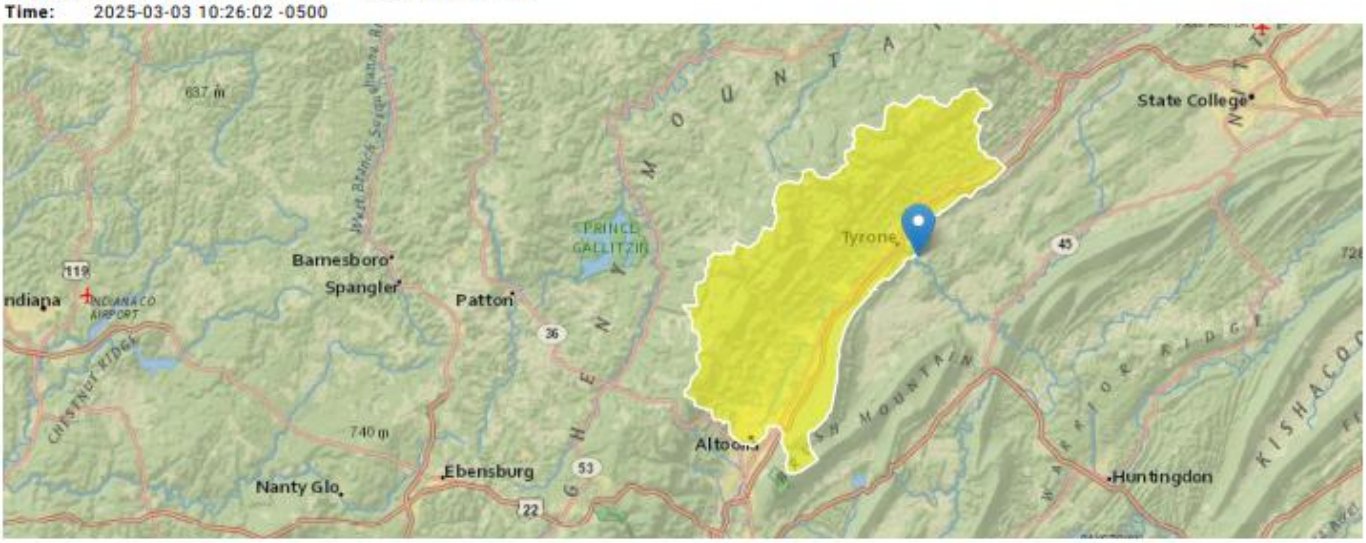
Low-Flow Statistics Citations

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: 4.28.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20250303152529723000
Clicked Point (Latitude, Longitude): 40.66404, -78.21652
Time: 2025-03-03 10:26:02 -0500



Logan Township / Tyrone Boro PA0032557 / PA0026727 Modeling Point #3 (Tyrone) February 2025

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	6.17	percent
DRNAREA	Area that drains to a point on a stream	162	square miles
PRECIP	Mean Annual Precipitation	40	inches
ROCKDEP	Depth to rock	4.3	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.89	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	6.17	percent	0	99
DRNAREA	Drainage Area	162	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
ROCKDEP	Depth to Rock	4.3	feet	3.32	5.65
STRDEN	Stream Density	1.89	miles per square mile	0.51	3.1

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

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	19	ft^3/s	38	38
30 Day 2 Year Low Flow	25	ft^3/s	33	33
7 Day 10 Year Low Flow	9.76	ft^3/s	51	51
30 Day 10 Year Low Flow	13	ft^3/s	46	46
90 Day 10 Year Low Flow	19.5	ft^3/s	36	36

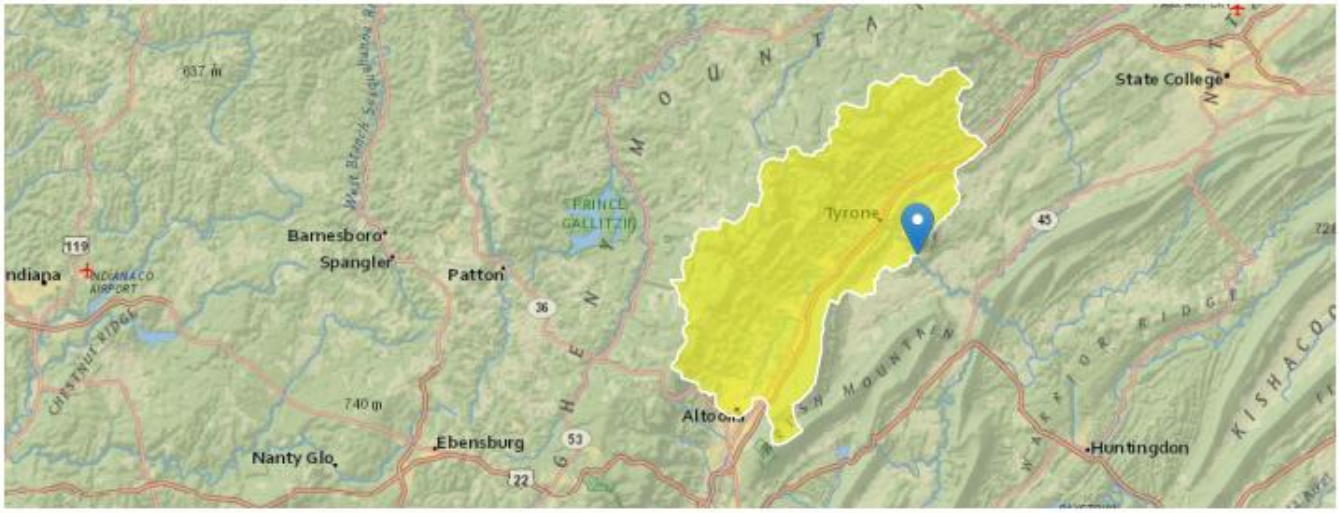
Low-Flow Statistics Citations

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: 4.28.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20250303152853188000
Clicked Point (Latitude, Longitude): 40.64511, -78.19764
Time: 2025-03-03 10:29:24 -0500



Logan Township / Tyrone Boro PA0032557 / PA0026727 Modeling Point #4 (Grier Foundation) February 2025

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	12.08	percent
DRNAREA	Area that drains to a point on a stream	179	square miles
PRECIP	Mean Annual Precipitation	40	inches
ROCKDEP	Depth to rock	4.4	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.85	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	12.08	percent	0	99
DRNAREA	Drainage Area	179	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
ROCKDEP	Depth to Rock	4.4	feet	3.32	5.65
STRDEN	Stream Density	1.85	miles per square mile	0.51	3.1

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

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	24.3	ft^3/s	38	38
30 Day 2 Year Low Flow	31.3	ft^3/s	33	33
7 Day 10 Year Low Flow	13.2	ft^3/s	51	51
30 Day 10 Year Low Flow	17.1	ft^3/s	46	46
90 Day 10 Year Low Flow	24.5	ft^3/s	36	36

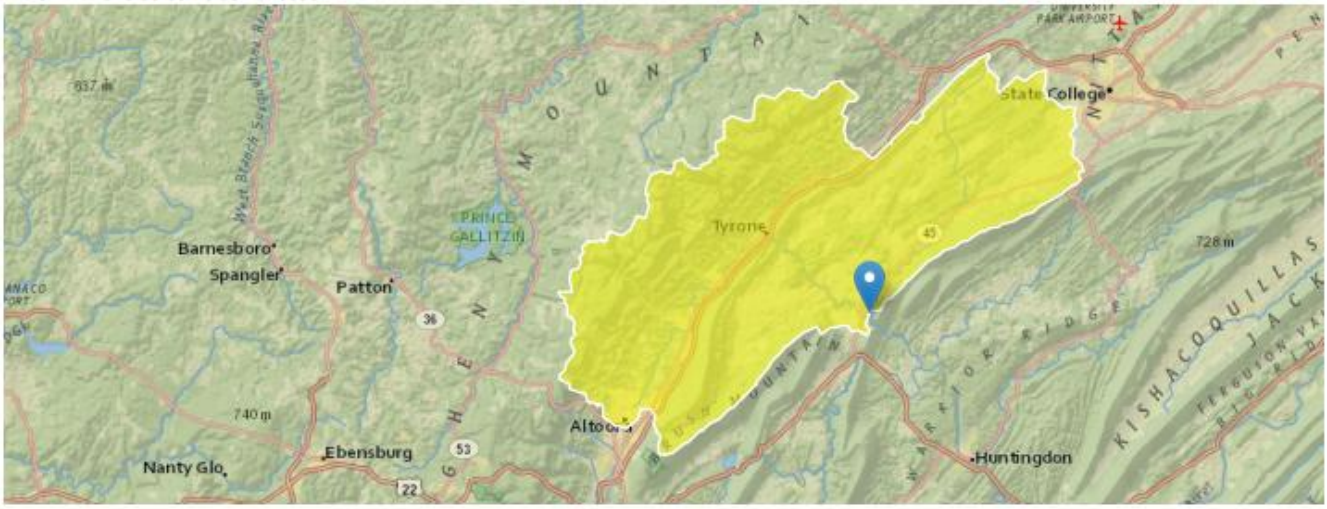
Low-Flow Statistics Citations

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: 4.28.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20250303153248017000
Clicked Point (Latitude, Longitude): 40.60786, -78.12462
Time: 2025-03-03 10:33:20 -0500



Logan Township / Tyrone Boro PA0032557 / PA0026727 Modeling Point #5 (Point Downstream) February 2025

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	42.49	percent
DRNAREA	Area that drains to a point on a stream	334	square miles
PRECIP	Mean Annual Precipitation	39	inches
ROCKDEP	Depth to rock	4.9	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.58	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	42.49	percent	0	99
DRNAREA	Drainage Area	334	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	39	inches	35	50.4
ROCKDEP	Depth to Rock	4.9	feet	3.32	5.65
STRDEN	Stream Density	1.58	miles per square mile	0.51	3.1

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

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	87.5	ft^3/s	38	38
30 Day 2 Year Low Flow	100	ft^3/s	33	33
7 Day 10 Year Low Flow	61.8	ft^3/s	51	51
30 Day 10 Year Low Flow	70.3	ft^3/s	46	46
90 Day 10 Year Low Flow	83	ft^3/s	36	36

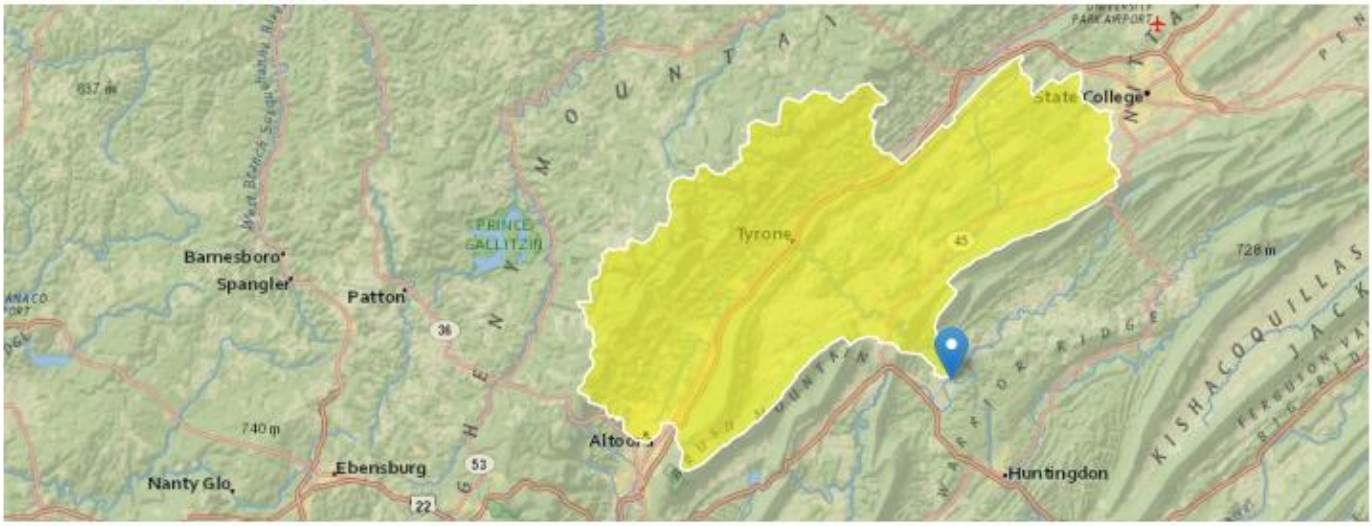
Low-Flow Statistics Citations

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: 4.28.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20250303153615330000
Clicked Point (Latitude, Longitude): 40.56116, -78.06842
Time: 2025-03-03 10:36:43 -0500



Logan Township / Tyrone Boro PA0032557 / PA0026727 Modeling Point #6 (Point Downstream) February 2025

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	41.39	percent
DRNAREA	Area that drains to a point on a stream	343	square miles
PRECIP	Mean Annual Precipitation	39	inches
ROCKDEP	Depth to rock	4.9	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.59	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	41.39	percent	0	99
DRNAREA	Drainage Area	343	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	39	inches	35	50.4
ROCKDEP	Depth to Rock	4.9	feet	3.32	5.65
STRDEN	Stream Density	1.59	miles per square mile	0.51	3.1

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

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	88.6	ft^3/s	38	38
30 Day 2 Year Low Flow	102	ft^3/s	33	33
7 Day 10 Year Low Flow	62.5	ft^3/s	51	51
30 Day 10 Year Low Flow	71.2	ft^3/s	46	46
90 Day 10 Year Low Flow	84.3	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: 4.28.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Modeling Input Values
WQM 7.0 Modeling Output Values

Toxics Management Spreadsheet

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
11A	15664	LITTLE 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)
29.300	Altoona	PA0027014-25	9.000	CBOD5	15		
				NH3-N	1.5	3	
				Dissolved Oxygen			5

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
27.640	Logan	PA0032557-25	1.140	CBOD5	25		
				NH3-N	4.95	9.9	
				Dissolved Oxygen			5

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
14.400	Tyrone	PA0026727	9.000	CBOD5	25		
				NH3-N	3.44	6.88	
				Dissolved Oxygen			5

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
12.500	Grier Foundatio	PA0081345	0.023	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
11A	15664	LITTLE 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
29.300	Altoona	15.98	3	15.98	3	0	0
27.640	Logan	5.63	24.83	14.58	24.83	0	0
14.400	Tyrone	6.43	9	10.4	9	0	0
12.500	Grier Foundatio	3.2	50	10.26	50	0	0
5.460		NA	NA	9.51	NA	NA	NA

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
29.300	Altoona	1.86	1.5	1.86	1.5	0	0
27.640	Logan	.99	4.95	1.77	4.95	0	0
14.400	Tyrone	1.09	3.44	1.46	3.44	0	0
12.500	Grier Foundatio	.66	25	1.45	25	0	0
5.460		NA	NA	1.4	NA	NA	NA

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)		
29.30	Altoona	15	15	1.5	1.5	5	5	0	0
27.64	Logan	25	25	4.95	4.95	5	5	0	0
14.40	Tyrone	25	25	3.44	3.44	5	5	0	0
12.50	Grier Foundatio	25	25	25	25	5	5	0	0
5.46		NA	NA	NA	NA	NA	NA	NA	NA

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
11A	15664	LITTLE JUNIATA RIVER	**29.300**	1084.00	21.20	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	0.168	0.00	0.00	0.000	0.000	0.0	0.00	0.00	17.90	8.20	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
Altoona	PA0027014-25	9.0000	9.0000	9.0000	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	15.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	1.50	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
11A	15664	LITTLE JUNIATA RIVER	**27.640**	1051.00	37.70	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	0.168	0.00	0.00	0.000	0.000	0.0	0.00	0.00	17.90	8.20	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
Logan	PA0032557-25	1.1400	1.1400	1.1400	0.000	25.00	7.35

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
11A	15664	LITTLE JUNIATA RIVER	**14.400**	859.00	162.00	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	0.168	0.00	0.00	0.000	0.000	0.0	0.00	0.00	17.96	8.20	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
Tyrone	PA0026727	9.0000	9.0000	9.0000	0.000	25.00	7.35

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	4.50	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
11A	15664	LITTLE JUNIATA RIVER	**12.500**	833.00	179.00	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	0.168	0.00	0.00	0.000	0.000	0.0	0.00	0.00	17.96	8.20	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
Grier Foundatio	PA0081345	0.0225	0.0225	0.0225	0.000	20.00	7.00

Parameter Data

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

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
11A	15664	LITTLE JUNIATA RIVER	**5.460**	734.00	334.00	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	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	17.96	8.20	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

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
11A	15664	LITTLE JUNIATA RIVER	**0.000**	660.00	343.00	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	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	17.96	8.20	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

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Toxics Management Spreadsheet
Version 1.4, May 2023

RUN #1

Discharge Information

Instructions | Discharge | Stream

Facility: **Tyrone Borough STP** NPDES Permit No.: **PA0026727** Outfall No.: **001**

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

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
9	193	7.35						

					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		788									
	Chloride (PWS)	mg/L		162									
	Bromide	mg/L	<	2									
	Sulfate (PWS)	mg/L		160									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		202									
	Total Antimony	µg/L	<	5.4									
	Total Arsenic	µg/L	<	2.5									
	Total Barium	µg/L		59.6									
	Total Beryllium	µg/L	<	0.5									
	Total Boron	µg/L		121									
	Total Cadmium	µg/L	<	0.5									
	Total Chromium (III)	µg/L	<	1.99									
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L		0.426									
	Total Copper	µg/L		2.58									
	Free Cyanide	µg/L	<	10									
	Total Cyanide	µg/L	<	12									
	Dissolved Iron	µg/L	<	20									
	Total Iron	µg/L		29.3									
	Total Lead	µg/L		0.173									
	Total Manganese	µg/L		12.2									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		6.53									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L	<	2.5									
	Total Silver	µg/L	<	2.9									
	Total Thallium	µg/L	<	0.5									
	Total Zinc	µg/L		17									
	Total Molybdenum	µg/L		9.6									
	Acrolein	µg/L	<	1.95									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	1									
	Benzene	µg/L	<	0.43									
	Bromoform	µg/L	<	0.34									

Group 3	Carbon Tetrachloride	µg/L	<	0.51									
	Chlorobenzene	µg/L		0.21									
	Chlorodibromomethane	µg/L	<	0.39									
	Chloroethane	µg/L	<	0.42									
	2-Chloroethyl Vinyl Ether	µg/L	<	4									
	Chloroform	µg/L		4.65									
	Dichlorobromomethane	µg/L		0.64									
	1,1-Dichloroethane	µg/L	<	0.42									
	1,2-Dichloroethane	µg/L	<	0.39									
	1,1-Dichloroethylene	µg/L	<	0.33									
	1,2-Dichloropropane	µg/L	<	0.42									
	1,3-Dichloropropylene	µg/L	<	0.26									
	1,4-Dioxane	µg/L	<	3									
	Ethylbenzene	µg/L	<	0.27									
	Methyl Bromide	µg/L	<	0.46									
	Methyl Chloride	µg/L	<	0.36									
	Methylene Chloride	µg/L	<	0.45									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.36									
	Tetrachloroethylene	µg/L	<	0.39									
	Toluene	µg/L	<	0.33									
	1,2-trans-Dichloroethylene	µg/L	<	0.39									
	1,1,1-Trichloroethane	µg/L	<	0.38									
	1,1,2-Trichloroethane	µg/L	<	0.24									
	Trichloroethylene	µg/L	<	0.46									
	Vinyl Chloride	µg/L	<	0.46									
Group 4	2-Chlorophenol	µg/L	<	1									
	2,4-Dichlorophenol	µg/L	<	1									
	2,4-Dimethylphenol	µg/L	<	1									
	4,6-Dinitro-o-Cresol	µg/L	<	5									
	2,4-Dinitrophenol	µg/L	<	5									
	2-Nitrophenol	µg/L	<	1									
	4-Nitrophenol	µg/L	<	1									
	p-Chloro-m-Cresol	µg/L	<	1									
	Pentachlorophenol	µg/L	<	5									
	Phenol	µg/L	<	1									
	2,4,6-Trichlorophenol	µg/L	<	1									
Group 5	Acenaphthene	µg/L	<	1									
	Acenaphthylene	µg/L	<	1									
	Anthracene	µg/L	<	1									
	Benzidine	µg/L	<	5									
	Benzo(a)Anthracene	µg/L	<	1									
	Benzo(a)Pyrene	µg/L	<	1									
	3,4-Benzofluoranthene	µg/L	<	1									
	Benzo(ghi)Perylene	µg/L	<	1									
	Benzo(k)Fluoranthene	µg/L	<	1									
	Bis(2-Chloroethoxy)Methane	µg/L	<	1									
	Bis(2-Chloroethyl)Ether	µg/L	<	1									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	1									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	1									
	4-Bromophenyl Phenyl Ether	µg/L	<	1									
	Butyl Benzyl Phthalate	µg/L	<	1									
	2-Chloronaphthalene	µg/L	<	1									
	4-Chlorophenyl Phenyl Ether	µg/L	<	1									
	Chrysene	µg/L	<	1									
	Dibenzo(a,h)Anthrancene	µg/L	<	1									
	1,2-Dichlorobenzene	µg/L	<	0.32									
	1,3-Dichlorobenzene	µg/L	<	0.17									
	1,4-Dichlorobenzene	µg/L	<	0.15									
	3,3-Dichlorobenzidine	µg/L	<	1									
	Diethyl Phthalate	µg/L	<	1									
	Dimethyl Phthalate	µg/L	<	1									
	Di-n-Butyl Phthalate	µg/L	<	1									
	2,4-Dinitrotoluene	µg/L	<	1									

	2,6-Dinitrotoluene	µg/L	<	1									
	Di-n-Octyl Phthalate	µg/L	<	1									
	1,2-Diphenylhydrazine	µg/L	<	1									
	Fluoranthene	µg/L	<	1									
	Fluorene	µg/L	<	1									
	Hexachlorobenzene	µg/L	<	1									
	Hexachlorobutadiene	µg/L	<	0.27									
	Hexachlorocyclopentadiene	µg/L	<	1									
	Hexachloroethane	µg/L	<	1									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	1									
	Isophorone	µg/L	<	1									
	Naphthalene	µg/L	<	0.25									
	Nitrobenzene	µg/L	<	1									
	n-Nitrosodimethylamine	µg/L	<	1									
	n-Nitrosodi-n-Propylamine	µg/L	<	1									
	n-Nitrosodiphenylamine	µg/L	<	1									
	Phenanthrene	µg/L	<	1									
	Pyrene	µg/L	<	1									
	1,2,4-Trichlorobenzene	µg/L	<	0.17									
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Tyrone Borough STP, NPDES Permit No. PA0026727, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Little 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	015664	14.4	859	162			Yes
End of Reach 1	015664	0	660	343			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	14.4	0.1683										106	8.2		
End of Reach 1	0	0.1683										106	8.2		

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	14.4														
End of Reach 1	0														

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Toxics Management Spreadsheet
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Model Results

Tyrone Borough STP, NPDES Permit No. PA0026727, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.379 Analysis Hardness (mg/l): 155.92 Analysis pH: 7.55

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 Aluminum	0	0		0	750	750	1,307	
Total Antimony	0	0		0	1,100	1,100	1,917	
Total Arsenic	0	0		0	340	340	593	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	36,600	
Total Boron	0	0		0	8,100	8,100	14,117	
Total Cadmium	0	0		0	3.101	3.35	5.84	Chem Translator of 0.925 applied
Total Chromium (III)	0	0		0	819.742	2,594	4,521	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	28.4	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	166	
Total Copper	0	0		0	20.423	21.3	37.1	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	38.3	
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	104.374	144	250	Chem Translator of 0.726 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.87	Chem Translator of 0.85 applied
Total Nickel	0	0		0	681.797	683	1,191	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	6.906	8.12	14.2	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	113	
Total Zinc	0	0		0	170.725	175	304	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	5.23	

Acrylonitrile	0	0		0	650	650	1,133	
Benzene	0	0		0	640	640	1,115	
Bromoform	0	0		0	1,800	1,800	3,137	
Carbon Tetrachloride	0	0		0	2,800	2,800	4,880	
Chlorobenzene	0	0		0	1,200	1,200	2,091	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	31,371	
Chloroform	0	0		0	1,900	1,900	3,311	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	26,143	
1,1-Dichloroethylene	0	0		0	7,500	7,500	13,071	
1,2-Dichloropropane	0	0		0	11,000	11,000	19,171	
1,3-Dichloropropylene	0	0		0	310	310	540	
Ethylbenzene	0	0		0	2,900	2,900	5,054	
Methyl Bromide	0	0		0	550	550	959	
Methyl Chloride	0	0		0	28,000	28,000	48,800	
Methylene Chloride	0	0		0	12,000	12,000	20,914	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,743	
Tetrachloroethylene	0	0		0	700	700	1,220	
Toluene	0	0		0	1,700	1,700	2,963	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	11,851	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	5,229	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	5,926	
Trichloroethylene	0	0		0	2,300	2,300	4,009	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	976	
2,4-Dichlorophenol	0	0		0	1,700	1,700	2,963	
2,4-Dimethylphenol	0	0		0	660	660	1,150	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	139	
2,4-Dinitrophenol	0	0		0	660	660	1,150	
2-Nitrophenol	0	0		0	8,000	8,000	13,943	
4-Nitrophenol	0	0		0	2,300	2,300	4,009	
p-Chloro-m-Cresol	0	0		0	160	160	279	
Pentachlorophenol	0	0		0	15.130	15.1	26.4	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	802	
Acenaphthene	0	0		0	83	83.0	145	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	523	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.87	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	52,286	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	7,843	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	471	
Butyl Benzyl Phthalate	0	0		0	140	140	244	

2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	1,429	
1,3-Dichlorobenzene	0	0		0	350	350	610	
1,4-Dichlorobenzene	0	0		0	730	730	1,272	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	6,971	
Dimethyl Phthalate	0	0		0	2,500	2,500	4,357	
Di-n-Butyl Phthalate	0	0		0	110	110	192	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	2,789	
2,6-Dinitrotoluene	0	0		0	990	990	1,725	
1,2-Diphenylhydrazine	0	0		0	15	15.0	26.1	
Fluoranthene	0	0		0	200	200	349	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	17.4	
Hexachlorocyclopentadiene	0	0		0	5	5.0	8.71	
Hexachloroethane	0	0		0	60	60.0	105	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	17,429	
Naphthalene	0	0		0	140	140	244	
Nitrobenzene	0	0		0	4,000	4,000	6,971	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	29,628	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	523	
Phenanthrene	0	0		0	5	5.0	8.71	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	227	

☑ ***CFC*** CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): 135.41 Analysis pH: 7.71

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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	651	
Total Arsenic	0	0		0	150	150	444	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	12,129	
Total Boron	0	0		0	1,600	1,600	4,733	
Total Cadmium	0	0		0	0.304	0.34	1.0	Chem Translator of 0.896 applied
Total Chromium (III)	0	0		0	95.000	110	327	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	30.8	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	56.2	
Total Copper	0	0		0	11.604	12.1	35.8	Chem Translator of 0.96 applied

Free Cyanide	0	0		0	5.2	5.2	15.4	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	4,437	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	3.495	4.68	13.8	Chem Translator of 0.747 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	2.68	Chem Translator of 0.85 applied
Total Nickel	0	0		0	67.210	67.4	199	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	14.8	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	38.5	
Total Zinc	0	0		0	152.735	155	458	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	8.87	
Acrylonitrile	0	0		0	130	130	385	
Benzene	0	0		0	130	130	385	
Bromoform	0	0		0	370	370	1,095	
Carbon Tetrachloride	0	0		0	560	560	1,657	
Chlorobenzene	0	0		0	240	240	710	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	10,354	
Chloroform	0	0		0	390	390	1,154	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	9,171	
1,1-Dichloroethylene	0	0		0	1,500	1,500	4,437	
1,2-Dichloropropane	0	0		0	2,200	2,200	6,508	
1,3-Dichloropropylene	0	0		0	61	61.0	180	
Ethylbenzene	0	0		0	580	580	1,716	
Methyl Bromide	0	0		0	110	110	325	
Methyl Chloride	0	0		0	5,500	5,500	16,270	
Methylene Chloride	0	0		0	2,400	2,400	7,100	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	621	
Tetrachloroethylene	0	0		0	140	140	414	
Toluene	0	0		0	330	330	976	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	4,142	
1,1,1-Trichloroethane	0	0		0	610	610	1,805	
1,1,2-Trichloroethane	0	0		0	680	680	2,012	
Trichloroethylene	0	0		0	450	450	1,331	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	325	
2,4-Dichlorophenol	0	0		0	340	340	1,006	
2,4-Dimethylphenol	0	0		0	130	130	385	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	47.3	
2,4-Dinitrophenol	0	0		0	130	130	385	
2-Nitrophenol	0	0		0	1,600	1,600	4,733	
4-Nitrophenol	0	0		0	470	470	1,390	

p-Chloro-m-Cresol	0	0		0	500	500	1,479	
Pentachlorophenol	0	0		0	11.608	11.6	34.3	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	269	
Acenaphthene	0	0		0	17	17.0	50.3	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	175	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.3	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	17,749	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	2,692	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	160	
Butyl Benzyl Phthalate	0	0		0	35	35.0	104	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	473	
1,3-Dichlorobenzene	0	0		0	69	69.0	204	
1,4-Dichlorobenzene	0	0		0	150	150	444	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	2,367	
Dimethyl Phthalate	0	0		0	500	500	1,479	
Di-n-Butyl Phthalate	0	0		0	21	21.0	62.1	
2,4-Dinitrotoluene	0	0		0	320	320	947	
2,6-Dinitrotoluene	0	0		0	200	200	592	
1,2-Diphenylhydrazine	0	0		0	3	3.0	8.87	
Fluoranthene	0	0		0	40	40.0	118	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	5.92	
Hexachlorocyclopentadiene	0	0		0	1	1.0	2.96	
Hexachloroethane	0	0		0	12	12.0	35.5	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	6,212	
Naphthalene	0	0		0	43	43.0	127	
Nitrobenzene	0	0		0	810	810	2,396	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	10,058	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	175	
Phenanthrene	0	0		0	1	1.0	2.96	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	76.9	

☑ ***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	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	16.6	
Total Arsenic	0	0		0	10	10.0	29.6	
Total Barium	0	0		0	2,400	2,400	7,100	
Total Boron	0	0		0	3,100	3,100	9,171	
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	
Free Cyanide	0	0		0	4	4.0	11.8	
Dissolved Iron	0	0		0	300	300	887	
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	2,958	
Total Mercury	0	0		0	0.050	0.05	0.15	
Total Nickel	0	0		0	610	610	1,805	
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	0.71	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	8.87	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	296	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	16.9	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	97.6	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	201	

Methyl Bromide	0	0		0	100	100.0	296	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	169	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	296	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	29,582	
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	30	30.0	88.7	
2,4-Dichlorophenol	0	0		0	10	10.0	29.6	
2,4-Dimethylphenol	0	0		0	100	100.0	296	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	5.92	
2,4-Dinitrophenol	0	0		0	10	10.0	29.6	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	11,833	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	207	
Anthracene	0	0		0	300	300	887	
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	592	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.3	
2-Chloronaphthalene	0	0		0	800	800	2,367	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	2,958	
1,3-Dichlorobenzene	0	0		0	7	7.0	20.7	
1,4-Dichlorobenzene	0	0		0	300	300	887	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	1,775	
Dimethyl Phthalate	0	0		0	2,000	2,000	5,916	
Di-n-Butyl Phthalate	0	0		0	20	20.0	59.2	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	

2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	59.2	
Fluorene	0	0		0	50	50.0	148	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	11.8	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	101	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	29.6	
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	59.2	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.21	

☑ ***CRL*** CCT (min): 84.060 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 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	
Free Cyanide	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	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	0.64	
Benzene	0	0		0	0.58	0.58	6.14	
Bromoform	0	0		0	7	7.0	74.2	
Carbon Tetrachloride	0	0		0	0.4	0.4	4.24	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	8.47	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	10.1	
1,2-Dichloroethane	0	0		0	9.9	9.9	105	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	9.53	
1,3-Dichloropropylene	0	0		0	0.27	0.27	2.86	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	212	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	2.12	
Tetrachloroethylene	0	0		0	10	10.0	106	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	5.83	
Trichloroethylene	0	0		0	0.6	0.6	6.36	
Vinyl Chloride	0	0		0	0.02	0.02	0.21	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	0.32	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	15.9	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.0001	0.0001	0.001	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.011	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.001	

3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.011	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.11	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.32	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	3.39	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	1.27	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.001	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.53	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.53	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.53	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.32	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.0008	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.11	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	1.06	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.011	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.007	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.053	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	35.0	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 30

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	Report	Report	Report	Report	Report	µg/L	750	AFC	Discharge Conc > 10% WQBEL (no RP)

Total Antimony	Report	Report	Report	Report	Report	µg/L	16.6	THH	Discharge Conc > 10% WQBEL (no RP)
Total Cadmium	0.054	0.11	0.72	1.43	1.79	µg/L	0.72	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	21.3	AFC	Discharge Conc > 10% WQBEL (no RP)
Free Cyanide	0.83	1.65	11.0	22.0	27.5	µg/L	11.0	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Silver	Report	Report	Report	Report	Report	µg/L	8.12	AFC	Discharge Conc > 10% WQBEL (no RP)
Chloroform	Report	Report	Report	Report	Report	µg/L	16.9	THH	Discharge Conc > 25% WQBEL (no 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
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	7,100	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	3,387	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	234	µg/L	Discharge Conc < TQL
Hexavalent Chromium	16.3	µg/L	Discharge Conc < TQL
Total Cobalt	40.2	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	887	µg/L	Discharge Conc < TQL
Total Iron	4,437	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	9.91	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	2,958	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.15	µg/L	Discharge Conc < TQL
Total Nickel	143	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	10.6	µg/L	Discharge Conc < TQL
Total Thallium	0.71	µg/L	Discharge Conc < TQL
Total Zinc	175	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.0	µg/L	Discharge Conc < TQL
Acrylonitrile	0.64	µg/L	Discharge Conc < TQL
Benzene	6.14	µg/L	Discharge Conc < TQL
Bromoform	74.2	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	4.24	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	296	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	8.47	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	7,409	µg/L	Discharge Conc < TQL

Dichlorobromomethane	10.1	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	105	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	97.6	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	9.53	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	2.86	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	201	µg/L	Discharge Conc < TQL
Methyl Bromide	233	µg/L	Discharge Conc < TQL
Methyl Chloride	11,643	µg/L	Discharge Conc < TQL
Methylene Chloride	212	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	2.12	µg/L	Discharge Conc < TQL
Tetrachloroethylene	106	µg/L	Discharge Conc < TQL
Toluene	169	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	296	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	1,291	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	5.83	µg/L	Discharge Conc < TQL
Trichloroethylene	6.36	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.21	µg/L	Discharge Conc < TQL
2-Chlorophenol	88.7	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	29.6	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	275	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	5.92	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	29.6	µg/L	Discharge Conc < TQL
2-Nitrophenol	3,387	µg/L	Discharge Conc < TQL
4-Nitrophenol	995	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	160	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.32	µg/L	Discharge Conc < TQL
Phenol	11,833	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	15.9	µg/L	Discharge Conc < TQL
Acenaphthene	36.0	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	887	µg/L	Discharge Conc < TQL
Benzidine	0.001	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.011	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.001	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.011	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.11	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.32	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	592	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	3.39	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	114	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.3	µg/L	Discharge Conc < TQL

2-Chloronaphthalene	2,367	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	1.27	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.001	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	339	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	20.7	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	318	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.53	µg/L	Discharge Conc < TQL
Diethyl Phthalate	1,694	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	1,058	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	44.5	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.53	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.53	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.32	µg/L	Discharge Conc < TQL
Fluoranthene	59.2	µg/L	Discharge Conc < TQL
Fluorene	148	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0008	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.11	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	2.12	µg/L	Discharge Conc < TQL
Hexachloroethane	1.06	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.011	µg/L	Discharge Conc < TQL
Isophorone	101	µg/L	Discharge Conc < TQL
Naphthalene	91.0	µg/L	Discharge Conc < TQL
Nitrobenzene	29.6	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.007	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.053	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	35.0	µg/L	Discharge Conc < TQL
Phenanthrene	2.12	µg/L	Discharge Conc < TQL
Pyrene	59.2	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.21	µg/L	Discharge Conc < TQL

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RUN #2

Discharge Information

Instructions | Discharge | Stream

Facility: **Tyrone Borough STP** NPDES Permit No.: **PA0026727** Outfall No.: **001**

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

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
9	193	7.35						

					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		788									
	Chloride (PWS)	mg/L		162									
	Bromide	mg/L	<	2									
	Sulfate (PWS)	mg/L		160									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		202									
	Total Antimony	µg/L	<	5.4									
	Total Arsenic	µg/L	<	2.5									
	Total Barium	µg/L		59.6									
	Total Beryllium	µg/L	<	0.5									
	Total Boron	µg/L		121									
	Total Cadmium	µg/L		0.162									
	Total Chromium (III)	µg/L	<	1.99									
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L		0.426									
	Total Copper	µg/L		2.58									
	Free Cyanide	µg/L	<	5									
	Total Cyanide	µg/L	<	12									
	Dissolved Iron	µg/L	<	20									
	Total Iron	µg/L		29.3									
	Total Lead	µg/L		0.173									
	Total Manganese	µg/L		12.2									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		6.53									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L	<	2.5									
	Total Silver	µg/L	<	2.9									
	Total Thallium	µg/L	<	0.5									
	Total Zinc	µg/L		17									
	Total Molybdenum	µg/L		9.6									
	Acrolein	µg/L	<	1.95									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	1									
	Benzene	µg/L	<	0.43									
	Bromoform	µg/L	<	0.34									

Group 3	Carbon Tetrachloride	µg/L	<	0.51									
	Chlorobenzene	µg/L		0.21									
	Chlorodibromomethane	µg/L	<	0.39									
	Chloroethane	µg/L	<	0.42									
	2-Chloroethyl Vinyl Ether	µg/L	<	4									
	Chloroform	µg/L		4.65									
	Dichlorobromomethane	µg/L		0.64									
	1,1-Dichloroethane	µg/L	<	0.42									
	1,2-Dichloroethane	µg/L	<	0.39									
	1,1-Dichloroethylene	µg/L	<	0.33									
	1,2-Dichloropropane	µg/L	<	0.42									
	1,3-Dichloropropylene	µg/L	<	0.26									
	1,4-Dioxane	µg/L	<	3									
	Ethylbenzene	µg/L	<	0.27									
	Methyl Bromide	µg/L	<	0.46									
	Methyl Chloride	µg/L	<	0.36									
	Methylene Chloride	µg/L	<	0.45									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.36									
	Tetrachloroethylene	µg/L	<	0.39									
	Toluene	µg/L	<	0.33									
	1,2-trans-Dichloroethylene	µg/L	<	0.39									
	1,1,1-Trichloroethane	µg/L	<	0.38									
	1,1,2-Trichloroethane	µg/L	<	0.24									
	Trichloroethylene	µg/L	<	0.46									
	Vinyl Chloride	µg/L	<	0.46									
Group 4	2-Chlorophenol	µg/L	<	1									
	2,4-Dichlorophenol	µg/L	<	1									
	2,4-Dimethylphenol	µg/L	<	1									
	4,6-Dinitro-o-Cresol	µg/L	<	5									
	2,4-Dinitrophenol	µg/L	<	5									
	2-Nitrophenol	µg/L	<	1									
	4-Nitrophenol	µg/L	<	1									
	p-Chloro-m-Cresol	µg/L	<	1									
	Pentachlorophenol	µg/L	<	5									
	Phenol	µg/L	<	1									
	2,4,6-Trichlorophenol	µg/L	<	1									
Group 5	Acenaphthene	µg/L	<	1									
	Acenaphthylene	µg/L	<	1									
	Anthracene	µg/L	<	1									
	Benzidine	µg/L	<	5									
	Benzo(a)Anthracene	µg/L	<	1									
	Benzo(a)Pyrene	µg/L	<	1									
	3,4-Benzofluoranthene	µg/L	<	1									
	Benzo(ghi)Perylene	µg/L	<	1									
	Benzo(k)Fluoranthene	µg/L	<	1									
	Bis(2-Chloroethoxy)Methane	µg/L	<	1									
	Bis(2-Chloroethyl)Ether	µg/L	<	1									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	1									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	1									
	4-Bromophenyl Phenyl Ether	µg/L	<	1									
	Butyl Benzyl Phthalate	µg/L	<	1									
	2-Chloronaphthalene	µg/L	<	1									
	4-Chlorophenyl Phenyl Ether	µg/L	<	1									
	Chrysene	µg/L	<	1									
	Dibenzo(a,h)Anthrancene	µg/L	<	1									
	1,2-Dichlorobenzene	µg/L	<	0.32									
	1,3-Dichlorobenzene	µg/L	<	0.17									
	1,4-Dichlorobenzene	µg/L	<	0.15									
	3,3-Dichlorobenzidine	µg/L	<	1									
	Diethyl Phthalate	µg/L	<	1									
	Dimethyl Phthalate	µg/L	<	1									
	Di-n-Butyl Phthalate	µg/L	<	1									
	2,4-Dinitrotoluene	µg/L	<	1									

	2,6-Dinitrotoluene	µg/L	<	1									
	Di-n-Octyl Phthalate	µg/L	<	1									
	1,2-Diphenylhydrazine	µg/L	<	1									
	Fluoranthene	µg/L	<	1									
	Fluorene	µg/L	<	1									
	Hexachlorobenzene	µg/L	<	1									
	Hexachlorobutadiene	µg/L	<	0.27									
	Hexachlorocyclopentadiene	µg/L	<	1									
	Hexachloroethane	µg/L	<	1									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	1									
	Isophorone	µg/L	<	1									
	Naphthalene	µg/L	<	0.25									
	Nitrobenzene	µg/L	<	1									
	n-Nitrosodimethylamine	µg/L	<	1									
	n-Nitrosodi-n-Propylamine	µg/L	<	1									
	n-Nitrosodiphenylamine	µg/L	<	1									
	Phenanthrene	µg/L	<	1									
	Pyrene	µg/L	<	1									
	1,2,4-Trichlorobenzene	µg/L	<	0.17									
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

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Stream / Surface Water Information

Tyrone Borough STP, NPDES Permit No. PA0026727, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Little 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	015664	14.4	859	162			Yes
End of Reach 1	015664	0	660	343			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	14.4	0.1683										106	8.2		
End of Reach 1	0	0.1683										106	8.2		

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	14.4														
End of Reach 1	0														

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Model Results

Tyrone Borough STP, NPDES Permit No. PA0026727, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.379 Analysis Hardness (mg/l): 155.92 Analysis pH: 7.55

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 Aluminum	0	0		0	750	750	1,307	
Total Antimony	0	0		0	1,100	1,100	1,917	
Total Arsenic	0	0		0	340	340	593	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	36,600	
Total Boron	0	0		0	8,100	8,100	14,117	
Total Cadmium	0	0		0	3.101	3.35	5.84	Chem Translator of 0.925 applied
Total Chromium (III)	0	0		0	819.742	2,594	4,521	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	28.4	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	166	
Total Copper	0	0		0	20.423	21.3	37.1	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	38.3	
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	104.374	144	250	Chem Translator of 0.726 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.87	Chem Translator of 0.85 applied
Total Nickel	0	0		0	681.797	683	1,191	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	6.906	8.12	14.2	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	113	
Total Zinc	0	0		0	170.725	175	304	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	5.23	

Acrylonitrile	0	0		0	650	650	1,133	
Benzene	0	0		0	640	640	1,115	
Bromoform	0	0		0	1,800	1,800	3,137	
Carbon Tetrachloride	0	0		0	2,800	2,800	4,880	
Chlorobenzene	0	0		0	1,200	1,200	2,091	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	31,371	
Chloroform	0	0		0	1,900	1,900	3,311	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	26,143	
1,1-Dichloroethylene	0	0		0	7,500	7,500	13,071	
1,2-Dichloropropane	0	0		0	11,000	11,000	19,171	
1,3-Dichloropropylene	0	0		0	310	310	540	
Ethylbenzene	0	0		0	2,900	2,900	5,054	
Methyl Bromide	0	0		0	550	550	959	
Methyl Chloride	0	0		0	28,000	28,000	48,800	
Methylene Chloride	0	0		0	12,000	12,000	20,914	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,743	
Tetrachloroethylene	0	0		0	700	700	1,220	
Toluene	0	0		0	1,700	1,700	2,963	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	11,851	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	5,229	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	5,926	
Trichloroethylene	0	0		0	2,300	2,300	4,009	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	976	
2,4-Dichlorophenol	0	0		0	1,700	1,700	2,963	
2,4-Dimethylphenol	0	0		0	660	660	1,150	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	139	
2,4-Dinitrophenol	0	0		0	660	660	1,150	
2-Nitrophenol	0	0		0	8,000	8,000	13,943	
4-Nitrophenol	0	0		0	2,300	2,300	4,009	
p-Chloro-m-Cresol	0	0		0	160	160	279	
Pentachlorophenol	0	0		0	15.130	15.1	26.4	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	802	
Acenaphthene	0	0		0	83	83.0	145	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	523	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.87	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	52,286	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	7,843	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	471	
Butyl Benzyl Phthalate	0	0		0	140	140	244	

2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	1,429	
1,3-Dichlorobenzene	0	0		0	350	350	610	
1,4-Dichlorobenzene	0	0		0	730	730	1,272	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	6,971	
Dimethyl Phthalate	0	0		0	2,500	2,500	4,357	
Di-n-Butyl Phthalate	0	0		0	110	110	192	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	2,789	
2,6-Dinitrotoluene	0	0		0	990	990	1,725	
1,2-Diphenylhydrazine	0	0		0	15	15.0	26.1	
Fluoranthene	0	0		0	200	200	349	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	17.4	
Hexachlorocyclopentadiene	0	0		0	5	5.0	8.71	
Hexachloroethane	0	0		0	60	60.0	105	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	17,429	
Naphthalene	0	0		0	140	140	244	
Nitrobenzene	0	0		0	4,000	4,000	6,971	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	29,628	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	523	
Phenanthrene	0	0		0	5	5.0	8.71	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	227	

☑ ***CFC*** CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): 135.41 Analysis pH: 7.71

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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	651	
Total Arsenic	0	0		0	150	150	444	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	12,129	
Total Boron	0	0		0	1,600	1,600	4,733	
Total Cadmium	0	0		0	0.304	0.34	1.0	Chem Translator of 0.896 applied
Total Chromium (III)	0	0		0	95.000	110	327	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	30.8	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	56.2	
Total Copper	0	0		0	11.604	12.1	35.8	Chem Translator of 0.96 applied

Free Cyanide	0	0		0	5.2	5.2	15.4	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	4,437	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	3.495	4.68	13.8	Chem Translator of 0.747 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	2.68	Chem Translator of 0.85 applied
Total Nickel	0	0		0	67.210	67.4	199	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	14.8	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	38.5	
Total Zinc	0	0		0	152.735	155	458	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	8.87	
Acrylonitrile	0	0		0	130	130	385	
Benzene	0	0		0	130	130	385	
Bromoform	0	0		0	370	370	1,095	
Carbon Tetrachloride	0	0		0	560	560	1,657	
Chlorobenzene	0	0		0	240	240	710	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	10,354	
Chloroform	0	0		0	390	390	1,154	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	9,171	
1,1-Dichloroethylene	0	0		0	1,500	1,500	4,437	
1,2-Dichloropropane	0	0		0	2,200	2,200	6,508	
1,3-Dichloropropylene	0	0		0	61	61.0	180	
Ethylbenzene	0	0		0	580	580	1,716	
Methyl Bromide	0	0		0	110	110	325	
Methyl Chloride	0	0		0	5,500	5,500	16,270	
Methylene Chloride	0	0		0	2,400	2,400	7,100	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	621	
Tetrachloroethylene	0	0		0	140	140	414	
Toluene	0	0		0	330	330	976	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	4,142	
1,1,1-Trichloroethane	0	0		0	610	610	1,805	
1,1,2-Trichloroethane	0	0		0	680	680	2,012	
Trichloroethylene	0	0		0	450	450	1,331	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	325	
2,4-Dichlorophenol	0	0		0	340	340	1,006	
2,4-Dimethylphenol	0	0		0	130	130	385	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	47.3	
2,4-Dinitrophenol	0	0		0	130	130	385	
2-Nitrophenol	0	0		0	1,600	1,600	4,733	
4-Nitrophenol	0	0		0	470	470	1,390	

p-Chloro-m-Cresol	0	0		0	500	500	1,479	
Pentachlorophenol	0	0		0	11.608	11.6	34.3	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	269	
Acenaphthene	0	0		0	17	17.0	50.3	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	175	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.3	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	17,749	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	2,692	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	160	
Butyl Benzyl Phthalate	0	0		0	35	35.0	104	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	473	
1,3-Dichlorobenzene	0	0		0	69	69.0	204	
1,4-Dichlorobenzene	0	0		0	150	150	444	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	2,367	
Dimethyl Phthalate	0	0		0	500	500	1,479	
Di-n-Butyl Phthalate	0	0		0	21	21.0	62.1	
2,4-Dinitrotoluene	0	0		0	320	320	947	
2,6-Dinitrotoluene	0	0		0	200	200	592	
1,2-Diphenylhydrazine	0	0		0	3	3.0	8.87	
Fluoranthene	0	0		0	40	40.0	118	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	5.92	
Hexachlorocyclopentadiene	0	0		0	1	1.0	2.96	
Hexachloroethane	0	0		0	12	12.0	35.5	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	6,212	
Naphthalene	0	0		0	43	43.0	127	
Nitrobenzene	0	0		0	810	810	2,396	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	10,058	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	175	
Phenanthrene	0	0		0	1	1.0	2.96	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	76.9	

☑ ***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	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	16.6	
Total Arsenic	0	0		0	10	10.0	29.6	
Total Barium	0	0		0	2,400	2,400	7,100	
Total Boron	0	0		0	3,100	3,100	9,171	
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	
Free Cyanide	0	0		0	4	4.0	11.8	
Dissolved Iron	0	0		0	300	300	887	
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	2,958	
Total Mercury	0	0		0	0.050	0.05	0.15	
Total Nickel	0	0		0	610	610	1,805	
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	0.71	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	8.87	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	296	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	16.9	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	97.6	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	201	

Methyl Bromide	0	0		0	100	100.0	296	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	169	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	296	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	29,582	
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	30	30.0	88.7	
2,4-Dichlorophenol	0	0		0	10	10.0	29.6	
2,4-Dimethylphenol	0	0		0	100	100.0	296	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	5.92	
2,4-Dinitrophenol	0	0		0	10	10.0	29.6	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	11,833	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	207	
Anthracene	0	0		0	300	300	887	
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	592	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.3	
2-Chloronaphthalene	0	0		0	800	800	2,367	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	2,958	
1,3-Dichlorobenzene	0	0		0	7	7.0	20.7	
1,4-Dichlorobenzene	0	0		0	300	300	887	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	1,775	
Dimethyl Phthalate	0	0		0	2,000	2,000	5,916	
Di-n-Butyl Phthalate	0	0		0	20	20.0	59.2	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	

2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	59.2	
Fluorene	0	0		0	50	50.0	148	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	11.8	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	101	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	29.6	
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	59.2	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.21	

☑ ***CRL*** CCT (min): 84.060 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 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	
Free Cyanide	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	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	0.64	
Benzene	0	0		0	0.58	0.58	6.14	
Bromoform	0	0		0	7	7.0	74.2	
Carbon Tetrachloride	0	0		0	0.4	0.4	4.24	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	8.47	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	10.1	
1,2-Dichloroethane	0	0		0	9.9	9.9	105	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	9.53	
1,3-Dichloropropylene	0	0		0	0.27	0.27	2.86	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	212	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	2.12	
Tetrachloroethylene	0	0		0	10	10.0	106	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	5.83	
Trichloroethylene	0	0		0	0.6	0.6	6.36	
Vinyl Chloride	0	0		0	0.02	0.02	0.21	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	0.32	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	15.9	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.0001	0.0001	0.001	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.011	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.001	

3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.011	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.11	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.32	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	3.39	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	1.27	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.001	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.53	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.53	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.53	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.32	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.0008	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.11	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	1.06	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.011	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.007	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.053	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	35.0	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 30

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	Report	Report	Report	Report	Report	µg/L	750	AFC	Discharge Conc > 10% WQBEL (no RP)

Total Antimony	Report	Report	Report	Report	Report	µg/L	16.6	THH	Discharge Conc > 10% WQBEL (no RP)
Total Cadmium	Report	Report	Report	Report	Report	µg/L	0.72	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	21.3	AFC	Discharge Conc > 10% WQBEL (no RP)
Free Cyanide	Report	Report	Report	Report	Report	µg/L	11.0	CFC	Discharge Conc > 25% WQBEL (no RP)
Total Silver	Report	Report	Report	Report	Report	µg/L	8.12	AFC	Discharge Conc > 10% WQBEL (no RP)
Chloroform	Report	Report	Report	Report	Report	µg/L	16.9	THH	Discharge Conc > 25% WQBEL (no 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
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	7,100	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	3,387	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	234	µg/L	Discharge Conc < TQL
Hexavalent Chromium	16.3	µg/L	Discharge Conc < TQL
Total Cobalt	40.2	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	887	µg/L	Discharge Conc < TQL
Total Iron	4,437	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	9.91	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	2,958	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.15	µg/L	Discharge Conc < TQL
Total Nickel	143	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	10.6	µg/L	Discharge Conc < TQL
Total Thallium	0.71	µg/L	Discharge Conc < TQL
Total Zinc	175	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.0	µg/L	Discharge Conc < TQL
Acrylonitrile	0.64	µg/L	Discharge Conc < TQL
Benzene	6.14	µg/L	Discharge Conc < TQL
Bromoform	74.2	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	4.24	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	296	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	8.47	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	7,409	µg/L	Discharge Conc < TQL

Dichlorobromomethane	10.1	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	105	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	97.6	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	9.53	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	2.86	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	201	µg/L	Discharge Conc < TQL
Methyl Bromide	233	µg/L	Discharge Conc < TQL
Methyl Chloride	11,643	µg/L	Discharge Conc < TQL
Methylene Chloride	212	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	2.12	µg/L	Discharge Conc < TQL
Tetrachloroethylene	106	µg/L	Discharge Conc < TQL
Toluene	169	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	296	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	1,291	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	5.83	µg/L	Discharge Conc < TQL
Trichloroethylene	6.36	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.21	µg/L	Discharge Conc < TQL
2-Chlorophenol	88.7	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	29.6	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	275	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	5.92	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	29.6	µg/L	Discharge Conc < TQL
2-Nitrophenol	3,387	µg/L	Discharge Conc < TQL
4-Nitrophenol	995	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	160	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.32	µg/L	Discharge Conc < TQL
Phenol	11,833	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	15.9	µg/L	Discharge Conc < TQL
Acenaphthene	36.0	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	887	µg/L	Discharge Conc < TQL
Benzidine	0.001	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.011	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.001	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.011	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.11	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.32	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	592	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	3.39	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	114	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.3	µg/L	Discharge Conc < TQL

2-Chloronaphthalene	2,367	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	1.27	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.001	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	339	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	20.7	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	318	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.53	µg/L	Discharge Conc < TQL
Diethyl Phthalate	1,694	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	1,058	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	44.5	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.53	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.53	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.32	µg/L	Discharge Conc < TQL
Fluoranthene	59.2	µg/L	Discharge Conc < TQL
Fluorene	148	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0008	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.11	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	2.12	µg/L	Discharge Conc < TQL
Hexachloroethane	1.06	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.011	µg/L	Discharge Conc < TQL
Isophorone	101	µg/L	Discharge Conc < TQL
Naphthalene	91.0	µg/L	Discharge Conc < TQL
Nitrobenzene	29.6	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.007	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.053	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	35.0	µg/L	Discharge Conc < TQL
Phenanthrene	2.12	µg/L	Discharge Conc < TQL
Pyrene	59.2	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.21	µg/L	Discharge Conc < TQL

Attachment C

WET Testing

DATE OF TEST CORRECTED TO 02/12/2019

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.31
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Tyrone

Permit No.: PA026727

Test Completion Date: 4/10/2018

Replicate No.	Control	TIWC
1	10	10
2	10	10
3	10	10
4	10	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	10.000	10.000
Std Dev.	0.000	0.000
# Replicates	4	4

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail PASS

Test Completion Date

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.31
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Tyrone

Permit No.: PA026727

Test Completion Date: 2/12/2019

Replicate No.	Control	TIWC
1	0.373	0.432
2	0.333	0.471
3	0.406	0.385
4	0.427	0.454
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.385	0.436
Std Dev.	0.041	0.037
# Replicates	4	4

T-Test Result: 6.0807
Deg. of Freedom: 5
Critical T Value: 0.7267
Pass or Fail: PASS

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.31
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Tyrone

Permit No.: PA026727

Test Completion Date: 2/12/2019

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail: **PASS**

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.31
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Tyrone

Permit No.: PA026727

Test Completion Date: 2/12/2019

Replicate No.	Control	TIWC
1	41	32
2	40	34
3	36	43
4	35	44
5	30	38
6	33	38
7	36	40
8	33	30
9	26	40
10	34	39
11		
12		
13		
14		
15		
Mean	34.400	37.800
Std Dev.	4.402	4.541
# Replicates	10	10
T-Test Result	6.7589	
Deg. of Freedom	16	
Critical T Value	0.8647	
Pass or Fail	PASS	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail		

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail		

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail		

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.31
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Tyrone

Permit No.: PA026727

Test Completion Date: 10/20/2020

Replicate No.	Control	TIWC
1	10	10
2	10	8
3	10	10
4	10	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	10.000	9.500
Std Dev.	0.000	1.000
# Replicates	4	4

T-Test Result	3.6316
Deg. of Freedom	3
Critical T Value	0.7649
Pass or Fail	PASS

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.31
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Tyrone

Permit No.: PA026727

Test Completion Date: 10/20/2020

Replicate No.	Control	TIWC
1	0.452	0.477
2	0.517	0.394
3	0.437	0.492
4	0.409	0.444
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.454	0.452
Std Dev.	0.046	0.043
# Replicates	4	4

T-Test Result	4.0270
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	PASS

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.31
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Tyrone

Permit No.: PA026727

Test Completion Date: 10/19/2020

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail **PASS**

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.31
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Tyrone

Permit No.: PA026727

Test Completion Date: 10/19/2020

Replicate No.	Control	TIWC
1	31	30
2	27	22
3	17	27
4	28	29
5	29	31
6	9	31
7	28	26
8	23	27
9	27	23
10	30	36
11		
12		
13		
14		
15		
Mean	24.900	28.200
Std Dev.	6.887	4.131
# Replicates	10	10

T-Test Result: 4.5539
Deg. of Freedom: 17
Critical T Value: 0.8633
Pass or Fail: **PASS**

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.31
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Tyrone

Permit No.: PA026727

Test Completion Date: 10/12/2021

Replicate No.	Control	TIWC
1	10	9
2	10	9
3	10	10
4	10	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	10.000	9.500
Std Dev.	0.000	0.577
# Replicates	4	4

T-Test Result: 5.7714
Deg. of Freedom: 3
Critical T Value: 0.7649
Pass or Fail: PASS

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.31
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Tyrone

Permit No.: PA026727

Test Completion Date: 10/12/2021

Replicate No.	Control	TIWC
1	0.505	0.501
2	0.441	0.433
3	0.433	0.5
4	0.49	0.483
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.467	0.479
Std Dev.	0.036	0.032
# Replicates	4	4

T-Test Result	6.1898
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	PASS

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.31
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Tyrone

Permit No.: PA026727

Test Completion Date: 10/12/2021

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail **PASS**

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.31
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Tyrone

Permit No.: PA026727

Test Completion Date: 10/12/2021

Replicate No.	Control	TIWC
1	28	33
2	24	34
3	36	28
4	26	30
5	21	34
6	24	30
7	30	28
8	27	30
9	28	30
10	23	32
11		
12		
13		
14		
15		
Mean	26.700	30.900
Std Dev.	4.244	2.234
# Replicates	10	10

T-Test Result: 8.8441
Deg. of Freedom: 17
Critical T Value: 0.8633
Pass or Fail: **PASS**

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.31
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Tyrone

Permit No.: PA026727

Test Completion Date: 11/8/2022

Replicate No.	Control	TIWC
1	10	10
2	10	10
3	10	10
4	10	9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	10.000	9.750
Std Dev.	0.000	0.500
# Replicates	4	4

T-Test Result	7.6643
Deg. of Freedom	3
Critical T Value	0.7649
Pass or Fail	PASS

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.31
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Tyrone

Permit No.: PA026727

Test Completion Date: 11/8/2022

Replicate No.	Control	TIWC
1	0.303	0.32
2	0.326	0.306
3	0.3	0.32
4	0.3	0.323
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.307	0.317
Std Dev.	0.013	0.008
# Replicates	4	4

T-Test Result: 14.3074
Deg. of Freedom: 5
Critical T Value: 0.7267
Pass or Fail: PASS

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.31
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Tyrone

Permit No.: PA026727

Test Completion Date: 11/7/2022

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail **PASS**

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TiWC (decimal)	0.31
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Tyrone

Permit No.: PA026727

Test Completion Date: 11/7/2022

Replicate No.	Control	TIWC
1	46	41
2	34	34
3	34	34
4	36	34
5	39	37
6	39	30
7	35	40
8	38	34
9	38	41
10	36	36
11		
12		
13		
14		
15		
Mean	37.500	36.100
Std Dev.	3.536	3.635
# Replicates	10	10

T-Test Result	5.6053
Deg. of Freedom	16
Critical T Value	0.8647
Pass or Fail	**PASS**

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.34
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Tyrone Borough

Permit No.: PA0026727

Test Completion Date: 10/31/2023

Replicate No.	Control	TIWC
1	10	10
2	9	10
3	10	9
4	10	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	9.750	9.750
Std Dev.	0.500	0.500
# Replicates	4	4

T-Test Result: 6.7314
Deg. of Freedom: 5
Critical T Value: 0.7267
Pass or Fail: **PASS**

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.34
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Tyrone Borough

Permit No.: PA0026727

Test Completion Date: 5/16/2023

Replicate No.	Control	TIWC
1	0.735	0.578
2	0.645	0.723
3	0.63	0.691
4	0.737	0.665
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.687	0.664
Std Dev.	0.057	0.062
# Replicates	4	4

T-Test Result	3.9488
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	PASS

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.34
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.2

Facility Name: Tyrone Borough

Permit No.: PA0026727

Test Completion Date: 10/30/2023

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail **PASS**

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.34
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.2

Facility Name: Tyrone Borough

Permit No.: PA0026727

Test Completion Date: 10/30/2023

Replicate No.	Control	TIWC
1	22	26
2	24	18
3	27	23
4	32	23
5	23	24
6	29	24
7	30	29
8	21	27
9	31	22
10	34	31
11		
12		
13		
14		
15		
Mean	27.300	24.700
Std Dev.	4.572	3.713
# Replicates	10	10

T-Test Result	2.6435
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	PASS

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

8

Attachment D

DMR Data

DMR data for Cadmium									
DMR Received Date	**Outfall**	**Monitoring Location**	**Parameter Name**	**Parameter Code**		**DMR Value**	**Permit Limit**	**Units**	**Statistical Base Code**
07/17/2020	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
10/20/2020	001	Final Effluent	Cadmium, Total	01027		0.000044	0.001	mg/L	Average Quarterly
01/20/2021	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
04/16/2021	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
07/08/2021	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
09/21/2021	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
01/21/2022	001	Final Effluent	Cadmium, Total	01027		0.000066	0.001	mg/L	Average Quarterly
03/29/2022	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
07/26/2022	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
10/20/2022	001	Final Effluent	Cadmium, Total	01027		0.000162	0.001	mg/L	Average Quarterly
01/26/2023	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
03/27/2023	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
07/17/2023	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
10/17/2023	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
01/24/2024	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
03/14/2024	001	Final Effluent	Cadmium, Total	01027	<	0.000123	0.001	mg/L	Average Quarterly
07/23/2024	001	Final Effluent	Cadmium, Total	01027		0.000041	0.001	mg/L	Average Quarterly
				Max		**0.000162**			

DMR data for Free Cyanide

DMR Received Date	Outfall	Monitoring Location	Parameter Name	Parameter Code		DMR Value	Permit Limit	Units	Statistical Base Code
04/16/2020	001	Final Effluent	Cyanide, Free	51173	<	0.0005	0.0375	mg/L	Instantaneous Maximum
05/20/2020	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
06/24/2020	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
07/20/2020	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
08/18/2020	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
09/18/2020	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
10/21/2020	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
11/13/2020	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
12/28/2020	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
01/20/2021	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
02/17/2021	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
03/29/2021	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
04/16/2021	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
05/28/2021	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
06/28/2021	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
07/21/2021	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
08/27/2021	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
09/21/2021	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
10/26/2021	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
11/16/2021	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
12/13/2021	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
01/21/2022	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
02/15/2022	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
03/21/2022	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
04/20/2022	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum

05/19/2022	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
06/27/2022	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
07/26/2022	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
08/22/2022	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
09/28/2022	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
10/20/2022	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
11/21/2022	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
12/22/2022	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
01/27/2023	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
02/22/2023	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
03/27/2023	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
04/17/2023	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
05/15/2023	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
06/22/2023	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
07/17/2023	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
08/22/2023	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
09/25/2023	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
10/23/2023	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
11/20/2023	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
12/27/2023	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
01/24/2024	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
02/20/2024	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
03/14/2024	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
04/15/2024	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
05/15/2024	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
06/19/2024	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
07/23/2024	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
08/26/2024	001	Final Effluent	Cyanide, Free	51173	<	0.0100	0.0375	mg/L	Instantaneous Maximum
09/17/2024	001	Final Effluent	Cyanide, Free	51173		0.045	0.0375	mg/L	Instantaneous Maximum
				Max		**0.0450**			

DMR data for Antimony

Monitoring Period Begin Date	Monitoring Period End Date	DMR Received Date	Outfall	Monitoring Location	Parameter Name	Parameter Code		DMR Value	Permit Limit	Units	Statistical Base Code
03/01/2020	03/31/2020	04/16/2020	001	Final Effluent	Antimony, Total	01097	<	0.00020	0.016	mg/L	Average Monthly
04/01/2020	04/30/2020	05/20/2020	001	Final Effluent	Antimony, Total	01097	<	0.01000	0.016	mg/L	Average Monthly
05/01/2020	05/31/2020	06/24/2020	001	Final Effluent	Antimony, Total	01097	<	0.00020	0.016	mg/L	Average Monthly
06/01/2020	06/30/2020	07/20/2020	001	Final Effluent	Antimony, Total	01097	<	0.00020	0.016	mg/L	Average Monthly
07/01/2020	07/31/2020	08/18/2020	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
08/01/2020	08/31/2020	09/18/2020	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
09/01/2020	09/30/2020	10/21/2020	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
10/01/2020	10/31/2020	11/13/2020	001	Final Effluent	Antimony, Total	01097	<	0.00100	0.016	mg/L	Average Monthly
11/01/2020	11/30/2020	12/28/2020	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
12/01/2020	12/31/2020	01/20/2021	001	Final Effluent	Antimony, Total	01097	<	0.00100	0.016	mg/L	Average Monthly
01/01/2021	01/31/2021	02/17/2021	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
02/01/2021	02/28/2021	03/29/2021	001	Final Effluent	Antimony, Total	01097	<	0.00020	0.016	mg/L	Average Monthly
03/01/2021	03/31/2021	04/16/2021	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
04/01/2021	04/30/2021	05/28/2021	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
05/01/2021	05/31/2021	06/28/2021	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
06/01/2021	06/30/2021	07/21/2021	001	Final Effluent	Antimony, Total	01097	<	0.00100	0.016	mg/L	Average Monthly
07/01/2021	07/31/2021	08/27/2021	001	Final Effluent	Antimony, Total	01097	<	0.00100	0.016	mg/L	Average Monthly
08/01/2021	08/31/2021	09/21/2021	001	Final Effluent	Antimony, Total	01097	<	0.00100	0.016	mg/L	Average Monthly
09/01/2021	09/30/2021	10/26/2021	001	Final Effluent	Antimony, Total	01097	<	0.00100	0.016	mg/L	Average Monthly
10/01/2021	10/31/2021	11/16/2021	001	Final Effluent	Antimony, Total	01097	<	0.00100	0.016	mg/L	Average Monthly
11/01/2021	11/30/2021	12/13/2021	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
12/01/2021	12/31/2021	01/21/2022	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
01/01/2022	01/31/2022	02/15/2022	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
02/01/2022	02/28/2022	03/21/2022	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
03/01/2022	03/31/2022	04/20/2022	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
04/01/2022	04/30/2022	05/19/2022	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
05/01/2022	05/31/2022	06/27/2022	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
06/01/2022	06/30/2022	07/26/2022	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
07/01/2022	07/31/2022	08/22/2022	001	Final Effluent	Antimony, Total	01097		0.00577	0.016	mg/L	Average Monthly
08/01/2022	08/31/2022	09/28/2022	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly

09/01/2022	09/30/2022	10/20/2022	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
10/01/2022	10/31/2022	11/21/2022	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
11/01/2022	11/30/2022	12/22/2022	001	Final Effluent	Antimony, Total	01097		0.00608	0.016	mg/L	Average Monthly
12/01/2022	12/31/2022	01/27/2023	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
01/01/2023	01/31/2023	02/22/2023	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
02/01/2023	02/28/2023	03/27/2023	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
03/01/2023	03/31/2023	04/17/2023	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
04/01/2023	04/30/2023	05/15/2023	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
05/01/2023	05/31/2023	06/22/2023	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
06/01/2023	06/30/2023	07/17/2023	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
07/01/2023	07/31/2023	08/22/2023	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
08/01/2023	08/31/2023	09/25/2023	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
09/01/2023	09/30/2023	10/23/2023	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
10/01/2023	10/31/2023	11/20/2023	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
11/01/2023	11/30/2023	12/27/2023	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
12/01/2023	12/31/2023	01/24/2024	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
01/01/2024	01/31/2024	02/20/2024	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
02/01/2024	02/29/2024	03/14/2024	001	Final Effluent	Antimony, Total	01097	<	0.05400	0.016	mg/L	Average Monthly
03/01/2024	03/31/2024	04/15/2024	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
04/01/2024	04/30/2024	05/15/2024	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
05/01/2024	05/31/2024	06/19/2024	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
06/01/2024	06/30/2024	07/23/2024	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
07/01/2024	07/31/2024	08/26/2024	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
08/01/2024	08/31/2024	09/17/2024	001	Final Effluent	Antimony, Total	01097	<	0.00540	0.016	mg/L	Average Monthly
						Max	<	0.05400			

RE: [External] RE: NPDES renewal Tyrone PA0026727

Matt Coleman <matt.coleman@rettew.com>
To Hong, Nicholas

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Tue 12/17/2024 4:33 PM

Hi Nick,

For the influent and effluent sampling for cadmium on 6/25/2024, the detection limit was 0.500 µg/L. However, MDLs were given for the 6/25/2024 influent sample and subsequent effluent samples.

For the influent testing on 6/25/2024, the detection level was 0.500 µg/L; however, the MDL was 0.025 µg/L which returned a result of 0.034J µg/L.

For the effluent testing on 6/25/2024, the detection level was 0.500 µg/L; no MDL was given for this sample, so the result was <0.500 µg/L. However, for the effluent sampling on 7/2/2024 and 7/9/2024, MDLs of 0.025 µg/L were given. This returned results of 0.044J µg/L and 0.035J µg/L, respectively.

Based on these results, the <0.500 µg/L value for 6/25/2024 may be considered an outlier based on the detection level and no MDL given for the effluent sample. In addition, since the influent sampling on this date and the two subsequent effluent samples returned results between the MDL of 0.025 µg/L and the DL of 0.500 µg/L, we believe those results show the most accurate cadmium concentration in the influent and effluent samples.

Thank you,
Matt

Matthew A. Coleman, PE
Engineer
Office: **(814) 308-0644**
Mobile: **(412) 780-0835**
matt.coleman@rettew.com

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RE: [External] RE: NPDES renewal Tyrone PA0026727

Matt Coleman <matt.coleman@rettew.com>
To Hong, Nicholas

Reply | Reply All | Forward

Tue 12/17/2024 4:33 PM

From: Hong, Nicholas <nhong@pa.gov>
Sent: Tuesday, December 3, 2024 9:20 AM
To: Matt Coleman <matt.coleman@rettew.com>
Subject: RE: [External] RE: NPDES renewal Tyrone PA0026727

This message originated from outside your organization

Matt.

Please re-examine the sampling results for cadmium on 06/25/2024. The result was <0.50 ug/l on your table. Is it possible to lower the detection level?

Or can you justify that the result is an outlier due to the detection level?

Nick Hong, PE | Environmental Engineer
PA Department of Environmental Protection
Clean Water Programs
Southcentral Regional Office
909 Elmerton Avenue | Harrisburg, PA 17110
Phone: 717.705.4824 | Fax: 717.705.4760
www.dep.pa.gov

THE SOUTHCENTRAL REGIONAL OFFICE AFTER HOURS REPORTING & 24 HOUR EMERGENCY RESPONSE NUMBER IS 1-800-541-2050

RE: [External] RE: NPDES renewal Tyrone PA0026727

Matt Coleman <matt.coleman@rettew.com>
To Hong, Nicholas

Reply | Reply All | Forward

Tue 12/17/2024 4:33 PM

THE SOUTHCENTRAL REGIONAL OFFICE AFTER HOURS REPORTING & 24 HOUR EMERGENCY RESPONSE NUMBER IS 1-800-541-2050

From: Matt Coleman <matt.coleman@rettew.com>
Sent: Monday, September 30, 2024 6:03 PM
To: Hong, Nicholas <nhong@pa.gov>
Cc: jharris@tyroneboropa.com; Steven Siegfried <steven.siegfried@rettew.com>; Ardean Latchford (alatchford@tyroneboropa.com) <alatchford@tyroneboropa.com>
Subject: RE: [External] RE: NPDES renewal Tyrone PA0026727

Nick,

I have attached a table showing tabulated lab results for cadmium, free cyanide, and antimony for the influent and effluent sampling at Tyrone. A few notes below as well on this table:

General:

- All "<" symbols in the attached table represent non-detect values to the QL. Any results with a "J" denotation represent an estimated value between the QL and MDL.
- Samples denoted as part of the "NPDES Permit Renewal Sampling" were sampled between June and July of 2024 in accordance with NPDES Permit Renewal Application sampling procedures.

Influent:

- Cadmium was sampled twice as part of MIPP quarterly sampling and had QLs of 2.50 µg/L; sampled once for this permit renewal with a QL of 0.500 µg/L; this resulted in an average QL of 1.83 µg/L.
- Free cyanide and antimony were sampled once for this permit renewal with QLs of 5 µg/L and 0.200 µg/L, respectively.

Effluent:

- Cadmium was sampled once as part of MIPP quarterly sampling and had a QL of 2.50 µg/L; sampled three times as part of DMR sampling with QLs of 0.123 µg/L (one sample had an unknown QL and a result of 0.041 µg/L); sampled three times for this permit renewal with QLs of 0.500 µg/L; this resulted in an average QL of 0.708 µg/L.
- Free cyanide was sampled 24 times as part of DMR sampling with QLs of 10 µg/L; sampled three times for this permit renewal with QLs of 5 µg/L (one sample with an MDL and result of <0.500J µg/L); this resulted in an average QL of 9.444 µg/L.

- Antimony was sampled 12 times as part of DMR sampling with QLs of 5.400 µg/L; sampled three times for this permit renewal with QLs of 0.200 µg/L; this resulted in an average QL of 4.360 µg/L.

I have also responded to your comments below in red. Please let me know if you would like to discuss anything further.

Jason, can you confirm the April 2020 antimony and the August 2024 free cyanide results? Were these the QLs used by the lab or are these typos in the table provided by Nick? Also, please confirm the WWTP has not received natural gas wastewaters in the past three years.

Thank you,
Matt

Matthew A. Coleman, PE
Engineer
Office: **(814) 308-0644**
Mobile: **(412) 780-0835**
matt.coleman@rettew.com

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RE: [External] RE: NPDES renewal Tyrone PA0026727

Matt Coleman <matt.coleman@rettew.com>
To Hong, Nicholas

Reply | Reply All | Forward

Tue 12/17/2024 4:33 PM

From: Hong, Nicholas <nhong@pa.gov>
Sent: Tuesday, September 24, 2024 9:02 AM
To: Matt Coleman <matt.coleman@rettew.com>
Cc: jharris@tyroneboropa.com; Steven Siegfried <steven.siegfried@rettew.com>; Ardean Latchford (alatchford@tyroneboropa.com) <alatchford@tyroneboropa.com>
Subject: RE: [External] RE: NPDES renewal Tyrone PA0026727

This message originated from outside your organization

Matt.

DEP reviewed DMR data from March 1, 2020 to August 2024. Summarized data tables are below for you reference.

Please confirm the following.

- The summary table for antimony has two values highlighted in red. Please confirm if those values are correct. The values appear to be much higher than the rest of the data set.
  For the <0.01000 mg/L result in April 2020, Jason Harris will need to confirm this result as we do not have the DMRs going back to this date. Jason, please confirm.
  For the <0.05400 mg/L result in February 2024, this should be reported as <0.00540 mg/L. This is accurately reported in the February 2024 DMR provided by Tyrone and attached to this email.
- The NPDES application included a cadmium result of <0.05 ug/l. A quick look at the lab data shows that cadmium had a result of <0.5 ug/l. Is it possible to lower the detection level to the DEP target limit of 0.2 ug/l. Other data in the table below show the cadmium level much less than <0.5 ug/l.
  The application shows a maximum result of <0.500 µg/L with an average value of <0.141J µg/L based on the MDLs provided by the lab. There are three total samples since November 2023 with QLs <0.200 µg/L (0.123 µg/L, 0.123 µg/L, and an unknown QL with a reported value of 0.041 µg/L). In addition, the results from 7/2/2024 and 7/9/2024 show results of 0.044J µg/L and 0.035J µg/L based on the MDL used of 0.025 µg/L. Based on the QLs used in the DMRs and the MDLs used in the recent sampling results, it is our belief that these values should be acceptable based on the application instructions. Please confirm our understanding is correct on this.
- Free cyanide had a value much higher in August 2024. Please confirm the value is correct. The DEP target limit for free cyanide is 1.0 ug/l. Most of the data was sampled to 10 ug/l.
  The DMR sampling for free cyanide was done to a QL of 10 µg/L; the recent sampling as part of this permit renewal was done to a QL of 5 µg/L with one result showing an MDL of 0.500 µg/L. Jason, please confirm the DMR sampling result for free cyanide in August 2024.
  Please provide input as to whether this is acceptable or if resampling to the QL is required.

RE: [External] RE: NPDES renewal Tyrone PA0026727

Matt Coleman <matt.coleman@rettew.com>
To Hong, Nicholas

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Tue 12/17/2024 4:33 PM

confirm the DMR sampling result for free cyanide in August 2024.
Please provide input as to whether this is acceptable or if resampling to the QL is required.

- The NPDES application did not include sampling results for Pollutant Group #7. Pollutant Group 7 must be analyzed if, during the three years prior to submission of the application, the facility has received natural gas wastewaters, either hauled-in or through indirect discharges. An industrial user means a source of indirect discharge. The term indirect discharge means the introduction of pollutants into a POTW from any non-domestic source regulated under Section 307(b), (c) or (d) of the Clean Water Act. Please confirm if the facility has indirect dischargers. If so, sampling results will be required for Pollutant Group #7.
  Jason, please confirm that you have not received natural gas wastewaters either hauled in or through indirect discharges during the past three years.

The table below shows DEP target limits for sampling.

Group 2 Pollutants	Target QL Value	Units
Aluminum, Total (µg/L)	10	µg/L
Antimony, Total (µg/L)	2.0	µg/L
Arsenic, Total (µg/L)	3.0	µg/L
Barium, Total (µg/L)	2.0	µg/L
Beryllium, Total (µg/L)	1.0	µg/L
Boron, Total (µg/L)	200	µg/L
Cadmium, Total (µg/L)	0.2	µg/L
Chromium, Total (µg/L)	4.0	µg/L
Chromium, Hexavalent (µg/L)	1.0	µg/L
Cobalt, Total (µg/L)	1.0	µg/L
Copper, Total (µg/L)	4.0	µg/L
Cyanide, Free (µg/L)	1.0	µg/L
Cyanide, Total (µg/L)	10	µg/L
Iron, Total (µg/L)	20	µg/L
Iron, Dissolved (µg/L)	20	µg/L
Lead, Total (µg/L)	1.0	µg/L
Manganese, Total (µg/L)	2.0	µg/L
Mercury, Total (µg/L)	0.2	µg/L
Nickel, Total (µg/L)	4.0	µg/L
Phenols, Total (µg/L)	5.0	µg/L