Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0032557**
Facility Type	**Municipal**	APS ID	**274780**
Major / Minor	**Major**	Authorization ID	**1507445**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Logan Township Blair County**	Facility Name	**Logan Township Greenwood STP**
Applicant Address	100 Chief Logan Circle	Facility Address	330 Lower Riggles Gap Road
	Altoona, PA 16602-4337		Altoona, PA 16602
Applicant Contact	Timothy Brown	Facility Contact	David Pozgar
Applicant Phone	(814) 944-5349	Facility Phone	(814) 943-0146
Client ID	71987	Site ID	451850
Ch 94 Load Status	Not Overloaded	Municipality	Logan Township
Connection Status	No Limitations	County	Blair
Date Application Received	November 19, 2024	EPA Waived?	No
Date Application Accepted	December 3, 2024	If No, Reason	Major Facility, 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)	March 4, 2025
x		Daniel W. Martin, P.E. / Environmental Engineer Manager Maria D. Bebenek for	March 17, 2025
x		Maria D. Bebenek, P.E. / Environmental Program Manager Maria D. Bebenek	March 17, 2025

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Logan Township – Greenwood STP located at 330 Lower Riggles Gap Road, Altoona, PA 16602 in Blair County, municipality of Logan Township. The existing permit became effective on June 1, 2020 and expires(d) on May 31, 2025. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on November 19, 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 1.14 MGD average annual design flow treatment facility. The hydraulic design flow rate is 1.75 MGD. The applicant does not anticipate any proposed upgrades to the treatment facility in the next five years. The NPDES application has been processed as a Major Sewage Facility (Level 1) due to the type of sewage and the design flow rate for the facility. The applicant disclosed the Act 14 requirement to Blair County Commissioners, Logan Township Board of Supervisors, Antis Township Board of Supervisors and the notice was received by the parties on June 10, 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 the Juniata River and the Susquehanna River which eventually drains into the Chesapeake Bay. The subject site is subject to the Chesapeake Bay implementation requirements. The receiving water has protected water usage for trout stocking fish and migratory fishes. 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 is a Category 4a and 5 stream listed in the 2024 Integrated List of All Waters (formerly 303d Listed Streams). This stream is impaired stream for aquatic life due to (a) organic enrichment from municipal point source and (b) an unknown cause from urban runoff/storm sewers and (c) pathogens from an unknown source. The receiving waters is subject to the Little Juniata River Watershed 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:

- **Ammonia nitrogen has been reduced**
- **Due to the EPA triennial review, monitoring shall be required for E.Coli**
- **Monitoring shall be required for PFOS.**

Sludge use and disposal description and location(s): Biosolids/sewage sludge disposed at Somerset as landfill

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

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

Any additional information or public review of documents associated with the discharge or facility may be available at PA DEP Southcentral Regional Office (SCRO), 909 Elmerton Avenue, Harrisburg, PA 17110. To make an appointment for file review, contact the SCRO File Review Coordinator at 717.705.4700.

1.0 Applicant

1.1 General Information

This fact sheet summarizes PA Department of Environmental Protection's review for the NPDES renewal for the following subject facility.

Facility Name:	Logan Township Greenwood WWTP
NPDES Permit #	PA0032557
Physical Address:	332 Lower Riggles Gap Road Altoona, PA 16602
Mailing Address:	100 Chief Logan Circle Altoona, PA 16602
Contact:	David Pozgar Sewer Director (814) 943-0146 dpozgar@loagtownship-pa.gov
Consultant:	Amy Sipes Environmental Scientist Stiffler McGraw Associates (814) 696-6280 asipes@stiffler-mcgraw.com

1.2 Permit History

In February 2023 the DelGrosso Foods White Sauce Facility went online and intermittently sent industrial waste discharge to the Logan Township Sewer Treatment Plant for approximately nine months. This discharge created processing challenges for Logan Township in meeting its NPDES permit limits. This discharge was stopped, and Logan Township does not receive any Industrial User

Permit submittal included the following information.

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

2.0 Treatment Facility Summary

2.1.1 Site location

The physical address for the facility is 332 Lower Riggles Gap Road, Altoona, PA 16602. 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

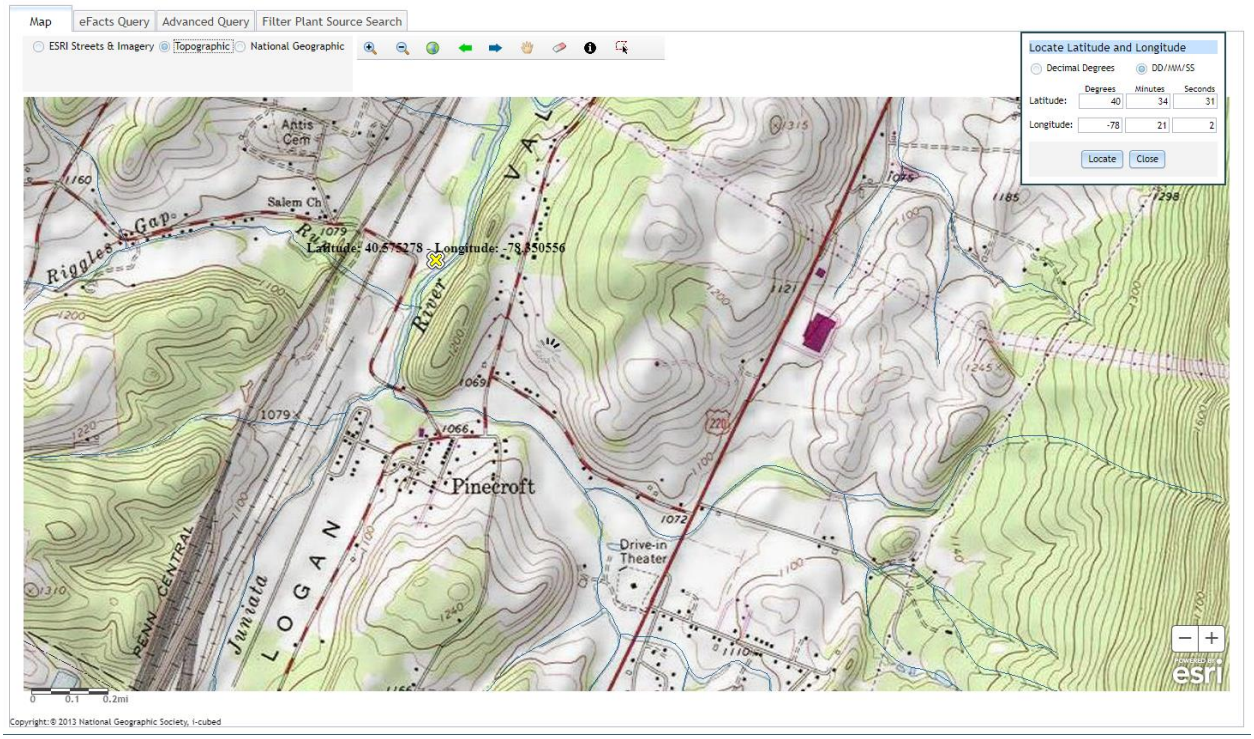
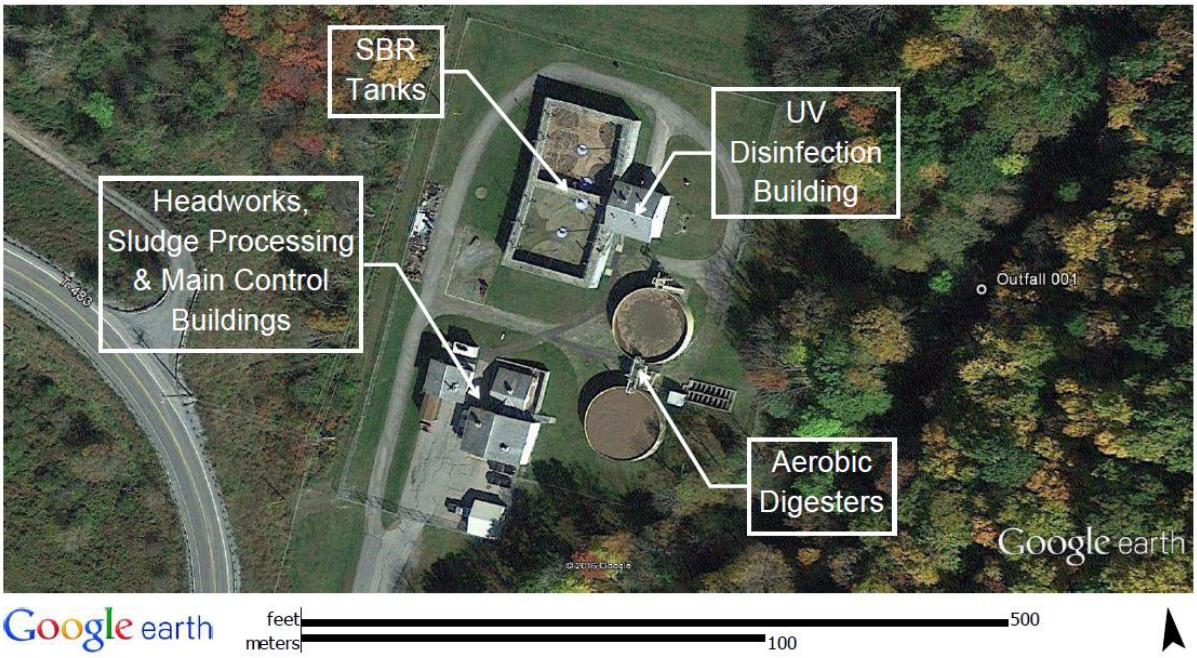


Figure 2: Aerial Photograph of the subject facility



Logan Township
Greenwood Wastewater
Treatment Plant Site

2.1.2 Sources of Wastewater/Stormwater

The treatment plant receives approximately 80% of the wastewater from Logan Township and 20% from Antis Township.

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

The facility does not have any stormwater outfalls.

2.2 Description of Wastewater Treatment Process

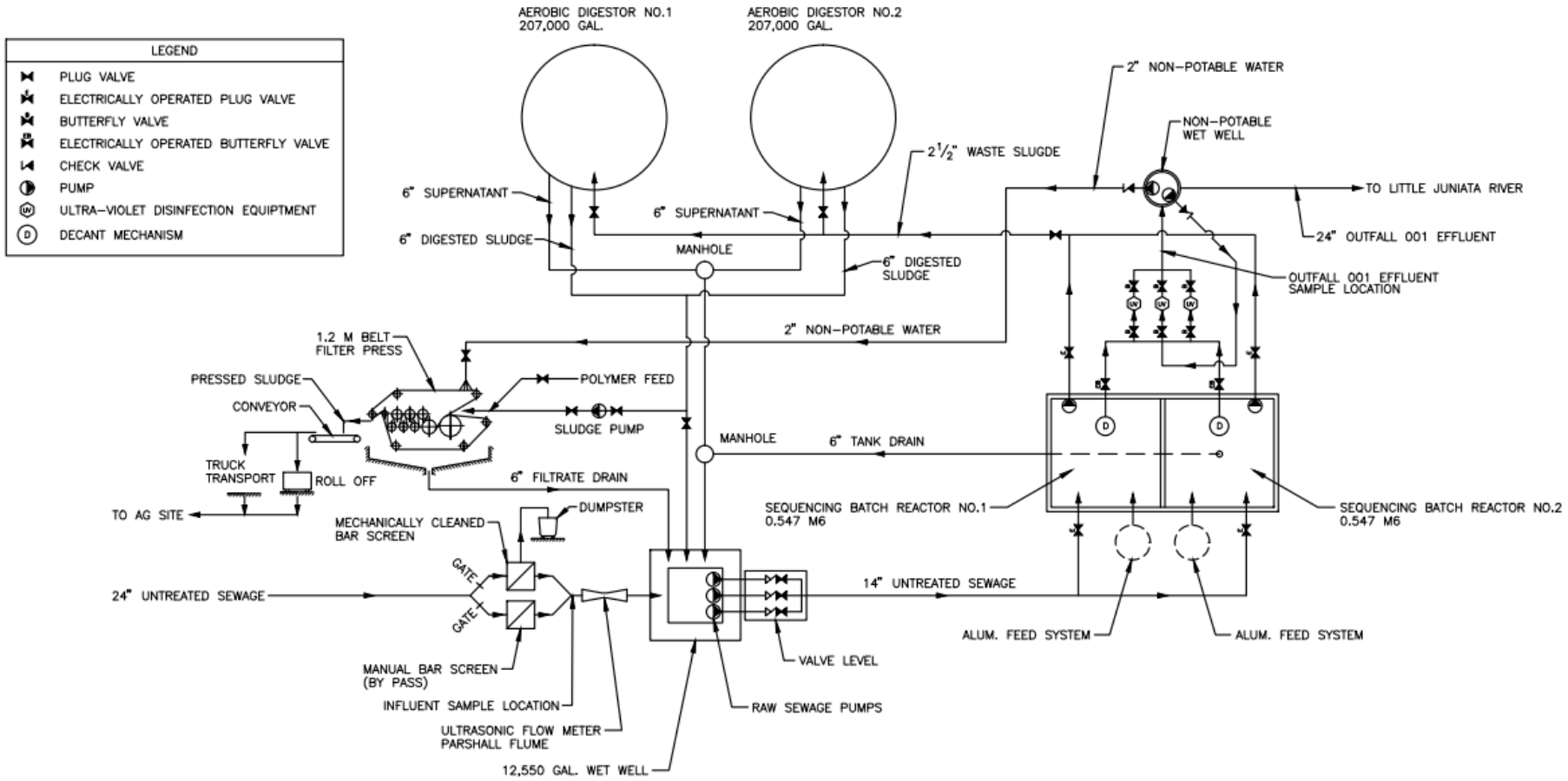
The subject facility is a 1.14 MGD average annual design flow. The hydraulic design flow facility is 1.75 MGD. The plant is an activated sludge treatment plant that processes the wastewater using a sequencing batch reactor (SBR) for secondary treatment using two Aqua-Aerobic SBR tanks (0.547 MGD each) and an ultraviolet disinfection station consisting of three (3) uv lamp banks configured in parallel arrangement.

The facility is being evaluated for flow, pH, dissolved oxygen, CBOD5, TSS, TRC, fecal coliform, ultraviolet disinfection, nitrogen species, and phosphorus. The existing permits limits for the facility is summarized in Section 2.4.

The treatment process is summarized in the table.

Treatment Facility Summary				
Treatment Facility Name: Logan Township STP				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Total Nitrogen Reduction	Sequencing Batch Reactor	Ultraviolet	1.14
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
1.75	1600	Not Overloaded	Aerobic Digestion	Combination of methods

A schematic of the process is depicted.



2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

Outfall No.	001	**Design Flow (MGD)**	1.14
Latitude	40º 34' 31.80"	**Longitude**	-78º 20' 58.60"
Wastewater Description:	Sewage Effluent		

The subject facility outfall is within the vicinity of another sewage/wastewater outfall. The downstream outfall is Tyrone Borough STP (PA0026727) which is about 13 miles from the subject facility. The upstream outfall is Altoona Water Authority (PA0027014) 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.

- DelPac 2000 for phosphorus precipitation

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° 34' 31.80" , **Longitude** 78° 20' 58.60" , **River Mile Index** _____ , **Stream Code** _____

Receiving Waters: Little Juniata River (TSF, MF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **June 1, 2020** through **May 31, 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
	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)	238	380	XXX	25.0	40.0	50	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	285	428	XXX	30	45	60	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded

Outfall 001, Continued (from June 1, 2020 through May 31, 2025)

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		
Ammonia-Nitrogen Nov 1 - Apr 30	228	XXX	XXX	24.0	XXX	XXX	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	76	XXX	XXX	8.0	XXX	16	2/week	24-Hr Composite
Total Phosphorus	10	XXX	XXX	1.0	XXX	2	2/week	24-Hr Composite

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

at Outfall 001

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

I. B. For Outfall 001 , **Latitude** 40° 34' 31.80" , **Longitude** 78° 20' 58.60" , **River Mile Index** _____ , **Stream Code** _____

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Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	Report	15013	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	1876	XXX	XXX	XXX	XXX	1/month	Calculation

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

at Outfall 001

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

3.0 Facility NPDES Compliance History

3.1 Summary of Inspections

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

The DEP inspector noted the following during the inspection.

06/09/2021:

- Field tests of the final effluent could not be conducted due to equipment malfunction. The influent compositor was recently replaced with a new unit, but there is a problem with the controller. A new controller was being sent by the manufacturer. A new AC/heater unit was installed in the equipment electrical room and a temperature alarm was installed. The decanter in SBR#1 was replaced and the decanter stand was repaired. While the unit was down the diffusers were replaced and the tank was cleaned out. The DO meter sensors in both SBR tanks were replaced. Other major repairs made since the last inspection include replacing the high flow alarm in the influent wet well, replacement of one influent pump and VFD, and a new effluent filter screen for utility water. The PLC control board in the control building was upgraded and can now be accessed remotely. The NPDES permit was renewed in 2020 and now imposes a winter time limit for effluent ammonia and requires a yearly WET test. Part C of the permit includes language for stormwater monitoring, but no stormwater outfalls are listed or identified. A PPC plan is not required for the facility

07/27/2022

- Since last inspection the sludge belt press was serviced and a new belt was installed, the sludge transfer pump was replaced, and the SBR floats were replaced. The emergency generator control panel was also replaced. Recent collection system work includes extension of the main line to the Irwin drive area, main line repairs at Camelot Woods MHP, and grinder pump repairs at individual homes.
- Sludge was last hauled from the facility in February 2022, and July & August 2021. The haulers receipts were on-site. However, the sludge disposal supplemental form submitted with the February 2022 DMR reports that no sludge was removed during the month. The supplemental form was also dated as May 2022. A revised supplemental report needs to be attached to the February DMR.

03/28/2023:

- DEP was informed by Dave that the daily effluent test results for the past two days showed violations for dissolved oxygen (DO). The DO result yesterday was 3.8 mg/L and today it was 3.9 mg/L. The permit minimum is 5.0 mg/L. Dave believes the effluent violations are being caused by a large amount of food processing waste coming from a DelGrossso sauce manufacturing plant that connected the collection system approximately two months ago. Dave did not receive any advance notice that a new industrial discharger was connecting to the system. Discharge flow from the treatment plant is usually about 300,000-400,000 gallons per day but have risen to 1,000,000 gallons per day on some days, even without a rain event. The flow during the inspection was 1.5 MGD. Eric noted that SBR tank #2 is upset. He stated that the mixed liquor was settling, but the decant being discharged has a white color and is noticeable in the receiving stream. He also believed that the discoloration was making the UV disinfection system less effective and causing higher fecal coliform results. The coliform result for March 3, 2023 was 9678. Eric provided pictures of the white colored discharge in the stream and also had photographs showing large amounts of food waste, mostly tomatoes and corn, collected at the influent screen. He said the influent has a white color at times. The BOD and TSS results for influent have not been higher than usual but they have recorded higher than normal influent pH readings, sometimes in the 9.0 - 11.0 range. The operators believe this may be caused by cleaning solutions used at the new factory. Dave does not believe any pre-treatment is occurring at the sauce factory and is unaware of the amounts of amounts of waste being from the factory or the strength of the wastewater. Dave has made the township officials aware of the problems at the plant is currently receiving operations assistance from engineers at Stiffler McGraw.

03/29/2023:

- Eric Barr stated that the plant was still dealing with increased loading from the DelGrosso food processing facility. His pH test result for the influent today was 9.8. He also had a MLSS test result of 11,560 mg/L in SBR #2. The normal result this time of year is 5000 - 6000 mg/L. There was a discharge from SBR tank #2 during the inspection and samples were taken. The effluent sample had a slight cloudiness and a light sewage odor. The field test result for D.O. was 3.92 mg/L, which was below the permit minimum of 5.0 mg/L. The #1 SBR tank was in the aeration phase and the mixed liquor had a light brown color, lighter than the operator normally sees. SBR #2 had just ended the decant phase and had a thin layer of brown scum over much of the surface. Eric said this is also not how the

SBR normally appears. Eric took a sample of the discharge from SBR #1 earlier in the day and his results were within the permit limits.

04/06/2023:

- Eric had not reported any recent effluent violations, but the plant was still being affected by large amounts of industrial waste being discharged by food production facility owned by DelGrosso Foods. Dave stated that Logan Township requested that DelGrosso foods cease the industrial waste discharge last Friday March 31, 2023 but the facility failed to comply. Plant records show elevated pH levels in the plant influent this week, with results ranging from 11 - 12. Effluent field test results were within the permit limits but the pH was in the high range at 8.83 and the D.O. was in the low range at 5.51 mg/L.

06/05/2023:

- DEP received notification from operator Eric Barr that the treatment plant experienced an upset of the weekend. Eric reported that the mixed liquor wasn't settling well and that the effluent discharge is cloudy and brown colored. Eric said that starting last Tuesday, May 30, 2023, he noticed a change in the influent stream that was indicative of industrial discharges from the Del Grosso Foods manufacturing facility. There was an abundance of chopped vegetables entering the plant and the influent caused an oily film in the SBR tanks. Over the next few days Eric noticed an extreme drop in the aeration DO level, sometimes at or near 0 mg/L. Eric also reported seeing almost no active bug life in the mixed liquor. He reported that the effluent discharge started to get cloudy over the weekend. A 24-hour composite sample of the effluent was being taken by the facility. DEP arrived at the treatment plant at approximately 1:30 pm and observed the effluent discharge from SBR tank #2. The effluent was cloudy, brown colored, and contained sewage solids. Samples were taken for laboratory analysis. The field test for DO was 4.86 mg/L, which was below the permit minimum of 5.00 mg/L. The cloudiness of the discharge discolored the stream below and downstream of the outfall. Stiffler McGraw were on-site to provide process control assistance. They looked at the mixed liquor under the microscope reported seeing some live flagellates and broken stalked ciliates. Eric believed the discharge from SBR tank #1 was less cloudy and may not have been as upset as the #2 tank. The DO is climbing higher in both tanks today with 2.0 mg/L in tank #1 and 1.5 mg/L in tank #2. The 30 minute settleability test results are still in the high range, 750 ml/L in tank #2 and 600 ml/L in tank #1. Eric added two bio augmentation products, FOG Boost and Polymer, to try and help with treatment. DEP spoke with plant supervisor, Dave Pozgar, on Wednesday June 7, 2023. Dave visited the Del Grosso facility on Monday and received MSDS information for chemicals used on site. Dave was not able to trace the cause of the plant upset. He reported that the Del Grosso plant now has a screen in place to capture food waste in their sewer pipe and have the ability to store and adjust the pH of their discharge. He also said that Del Grosso still plans to connect their discharge to the Tyrone collection system and are waiting on final approval to do so. Dave mentioned that conditions at the wastewater plant are improving.

06/09/2023

- The treatment plant experienced an upset last week. The MLSS was settling poorly and was DO deficient. This led to cloudy, brown colored effluent being discharged to the receiving stream.
- Recent process control testing results show normal DO levels in the SBR tanks, slightly lower 30-minute settleability levels (550 ml/L), and average MLSS content (3100 and 3642 mg/L). Eric said a microscopic exam of the mixed liquor today showed an increase in the amount of live bugs.

06/29/2023

- Test results for effluent samples collected on June 5, 2023 showed permit violations for IMAX TSS, Phosphorus, and Dissolved Oxygen.
- Eric stated the plant received notification yesterday morning from Delgrosso Foods alerting them of a spill of cream (with salt and sugar) in their waste stream. Eric noticed white colored influent entering the plant about an hour later. Eric added a bio augmentation product to the mixed liquor and reducing solids wasting. He does not think the cream upset the treatment system. He said the effluent has remained clear over the past two days and field test results have been in compliance.

10/25/2023:

- One sludge digester mixer was out of service and was scheduled to be repaired. The sludge was currently mixed by aeration. The influent compositor has been programmed to take flow proportioned samples. The effluent compositor will be set up for flow proportioning in the next week.
- Eric reported that the DelGrosso Foods production facility was no longer discharging industrial waste to Logan Township's collection system. The discharge was transferred to the Northern Blair Authority system in mid September.

11/21/2024:

- New VFDs, breakers and controls for the influent pumps were installed in 2023.
- Since last inspection the influent screen was repaired, the filter press belt was replaced, one SBR mixer was repaired, the actuator valve for the #1 effluent line was replaced, the #1 SBR sludge pumped was replaced, diffusers were replaced in #2 SBR, one digester mixer was replaced, the pH meter was replaced, and a new control panel was added to the back up generator.
- An effluent metering system was installed, but the meter only displays instantaneous flow and does not totalize the discharge. The influent meter will still be used for reporting flow and calculating parameter loadings. Improvements and repairs to the collection system include the rebuilding of the Lowes pump station (floats, controls, pumps, generator and alarm), a new pump at the Mill Run PS, completion of Cashman Road sewer extension project, completion of Lakemont phase 3 sewer extension (2 phases remaining), and some sewer line repair work.
- The Greenwood PS was being checked for potential leaks.
- The sludge disposal supplemental form submitted with DMRs needs to include the individual dates that sludge was removed from the plant.

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 1.44 MGD in April 2024. The design capacity of the treatment system is 1.75 MGD.

The off-site laboratory used for the analysis of the parameters was Pace Laboratories located at 2019 Ninth Avenue, Altoona, PA 16603.

The off-site laboratory used for the WET analysis of the parameters was American Aquatic Testing, Inc. located at 890 North Graham Street, Allentown, PA 18109.

DMR Data for Outfall 001 (from November 1, 2023 to October 31, 2024)

Parameter	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23
Flow (MGD) Average Monthly	0.356	0.308	0.476	0.358	0.432	0.874	1.445	1.097	0.654	1.234	0.654	0.575
Flow (MGD) Daily Maximum	0.841	0.523	3.382	0.516	0.805	3.454	5.414	3.688	1.39	3.518	1.556	1.885
pH (S.U.) Instantaneous Minimum	7.2	7.0	7.3	7.2	7.3	7.2	7.1	7.1	7.1	7.1	7.2	7.1
pH (S.U.) Instantaneous Maximum	7.7	7.6	7.7	7.5	7.6	7.6	7.5	7.5	7.4	7.4	7.4	7.7
DO (mg/L) Instantaneous Minimum	5.8	5.5	6.3	5.5	6.2	5.5	5.3	6.7	6.0	5.2	5.2	5.1
CBOD5 (lbs/day) Average Monthly	9	< 8	< 9	< 9	< 10	< 19	< 41	< 24	< 16	< 33	< 20	< 18
CBOD5 (lbs/day) Weekly Average	< 16	< 9	< 10	< 11	< 11	< 27	< 96	< 34	< 24	< 51	< 27	< 31
CBOD5 (mg/L) Average Monthly	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 4.0
CBOD5 (mg/L) Weekly Average	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 4.0	< 3.0	< 3.0	< 4.0	< 3.0	< 4.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	< 339	485	378	475	412	560	599	< 475	721	< 561	524	741
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	633.4	937.8	549.5	972.6	589.7	803.3	1615.9	110.5	1518.6	1411.8	851.8	2305.8
BOD5 (mg/L) Raw Sewage Influent Average Monthly	< 113	172.9	129.6	150.7	126.9	98.2	< 62.1	< 67	131.9	< 81.6	91.8	150.5
TSS (lbs/day) Average Monthly	< 7	< 6	< 6	< 6	< 7	< 12	< 25	< 16	< 16	< 19	< 19	< 14
TSS (lbs/day) Raw Sewage Influent Average Monthly	< 321	503	372	636	407	462	622	371	< 637	425	415	694
TSS (lbs/day) Raw Sewage Influent Daily Maximum	631	763	427	1859	736	651	2084	517	1356	1139	908	2673

TSS (lbs/day) Weekly Average	< 11	11	8	10	< 9	< 16	< 64	< 26	20	< 27	34	30
TSS (mg/L) Average Monthly	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 3	< 3.0
TSS (mg/L) Raw Sewage Influent Average Monthly	< 110.1	182	126	195	122	81	65	53	< 115	67.6	73.3	130.1
TSS (mg/L) Weekly Average	< 3	4	2	3	< 3	< 3	< 3	< 3	4	3	< 5	< 4.0
Fecal Coliform (No./100 ml) Geometric Mean	< 27	< 27	< 36	< 50	< 23	< 27	< 26	< 20	< 20	< 30	< 20	< 24
Fecal Coliform (No./100 ml) Instantaneous Maximum	104	218	296	974	62	82	194	< 20	20	172	20	104
UV Transmittance (%) Instantaneous Minimum	77	75	80	83	80	77	77	71	70	70	75	70
Nitrate-Nitrite (mg/L) Average Monthly	< 2.767	< 1.224	< 1.224	< 1.3	1.266	< 1.359	< 1.521	< 1.558	< 1.202	< 1.267	< 1.2	< 1.391
Nitrate-Nitrite (lbs) Total Monthly	< 240	< 101	< 116	< 123	< 125	< 255	< 536	< 381	189	< 338	< 251	< 205
Total Nitrogen (mg/L) Average Monthly	< 3.4448	< 1.9286	< 1.9152	< 2.136	2.0327	< 2.001	2.2857	< 2.3067	< 1.824	< 2.674	< 3.0713	< 3.5957
Total Nitrogen (lbs) Effluent Net Total Monthly	< 304	< 158	< 182	< 202	< 200	< 380	< 784	< 587	< 286	< 734	< 676	< 507
Total Nitrogen (lbs) Total Monthly	< 304	158	< 182	< 202	< 200	< 380	< 784	< 587	< 286	< 734	< 676	< 507
Total Nitrogen (lbs) Effluent Net Total Annual		15013										
Total Nitrogen (lbs) Total Annual		< 9083										
Ammonia (lbs/day) Average Monthly	< 0.6	< 0.3	< 0.8	< 0.6	< 0.4	< 0.6	< 2	< 3	< 1	< 6	< 9	< 9
Ammonia (mg/L) Average Monthly	< 0.2	< 0.1	< 0.236	< 0.1707	< 0.1092	< 0.1	< 0.176	< 0.3098	< 0.1848	< 0.7652	< 1.1551	< 1.975
Ammonia (lbs) Total Monthly	< 19	< 8	< 24	< 18	< 11	19	< 55	< 98	< 28	< 200	< 271	< 274
Ammonia (lbs) Total Annual		3368										

TKN (mg/L) Average Monthly	< 0.678	< 0.7048	< 0.6908	< 0.816	< 0.7666	< 0.6417	< 0.7651	< 0.7505	< 0.6222	< 1.3975	< 1.8713	< 2.0869
TKN (lbs) Total Monthly	< 64	< 57	< 66	< 79	< 75	< 125	< 249	< 206	< 97	< 338	< 425	< 287
Total Phosphorus (lbs/day) Average Monthly	2	2	1	1	0.8	2	2	2	1	2	3	2
Total Phosphorus (mg/L) Average Monthly	0.8	0.6	0.5	0.5	0.3	0.3	0.3	0.3	0.2	0.2	0.4	0.5
Total Phosphorus (lbs) Effluent Net Total Monthly	74	56	45	46	25	63	74	61	36	63	84	65
Total Phosphorus (lbs) Total Monthly	74	56	45	46	25	53	74	61	36	63	84	65
Total Phosphorus (lbs) Effluent Net Total Annual		1876										
Total Phosphorus (lbs) Total Annual		1349										

3.2.1 Chesapeake Bay Truing

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

Chesapeake Bay Annual Nutrient Summary
Logan Township Greenwood STP
PA0032557

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	1963	0	4775	0	6738	819	0	576	0	1395	Yes	Yes
2021	5832	0	0	0	5832	863	0	0	0	863	Yes	Yes
2022	5002	0	2682	0	7684	1080	0	397	0	1477	Yes	Yes
2023	9083	0	3599	0	12682	1349	0	305		1654	Yes	Yes

Notes:

Nitrogen Annual Net Mass CAP Load =	15013	lbs
Phosphorus Annual Net Mass CAP Load =	1876	lbs

3.3 Non-Compliance

3.3.1 Non-Compliance- NPDES Effluent

A summary of the non-compliance to the permit limits for the existing permit cycle is as follows.

From the DMR data beginning in June 1, 2020 and ending January 10, 2025, the following were observed effluent non-compliances.

Summary of Non-Compliance with NPDES Effluent Limits
Beginning June 1, 2020 and Ending January 10, 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	FACILITY_COMMENTS
7/17/2020	Violation of permit condition	Effluent	Fecal Coliform	1549.2	>	1000	No./100 ml	Instantaneous Maximum		
9/21/2020	Violation of permit condition	Effluent	Total Phosphorus	1.2	>	1.0	mg/L	Average Monthly		
11/30/2020	Late DMR Submission	Other Violations								
11/29/2021	Late DMR Submission	Other Violations								
7/20/2021	Violation of permit condition	Effluent	Fecal Coliform	1011.2	>	1000	No./100 ml	Instantaneous Maximum		
8/24/2021	Violation of permit condition	Effluent	Total Phosphorus	1.3	>	1.0	mg/L	Average Monthly		
9/20/2021	Violation of permit condition	Effluent	Fecal Coliform	1120	>	1000	No./100 ml	Instantaneous Maximum		
10/20/2021	Violation of permit condition	Effluent	Fecal Coliform	1011.2	>	1000	No./100 ml	Instantaneous Maximum		
10/20/2021	Violation of permit condition	Effluent	Total Suspended Solids	447	>	428	lbs/day	Weekly Average		
3/16/2022	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	782	>	238	lbs/day	Average Monthly		
3/16/2022	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	912.7	>	380	lbs/day	Weekly Average		
5/9/2022		Unauthorized Discharges							System overload due to heavy rain caused raw sewage to backflow into Bodyshop of Cummings Motors.	
5/9/2022		Unauthorized Discharges							The manhole at E. Pleasant Valley Blvd. & Harvard Lane surcharged reaching road surface due to heavy rains.	
5/9/2022		Unauthorized Discharges							The Northern Blair Bellemeade metering station discharged raw sewage onto the ground due to a heavy rain event.	
8/24/2022	Violation of permit condition	Effluent	Total Phosphorus	1.5	>	1.0	mg/L	Average Monthly		
9/26/2022	Violation of permit condition	Effluent	Fecal Coliform	2452	>	1000	No./100 ml	Instantaneous Maximum		
9/26/2022	Violation of permit condition	Effluent	Total Phosphorus	1.1	>	1.0	mg/L	Average Monthly		
11/16/2022	Violation of permit condition	Effluent	Total Phosphorus	1.1	>	1.0	mg/L	Average Monthly		
4/17/2023	Violation of permit condition	Effluent	Dissolved Oxygen	3.8	<	5.0	mg/L	Instantaneous Minimum		
5/16/2023	Violation of permit condition	Effluent	Dissolved Oxygen	4.8	<	5.0	mg/L	Instantaneous Minimum		
5/16/2023	Violation of permit condition	Effluent	Fecal Coliform	15531	>	10000	No./100 ml	Instantaneous Maximum		
7/17/2023	Violation of permit condition	Effluent	Fecal Coliform	< 385	>	200	No./100 ml	Geometric Mean		
7/17/2023	Violation of permit condition	Effluent	Fecal Coliform	9768	>	1000	No./100 ml	Instantaneous Maximum		
7/17/2023	Violation of permit condition	Effluent	pH	3.9	<	6.0	S.U.	Instantaneous Minimum		
7/17/2023	Violation of permit condition	Effluent	Total Phosphorus	1.3	>	1.0	mg/L	Average Monthly		
7/17/2023	Violation of permit condition	Effluent	Total Phosphorus	164	>	10	lbs/day	Average Monthly		
8/16/2023	Violation of permit condition	Effluent	Fecal Coliform	3870	>	1000	No./100 ml	Instantaneous Maximum		Discolored influent from DelGrosso Foods did not allow adequate UV light penetration.
10/19/2023	Violation of permit condition	Effluent	Fecal Coliform	2224	>	1000	No./100 ml	Instantaneous Maximum		
10/19/2023	Violation of permit condition	Effluent	Total Phosphorus	1.4	>	1.0	mg/L	Average Monthly		
10/19/2023	Violation of permit condition	Effluent	Total Suspended Solids	61	>	45	mg/L	Weekly Average		
11/27/2023	Violation of permit condition	Effluent	Total Phosphorus	1.8	>	1.0	mg/L	Average Monthly		

3.3.2 Non-Compliance- Enforcement Actions

A summary of the non-compliance enforcement actions for the current permit cycle is as follows:

Beginning in June 1, 2020 and ending January 10, 2025, the following were observed enforcement actions.

Summary of Enforcement Actions
Beginning June 1, 2020 and Ending January 10, 2025

ENF ID	ENF TYPE	ENF TYPE DESC	ENF CREATION DATE	EXECUTED DATE	VIOLATIONS	ENF FINALSTATUS	ENF CLOSED DATE
418813	NOV	Notice of Violation	08/16/2023	07/05/2023	92A.41(C); 92A.44	Comply/Closed	08/01/2023
424459	NOV	Notice of Violation	01/23/2024	01/23/2024	92A.44	Comply/Closed	02/05/2024

3.4 Summary of Biosolids Disposal

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

2023			
Sewage Sludge / Biosolids Production Information			
Hauled Off-Site			
2023	Tons Dewatered	% Solids	Dry Tons
January			
February			
March			
April			
May	166.03	11.54	19.143
June			
July			
August			
September			
October	14.82	14	2.07
November			
December	79.01	12.26	9.673
Notes:			
Biosolids/sewage sludge disposed at Somerset as landfill			

3.5 Open Violations

No open violations existed as of January 2025.

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 the Juniata River and the Susquehanna River which eventually drains into the Chesapeake Bay.

4.2 Public Water Supply (PWS) Intake

The closest PWS to the subject facility is the Mifflintown Municipal Authority (PWS ID #4340008) located approximately 92 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 4a and 5 waterbody. This stream is impaired stream for aquatic life due to (a) organic enrichment from municipal point source and (b) an unknown cause from urban runoff/storm sewers and (c) pathogens from an unknown source. The designated use has been classified as protected waters for trout stocking fish (TSF) and migratory fishes (MF).

4.5 Low Flow Stream Conditions

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

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

The closest WQN station to the subject facility is the Little Juniata River station (WQN217). This WQN station is located approximately 21 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 20 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 by collecting a sample upstream of the facility. The sampling result was 142 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 and these flow rates were the same flow rates subtracted in the March 2012 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 @ station	59	ft^3/sec	
Q@ Tyrone WWTP	10.06		
Q @ Altoona WWTP	10.83		
Q @ Logan WWTP	1.08		
Q710 Adjusted	37.03		
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 37.7 mi^2

Q710 = (LFY@gauge station)(DA@Subject Site)

Q710 = (0.1683 $ft^3/sec/mi^2$)(37.7 mi^2)

Q710 = 6.345 ft^3/sec

4.6 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	1.14
Latitude	40º 34' 30.69"	Longitude	-78º 20' 59.85"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		

Receiving Waters	Little Juniata River (TSF, MF)	Stream Code	15664
NHD Com ID	65606490	RMI	27.6
Drainage Area	37.7	Yield (cfs/mi^2)	0.1683
Q_{7-10} Flow (cfs)	6.345	Q_{7-10} Basis	StreamStats/streamgauge
Elevation (ft)	1051	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	Impaired		
Cause(s) of Impairment	CAUSE UNKNOWN, ORGANIC ENRICHMENT, PATHOGENS		
Source(s) of Impairment	MUNICIPAL POINT SOURCE DISCHARGES, SOURCE UNKNOWN, URBAN RUNOFF/STORM SEWERS		
TMDL Status	Final	Name	Little Juniata River Watershed

Background/Ambient Data		Data Source
pH (SU)	8.2	WQN217; Median Jul to Oct
Temperature (°C)	17.9	WQN217; median Jul to Oct
Hardness (mg/L)	142	NPDES application (average of three samples)
Other:		

Nearest Downstream Public Water Supply Intake	Mifflintown MA		
PWS Waters	Juniata River	Flow at Intake (cfs)	
PWS RMI	37	Distance from Outfall (mi)	92

5.0: Overview of Presiding Water Quality Standards

5.1 General

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

5.2.1 Technology-Based Limitations

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

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

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

5.2.2 Mass Based Limits

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

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

5.3 Water Quality-Based Limitations

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

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

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

General Data 1	*(Modeling Point #1) / 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	833	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	sq miles
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.

The NPDES application collected three (3) samples.

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 22%. The complete dilution series will be 6%, 11%, 22%, 61%, and 100%.

The derivation is shown in the calculations.

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%, 61%, 22%, 11% and 6%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 22%.

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
11/3/2020	PASS	PASS	PASS	PASS
11/9/2021	PASS	PASS	PASS	PASS
11/7/2022	PASS	PASS	PASS	PASS
11/7/2023	PASS	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 =	0.598	
PMFc =	1	
Qd =	1.14	MGD
Q710 =	6.345	cfs

Step 1: Determine IWC - Acute (IWCa)

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

IWCa = 31.73

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

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

TIWCa = IWCA / 0.3

TIWCa = 105.77

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 = 21.75

Step 3: Determine Dilution Series

Dilution Series =	100%	61%	22%	11%	6%

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 discharges into a local TMDL called the Little Juniata River Watershed TMDL

The Little Juniata River is part of State Water Plan subbasin 11A (Frankstown Branch, Juniata River) and is located within and north of the City of Altoona in Blair County, Pennsylvania.

Pennsylvania's 2003 303(d) list identified 4.81 miles of the Little Juniata River as impaired by siltation from urban runoff and storm sewers, and organic enrichment from municipal point source dischargers. The impairments on the Little Juniata begin at the headwaters in the city of Altoona and terminate at the downstream end of the study reach. In addition to impairments on the Little Juniata River, portions of Spring Run and Kettle Creek tributaries are also identified on the Pennsylvania 2003 303(d) list as being impaired by siltation from urban runoff and storm sewers.

The TMDL developed for the Little Juniata River watershed addresses non-point source impacts from sediment and point source phosphorus discharges. Implementing Best Management Practices (BMPs) will reduce siltation in the stream. Reduction of nonpoint source phosphorus loading along with the regulation of phosphorus discharges from the two municipal sewage treatment facilities in the watershed will lead to a decrease in organic enrichment and the associated low dissolved oxygen levels.

In an effort to address the nutrient impairments found in the Little Juniata River watershed, Total Maximum Daily Loads (TMDLs) were developed for sediment and total phosphorus. The total phosphorus TMDL is intended to address current nutrient impairments in the Little Juniata River watershed, including impairments that were first identified in Pennsylvania's 1996 303(d) list. The decision to use phosphorus load reductions to address nutrient impairments was based on an understanding of the relationship between nitrogen, phosphorus, and organic enrichment in stream systems.

Currently, neither the Altoona City Authority – East nor the Logan Twp – Greenwood facility currently have phosphorus effluent concentration limits and normally only report phosphorus discharge concentrations quarterly (four times per year). Therefore, it is difficult to establish baseline effluent concentrations for the two plants.

To reduce nitrogen levels enough to result in a significant reduction in algal productivity is not a feasible solution to the problem due to naturally high ambient nitrogen concentrations. Therefore, phosphorus levels will need to be reduced to mitigate the water quality conditions in the Little Juniata River watershed.

As a starting point for reducing phosphorus inputs to the Little Juniata River, the DEP will apply a phased approach. The two phases of this approach represent two NPDES permit cycles. 24 The first phase will be based on the requirements

contained in PA Title 25 Chapter 96 as amended, which allows for technology based requirements to be applied to discharges of phosphorus where a nutrient problem has been identified, or the allocations prescribed by the DEP's Tributary Strategy for the Chesapeake Bay to meet standard set forth by the state of Maryland.

PA Title 25 Chapter 96.5 states that a maximum value of 2 mg/l be applied as an effluent limit where nutrient impairment has been identified. During the first permit cycle, the more stringent of 2 mg/l effluent TP limits or Chesapeake Bay tributary strategy allocations for the Altoona East and Logan Township treatment plants will be applied.

The second phase of the TMDL will be implementing the water quality based solution. This will be determined after the in-stream objective is determined for the stream. The water quality based effluent limits that will be determined using the models that have been described in the TMDL along with the in-stream endpoint will be applied during the second permit cycle.

Consistent with the Fact Sheet dated for March 2012, a water quality limit of 1 mg/l will be required based on Chesapeake Bay tributary allocations until an in-stream target is established.

Due to the Chesapeake Bay WIP, monitoring for nitrogen species and phosphorus shall be at least 2x/week.

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 having 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)	15,013
TN Delivery Ratio	0.683
TP Cap Load (lbs/yr)	1,876
TP Delivery Ratio	0.509

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

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

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

Water quality modeling was completed for CBOD and ammonia nitrogen. Run #1 utilized a default pH of 7. Run #2 utilized an average pH from the last 12 months of DMR. The pH was 7.35.

As the guidance document (Implementation Guidance of Section 93.7 Ammonia Criteria dated for November 4, 1997) describes, pH has a profound affect on ammonia-nitrogen. With a pH of 7 the ammonia nitrogen was 6.61 mg/l. With a pH of 7.35, the ammonia nitrogen was 4.95 mg/l.

The guidance document recommends utilizing field data when available. Thus, the proposed permit shall have an ammonia nitrogen average monthly of 5.0 mg/l during summer months and 15 mg/l during winter months.

The 12 months of DMR from November 2023 to October 2024 appear to show that the facility would have no issues in meeting the reduce ammonia nitrogen effluent limit.

6.1.1 Conventional Pollutants and Disinfection

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection
Logan Township Greenwood STP; PA0032557

Parameter	Permit Limitation Required by[1]:	Recommendation	
pH (S.U.)	TBEL	Monitoring:	The monitoring frequency shall be daily as a grab sample (Table 6-3).
		Effluent Limit:	Effluent limits may range from pH = 6.0 to 9.0
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 95.2(1).
Dissolved Oxygen	BPJ	Monitoring:	The monitoring frequency shall be daily as a grab sample (Table 6-3).
		Effluent Limit:	Effluent limits shall be greater than 5.0 mg/l.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by best professional judgement.
CBOD	TBEL	Monitoring:	The monitoring frequency shall be 2x/week as an 24-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 238 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 2x/week as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 285 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 limit
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised January 10, 2019), the facility will be required to have routine monitoring for UV transmittance, UV dosage, or UV intensity.
Fecal Coliform	TBEL	Monitoring:	The monitoring frequency shall be 2x/week 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 1.14 MGD.

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

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

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

6.1.2 Nitrogen Species and Phosphorus

Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus

Logan Township Greenwood STP; PA0032557

Parameter	Permit Limitation Required by[1]:	Recommendation	
Ammonia-Nitrogen	WQBEL	Monitoring:	The monitoring frequency shall be 2x/wk as a 24-hr composite sample
		Effluent Limit:	During the months of May 1 to October 31, effluent limits shall not exceed 48 lbs/day and 5 mg/l as an average monthly. During the months of November 1 to April 30, effluent limits shall not exceed 143 lbs/day and 15 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 water quality based effluent limits (WQBEL)
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	Little Juniata River Watershed TMDL / Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/wk as a 24-hr composite sample
		Effluent Limit:	Effluent limits shall not exceed 10 lbs/day and 1.0 mg/l as an average monthly.
		Rationale:	Due to the Little Juniata River Watershed TMDL and 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 24-hr composite sample
		Effluent Limit:	The cap load is 15,013 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 24-hr composite sample
		Effluent Limit:	The cap load is 1,876 lbs/yr
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least x/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 1.14 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 was utilized for determining reasonable potential for toxics. Run #1 utilized sampling data from the NPDES application. Three pollutants appeared for recommendation for monitoring or effluent limits. TMS showed no reasonable potential for mercury.

Both hexachlorobutadiene and 1,2,4-trichlorobenzene showed reasonable potential.

Toxics Management Spreadsheet was utilized for Run #2 to review pollutants hexachlorobutadiene and 1,2,4-trichlorobenzene. The consultant and laboratory were able to adjust correct dilution factors. The revised data were input into TMS. TMS showed no reasonable potential for the two pollutants.

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.

Summary of Proposed NPDES Parameter Details for polluants monitored under Chapter 92a.61
Logan Township Greenwood STP; PA0032557

Parameter	Permit Limitation Required by[1]:	Recommendation	
E. Coli	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/month as a grab sample (SOP).
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised Febraury 5, 2024) and under the authority of Chapter 92a.61, the facility will be required to monitor for E.Coli.
PFO	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/quarter as a grab sample (SOP).
		Effluent Limit:	No effluent limit requirement
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised Febraury 5, 2024) and under the authority of Chapter 92a.61, the facility will be required to monitor for PFAS related parameters.
PFOS	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/quarter as a grab sample (SOP).
		Effluent Limit:	No effluent limit requirement
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised Febraury 5, 2024) and under the authority of Chapter 92a.61, the facility will be required to monitor for PFAS related parameters.
HFPO-DA	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/quarter as a grab sample (SOP).
		Effluent Limit:	No effluent limit requirement
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised Febraury 5, 2024) and under the authority of Chapter 92a.61, the facility will be required to monitor for PFAS related parameters.
PFBS	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/quarter as a grab sample (SOP).
		Effluent Limit:	No effluent limit requirement
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised Febraury 5, 2024) and under the authority of Chapter 92a.61, the facility will be required to monitor for PFAS related parameters.

Notes:

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.

- **Ammonia nitrogen has been reduced**
- **Due to the EPA triennial review, monitoring shall be required for E. Coli**
- **Monitoring shall be required for PFOS.**

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° 34' 31.80" , **Longitude** 78° 20' 58.60" , **River Mile Index** 27.63 , **Stream Code** 15664

Receiving Waters: Little Juniata River (TSF, MF)

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)	238	380	XXX	25.0	40.0	50	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	285	428	XXX	30	45	60	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ammonia-Nitrogen Nov 1 - Apr 30	143	XXX	XXX	15.0	XXX	XXX	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	48	XXX	XXX	5.0	XXX	10	2/week	24-Hr Composite
Total Phosphorus	10	XXX	XXX	1.0	XXX	2	2/week	24-Hr Composite

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

at Outfall 001

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

I. B. For Outfall 001 , **Latitude** 40º 34' 31.80" , **Longitude** 78º 20' 58.60" , **River Mile Index** 27.63 , **Stream Code** 15664

Receiving Waters: Little Juniata River (TSF, MF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	XXX	15013	XXX	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	1876	XXX	XXX	XXX	XXX	1/year	Calculation

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

at Outfall 001

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

6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- SBR Batch Discharge Condition
- UV Monitoring Conditions
- Peak Flow Management Plan
- Hauled-in Waste Restrictions
- Chesapeake Bay Nutrient Definitions
- Solids Management for Non-Lagoon Treatment Systems
- Whole Effluent Toxicity – No Permit Limits

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
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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
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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

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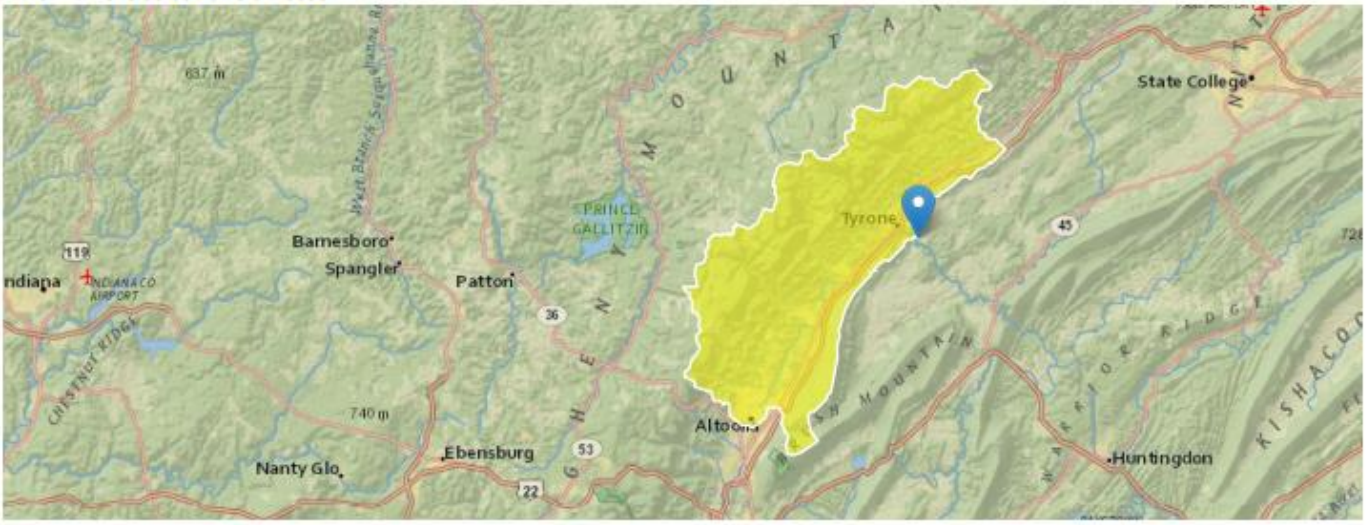

Logan Township / Tyrone Boro PA0032557 / PA0026727 Modeling Point #3 (Tyrone) February 2025

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
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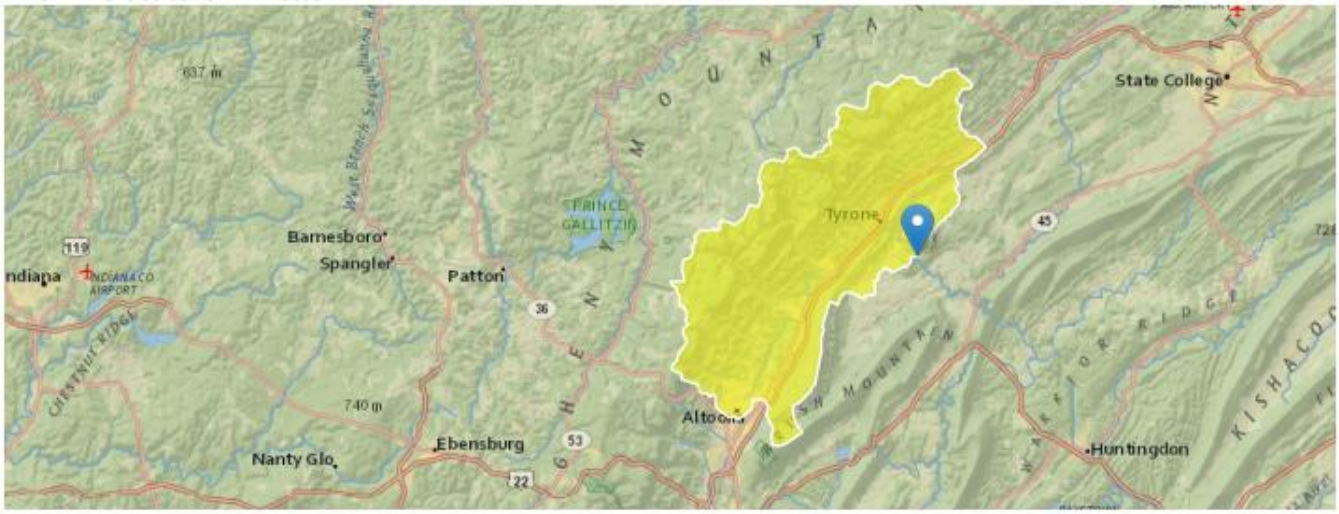
Time: 2025-03-03 10:29:24 -0500



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

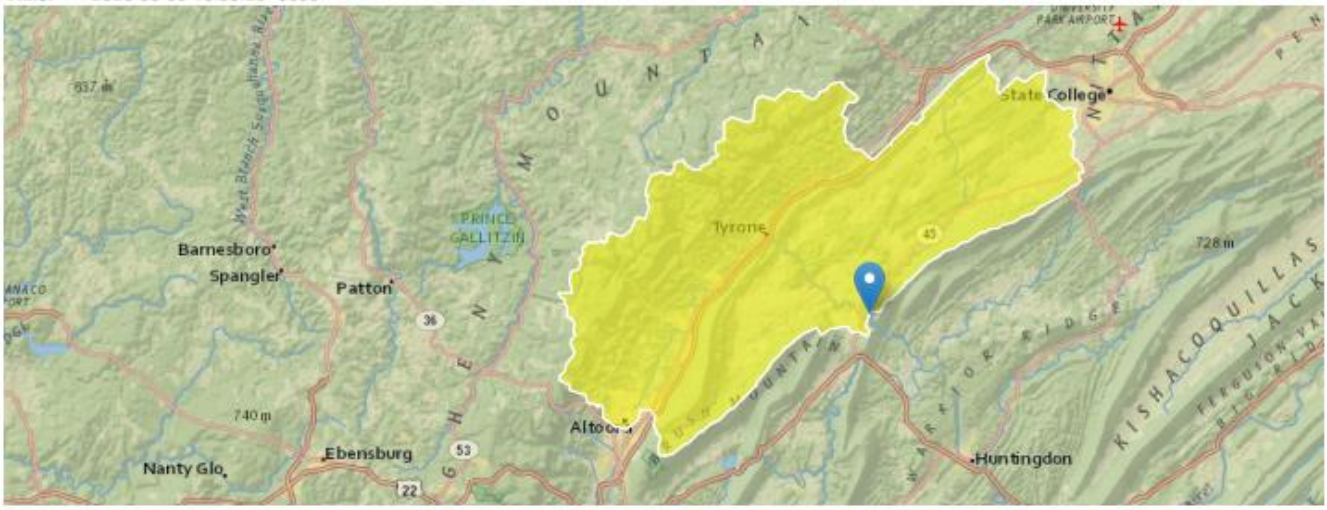
Low-Flow Statistics Citations

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

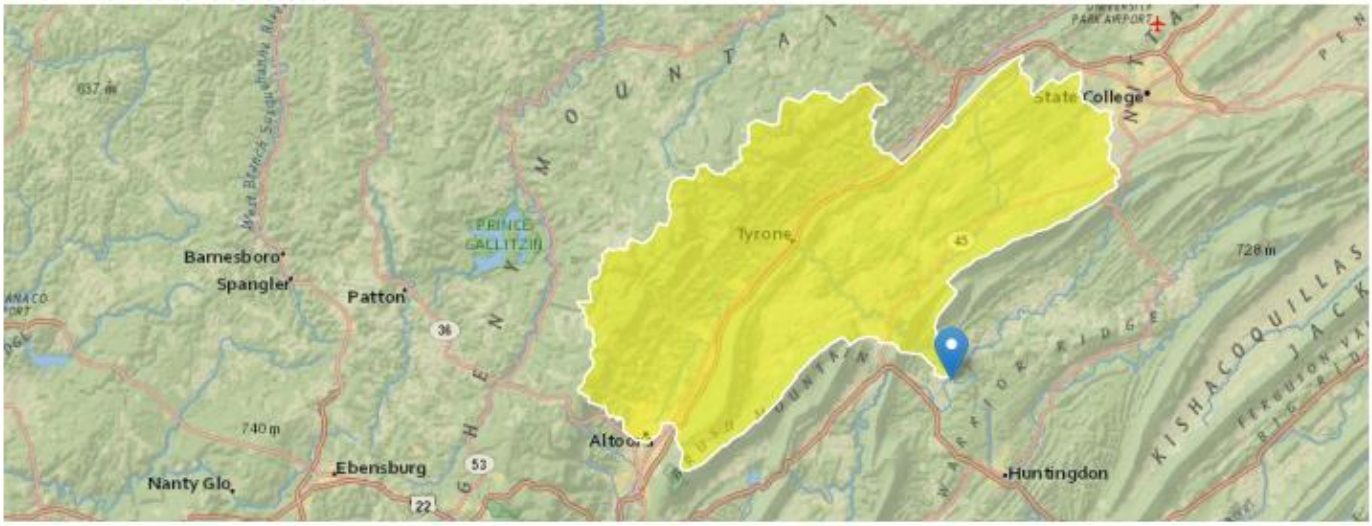
Low-Flow Statistics Citations

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/)

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

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	23.9	ft^3/s	38	38
30 Day 2 Year Low Flow	30.9	ft^3/s	33	33
7 Day 10 Year Low Flow	13	ft^3/s	51	51
30 Day 10 Year Low Flow	16.8	ft^3/s	46	46
90 Day 10 Year Low Flow	24.2	ft^3/s	36	36

Low-Flow Statistics Citations

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

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Application Version: 4.25.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment B

WQM 7.0 Modeling Output Values
Toxics Management Spreadsheet Output Values

RUN 1

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	6.61	13.22	
				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	8.78	38.72	15.01	38.72	0	0
14.400	Tyrone	6.43	9	10.67	9	0	0
12.500	Grier Foundatio	3.2	50	10.52	50	0	0
5.460		NA	NA	9.76	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	1.33	6.61	1.8	6.61	0	0
14.400	Tyrone	1.09	3.44	1.49	3.44	0	0
12.500	Grier Foundatio	.66	25	1.48	25	0	0
5.460		NA	NA	1.42	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	6.61	6.61	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	7.00

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	**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

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
11A	15664	LITTLE JUNIATA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
29.300	9.000	19.572	7.092
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
44.321	0.758	58.457	0.520
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
12.35	1.443	1.19	0.677
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.661	13.234	Tsivoglou	5
Reach Travel Time (days)			
0.195			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.019	12.02	1.18	5.97
0.039	11.69	1.16	6.21
0.058	11.37	1.15	6.42
0.078	11.06	1.13	6.59
0.097	10.76	1.12	6.73
0.117	10.47	1.10	6.86
0.136	10.18	1.09	6.96
0.156	9.91	1.07	7.05
0.175	9.64	1.06	7.14
0.195	9.37	1.05	7.21

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
27.640	10.140	19.796	7.136
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
54.555	0.794	68.684	0.508
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
9.70	0.992	1.36	0.689
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.164	9.478	Tsivoglou	5
Reach Travel Time (days)			
1.592			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.159	8.29	1.22	7.35
0.318	7.09	1.09	7.58
0.478	6.06	0.98	7.79
0.637	5.19	0.88	7.98
0.796	4.43	0.79	8.14
0.955	3.79	0.70	8.24
1.115	3.24	0.63	8.24
1.274	2.77	0.57	8.24
1.433	2.37	0.51	8.24
1.592	2.03	0.45	8.24

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
11A	15664	LITTLE JUNIATA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
14.400	19.140	20.397	7.381
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
98.345	0.926	106.203	0.624
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
7.65	1.175	1.02	0.722
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.448	7.615	Tsivoglou	5
Reach Travel Time (days)			
0.186			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.019	7.48	1.01	7.37
0.037	7.31	0.99	7.31
0.056	7.15	0.98	7.27
0.074	6.99	0.97	7.23
0.093	6.84	0.95	7.21
0.112	6.69	0.94	7.19
0.130	6.54	0.93	7.18
0.149	6.40	0.92	7.18
0.167	6.26	0.90	7.18
0.186	6.12	0.89	7.19

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
12.500	19.163	20.280	7.399
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
101.579	0.935	108.696	0.629
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
5.93	0.942	0.86	0.715
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.241	7.867	Tsivoglou	5
Reach Travel Time (days)			
0.684			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.068	5.56	0.82	7.44
0.137	5.21	0.78	7.59
0.205	4.88	0.75	7.71
0.274	4.57	0.71	7.81
0.342	4.28	0.68	7.90
0.410	4.01	0.64	7.98
0.479	3.76	0.61	8.05
0.547	3.52	0.58	8.11
0.616	3.30	0.56	8.17
0.684	3.09	0.53	8.20

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
11A	15664	LITTLE JUNIATA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
5.460	19.163	19.802	7.482
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
122.477	0.987	124.076	0.622
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.87	0.509	0.42	0.689
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.209	7.414	Tsivoglou	5
Reach Travel Time (days)			
0.536			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.054	2.79	0.40	8.24
0.107	2.71	0.39	8.24
0.161	2.64	0.38	8.24
0.215	2.57	0.36	8.24
0.268	2.50	0.35	8.24
0.322	2.44	0.34	8.24
0.375	2.37	0.32	8.24
0.429	2.31	0.31	8.24
0.483	2.25	0.30	8.24
0.536	2.19	0.29	8.24

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
11A	15664	LITTLE JUNIATA RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
29.300	3.56	0.00	3.56	13.923	0.00377	.758	44.32	58.46	0.52	0.195	19.57	7.09
27.640	6.33	0.00	6.33	15.6866	0.00275	.794	54.56	68.68	0.51	1.592	19.80	7.14
14.400	27.22	0.00	27.22	29.6096	0.00259	.926	98.34	106.2	0.62	0.186	20.40	7.38
12.500	30.07	0.00	30.07	29.6444	0.00266	.935	101.58	108.7	0.63	0.684	20.28	7.40
5.460	45.57	0.00	45.57	29.6444	0.00257	.987	122.48	124.08	0.62	0.536	19.80	7.48
Q1-10 Flow												
29.300	3.38	0.00	3.38	13.923	0.00377	NA	NA	NA	0.52	0.196	19.59	7.09
27.640	6.02	0.00	6.02	15.6866	0.00275	NA	NA	NA	0.50	1.605	19.82	7.13
14.400	25.86	0.00	25.86	29.6096	0.00259	NA	NA	NA	0.62	0.189	20.46	7.37
12.500	28.57	0.00	28.57	29.6444	0.00266	NA	NA	NA	0.62	0.694	20.34	7.39
5.460	43.29	0.00	43.29	29.6444	0.00257	NA	NA	NA	0.61	0.546	19.86	7.47
Q30-10 Flow												
29.300	3.95	0.00	3.95	13.923	0.00377	NA	NA	NA	0.53	0.193	19.54	7.10
27.640	7.03	0.00	7.03	15.6866	0.00275	NA	NA	NA	0.52	1.565	19.74	7.15
14.400	30.21	0.00	30.21	29.6096	0.00259	NA	NA	NA	0.64	0.181	20.27	7.40
12.500	33.38	0.00	33.38	29.6444	0.00266	NA	NA	NA	0.65	0.664	20.16	7.42
5.460	50.58	0.00	50.58	29.6444	0.00257	NA	NA	NA	0.65	0.517	19.69	7.50

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☐
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.95	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.11	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

RUN 2

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

RUN #1

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Logan Township Greenwood WWTP** NPDES Permit No.: **PA0032557** Outfall No.: **001**

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

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
1.14	181	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		752									
	Chloride (PWS)	mg/L		144									
	Bromide	mg/L	<	0.011									
	Sulfate (PWS)	mg/L		40.8									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		24.7									
	Total Antimony	µg/L		0.354									
	Total Arsenic	µg/L	<	2.5									
	Total Barium	µg/L		48.2									
	Total Beryllium	µg/L	<	0.135									
	Total Boron	µg/L		0.151									
	Total Cadmium	µg/L	<	0.025									
	Total Chromium (III)	µg/L	<	1.99									
	Hexavalent Chromium	µg/L		2.3									
	Total Cobalt	µg/L		0.302									
	Total Copper	µg/L		1.73									
	Free Cyanide	µg/L		4									
	Total Cyanide	µg/L	<	6									
	Dissolved Iron	µg/L		35.1									
	Total Iron	µg/L		44.5									
	Total Lead	µg/L		0.167									
	Total Manganese	µg/L		44.9									
	Total Mercury	µg/L		0.102									
	Total Nickel	µg/L		1.67									
	Total Phenols (Phenolics) (PWS)	µg/L		14									
	Total Selenium	µg/L	<	2.5									
	Total Silver	µg/L	<	0.274									
	Total Thallium	µg/L	<	0.014									
	Total Zinc	µg/L		25.5									
	Total Molybdenum	µg/L		1.16									
	Acrolein	µg/L	<	1.95									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	0.51									
	Benzene	µg/L	<	0.43									
	Bromoform	µg/L	<	0.34									
	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									

Group 3	Chloroform	µg/L	<	0.51									
	Dichlorobromomethane	µg/L	<	0.32									
	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	<	0.65									
	2,4-Dichlorophenol	µg/L	<	1.25									
	2,4-Dimethylphenol	µg/L	<	1.3									
	4,6-Dinitro-o-Cresol	µg/L	<	4.5									
	2,4-Dinitrophenol	µg/L	<	4.3									
	2-Nitrophenol	µg/L	<	1.25									
	4-Nitrophenol	µg/L	<	0.95									
	p-Chloro-m-Cresol	µg/L	<	2									
	Pentachlorophenol	µg/L	<	4.85									
	Phenol	µg/L	<	1.25									
	2,4,6-Trichlorophenol	µg/L	<	1.2									
Group 5	Acenaphthene	µg/L	<	1.3									
	Acenaphthylene	µg/L	<	1.1									
	Anthracene	µg/L	<	0.65									
	Benzidine	µg/L	<	1.75									
	Benzo(a)Anthracene	µg/L	<	1.05									
	Benzo(a)Pyrene	µg/L	<	1.45									
	3,4-Benzofluoranthene	µg/L	<	1.55									
	Benzo(ghi)Perylene	µg/L	<	1.6									
	Benzo(k)Fluoranthene	µg/L	<	2									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.75									
	Bis(2-Chloroethyl)Ether	µg/L	<	1.25									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	1.7									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	3.2									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.95									
	Butyl Benzyl Phthalate	µg/L	<	1.9									
	2-Chloronaphthalene	µg/L	<	1.4									
	4-Chlorophenyl Phenyl Ether	µg/L	<	1.45									
	Chrysene	µg/L	<	2.25									
	Dibenzo(a,h)Anthrancene	µg/L	<	1.4									
	1,2-Dichlorobenzene	µg/L	<	1.6									
	1,3-Dichlorobenzene	µg/L	<	0.85									
	1,4-Dichlorobenzene	µg/L	<	0.75									
	3,3-Dichlorobenzidine	µg/L	<	0.65									
	Diethyl Phthalate	µg/L	<	1.35									
	Dimethyl Phthalate	µg/L	<	1.15									
	Di-n-Butyl Phthalate	µg/L	<	1.45									
	2,4-Dinitrotoluene	µg/L	<	3.85									
	2,6-Dinitrotoluene	µg/L	<	1.6									
	Di-n-Octyl Phthalate	µg/L	<	1.4									
	1,2-Diphenylhydrazine	µg/L	<	1									
	Fluoranthene	µg/L	<	1.75									
	Fluorene	µg/L	<	1.25									
	Hexachlorobenzene	µg/L	<	1.25									
	Hexachlorobutadiene	µg/L	<	1.35									
	Hexachlorocyclopentadiene	µg/L	<	1.1									
	Hexachloroethane	µg/L	<	1.3									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	1.25									

	Isophorone	µg/L	<	1.15									
	Naphthalene	µg/L	<	1.25									
	Nitrobenzene	µg/L	<	1.3									
	n-Nitrosodimethylamine	µg/L	<	1.35									
	n-Nitrosodi-n-Propylamine	µg/L	<	1.55									
	n-Nitrosodiphenylamine	µg/L	<	1.35									
	Phenanthrene	µg/L	<	1.05									
	Pyrene	µg/L	<	0.8									
	1,2,4-Trichlorobenzene	µg/L	<	0.85									
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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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Logan Township Greenwood WWTP, NPDES Permit No. PA0032557, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: _____ 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	27.6	1051	37.7			Yes
End of Reach 1	015664	23.15	990	69.9			Yes

Q $_{7\text{-}10}$

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	27.6	0.1683										142	8.2		
End of Reach 1	23.15	0.1683										142	8.2		

Q $_{h}$

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	27.6														
End of Reach 1	23.15														

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Logan Township Greenwood WWTP, NPDES Permit No. PA0032557, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.598 Analysis Hardness (mg/l): 154.38 Analysis pH: 7.73

Pollutants	Stream Conc	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	2,363	
Total Antimony	0	0		0	1,100	1,100	3,465	
Total Arsenic	0	0		0	340	340	1,071	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	66,153	
Total Boron	0	0		0	8,100	8,100	25,516	
Total Cadmium	0	0		0	3.071	3.32	10.4	Chem Translator of 0.926 applied
Total Chromium (III)	0	0		0	813.114	2,573	8,106	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	51.3	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	299	
Total Copper	0	0		0	20.233	21.1	66.4	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	69.3	
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	103.270	142	447	Chem Translator of 0.728 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	5.19	Chem Translator of 0.85 applied
Total Nickel	0	0		0	676.104	677	2,134	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	6.789	7.99	25.2	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	205	
Total Zinc	0	0		0	169.297	173	545	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	9.45	
Acrylonitrile	0	0		0	650	650	2,048	
Benzene	0	0		0	640	640	2,016	

Bromoform	0	0		0	1,800	1,800	5,670	
Carbon Tetrachloride	0	0		0	2,800	2,800	8,820	
Chlorobenzene	0	0		0	1,200	1,200	3,780	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	56,703	
Chloroform	0	0		0	1,900	1,900	5,985	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	47,252	
1,1-Dichloroethylene	0	0		0	7,500	7,500	23,626	
1,2-Dichloropropane	0	0		0	11,000	11,000	34,652	
1,3-Dichloropropylene	0	0		0	310	310	977	
Ethylbenzene	0	0		0	2,900	2,900	9,135	
Methyl Bromide	0	0		0	550	550	1,733	
Methyl Chloride	0	0		0	28,000	28,000	88,204	
Methylene Chloride	0	0		0	12,000	12,000	37,802	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	3,150	
Tetrachloroethylene	0	0		0	700	700	2,205	
Toluene	0	0		0	1,700	1,700	5,355	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	21,421	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	9,450	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	10,711	
Trichloroethylene	0	0		0	2,300	2,300	7,245	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	1,764	
2,4-Dichlorophenol	0	0		0	1,700	1,700	5,355	
2,4-Dimethylphenol	0	0		0	660	660	2,079	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	252	
2,4-Dinitrophenol	0	0		0	660	660	2,079	
2-Nitrophenol	0	0		0	8,000	8,000	25,201	
4-Nitrophenol	0	0		0	2,300	2,300	7,245	
p-Chloro-m-Cresol	0	0		0	160	160	504	
Pentachlorophenol	0	0		0	18.225	18.2	57.4	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	1,449	
Acenaphthene	0	0		0	83	83.0	261	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	945	
Benzo(a)Anthracene	0	0		0	0.5	0.5	1.58	
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	94,504	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	14,176	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	851	
Butyl Benzyl Phthalate	0	0		0	140	140	441	
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	2,583	
1,3-Dichlorobenzene	0	0		0	350	350	1,103	
1,4-Dichlorobenzene	0	0		0	730	730	2,300	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	12,601	
Dimethyl Phthalate	0	0		0	2,500	2,500	7,875	
Di-n-Butyl Phthalate	0	0		0	110	110	347	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	5,040	
2,6-Dinitrotoluene	0	0		0	990	990	3,119	
1,2-Diphenylhydrazine	0	0		0	15	15.0	47.3	
Fluoranthene	0	0		0	200	200	630	
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	31.5	
Hexachlorocyclopentadiene	0	0		0	5	5.0	15.8	
Hexachloroethane	0	0		0	60	60.0	189	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	31,501	
Naphthalene	0	0		0	140	140	441	
Nitrobenzene	0	0		0	4,000	4,000	12,601	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	53,553	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	945	
Phenanthrene	0	0		0	5	5.0	15.8	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	410	

☑ ***CFC*** CCT (min): 41.997 PMF: 1 Analysis Hardness (mg/l): 150.48 Analysis pH: 7.83

Pollutants	Stream Conc	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	1,012	
Total Arsenic	0	0		0	150	150	690	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	18,851	
Total Boron	0	0		0	1,600	1,600	7,356	
Total Cadmium	0	0		0	0.327	0.37	1.68	Chem Translator of 0.892 applied
Total Chromium (III)	0	0		0	103.577	120	554	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	47.8	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	87.4	
Total Copper	0	0		0	12.699	13.2	60.8	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	23.9	
Dissolved Iron	0	0		0	N/A	N/A	N/A	

Total Iron	0	0		0	1,500	1,500	6,897	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	3.915	5.35	24.6	Chem Translator of 0.731 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	4.17	Chem Translator of 0.85 applied
Total Nickel	0	0		0	73.487	73.7	339	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	22.9	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	59.8	
Total Zinc	0	0		0	167.023	169	779	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	13.8	
Acrylonitrile	0	0		0	130	130	598	
Benzene	0	0		0	130	130	598	
Bromoform	0	0		0	370	370	1,701	
Carbon Tetrachloride	0	0		0	560	560	2,575	
Chlorobenzene	0	0		0	240	240	1,103	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	16,092	
Chloroform	0	0		0	390	390	1,793	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	14,253	
1,1-Dichloroethylene	0	0		0	1,500	1,500	6,897	
1,2-Dichloropropane	0	0		0	2,200	2,200	10,115	
1,3-Dichloropropylene	0	0		0	61	61.0	280	
Ethylbenzene	0	0		0	580	580	2,667	
Methyl Bromide	0	0		0	110	110	506	
Methyl Chloride	0	0		0	5,500	5,500	25,288	
Methylene Chloride	0	0		0	2,400	2,400	11,035	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	966	
Tetrachloroethylene	0	0		0	140	140	644	
Toluene	0	0		0	330	330	1,517	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	6,437	
1,1,1-Trichloroethane	0	0		0	610	610	2,805	
1,1,2-Trichloroethane	0	0		0	680	680	3,126	
Trichloroethylene	0	0		0	450	450	2,069	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	506	
2,4-Dichlorophenol	0	0		0	340	340	1,563	
2,4-Dimethylphenol	0	0		0	130	130	598	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	73.6	
2,4-Dinitrophenol	0	0		0	130	130	598	
2-Nitrophenol	0	0		0	1,600	1,600	7,356	
4-Nitrophenol	0	0		0	470	470	2,161	
p-Chloro-m-Cresol	0	0		0	500	500	2,299	
Pentachlorophenol	0	0		0	13.983	14.0	64.3	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	418	
Acenaphthene	0	0		0	17	17.0	78.2	
Anthracene	0	0		0	N/A	N/A	N/A	

Benzidine	0	0		0	59	59.0	271	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.46	
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	27,586	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	4,184	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	248	
Butyl Benzyl Phthalate	0	0		0	35	35.0	161	
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	736	
1,3-Dichlorobenzene	0	0		0	69	69.0	317	
1,4-Dichlorobenzene	0	0		0	150	150	690	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	3,678	
Dimethyl Phthalate	0	0		0	500	500	2,299	
Di-n-Butyl Phthalate	0	0		0	21	21.0	96.6	
2,4-Dinitrotoluene	0	0		0	320	320	1,471	
2,6-Dinitrotoluene	0	0		0	200	200	920	
1,2-Diphenylhydrazine	0	0		0	3	3.0	13.8	
Fluoranthene	0	0		0	40	40.0	184	
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	9.2	
Hexachlorocyclopentadiene	0	0		0	1	1.0	4.6	
Hexachloroethane	0	0		0	12	12.0	55.2	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	9,655	
Naphthalene	0	0		0	43	43.0	198	
Nitrobenzene	0	0		0	810	810	3,724	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	15,632	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	271	
Phenanthrene	0	0		0	1	1.0	4.6	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	120	

☑ ***THH*** CCT (min): 41.997 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc	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	25.7	

Total Arsenic	0	0		0	10	10.0	46.0	
Total Barium	0	0		0	2,400	2,400	11,035	
Total Boron	0	0		0	3,100	3,100	14,253	
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	18.4	
Dissolved Iron	0	0		0	300	300	1,379	
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	4,598	
Total Mercury	0	0		0	0.050	0.05	0.23	
Total Nickel	0	0		0	610	610	2,805	
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	1.1	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	13.8	
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	460	
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	26.2	
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	152	
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	313	
Methyl Bromide	0	0		0	100	100.0	460	
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	262	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	460	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	45,977	
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	138	
2,4-Dichlorophenol	0	0		0	10	10.0	46.0	
2,4-Dimethylphenol	0	0		0	100	100.0	460	

4,6-Dinitro-o-Cresol	0	0		0	2	2.0	9.2	
2,4-Dinitrophenol	0	0		0	10	10.0	46.0	
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	18,391	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	322	
Anthracene	0	0		0	300	300	1,379	
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	920	
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	0.46	
2-Chloronaphthalene	0	0		0	800	800	3,678	
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	4,598	
1,3-Dichlorobenzene	0	0		0	7	7.0	32.2	
1,4-Dichlorobenzene	0	0		0	300	300	1,379	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	2,759	
Dimethyl Phthalate	0	0		0	2,000	2,000	9,195	
Di-n-Butyl Phthalate	0	0		0	20	20.0	92.0	
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	92.0	
Fluorene	0	0		0	50	50.0	230	
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	18.4	
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	156	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	46.0	
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	92.0	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.32	

☑ ***CRL*** CCT (min): 22.137 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc	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	1.33	
Benzene	0	0		0	0.58	0.58	12.9	
Bromoform	0	0		0	7	7.0	155	
Carbon Tetrachloride	0	0		0	0.4	0.4	8.87	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	17.7	
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	21.1	
1,2-Dichloroethane	0	0		0	9.9	9.9	220	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	20.0	
1,3-Dichloropropylene	0	0		0	0.27	0.27	5.99	
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	444	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	4.44	

Tetrachloroethylene	0	0		0	10	10.0	222	
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	12.2	
Trichloroethylene	0	0		0	0.6	0.6	13.3	
Vinyl Chloride	0	0		0	0.02	0.02	0.44	
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	0.67	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	33.3	
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	0.002	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.022	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.002	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.022	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.22	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.67	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	7.1	
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	2.66	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.002	
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	1.11	
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	1.11	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	1.11	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.67	
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	0.002	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.22	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	2.22	

Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.022	
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	0.016	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.11	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	73.2	
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: 4

Pollutants	*Mass Limits* AML (lbs/day)	*Mass Limits* MDL (lbs/day)	*Concentration Limits* AML	*Concentration Limits* MDL	*Concentration Limits* IMAX	*Concentration Limits* Units	Governing WQBEL	WQBEL Basis	Comments
Total Mercury	Report	Report	Report	Report	Report	µg/L	0.23	THH	Discharge Conc > 10% WQBEL (no RP)
Hexachlorobutadiene	0.002	0.003	0.22	0.35	0.55	µg/L	0.22	CRL	Discharge Conc ≥ 50% WQBEL (RP)
1,2,4-Trichlorobenzene	0.003	0.005	0.32	0.5	0.8	µg/L	0.32	THH	Discharge Conc ≥ 50% WQBEL (RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	1,514	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	25.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	11,035	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	7,356	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	1.68	µg/L	Discharge Conc < TQL
Total Chromium (III)	554	µg/L	Discharge Conc < TQL
Hexavalent Chromium	32.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	87.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	42.6	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	18.4	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	1,379	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	6,897	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	24.6	µg/L	Discharge Conc ≤ 10% WQBEL

Total Manganese	4,598	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	339	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	22.9	µg/L	Discharge Conc < TQL
Total Silver	16.1	µg/L	Discharge Conc < TQL
Total Thallium	1.1	µg/L	Discharge Conc < TQL
Total Zinc	350	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	6.06	µg/L	Discharge Conc < TQL
Acrylonitrile	1.33	µg/L	Discharge Conc < TQL
Benzene	12.9	µg/L	Discharge Conc < TQL
Bromoform	155	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	8.87	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	460	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	17.7	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	16,092	µg/L	Discharge Conc < TQL
Chloroform	26.2	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	21.1	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	220	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	152	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	20.0	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	5.99	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	313	µg/L	Discharge Conc < TQL
Methyl Bromide	460	µg/L	Discharge Conc < TQL
Methyl Chloride	25,288	µg/L	Discharge Conc < TQL
Methylene Chloride	444	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	4.44	µg/L	Discharge Conc < TQL
Tetrachloroethylene	222	µg/L	Discharge Conc < TQL
Toluene	262	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	460	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	2,805	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	12.2	µg/L	Discharge Conc < TQL
Trichloroethylene	13.3	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.44	µg/L	Discharge Conc < TQL
2-Chlorophenol	138	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	46.0	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	460	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	9.2	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	46.0	µg/L	Discharge Conc < TQL
2-Nitrophenol	7,356	µg/L	Discharge Conc < TQL
4-Nitrophenol	2,161	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	323	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.67	µg/L	Discharge Conc < TQL
Phenol	18,391	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	33.3	µg/L	Discharge Conc < TQL
Acenaphthene	78.2	µg/L	Discharge Conc < TQL

Acenaphthylene	N/A	N/A	No WQS
Anthracene	1,379	µg/L	Discharge Conc < TQL
Benzidine	0.002	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.022	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.002	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.022	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.22	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.67	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	920	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	7.1	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	248	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.46	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	3,678	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	2.66	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.002	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	736	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichlorobenzene	32.2	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dichlorobenzene	690	µg/L	Discharge Conc ≤ 25% WQBEL
3,3-Dichlorobenzidine	1.11	µg/L	Discharge Conc < TQL
Diethyl Phthalate	2,759	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	2,299	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	92.0	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	1.11	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	1.11	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.67	µg/L	Discharge Conc < TQL
Fluoranthene	92.0	µg/L	Discharge Conc < TQL
Fluorene	230	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.002	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	4.6	µg/L	Discharge Conc < TQL
Hexachloroethane	2.22	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.022	µg/L	Discharge Conc < TQL
Isophorone	156	µg/L	Discharge Conc < TQL
Naphthalene	198	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	46.0	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.016	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.11	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	73.2	µg/L	Discharge Conc < TQL
Phenanthrene	4.6	µg/L	Discharge Conc < TQL
Pyrene	92.0	µg/L	Discharge Conc < TQL

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

RUN #2

Discharge Information

Instructions | Discharge | Stream

Facility: **Logan Township Greenwood WWTP** NPDES Permit No.: **PA0032557** Outfall No.: **001**

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

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
1.14	181	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		752									
	Chloride (PWS)	mg/L		144									
	Bromide	mg/L	<	0.011									
	Sulfate (PWS)	mg/L		40.8									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		24.7									
	Total Antimony	µg/L		0.354									
	Total Arsenic	µg/L	<	2.5									
	Total Barium	µg/L		48.2									
	Total Beryllium	µg/L	<	0.135									
	Total Boron	µg/L		0.151									
	Total Cadmium	µg/L	<	0.025									
	Total Chromium (III)	µg/L	<	1.99									
	Hexavalent Chromium	µg/L		2.3									
	Total Cobalt	µg/L		0.302									
	Total Copper	µg/L		1.73									
	Free Cyanide	µg/L		4									
	Total Cyanide	µg/L	<	6									
	Dissolved Iron	µg/L		35.1									
	Total Iron	µg/L		44.5									
	Total Lead	µg/L		0.167									
	Total Manganese	µg/L		44.9									
	Total Mercury	µg/L		0.102									
	Total Nickel	µg/L		1.67									
	Total Phenols (Phenolics) (PWS)	µg/L		14									
	Total Selenium	µg/L	<	2.5									
	Total Silver	µg/L	<	0.274									
	Total Thallium	µg/L	<	0.014									
	Total Zinc	µg/L		25.5									
	Total Molybdenum	µg/L		1.16									
	Acrolein	µg/L	<	1.95									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	0.51									
	Benzene	µg/L	<	0.43									
	Bromoform	µg/L	<	0.34									
	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									

Group 3	Chloroform	µg/L	<	0.51									
	Dichlorobromomethane	µg/L	<	0.32									
	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	<	0.65									
	2,4-Dichlorophenol	µg/L	<	1.25									
	2,4-Dimethylphenol	µg/L	<	1.3									
	4,6-Dinitro-o-Cresol	µg/L	<	4.5									
	2,4-Dinitrophenol	µg/L	<	4.3									
	2-Nitrophenol	µg/L	<	1.25									
	4-Nitrophenol	µg/L	<	0.95									
	p-Chloro-m-Cresol	µg/L	<	2									
	Pentachlorophenol	µg/L	<	4.85									
	Phenol	µg/L	<	1.25									
	2,4,6-Trichlorophenol	µg/L	<	1.2									
Group 5	Acenaphthene	µg/L	<	1.3									
	Acenaphthylene	µg/L	<	1.1									
	Anthracene	µg/L	<	0.65									
	Benzidine	µg/L	<	1.75									
	Benzo(a)Anthracene	µg/L	<	1.05									
	Benzo(a)Pyrene	µg/L	<	1.45									
	3,4-Benzofluoranthene	µg/L	<	1.55									
	Benzo(ghi)Perylene	µg/L	<	1.6									
	Benzo(k)Fluoranthene	µg/L	<	2									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.75									
	Bis(2-Chloroethyl)Ether	µg/L	<	1.25									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	1.7									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	3.2									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.95									
	Butyl Benzyl Phthalate	µg/L	<	1.9									
	2-Chloronaphthalene	µg/L	<	1.4									
	4-Chlorophenyl Phenyl Ether	µg/L	<	1.45									
	Chrysene	µg/L	<	2.25									
	Dibenzo(a,h)Anthrancene	µg/L	<	1.4									
	1,2-Dichlorobenzene	µg/L	<	1.6									
	1,3-Dichlorobenzene	µg/L	<	0.85									
	1,4-Dichlorobenzene	µg/L	<	0.75									
	3,3-Dichlorobenzidine	µg/L	<	0.65									
	Diethyl Phthalate	µg/L	<	1.35									
	Dimethyl Phthalate	µg/L	<	1.15									
	Di-n-Butyl Phthalate	µg/L	<	1.45									
	2,4-Dinitrotoluene	µg/L	<	3.85									
	2,6-Dinitrotoluene	µg/L	<	1.6									
	Di-n-Octyl Phthalate	µg/L	<	1.4									
	1,2-Diphenylhydrazine	µg/L	<	1									
	Fluoranthene	µg/L	<	1.75									
	Fluorene	µg/L	<	1.25									
	Hexachlorobenzene	µg/L	<	1.25									
	Hexachlorobutadiene	µg/L	<	0.27									
	Hexachlorocyclopentadiene	µg/L	<	1.1									
	Hexachloroethane	µg/L	<	1.3									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	1.25									

	Isophorone	µg/L	<	1.15									
	Naphthalene	µg/L	<	1.25									
	Nitrobenzene	µg/L	<	1.3									
	n-Nitrosodimethylamine	µg/L	<	1.35									
	n-Nitrosodi-n-Propylamine	µg/L	<	1.55									
	n-Nitrosodiphenylamine	µg/L	<	1.35									
	Phenanthrene	µg/L	<	1.05									
	Pyrene	µg/L	<	0.8									
	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

Logan Township Greenwood WWTP, NPDES Permit No. PA0032557, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: _____ 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	27.6	1051	37.7			Yes
End of Reach 1	015664	23.15	990	69.9			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	27.6	0.1683										142	8.2		
End of Reach 1	23.15	0.1683										142	8.2		

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	27.6														
End of Reach 1	23.15														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Logan Township Greenwood WWTP, NPDES Permit No. PA0032557, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.598 Analysis Hardness (mg/l): 154.38 Analysis pH: 7.73

Pollutants	Stream Conc	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	2,363	
Total Antimony	0	0		0	1,100	1,100	3,465	
Total Arsenic	0	0		0	340	340	1,071	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	66,153	
Total Boron	0	0		0	8,100	8,100	25,516	
Total Cadmium	0	0		0	3.071	3.32	10.4	Chem Translator of 0.926 applied
Total Chromium (III)	0	0		0	813.114	2,573	8,106	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	51.3	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	299	
Total Copper	0	0		0	20.233	21.1	66.4	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	69.3	
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	103.270	142	447	Chem Translator of 0.728 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	5.19	Chem Translator of 0.85 applied
Total Nickel	0	0		0	676.104	677	2,134	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	6.789	7.99	25.2	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	205	
Total Zinc	0	0		0	169.297	173	545	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	9.45	
Acrylonitrile	0	0		0	650	650	2,048	
Benzene	0	0		0	640	640	2,016	

Bromoform	0	0		0	1,800	1,800	5,670	
Carbon Tetrachloride	0	0		0	2,800	2,800	8,820	
Chlorobenzene	0	0		0	1,200	1,200	3,780	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	56,703	
Chloroform	0	0		0	1,900	1,900	5,985	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	47,252	
1,1-Dichloroethylene	0	0		0	7,500	7,500	23,626	
1,2-Dichloropropane	0	0		0	11,000	11,000	34,652	
1,3-Dichloropropylene	0	0		0	310	310	977	
Ethylbenzene	0	0		0	2,900	2,900	9,135	
Methyl Bromide	0	0		0	550	550	1,733	
Methyl Chloride	0	0		0	28,000	28,000	88,204	
Methylene Chloride	0	0		0	12,000	12,000	37,802	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	3,150	
Tetrachloroethylene	0	0		0	700	700	2,205	
Toluene	0	0		0	1,700	1,700	5,355	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	21,421	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	9,450	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	10,711	
Trichloroethylene	0	0		0	2,300	2,300	7,245	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	1,764	
2,4-Dichlorophenol	0	0		0	1,700	1,700	5,355	
2,4-Dimethylphenol	0	0		0	660	660	2,079	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	252	
2,4-Dinitrophenol	0	0		0	660	660	2,079	
2-Nitrophenol	0	0		0	8,000	8,000	25,201	
4-Nitrophenol	0	0		0	2,300	2,300	7,245	
p-Chloro-m-Cresol	0	0		0	160	160	504	
Pentachlorophenol	0	0		0	18.225	18.2	57.4	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	1,449	
Acenaphthene	0	0		0	83	83.0	261	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	945	
Benzo(a)Anthracene	0	0		0	0.5	0.5	1.58	
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	94,504	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	14,176	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	851	
Butyl Benzyl Phthalate	0	0		0	140	140	441	
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	2,583	
1,3-Dichlorobenzene	0	0		0	350	350	1,103	
1,4-Dichlorobenzene	0	0		0	730	730	2,300	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	12,601	
Dimethyl Phthalate	0	0		0	2,500	2,500	7,875	
Di-n-Butyl Phthalate	0	0		0	110	110	347	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	5,040	
2,6-Dinitrotoluene	0	0		0	990	990	3,119	
1,2-Diphenylhydrazine	0	0		0	15	15.0	47.3	
Fluoranthene	0	0		0	200	200	630	
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	31.5	
Hexachlorocyclopentadiene	0	0		0	5	5.0	15.8	
Hexachloroethane	0	0		0	60	60.0	189	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	31,501	
Naphthalene	0	0		0	140	140	441	
Nitrobenzene	0	0		0	4,000	4,000	12,601	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	53,553	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	945	
Phenanthrene	0	0		0	5	5.0	15.8	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	410	

☑ ***CFC*** CCT (min): 41.997 PMF: 1 Analysis Hardness (mg/l): 150.48 Analysis pH: 7.83

Pollutants	Stream Conc	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	1,012	
Total Arsenic	0	0		0	150	150	690	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	18,851	
Total Boron	0	0		0	1,600	1,600	7,356	
Total Cadmium	0	0		0	0.327	0.37	1.68	Chem Translator of 0.892 applied
Total Chromium (III)	0	0		0	103.577	120	554	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	47.8	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	87.4	
Total Copper	0	0		0	12.699	13.2	60.8	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	23.9	
Dissolved Iron	0	0		0	N/A	N/A	N/A	

Total Iron	0	0		0	1,500	1,500	6,897	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	3.915	5.35	24.6	Chem Translator of 0.731 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	4.17	Chem Translator of 0.85 applied
Total Nickel	0	0		0	73.487	73.7	339	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	22.9	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	59.8	
Total Zinc	0	0		0	167.023	169	779	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	13.8	
Acrylonitrile	0	0		0	130	130	598	
Benzene	0	0		0	130	130	598	
Bromoform	0	0		0	370	370	1,701	
Carbon Tetrachloride	0	0		0	560	560	2,575	
Chlorobenzene	0	0		0	240	240	1,103	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	16,092	
Chloroform	0	0		0	390	390	1,793	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	14,253	
1,1-Dichloroethylene	0	0		0	1,500	1,500	6,897	
1,2-Dichloropropane	0	0		0	2,200	2,200	10,115	
1,3-Dichloropropylene	0	0		0	61	61.0	280	
Ethylbenzene	0	0		0	580	580	2,667	
Methyl Bromide	0	0		0	110	110	506	
Methyl Chloride	0	0		0	5,500	5,500	25,288	
Methylene Chloride	0	0		0	2,400	2,400	11,035	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	966	
Tetrachloroethylene	0	0		0	140	140	644	
Toluene	0	0		0	330	330	1,517	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	6,437	
1,1,1-Trichloroethane	0	0		0	610	610	2,805	
1,1,2-Trichloroethane	0	0		0	680	680	3,126	
Trichloroethylene	0	0		0	450	450	2,069	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	506	
2,4-Dichlorophenol	0	0		0	340	340	1,563	
2,4-Dimethylphenol	0	0		0	130	130	598	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	73.6	
2,4-Dinitrophenol	0	0		0	130	130	598	
2-Nitrophenol	0	0		0	1,600	1,600	7,356	
4-Nitrophenol	0	0		0	470	470	2,161	
p-Chloro-m-Cresol	0	0		0	500	500	2,299	
Pentachlorophenol	0	0		0	13.983	14.0	64.3	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	418	
Acenaphthene	0	0		0	17	17.0	78.2	
Anthracene	0	0		0	N/A	N/A	N/A	

Benzidine	0	0		0	59	59.0	271	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.46	
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	27,586	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	4,184	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	248	
Butyl Benzyl Phthalate	0	0		0	35	35.0	161	
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	736	
1,3-Dichlorobenzene	0	0		0	69	69.0	317	
1,4-Dichlorobenzene	0	0		0	150	150	690	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	3,678	
Dimethyl Phthalate	0	0		0	500	500	2,299	
Di-n-Butyl Phthalate	0	0		0	21	21.0	96.6	
2,4-Dinitrotoluene	0	0		0	320	320	1,471	
2,6-Dinitrotoluene	0	0		0	200	200	920	
1,2-Diphenylhydrazine	0	0		0	3	3.0	13.8	
Fluoranthene	0	0		0	40	40.0	184	
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	9.2	
Hexachlorocyclopentadiene	0	0		0	1	1.0	4.6	
Hexachloroethane	0	0		0	12	12.0	55.2	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	9,655	
Naphthalene	0	0		0	43	43.0	198	
Nitrobenzene	0	0		0	810	810	3,724	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	15,632	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	271	
Phenanthrene	0	0		0	1	1.0	4.6	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	120	

☑ ***THH*** CCT (min): 41.997 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc	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	25.7	

Total Arsenic	0	0		0	10	10.0	46.0	
Total Barium	0	0		0	2,400	2,400	11,035	
Total Boron	0	0		0	3,100	3,100	14,253	
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	18.4	
Dissolved Iron	0	0		0	300	300	1,379	
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	4,598	
Total Mercury	0	0		0	0.050	0.05	0.23	
Total Nickel	0	0		0	610	610	2,805	
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	1.1	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	13.8	
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	460	
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	26.2	
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	152	
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	313	
Methyl Bromide	0	0		0	100	100.0	460	
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	262	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	460	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	45,977	
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	138	
2,4-Dichlorophenol	0	0		0	10	10.0	46.0	
2,4-Dimethylphenol	0	0		0	100	100.0	460	

4,6-Dinitro-o-Cresol	0	0		0	2	2.0	9.2	
2,4-Dinitrophenol	0	0		0	10	10.0	46.0	
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	18,391	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	322	
Anthracene	0	0		0	300	300	1,379	
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	920	
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	0.46	
2-Chloronaphthalene	0	0		0	800	800	3,678	
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	4,598	
1,3-Dichlorobenzene	0	0		0	7	7.0	32.2	
1,4-Dichlorobenzene	0	0		0	300	300	1,379	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	2,759	
Dimethyl Phthalate	0	0		0	2,000	2,000	9,195	
Di-n-Butyl Phthalate	0	0		0	20	20.0	92.0	
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	92.0	
Fluorene	0	0		0	50	50.0	230	
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	18.4	
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	156	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	46.0	
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	92.0	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.32	

☑ ***CRL*** CCT (min): 22.137 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc	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	1.33	
Benzene	0	0		0	0.58	0.58	12.9	
Bromoform	0	0		0	7	7.0	155	
Carbon Tetrachloride	0	0		0	0.4	0.4	8.87	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	17.7	
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	21.1	
1,2-Dichloroethane	0	0		0	9.9	9.9	220	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	20.0	
1,3-Dichloropropylene	0	0		0	0.27	0.27	5.99	
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	444	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	4.44	

Tetrachloroethylene	0	0		0	10	10.0	222	
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	12.2	
Trichloroethylene	0	0		0	0.6	0.6	13.3	
Vinyl Chloride	0	0		0	0.02	0.02	0.44	
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	0.67	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	33.3	
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	0.002	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.022	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.002	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.022	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.22	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.67	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	7.1	
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	2.66	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.002	
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	1.11	
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	1.11	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	1.11	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.67	
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	0.002	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.22	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	2.22	

Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.022	
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	0.016	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.11	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	73.2	
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: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Mercury	Report	Report	Report	Report	Report	µg/L	0.23	THH	Discharge Conc > 10% 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 Aluminum	1,514	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	25.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	11,035	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	7,356	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	1.68	µg/L	Discharge Conc < TQL
Total Chromium (III)	554	µg/L	Discharge Conc < TQL
Hexavalent Chromium	32.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	87.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	42.6	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	18.4	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	1,379	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	6,897	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	24.6	µg/L	Discharge Conc ≤ 10% WQBEL

Total Manganese	4,598	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	339	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	22.9	µg/L	Discharge Conc < TQL
Total Silver	16.1	µg/L	Discharge Conc < TQL
Total Thallium	1.1	µg/L	Discharge Conc < TQL
Total Zinc	350	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	6.06	µg/L	Discharge Conc < TQL
Acrylonitrile	1.33	µg/L	Discharge Conc < TQL
Benzene	12.9	µg/L	Discharge Conc < TQL
Bromoform	155	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	8.87	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	460	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	17.7	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	16,092	µg/L	Discharge Conc < TQL
Chloroform	26.2	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	21.1	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	220	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	152	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	20.0	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	5.99	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	313	µg/L	Discharge Conc < TQL
Methyl Bromide	460	µg/L	Discharge Conc < TQL
Methyl Chloride	25,288	µg/L	Discharge Conc < TQL
Methylene Chloride	444	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	4.44	µg/L	Discharge Conc < TQL
Tetrachloroethylene	222	µg/L	Discharge Conc < TQL
Toluene	262	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	460	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	2,805	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	12.2	µg/L	Discharge Conc < TQL
Trichloroethylene	13.3	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.44	µg/L	Discharge Conc < TQL
2-Chlorophenol	138	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	46.0	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	460	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	9.2	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	46.0	µg/L	Discharge Conc < TQL
2-Nitrophenol	7,356	µg/L	Discharge Conc < TQL
4-Nitrophenol	2,161	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	323	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.67	µg/L	Discharge Conc < TQL
Phenol	18,391	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	33.3	µg/L	Discharge Conc < TQL
Acenaphthene	78.2	µg/L	Discharge Conc < TQL

Acenaphthylene	N/A	N/A	No WQS
Anthracene	1,379	µg/L	Discharge Conc < TQL
Benzidine	0.002	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.022	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.002	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.022	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.22	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.67	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	920	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	7.1	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	248	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.46	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	3,678	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	2.66	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.002	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	736	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichlorobenzene	32.2	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dichlorobenzene	690	µg/L	Discharge Conc ≤ 25% WQBEL
3,3-Dichlorobenzidine	1.11	µg/L	Discharge Conc < TQL
Diethyl Phthalate	2,759	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	2,299	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	92.0	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	1.11	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	1.11	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.67	µg/L	Discharge Conc < TQL
Fluoranthene	92.0	µg/L	Discharge Conc < TQL
Fluorene	230	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.002	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.22	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	4.6	µg/L	Discharge Conc < TQL
Hexachloroethane	2.22	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.022	µg/L	Discharge Conc < TQL
Isophorone	156	µg/L	Discharge Conc < TQL
Naphthalene	198	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	46.0	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.016	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.11	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	73.2	µg/L	Discharge Conc < TQL
Phenanthrene	4.6	µg/L	Discharge Conc < TQL
Pyrene	92.0	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.32	µg/L	Discharge Conc < TQL

Attachment C

WETT Results

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.22
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Logan Township Greenwood WWTP

Permit No.: PA0032557

Test Completion Date: 11/3/2020

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: 11/9/2021

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: 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: 11/7/2023

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**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.22
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Logan Township Greenwood WWTP

Permit No.: PA0032557

Test Completion Date: 11/3/2020

Replicate No.	Control	TIWC
1	21	40
2	40	40
3	32	32
4	26	31
5	41	44
6	37	36
7	23	35
8	35	27
9	35	31
10	33	35
11		
12		
13		
14		
15		
Mean	32.300	35.100
Std Dev.	6.881	5.131
# Replicates	10	10

T-Test Result	4.7259
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	**PASS**

Test Completion Date: 11/9/2021

Replicate No.	Control	TIWC
1	43	40
2	37	38
3	27	38
4	36	40
5	39	38
6	44	41
7	36	38
8	34	38
9	34	38
10	37	45
11		
12		
13		
14		
15		
Mean	36.700	39.400
Std Dev.	4.809	2.271
# Replicates	10	10

T-Test Result	8.8116
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	**PASS**

Test Completion Date: 11/7/2022

Replicate No.	Control	TIWC
1	39	36
2	36	42
3	36	42
4	36	34
5	36	40
6	38	41
7	35	33
8	40	27
9	40	37
10	16	38
11		
12		
13		
14		
15		
Mean	35.200	37.000
Std Dev.	6.989	4.738
# Replicates	10	10

T-Test Result	4.7443
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	**PASS**

Test Completion Date: 11/7/2023

Replicate No.	Control	TIWC
1	30	35
2	32	29
3	33	34
4	39	36
5	15	32
6	8	17
7	30	34
8	25	30
9	34	40
10	10	24
11		
12		
13		
14		
15		
Mean	25.600	31.100
Std Dev.	10.803	6.590
# Replicates	10	10

T-Test Result	3.6030
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	**PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.22
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Logan Township Greenwood WWTP

Permit No.: PA0032557

Test Completion Date: 11/3/2020

Replicate No.	Control	TIWC
1	10	9
2	10	10
3	10	9
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: 11/9/2021

Replicate No.	Control	TIWC
1	10	9
2	10	10
3	10	9
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: 11/8/2022

Replicate No.	Control	TIWC
1	10	9
2	10	10
3	10	10
4	10	10
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: 11/7/2023

Replicate No.	Control	TIWC
1	10	10
2	10	9
3	10	10
4	10	10
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**	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.22
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Logan Township Greenwood WWTP

Permit No.: PA0032557

Test Completion Date: 11/3/2020

Replicate No.	Control	TIWC
1	0.453	0.424
2	0.452	0.467
3	0.51	0.406
4	0.487	0.415
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.476	0.428
Std Dev.	0.028	0.027
# Replicates	4	4

T-Test Result	4.1619
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

Test Completion Date: 11/9/2021

Replicate No.	Control	TIWC
1	0.334	0.409
2	0.326	0.379
3	0.371	0.32
4	0.415	0.351
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.362	0.365
Std Dev.	0.041	0.038
# Replicates	4	4

T-Test Result	3.8362
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

Test Completion Date: 11/8/2022

Replicate No.	Control	TIWC
1	0.3	0.336
2	0.301	0.376
3	0.339	0.315
4	0.356	0.352
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.324	0.345
Std Dev.	0.028	0.026
# Replicates	4	4

T-Test Result	6.1220
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

Test Completion Date: 11/7/2023

Replicate No.	Control	TIWC
1	0.661	0.765
2	0.726	0.848
3	0.701	0.861
4	0.86	0.887
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.737	0.840
Std Dev.	0.086	0.053
# Replicates	4	4

T-Test Result	6.8898
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**