

Application Type Renewal
 Facility Type Industrial
 Major / Minor Minor

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

Application No. PA0085111
 APS ID 447
 Authorization ID 1551233

Applicant and Facility Information

Applicant Name	<u>Altoona Water Authority</u>	Facility Name	<u>Altoona Water Authority Tipton</u>
Applicant Address	<u>900 Chestnut Avenue</u> <u>Altoona, PA 16601-4617</u>	Facility Address	<u>3070 Old Route 22 West</u> <u>Duncansville, PA 16635</u>
Applicant Contact	<u>Mark Perry</u>	Facility Contact	<u>Irina Hott</u>
Applicant Phone	<u>(814) 949-2222</u>	Facility Phone	<u>(814) 944-2597</u>
Client ID	<u>85897</u>	Site ID	<u>238359</u>
SIC Code	<u>4941</u>	Municipality	<u>Antis Township</u>
SIC Description	<u>Trans. & Utilities - Water Supply</u>	County	<u>Blair</u>
Date Application Received	<u>December 5, 2025</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>December 12, 2025</u>	If No, Reason	<u></u>
Purpose of Application	<u>This is an application for NPDES renewal.</u>		

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineer Nick Hong (via electronic signature)	January 29, 2025
x		Daniel W. Martin, P.E. / Environmental Engineer Manager <i>Maria D. Bebenek</i> for	February 17, 2026
x		Maria D. Bebenek, P.E. / Environmental Program Manager <i>Maria D. Bebenek</i>	February 17, 2026

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Altoona Water Authority - Tipton located at 1837 Tipton Road, Tyrone, PA 16686 in Blair County, municipality of Antis Township. The existing permit became effective on April 1, 2021 and expires(d) on March 31, 2026. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on December 5, 2025.

The purpose of this Fact Sheet is to present the basis of information used for establishing the proposed NPDES permit effluent limitations. The Fact Sheet includes a description of the facility, a description of the facility's receiving waters, a description of the facility's receiving waters attainment/non-attainment assessment status, and a description of any changes to the proposed monitoring/sampling frequency. Section 6 provides the justification for the proposed NPDES effluent limits derived from technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), total maximum daily loading (TMDL), antidegradation, anti-backsliding, and/or whole effluent toxicity (WET). A brief summary of the outlined descriptions has been included in the Summary of Review section.

The subject facility is a 0.8 MGD treatment facility. The applicant does not anticipate any proposed upgrades to the treatment facility in the next five years. The NPDES application has been processed as an Industrial Wastewater Facility due to the type of wastewater and the design flow rate for the facility. The applicant disclosed the Act 14 requirement to Blair County Commissioners and Antis Township Supervisors and the notice was received by the parties on December 8, 2025 and December 9, 2025.

Utilizing the DEP's web-based Emap-PA information system, the receiving waters has been determined to be Tipton Run. The sequence of receiving streams that the Tipton Run discharges into are Little Juniata River, 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 high quality cold water fishes (HQ-CWF) and migratory fishes (MF). Class A Wild Trout fisheries may potentially be impacted by this discharge. The presence of high quality and/or exceptional value surface waters triggers the need for an additional evaluation of anti-degradation requirements.

The Tipton Run is a Category 2 stream listed in the 2024 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an attaining stream that supports aquatic life and potable water supply. The receiving waters is not subject to a total maximum daily load (TMDL) plan to improve water quality in the subject facility's watershed.

The existing permit and proposed permit differ as follows:

- **Monitoring for aluminum, iron, and manganese shall be 1x/month.**
- **Effluent limits for TSS**

Sludge use and disposal description and location(s): The consultant confirmed there was not any biosolids disposed.

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: Altoona Water - Tipton

NPDES Permit # PA0085111

Physical Address: 1837 Tipton Road
Tyrone, PA 16686

Mailing Address: 900 Chestnut Street
Altoona, PA 166001

Contact: Irina Hott
Water Treatment Supervisor
ihott@altoonawater.gov

Consultant: Leslie Loughner
Gwin, Dobson, and Foreman, Inc.
Senior Environmental Scientist
(814) 943-5214
lloughner@gdfengineers.com

1.2 Permit History

Permit submittal included the following information.

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

2.0 Treatment Facility Summary

2.1.1 Site location

The physical address for the facility is 1837 Tipton Road, Tyrone, PA 16686. A topographical and an aerial photograph of the facility are depicted as Figure 1 and Figure 2.

Figure 1: Topographical map of the subject facility

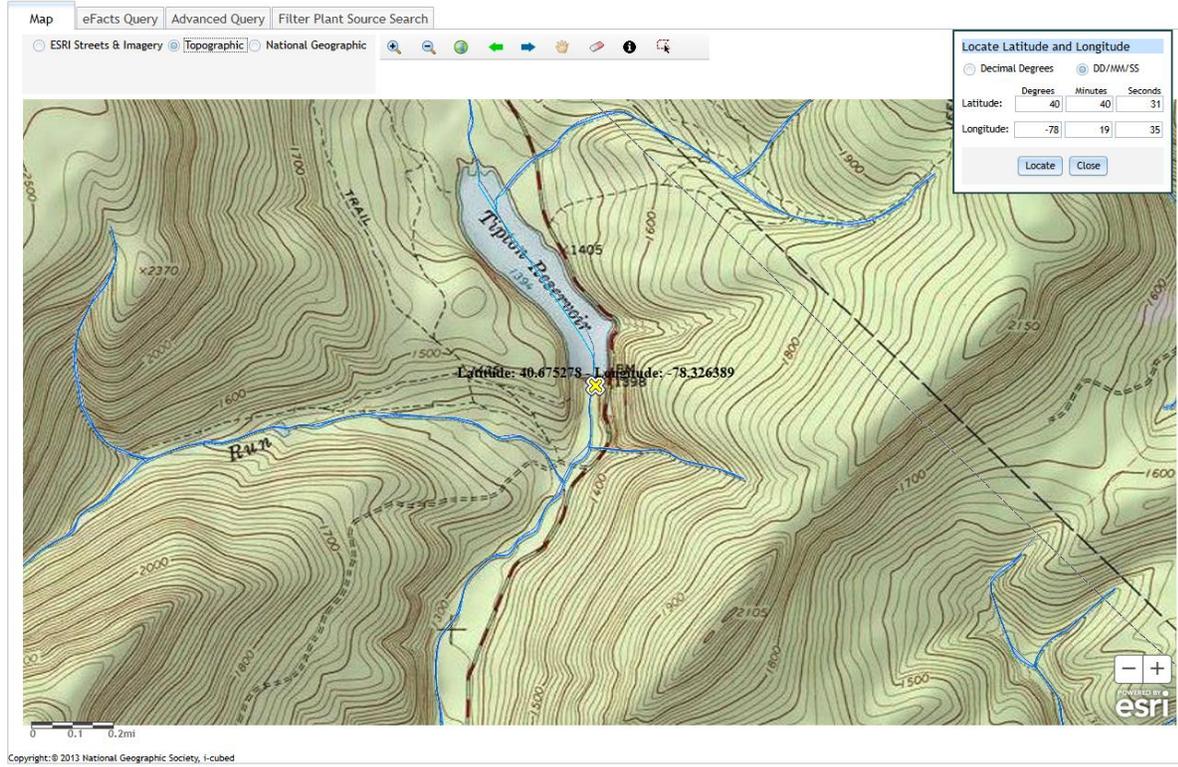
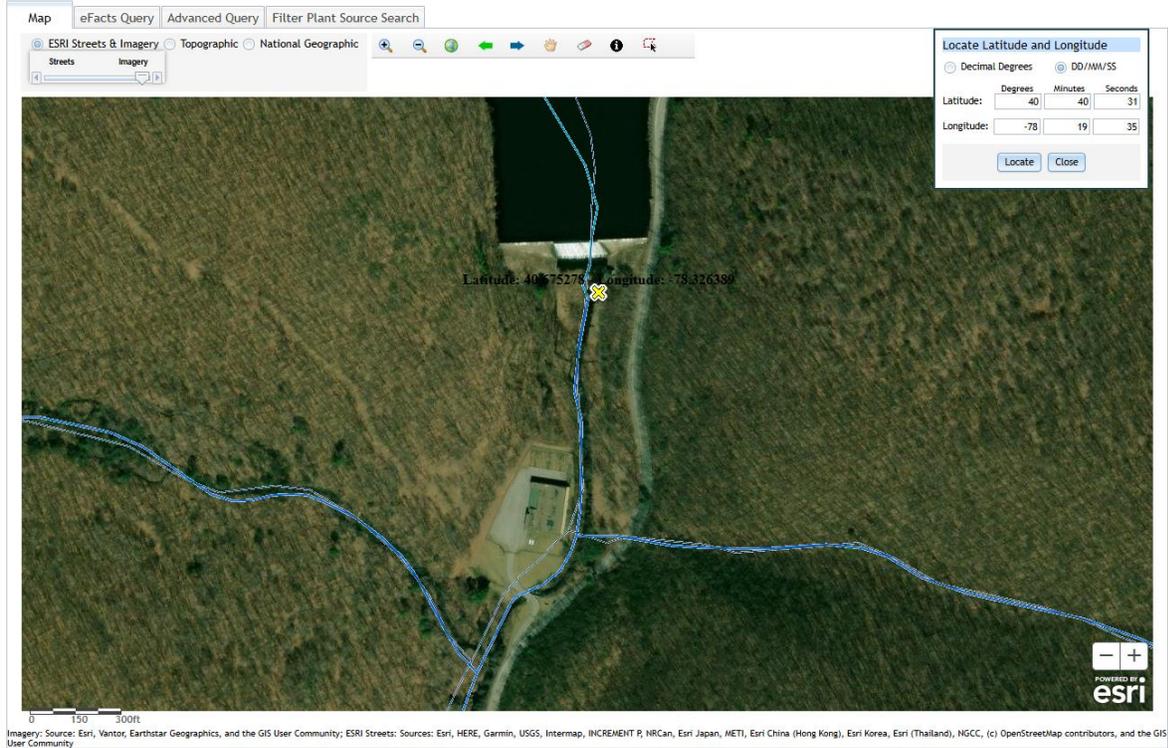


Figure 2: Aerial Photograph of the subject facility



2.3.1 Operational Considerations- Chemical Additives

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

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

- Chlorine for disinfection
- Caustic soda for pH adjustment
- Aluminum sulfate for coagulant
- Orthophosphate for corrosion inhibitor. This is fed after the NPDES discharge location.

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° 40' 31.00", Longitude 78° 19' 35.00", River Mile Index 4.42, Stream Code 15908

Receiving Waters: Tipton Run (HQ-CWF)

Type of Effluent: Water Treatment Effluent

1. The permittee is authorized to discharge during the period from **April 1, 2021** through **March 31, 2026**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
Average Monthly	Average Weekly	Minimum	Annual Average	Maximum	Instant. Maximum			
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	XXX	XXX	1/year	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/year	Calculation
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/year	24-Hr Composite
Aluminum, Total	Report	Report Daily Max	XXX	0.26 Avg Mo	0.52 Daily Max	0.65	1/week	24-Hr Composite
Iron, Total	XXX	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	24-Hr Composite
Manganese, Total	XXX	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	24-Hr Composite

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

at Outfall 001

3.0 Facility NPDES Compliance History

3.1 Summary of Inspections

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

The DEP inspector noted the following during the inspection.

03/10/2022:

- The treatment plant discharge consists of diversion flow and is composed of treated (non-chlorinated) drinking water that cannot be used in the distribution system. Diversions usually only occur at plant start-up.
- Doug mentioned that there may be multiple days or weeks when no diversion discharge occurs.
- Backwash water is treated in a settling tank and the decant is recycled with new source water.
- The diversion water is currently monitored for pH using a pH analyzer that measures the value before the filtering process. The NPDES permit requires pH testing after all treatment. Doug stated that the Authority has plans to install new pH analyzers in the correct location within the next three months. pH is checked by operator if there is a discharge at the time of his visit.
- Composite samples are taken by hand. All composite samples should consist of at least two separate grab samples if discharge is under an hour. More grabs should be taken if discharge lasts longer. All grab times should be recorded on log sheets or in logbook. pH sample should be a grab and not from compositor
- Sludge and much of the sand has been removed from three of the five the drying beds. The sand was replaced with new material and the Authority is working on cleaning out the remaining beds.

03/17/2023:

- The treatment plant discharge consists of diversion flow and is composed of treated (non-chlorinated) drinking water that cannot be used in the distribution system. Diversions usually only occur at plant start-up and there may be multiple days or weeks when no diversion discharge occurs.
- Backwash water is treated in a settling tank and the decant is recycled with new source water.

3.2 Summary of DMR Data

A review of approximately 1-year of DMR data shows that the monthly average flow data for the facility below the design capacity of the treatment system. The maximum average flow data for the DMR reviewed was 0.0654 MGD in November 2024. The design capacity of the treatment system is 0.8 MGD.

The off-site laboratory used for the analysis of the parameters was Pace Analytical located at 1803 Philadelphia Street, Indiana, PA 15701 and Suburban Water Testing Labs located at 1037F MacArther Road, Reading, PA 19065

**NPDES Permit Fact Sheet
Altoona Water Authority**

NPDES Permit No. PA0085111

DMR Data for Outfall 001 (from November 1, 2024 to October 31, 2025)

Parameter	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24
Flow (MGD) Average Monthly	0.04029 7	0.05301 5	0.02923 2	0.02235 2	0.0235 4	0.03176 4	0.01692 3	0.02884 0.02884	0.02258 2	0.01239 7	0.034	0.0654
Flow (MGD) Daily Maximum	0.08535	0.17771 3	0.06728 9	0.07680 1	0.05354 1	0.07683 7	0.02652 9	0.04371 7	0.02258 2	0.01433	0.049	0.0945
pH (S.U.) Instantaneous Minimum	6.33	6.31	6.24	6.27	6.34	6.38	6.46	6.28	6.78	6.76	6.56	6.54
pH (S.U.) Instantaneous Maximum	7.16	6.44	6.34	6.42	6.47	6.53	6.54	6.55	6.78	6.80	6.71	6.62
TSS (mg/L) Annual Average											< 5	
Total Nitrogen (mg/L) Annual Average											< 0.729	
Total Phosphorus (mg/L) Annual Average											< 0.10	
Total Aluminum (lbs/day) Average Monthly	< 0.01	< 0.005	0.004	< 0.003	0.003	< 0.03	< 0.0141	< 0.03	< 0.02	< 0.001	0.003	0.008
Total Aluminum (lbs/day) Daily Maximum	0.05	0.01	0.008	< 0.006	0.006	< 0.06	< 0.0221	< 0.04	< 0.02	0.001	0.004	0.012
Total Aluminum (mg/L) Average Monthly	< 0.06	< 0.01	0.01	< 0.01	0.01	< 0.1000	< 0.100	< 0.10	< 0.100	< 0.01	0.01	0.015
Total Aluminum (mg/L) Daily Maximum	0.216	0.013	0.015	0.012	0.02	< 0.100	< 0.100	< 0.10	< 0.10	0.015	0.01	0.015
Total Iron (mg/L) Semi-Annual Average					< 0.200						< 0.0200	
Total Manganese (mg/L) Semi-Annual Average					< 0.0200						0.038	

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 April 1, 2021 to January 20, 2026, there were no observed effluent non-compliances.

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 April 1, 2021 to January 20, 2026, there were no observed enforcement actions.

3.4 Summary of Biosolids Disposal

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

The consultant confirmed there was not any biosolids disposed.

3.5 Open Violations

As of January 2026, open violations for the client existed. The client was cited for a violation in the air quality program for the Altoona Water Authority – Westerly plant. The final executed NPDES permit may be withheld until the open violation is addressed.

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

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

4.2 Public Water Supply (PWS) Intake

The closest PWS to the subject facility is Mifflintown MA (PWS ID #4340008) located approximately 89 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 Class A Wild Trout Fishery may be impacted by this discharge.

The draft Fact Sheet and draft NPDES shall be sent to Fish and Boat Commission for comment.

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

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

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

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

The receiving waters is listed in the 2024 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 waterbody. The surface waters is an attaining stream that supports aquatic life and potable water supply. The designated use has been classified as protected waters for high quality cold water fishes (HQ-CWF) 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 gauge station to the subject facility is the Little Juniata River at Tipton, PA (USGS station number 1556500). This gauge station is located approximately 4.6 miles downstream of the subject facility.

For WQM modeling, the default value for pH was used. pH was estimated to be 7.0.

The hardness of the stream was estimated by collecting a sample upstream of the facility. The sampling result was 14.9 mg/l CaCO₃.

The low flow yield and the Q710 for the subject facility was estimated using StreamStats.

The low flow yield is 0.065 ft³/s/mi² and the Q710 is 0.565 ft³/s.

4.6 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>.8</u>
Latitude	<u>40° 40' 30.77"</u>	Longitude	<u>-78° 19' 35.44"</u>
Quad Name	<u></u>	Quad Code	<u></u>
Wastewater Description: <u>Water Treatment Effluent</u>			

Receiving Waters	<u>Tipton Run (HQ-CWF)</u>	Stream Code	<u>15908</u>
NHD Com ID	<u>65604638</u>	RMI	<u>4.54</u>
Drainage Area	<u>8.67</u>	Yield (cfs/mi ²)	<u>0.065</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.565</u>	Q ₇₋₁₀ Basis	<u>StreamStats</u>
Elevation (ft)	<u>1321</u>	Slope (ft/ft)	<u></u>
Watershed No.	<u>11-A</u>	Chapter 93 Class.	<u>HQ-CWF</u>
Existing Use	<u></u>	Existing Use Qualifier	<u></u>
Exceptions to Use	<u></u>	Exceptions to Criteria	<u></u>
Assessment Status	<u>Attaining Use(s) supports aquatic life, supports potable water supply</u>		
Cause(s) of Impairment	<u>Not applicable</u>		
Source(s) of Impairment	<u>Not applicable</u>		
TMDL Status	<u>Not applicable</u>	Name	<u></u>

Background/Ambient Data		Data Source	
pH (SU)	<u>7</u>	Default	<u></u>
Temperature (°C)	<u></u>		<u></u>
Hardness (mg/L)	<u>14.9</u>	NPDES application (12/5/2025)	<u></u>
Other:	<u></u>		<u></u>

Nearest Downstream Public Water Supply Intake	<u>Mifflintown MA</u>		
PWS Waters	<u>Juniata River</u>	Flow at Intake (cfs)	<u></u>
PWS RMI	<u>37</u>	Distance from Outfall (mi)	<u>89</u>

5.0: Overview of Presiding Water Quality Standards

5.1 General

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

5.2.1 Technology-Based Limitations

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

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

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

Notes:

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

5.2.2 Mass Based Limits

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

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

5.3 Water Quality-Based Limitations

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

Determination of WQBEL is calculated by spreadsheet analysis or by a computer modeling program developed by DEP. DEP permit engineers utilize the following computing programs for WQBEL permit limitations: (1) MS Excel worksheet for Total Residual Chlorine (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.

<i>General Data 1</i>	<i>(Modeling Point #1)</i>	<i>(Modeling Point #2)</i>	<i>Units</i>
Stream Code	15908	15908	
River Mile Index	4.54	2	miles
Elevation	1321	1091	feet
Latitude	40.675278	40.645311	
Longitude	-78.326389	-78.318252	
Drainage Area	8.67	16.8	sq miles
Low Flow Yield	0.065	0.057	cfs/sq mile

5.3.1 Water Quality Modeling 7.0

The facility is not subject to water quality modeling for dissolved oxygen.

5.3.2 Toxics Modeling

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

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

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

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

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

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

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

To determine if Toxics modeling is necessary, DEP has developed a Toxics Management Spreadsheet to identify toxics of concern. Toxic pollutants whose maximum concentrations as reported in the permit application or on DMRs are greater than the most stringent applicable water quality criterion are pollutants of concern. A Reasonable Potential Analysis was utilized to determine (a) if the toxic parameters modeled would require monitoring or (b) if permit limitations would be required for the parameters. The toxics reviewed for reasonable potential were the pollutants in Groups 1 and 2 parameters.

The NPDES application collected at least three 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)

The facility is not subject to WET.

5.4 Total Maximum Daily Loading (TMDL)

5.4.1 TMDL

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

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

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

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

5.4.1.1 Local TMDL

The subject facility does not discharge into a local TMDL.

5.4.1.2 Chesapeake Bay TMDL Requirement

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

Most of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the federal Water Pollution Control Act ("Clean Water Act"), 33 U.S.C. § 1313(d). While the Chesapeake Bay is outside the boundaries of Pennsylvania, more than half of the State lies within the watershed. Two major rivers in Pennsylvania are

part of the Chesapeake Bay Watershed. They are (a) the Susquehanna River and (b) the Potomac River. These two rivers total 40 percent of the entire Chesapeake Bay watershed.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

This facility is subject to Sector C monitoring requirements. Monitoring for nitrogen and phosphorus shall be at least 1x/year.

5.5 Anti-Degradation Requirement

Chapter 93.4a of the PA regulations requires that surface water of the Commonwealth of Pennsylvania may not be degraded below levels that protect the existing uses. The regulations specifically state that *Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected*. Antidegradation requirements are implemented through DEP's guidance manual entitled Water Quality Antidegradation Implementation Guidance (Document #391-0300-02).

The policy requires DEP to protect the existing uses of all surface waters and the existing quality of High Quality (HQ) and Exceptional Value (EV) Waters. Existing uses are protected when DEP makes a final decision on any permit or approval for an activity that may affect a protected use. Existing uses are protected based upon DEP's evaluation of the best available information (which satisfies DEP protocols and Quality Assurance/Quality Control (QA/QC) procedures) that indicates the protected use of the waterbody.

For a new, additional, or increased point source discharge to an HQ or EV water, the person proposing the discharge is required to utilize a nondischarge alternative that is cost-effective and environmentally sound when compared with the cost of the proposed discharge. If a nondischarge alternative is not cost-effective and environmentally sound, the person must use the best available combination of treatment, pollution prevention, and wastewater reuse technologies and assure that any discharge is nondegrading. In the case of HQ waters, DEP may find that after satisfaction of intergovernmental coordination and public participation requirements lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In addition, DEP will assure that cost-effective and reasonable best management practices for nonpoint source control in HQ and EV waters are achieved.

The subject facility's discharge will be to a special protection water. The facility will discharge drinking water effluent quality by diversion to the receiving stream. DEP believes that since the diversion to the Outfall 001 is drinking water effluent quality the receiving water should not be adversely impacted. 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.I.1 and 40 CFR 122.I.2). A review of the existing permit limitations with the proposed permit limitations confirm that the facility is consistent with anti-backsliding requirements. The facility has proposed effluent limitations that are as stringent as the existing permit.

6.0 NPDES Parameter Details

The basis for the proposed sampling and their monitoring frequency that will appear in the permit for each individual parameter are itemized in this Section. The final limits are the more stringent of technology based effluent treatment (TBEL) requirements, water quality based (WQBEL) limits, TMDL, antidegradation, anti-degradation, or WET.

The reader will find in this section:

- a) a justification of recommended permit monitoring requirements and limitations for each parameter in the proposed NPDES permit;
- b) a summary of changes from the existing NPDES permit to the proposed permit; and
- c) a summary of the proposed NPDES effluent limits.

6.1 Recommended Monitoring Requirements and Effluent Limitations

A summary of the recommended monitoring requirements and effluent limitations are itemized in the tables. The tables are categorized by (a) Conventional Pollutants and Disinfection, (b) Nitrogen Species and Phosphorus, (c) Toxics, and (d) Non-Conventional Pollutants, and (e) Chapter 92a.61 targeted parameters

6.1.1 Conventional Pollutants and Disinfection

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection			
Altoona Water - Tipton; PA0085111			
Parameter	Permit Limitation Required by ¹ :	Recommendation	
pH (S.U.)	TBEL	Monitoring:	The monitoring frequency shall be daily as a grab sample (Table 6-4).
		Effluent Limit:	Effluent limits may range from pH = 6.0 to 9.0
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-4 and the effluent limits assigned by Chapter 95.2(1).
TSS	TBEL; DEP Guidance Document-Water Treatment Plant Wastes	Monitoring:	The monitoring frequency shall be 1x/quarter as a 24-hr composite sample (Table 6-4).
		Effluent Limit:	Effluent limits shall not exceed 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) and Water Treatment Plant Wastes guidance document.
Notes:			
1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other			
2 Monitoring frequency based on flow rate of 0.8 MGD.			
3 Table 6-4 (Self Monitoring Requirements for Industrial Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97			
4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)			
5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021			

6.1.2 Nitrogen Species and Phosphorus

Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus			
Altoona Water - Tipton; PA0085111			
Parameter	Permit Limitation Required by ¹ :	Recommendation	
Total Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as a calculation sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/yr.
Total Phosphorus	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr 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/yr.
Notes:			
1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other			
2 Monitoring frequency based on flow rate of 0.8 MGD.			
3 Table 6-4 (Self Monitoring Requirements for Industrial Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97			
4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)			
5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021			

6.1.3 Toxics

Two modeling runs were completed using Toxics Management Spreadsheet (TMS).

Modeling Run #1 utilized the sample results from the NPDES renewal application.

Modeling Run #2 utilized the larger of the sample results from either the NPDES renewal application or from the DMR from April 2021 to October 2025.

DEP contacted Pace Analytical to lower the detection limits for cadmium to conform with DEP target QL. Cadmium was lowered to 0.1 ug/l.

Summary of Proposed NPDES Parameter Details for Toxics			
Altoona Water - Tipton; PA0085111			
Parameter	Permit Limitation Required by¹:	Recommendation	
Aluminum	Antibacksliding; DEP Guidance Document-Water Treatment Plant Wastes	Monitoring:	The monitoring frequency shall be 1x/month as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	The performance effluent limit shall not exceed 0.26 mg/l as a monthly average.
		Rationale:	Due to anti-backsliding provisions, the current limit shall continue to the proposed permit. Effluent limits are required by the (1) DEP Guidance Document- Technology-Based Control Requirements for Water Treatment Plant Wastes- Waste Water from Treatment of WTP Sludges and Filter Backwash (2) water quality modeling through toxics recommends monitoring
Iron	DEP Guidance Document-Water Treatment Plant Wastes	Monitoring:	The monitoring frequency shall be 1x/month as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	The performance effluent limit shall not exceed 2 mg/l as a monthly average.
		Rationale:	Effluent limits are defined by DEP Guidance Document- Technology-Based Control Requirements for Water Treatment Plant Wastes- Waste Water from Treatment of WTP Sludges and Filter Backwash
Manganese	DEP Guidance Document-Water Treatment Plant Wastes	Monitoring:	The monitoring frequency shall be 1x/month as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	The performance effluent limit shall not exceed 1 mg/l as a monthly average.
		Rationale:	Effluent limits are defined by DEP Guidance Document- Technology-Based Control Requirements for Water Treatment Plant Wastes- Waste Water from Treatment of WTP Sludges and Filter Backwash
Notes:			
1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) QBEL, (g) WET, or (h) Other			
2 Monitoring frequency based on flow rate of 0.8 MGD.			
3 Table 6-4 (Self Monitoring Requirements for Industrial Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97			
4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)			
5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021			

6.2 Summary of Changes From Existing Permit to Proposed Permit

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

- **Monitoring for aluminum, iron, and manganese shall be 1x/month.**
- **Effluent limits for TSS**

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° 40' 31.00", Longitude 78° 19' 35.00", River Mile Index 4.54, Stream Code 15908

Receiving Waters: Tipton Run (HQ-CWF)

Type of Effluent: Water Treatment 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 Quarterly	Average Weekly	Minimum	Average Quarterly	Maximum	Instant. Maximum		
Flow (MGD)	Report Avg Mo	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Total Suspended Solids	Report	XXX	XXX	Report	XXX	XXX	1/quarter	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Total Phosphorus	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	24-Hr Composite
Aluminum, Total	Report Avg Mo	Report Daily Max	XXX	0.26 Avg Mo	0.52 Daily Max	0.65	1/month	24-Hr Composite
Iron, Total	Report Avg Mo	XXX	XXX	Report Avg Mo	XXX	XXX	1/month	24-Hr Composite
Manganese, Total	Report Avg Mo	XXX	XXX	Report Avg Mo	XXX	XXX	1/month	24-Hr Composite

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

at Outfall 001

6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- Chesapeake Bay Nutrient Definitions
- Solids Management for Non-Lagoon Treatment Systems

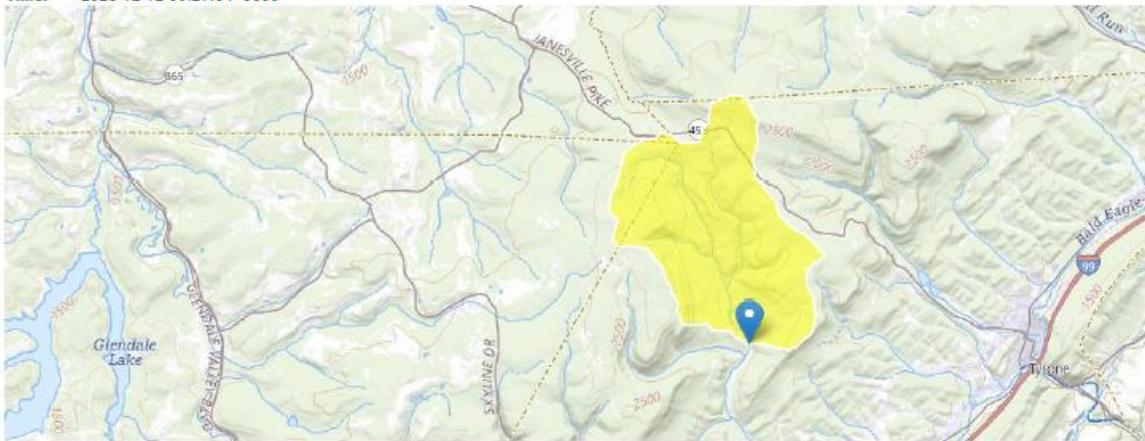
Tools and References Used to Develop Permit	
<input type="checkbox"/>	WQM for Windows Model (see Attachment [redacted])
<input checked="" type="checkbox"/>	Toxics Management Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	TRC Model Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
<input type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 386-2000-002, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
<input type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
<input type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
<input type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Design Stream Flows, 386-2000-003, 9/98.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
<input type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input checked="" type="checkbox"/>	SOP: [redacted]
<input type="checkbox"/>	Other: [redacted]

Attachment A

Stream Stats/Gauge Data

StreamStats Report

Region ID: PA
 Workspace ID: PA20251212142636318000
 Clicked Point (Latitude, Longitude): 40.67517, -78.32655
 Time: 2025-12-12 09:27:04 -0500



Tipton PA0085111 Modeling Point #1 December 2025

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	0	percent
DRNAREA	Area that drains to a point on a stream	8.67	square miles
PRECIP	Mean Annual Precipitation	41	inches
ROCKDEP	Depth to rock	4.7	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.43	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	0	percent	0	99
DRNAREA	Drainage Area	8.67	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	41	inches	35	50.4
ROCKDEP	Depth to Rock	4.7	feet	3.32	5.65
STRDEN	Stream Density	1.43	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, PseudoR²: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	1.16	ft ³ /s	38	38
30 Day 2 Year Low Flow	1.54	ft ³ /s	33	33
7 Day 10 Year Low Flow	0.565	ft ³ /s	51	51
30 Day 10 Year Low Flow	0.743	ft ³ /s	46	46
90 Day 10 Year Low Flow	1.16	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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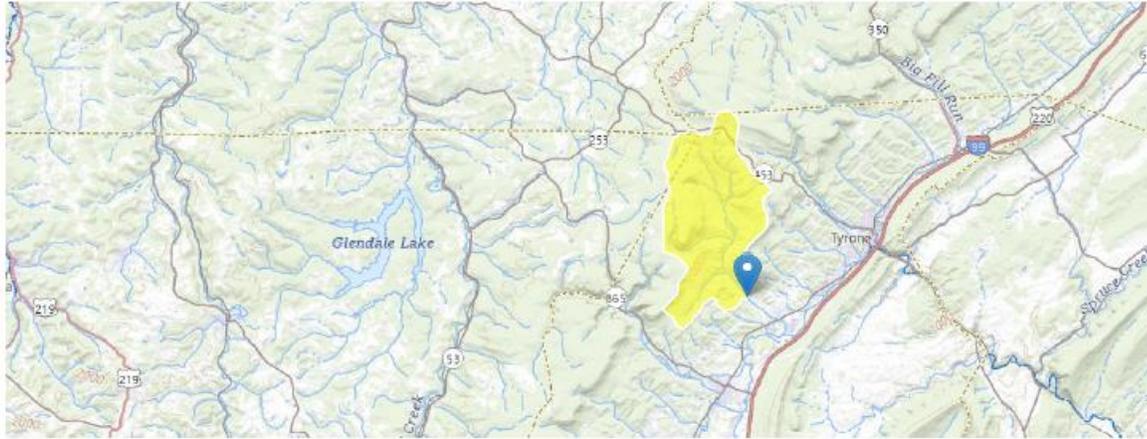
Application Version: 4.29.4

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Clicked Point (Latitude, Longitude): 40.64527, -78.31846
Time: 2025-12-18 12:56:13 -0500



Altoona Water - Tipton PA0085111 Modeling Point #2 December 2025

StreamStats Update

Starting with version 4.30.0, the StreamStats application uses services that were redeveloped with open-source software components. Users may observe minor variations in computed results when compared to those from previous versions. These differences are expected and do not reflect errors in the underlying data or analytical methods. Users are advised to consider these potential variations when interpreting or comparing results generated across different versions of StreamStats. Please email streamstats@usgs.gov with any questions or concerns. A full list of changes can be found at <https://www.usgs.gov/streamstats/news/streamstats-data-updates-open-source-code-release> (<https://www.usgs.gov/streamstats/news/streamstats-data-updates-open-source-code-release>).

[-] Collapse All

> Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	0	percent
DRNAREA	Area that drains to a point on a stream	16.8	square miles
PRECIP	Mean Annual Precipitation	40.3	inches
ROCKDEP	Depth to rock	4.52	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.509	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	0	percent	0	99
DRNAREA	Drainage Area	16.8	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40.3	inches	35	50.4

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ROCKDEP	Depth to Rock	4.52	feet	3.32	5.65
STRDEN	Stream Density	1.509	miles per square mile	0.51	3.1

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

PII: 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	1.99	ft^3/s	38	38
30 Day 2 Year Low Flow	2.67	ft^3/s	33	33
7 Day 10 Year Low Flow	0.955	ft^3/s	51	51
30 Day 10 Year Low Flow	1.28	ft^3/s	46	46
90 Day 10 Year Low Flow	2.04	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: 4.30.0
 SSHydro Services Version: 1.0.0
 SSDelineate Services Version: 1.0.0
 NSS Services Version: 2.2.1
 GageStats Services Version: 1.2.1
 Pourpoint Services Version: 1.2.0
 Batch Processor Version: 1.6.0

Attachment B

Toxics Management Spreadsheet Output Values



Discharge Information

Instructions Discharge Stream

Facility: Altoona Water- Tipton NPDES Permit No.: PA0085111 Outfall No.: 001
 Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Drinking water backwash

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q ₇₋₁₀	Q _h
0.8	14.2	6.52						

Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
			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	28									
Chloride (PWS)	mg/L	6.64									
Bromide	mg/L	< 0.1									
Sulfate (PWS)	mg/L	8.28									
Fluoride (PWS)	mg/L	< 0.05									
Group 2											
Total Aluminum	µg/L	10									
Total Antimony	µg/L	< 0.4									
Total Arsenic	µg/L	< 2									
Total Barium	µg/L	31									
Total Beryllium	µg/L	< 0.4									
Total Boron	µg/L	< 47									
Total Cadmium	µg/L	< 0.4									
Total Chromium (III)	µg/L	< 1									
Hexavalent Chromium	µg/L	< 0.1									
Total Cobalt	µg/L	< 1									
Total Copper	µg/L	< 2									
Free Cyanide	µg/L	< 0.5									
Total Cyanide	µg/L	< 5									
Dissolved Iron	µg/L	< 20									
Total Iron	µg/L	< 100									
Total Lead	µg/L	< 1									
Total Manganese	µg/L	7									
Total Mercury	µg/L	< 0.2									
Total Nickel	µg/L	< 1									
Total Phenols (Phenolics) (PWS)	µg/L	< 5									
Total Selenium	µg/L	< 0.5									
Total Silver	µg/L	< 0.2									
Total Thallium	µg/L	< 0.05									
Total Zinc	µg/L	< 4									
Total Molybdenum	µg/L	< 4									
Acrolein	µg/L	<									
Acrylamide	µg/L	<									
Acrylonitrile	µg/L	<									
Benzene	µg/L	<									
Bromoform	µg/L	<									
Carbon Tetrachloride	µg/L	<									
Chlorobenzene	µg/L	<									
Chlorodibromomethane	µg/L	<									
Chloroethane	µg/L	<									
2-Chloroethyl Vinyl Ether	µg/L	<									



Stream / Surface Water Information

Altoona Water- Tipton, NPDES Permit No. PA0085111, Outfall 001

Instructions Discharge Stream

Receiving Surface Water Name: Tipton Run 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	015908	4.54	1321	8.67			Yes
End of Reach 1	015908	2	1091	16.8			Yes

Q₇₋₁₀

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	4.54	0.065	0.565									14.9	7		
End of Reach 1	2	0.056										14.9	7		

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	4.54														
End of Reach 1	2														



Model Results

Altoona Water- Tipton, NPDES Permit No. PA0085111, Outfall 001

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

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All

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Limits

Hydrodynamics

Wasteload Allocations

AFC

CCT (min): 0.602

PMF: 1

Analysis Hardness (mg/l): 14.419

Analysis pH: 6.62

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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,092	
Total Antimony	0	0		0	1,100	1,100	1,602	
Total Arsenic	0	0		0	340	340	495	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	30,587	
Total Boron	0	0		0	8,100	8,100	11,798	
Total Cadmium	0	0		0	0.305	0.3	0.43	Chem Translator of 1.025 applied
Total Chromium (III)	0	0		0	116.647	369	538	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	23.7	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	138	
Total Copper	0	0		0	2.167	2.26	3.29	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	32.0	
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	7.446	6.94	10.1	Chem Translator of 1.073 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.4	Chem Translator of 0.85 applied
Total Nickel	0	0		0	90.978	91.2	133	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	0.115	0.14	0.2	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	94.7	
Total Zinc	0	0		0	22.711	23.2	33.8	Chem Translator of 0.978 applied

CFC

CCT (min): 0.602

PMF: 1

Analysis Hardness (mg/l): 14.419

Analysis pH: 6.62

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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	320	
Total Arsenic	0	0		0	150	150	218	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	5,972	
Total Boron	0	0		0	1,600	1,600	2,330	
Total Cadmium	0	0		0	0.064	0.064	0.094	Chem Translator of 0.99 applied
Total Chromium (III)	0	0		0	15.173	17.6	25.7	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	15.1	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	27.7	
Total Copper	0	0		0	1.712	1.78	2.6	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	7.57	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	2,185	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	0.290	0.27	0.39	Chem Translator of 1.073 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.32	Chem Translator of 0.85 applied
Total Nickel	0	0		0	10.105	10.1	14.8	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	7.27	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	18.9	
Total Zinc	0	0		0	22.897	23.2	33.8	Chem Translator of 0.986 applied

THH CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

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	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	8.16	
Total Arsenic	0	0		0	10	10.0	14.6	
Total Barium	0	0		0	2,400	2,400	3,496	
Total Boron	0	0		0	3,100	3,100	4,515	
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	5.83	

Dissolved Iron	0	0	0	300	300	437	
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	1,457	
Total Mercury	0	0	0	0.050	0.05	0.073	
Total Nickel	0	0	0	610	610	888	
Total Phenols (Phenolics) (PWS)	0	0	0	5	5.0	N/A	
Total Selenium	0	0	0	N/A	N/A	N/A	
Total Silver	0	0	0	N/A	N/A	N/A	
Total Thallium	0	0	0	0.24	0.24	0.35	
Total Zinc	0	0	0	N/A	N/A	N/A	

CRL CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

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	0	N/A	N/A	N/A	
Chloride (PWS)	0	0	0	0	N/A	N/A	N/A	
Sulfate (PWS)	0	0	0	0	N/A	N/A	N/A	
Fluoride (PWS)	0	0	0	0	N/A	N/A	N/A	
Total Aluminum	0	0	0	0	N/A	N/A	N/A	
Total Antimony	0	0	0	0	N/A	N/A	N/A	
Total Arsenic	0	0	0	0	N/A	N/A	N/A	
Total Barium	0	0	0	0	N/A	N/A	N/A	
Total Boron	0	0	0	0	N/A	N/A	N/A	
Total Cadmium	0	0	0	0	N/A	N/A	N/A	
Total Chromium (III)	0	0	0	0	N/A	N/A	N/A	
Hexavalent Chromium	0	0	0	0	N/A	N/A	N/A	
Total Cobalt	0	0	0	0	N/A	N/A	N/A	
Total Copper	0	0	0	0	N/A	N/A	N/A	
Free Cyanide	0	0	0	0	N/A	N/A	N/A	
Dissolved Iron	0	0	0	0	N/A	N/A	N/A	
Total Iron	0	0	0	0	N/A	N/A	N/A	
Total Lead	0	0	0	0	N/A	N/A	N/A	
Total Manganese	0	0	0	0	N/A	N/A	N/A	
Total Mercury	0	0	0	0	N/A	N/A	N/A	
Total Nickel	0	0	0	0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0	0	0	N/A	N/A	N/A	
Total Selenium	0	0	0	0	N/A	N/A	N/A	
Total Silver	0	0	0	0	N/A	N/A	N/A	
Total Thallium	0	0	0	0	N/A	N/A	N/A	
Total Zinc	0	0	0	0	N/A	N/A	N/A	

Recommended WQBELs & Monitoring Requirements

No. Samples/Month:

Pollutants	Mass Limits		Concentration Limits			Units	Governing	WQBEL	Comments
	AML	MDL	AMI	MDI	IMAX				

Model Results

1/20/2026

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Pollutants	(lbs/day)	(lbs/day)	WQBEL	WQBEL	WQBEL	Units	WQBEL	Basis	Comments
Total Cadmium	0.0006	0.001	0.094	0.15	0.23	µg/L	0.094	CFC	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
Fluoride (PWS)	N/A	N/A	Discharge Conc < TQL
Total Aluminum	750	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	3,496	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	2,330	µg/L	Discharge Conc < TQL
Total Chromium (III)	25.7	µg/L	Discharge Conc < TQL
Hexavalent Chromium	15.1	µg/L	Discharge Conc < TQL
Total Cobalt	27.7	µg/L	Discharge Conc < TQL
Total Copper	2.26	µg/L	Discharge Conc < TQL
Free Cyanide	5.83	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	437	µg/L	Discharge Conc < TQL
Total Iron	2,185	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	0.39	µg/L	Discharge Conc < TQL
Total Manganese	1,457	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.073	µg/L	Discharge Conc < TQL
Total Nickel	14.8	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	7.27	µg/L	Discharge Conc < TQL
Total Silver	0.14	µg/L	Discharge Conc < TQL
Total Thallium	0.35	µg/L	Discharge Conc < TQL
Total Zinc	23.2	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS



Run #2

Discharge Information

Instructions Discharge Stream

Facility: Altoona Water- Tipton NPDES Permit No.: PA0085111 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Drinking water backwash

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q ₇₋₁₀	Q _h
0.8	14.2	6.52						

Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
			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	28								
	Chloride (PWS)	mg/L	6.64								
	Bromide	mg/L	< 0.1								
	Sulfate (PWS)	mg/L	8.28								
	Fluoride (PWS)	mg/L	< 0.05								
Group 2	Total Aluminum	mg/L	< 0.1								
	Total Antimony	µg/L	< 0.4								
	Total Arsenic	µg/L	< 2								
	Total Barium	µg/L	31								
	Total Beryllium	µg/L	< 0.4								
	Total Boron	µg/L	< 47								
	Total Cadmium	µg/L	< 0.1								
	Total Chromium (III)	µg/L	< 1								
	Hexavalent Chromium	µg/L	< 0.1								
	Total Cobalt	µg/L	< 1								
	Total Copper	µg/L	< 2								
	Free Cyanide	µg/L	< 0.5								
	Total Cyanide	µg/L	< 5								
	Dissolved Iron	µg/L	< 20								
	Total Iron	mg/L	< 0.2								
	Total Lead	µg/L	< 1								
	Total Manganese	mg/L	0.1								
	Total Mercury	µg/L	< 0.2								
	Total Nickel	µg/L	< 1								
	Total Phenols (Phenolics) (PWS)	µg/L	< 5								
	Total Selenium	µg/L	< 0.5								
	Total Silver	µg/L	< 0.2								
	Total Thallium	µg/L	< 0.05								
	Total Zinc	µg/L	< 4								
Total Molybdenum	µg/L	< 4									
Acrolein	µg/L	<									
Acrylamide	µg/L	<									
Acrylonitrile	µg/L	<									
Benzene	µg/L	<									
Bromoform	µg/L	<									



Stream / Surface Water Information

Altoona Water- Tipton, NPDES Permit No. PA0085111, Outfall 001

Instructions Discharge **Stream**

Receiving Surface Water Name: Tipton Run 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	015908	4.54	1321	8.67			Yes
End of Reach 1	015908	2	1091	16.8			Yes

Q₇₋₁₀

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	4.54	0.065	0.565									14.9	7		
End of Reach 1	2	0.056										14.9	7		

Q_h

Location	RMI	LFY (cfs/mi ²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	4.54														
End of Reach 1	2														



Model Results

Altoona Water- Tipton, NPDES Permit No. PA0085111, Outfall 001

All
 Inputs
 Results
 Limits

Hydrodynamics

Wasteload Allocations

AFC

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,092	
Total Antimony	0	0		0	1,100	1,100	1,602	
Total Arsenic	0	0		0	340	340	495	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	30,587	
Total Boron	0	0		0	8,100	8,100	11,798	
Total Cadmium	0	0		0	0.305	0.3	0.43	Chem Translator of 1.025 applied
Total Chromium (III)	0	0		0	116.647	369	538	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	23.7	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	138	
Total Copper	0	0		0	2.167	2.26	3.29	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	32.0	
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	7.446	6.94	10.1	Chem Translator of 1.073 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.4	Chem Translator of 0.85 applied
Total Nickel	0	0		0	90.978	91.2	133	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	0.115	0.14	0.2	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	94.7	
Total Zinc	0	0		0	22.711	23.2	33.8	Chem Translator of 0.978 applied

CFC CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	320	
Total Arsenic	0	0		0	150	150	218	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	5,972	
Total Boron	0	0		0	1,600	1,600	2,330	
Total Cadmium	0	0		0	0.064	0.064	0.094	Chem Translator of 0.99 applied
Total Chromium (III)	0	0		0	15.173	17.6	25.7	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	15.1	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	27.7	
Total Copper	0	0		0	1.712	1.78	2.6	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	7.57	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	2,185	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	0.290	0.27	0.39	Chem Translator of 1.073 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.32	Chem Translator of 0.85 applied
Total Nickel	0	0		0	10.105	10.1	14.8	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	7.27	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	18.9	
Total Zinc	0	0		0	22.897	23.2	33.8	Chem Translator of 0.986 applied

THH CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	8.16	
Total Arsenic	0	0		0	10	10.0	14.6	
Total Barium	0	0		0	2,400	2,400	3,496	
Total Boron	0	0		0	3,100	3,100	4,515	

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	5.83
Dissolved Iron	0	0	0	300	300	437
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	1,457
Total Mercury	0	0	0	0.050	0.05	0.073
Total Nickel	0	0	0	610	610	888
Total Phenols (Phenolics) (PWS)	0	0	0	5	5.0	N/A
Total Selenium	0	0	0	N/A	N/A	N/A
Total Silver	0	0	0	N/A	N/A	N/A
Total Thallium	0	0	0	0.24	0.24	0.35
Total Zinc	0	0	0	N/A	N/A	N/A

CRL CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0	0	0	N/A	N/A	N/A	
Chloride (PWS)	0	0	0	0	N/A	N/A	N/A	
Sulfate (PWS)	0	0	0	0	N/A	N/A	N/A	
Fluoride (PWS)	0	0	0	0	N/A	N/A	N/A	
Total Aluminum	0	0	0	0	N/A	N/A	N/A	
Total Antimony	0	0	0	0	N/A	N/A	N/A	
Total Arsenic	0	0	0	0	N/A	N/A	N/A	
Total Barium	0	0	0	0	N/A	N/A	N/A	
Total Boron	0	0	0	0	N/A	N/A	N/A	
Total Cadmium	0	0	0	0	N/A	N/A	N/A	
Total Chromium (III)	0	0	0	0	N/A	N/A	N/A	
Hexavalent Chromium	0	0	0	0	N/A	N/A	N/A	
Total Cobalt	0	0	0	0	N/A	N/A	N/A	
Total Copper	0	0	0	0	N/A	N/A	N/A	
Free Cyanide	0	0	0	0	N/A	N/A	N/A	
Dissolved Iron	0	0	0	0	N/A	N/A	N/A	
Total Iron	0	0	0	0	N/A	N/A	N/A	
Total Lead	0	0	0	0	N/A	N/A	N/A	
Total Manganese	0	0	0	0	N/A	N/A	N/A	
Total Mercury	0	0	0	0	N/A	N/A	N/A	
Total Nickel	0	0	0	0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0	0	0	N/A	N/A	N/A	
Total Selenium	0	0	0	0	N/A	N/A	N/A	

Total Silver	0	0	0	N/A	N/A	N/A
Total Thallium	0	0	0	N/A	N/A	N/A
Total Zinc	0	0	0	N/A	N/A	N/A

Recommended WQBELs & Monitoring Requirements

No. Samples/Month: **4**

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Aluminum	Report	Report	Report	Report	Report	mg/L	0.75	AFC	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
Fluoride (PWS)	N/A	N/A	Discharge Conc < TQL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	3,496	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	2,330	µg/L	Discharge Conc < TQL
Total Cadmium	0.094	µg/L	Discharge Conc < TQL
Total Chromium (III)	25.7	µg/L	Discharge Conc < TQL
Hexavalent Chromium	15.1	µg/L	Discharge Conc < TQL
Total Cobalt	27.7	µg/L	Discharge Conc < TQL
Total Copper	2.26	µg/L	Discharge Conc < TQL
Free Cyanide	5.83	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	437	µg/L	Discharge Conc < TQL
Total Iron	2.18	mg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	0.39	µg/L	Discharge Conc < TQL
Total Manganese	1.46	mg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.073	µg/L	Discharge Conc < TQL
Total Nickel	14.8	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	7.27	µg/L	Discharge Conc < TQL

Total Silver	0.14	µg/L	Discharge Conc < TQL
Total Thallium	0.35	µg/L	Discharge Conc < TQL
Total Zinc	23.2	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS

Attachment D

DMR Data

Monitoring Period Begin Date	Monitoring Period End Date	DMR Received Date	Parameter Name	DMR Value		Permit Limit	Units	Statistical Base Code
04/01/2021	04/30/2021	05/21/2021	Aluminum, Total	<	0.05	0.26	mg/L	Average Monthly
05/01/2021	05/31/2021	06/25/2021	Aluminum, Total	<	0.05	0.26	mg/L	Average Monthly
06/01/2021	06/30/2021	07/21/2021	Aluminum, Total	<	0.05	0.26	mg/L	Average Monthly
07/01/2021	07/31/2021	08/25/2021	Aluminum, Total	<	0.05	0.26	mg/L	Average Monthly
01/01/2022	01/31/2022	03/10/2022	Aluminum, Total	<	0.05	0.26	mg/L	Average Monthly
02/01/2022	02/28/2022	03/28/2022	Aluminum, Total	<	0.05	0.26	mg/L	Average Monthly
03/01/2022	03/31/2022	04/28/2022	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
04/01/2022	04/30/2022	05/19/2022	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
05/01/2022	05/31/2022	06/23/2022	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
06/01/2022	06/30/2022	07/21/2022	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
07/01/2022	07/31/2022	08/20/2022	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
08/01/2022	08/31/2022	09/28/2022	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
09/01/2022	09/30/2022	10/26/2022	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
10/01/2022	10/31/2022	11/28/2022	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
11/01/2022	11/30/2022	12/27/2022	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
12/01/2022	12/31/2022	01/26/2023	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
01/01/2023	01/31/2023	02/28/2023	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
02/01/2023	02/28/2023	03/22/2023	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
03/01/2023	03/31/2023	04/26/2023	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
04/01/2023	04/30/2023	05/22/2023	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
05/01/2023	05/31/2023	06/26/2023	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
06/01/2023	06/30/2023	07/27/2023	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
07/01/2023	07/31/2023	08/28/2023	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
08/01/2023	08/31/2023	09/28/2023	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
09/01/2023	09/30/2023	10/25/2023	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
10/01/2023	10/31/2023	11/22/2023	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
11/01/2023	11/30/2023	12/12/2023	Aluminum, Total	<	0.01	0.26	mg/L	Average Monthly
12/01/2023	12/31/2023	01/24/2024	Aluminum, Total	<	0.01	0.26	mg/L	Average Monthly
01/01/2024	01/31/2024	02/27/2024	Aluminum, Total	<	0.01	0.26	mg/L	Average Monthly
02/01/2024	02/29/2024	03/21/2024	Aluminum, Total	<	0.01	0.26	mg/L	Average Monthly
03/01/2024	03/31/2024	04/15/2024	Aluminum, Total	<	0.06	0.26	mg/L	Average Monthly
04/01/2024	04/30/2024	05/18/2024	Aluminum, Total		0.08	0.26	mg/L	Average Monthly
05/01/2024	05/31/2024	06/30/2024	Aluminum, Total		0.016	0.26	mg/L	Average Monthly
06/01/2024	06/30/2024	07/27/2024	Aluminum, Total		0.02	0.26	mg/L	Average Monthly
07/01/2024	07/31/2024	08/25/2024	Aluminum, Total	<	0.01	0.26	mg/L	Average Monthly
08/01/2024	08/31/2024	09/23/2024	Aluminum, Total		0.011	0.26	mg/L	Average Monthly
09/01/2024	09/30/2024	10/26/2024	Aluminum, Total		0.011	0.26	mg/L	Average Monthly
10/01/2024	10/31/2024	11/16/2024	Aluminum, Total		0.01	0.26	mg/L	Average Monthly
11/01/2024	11/30/2024	12/24/2024	Aluminum, Total		0.015	0.26	mg/L	Average Monthly
12/01/2024	12/31/2024	01/21/2025	Aluminum, Total		0.01	0.26	mg/L	Average Monthly
01/01/2025	01/31/2025	04/07/2025	Aluminum, Total	<	0.01	0.26	mg/L	Average Monthly
02/01/2025	02/28/2025	03/25/2025	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
03/01/2025	03/31/2025	04/22/2025	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
04/01/2025	04/30/2025	05/27/2025	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
05/01/2025	05/31/2025	06/24/2025	Aluminum, Total	<	0.1	0.26	mg/L	Average Monthly
06/01/2025	06/30/2025	07/22/2025	Aluminum, Total		0.01	0.26	mg/L	Average Monthly
07/01/2025	07/31/2025	08/24/2025	Aluminum, Total	<	0.01	0.26	mg/L	Average Monthly
08/01/2025	08/31/2025	09/23/2025	Aluminum, Total		0.01	0.26	mg/L	Average Monthly
09/01/2025	09/30/2025	10/20/2025	Aluminum, Total	<	0.01	0.26	mg/L	Average Monthly
10/01/2025	10/31/2025	11/25/2025	Aluminum, Total	<	0.06	0.26	mg/L	Average Monthly
			Min	<	0.01			
			Max	<	0.10			
			Average		0.06			

Monitoring Period Begin Date	Monitoring Period End Date	DMR Received Date	Parameter Name	DMR Value		Permit Limit	Units	Statistical Base Code
07/01/2021	12/31/2021	01/28/2022	Iron, Total		0.1	Monitor and Report	mg/L	Semi-Annual Average
01/01/2022	06/30/2022	07/21/2022	Iron, Total	<	0.2	Monitor and Report	mg/L	Semi-Annual Average
07/01/2022	12/31/2022	01/26/2023	Iron, Total	<	0.2	Monitor and Report	mg/L	Semi-Annual Average
01/01/2023	06/30/2023	07/27/2023	Iron, Total	<	0.2	Monitor and Report	mg/L	Semi-Annual Average
07/01/2023	12/31/2023	01/24/2024	Iron, Total	<	0.2	Monitor and Report	mg/L	Semi-Annual Average
01/01/2024	06/30/2024	07/28/2024	Iron, Total	<	0.02	Monitor and Report	mg/L	Semi-Annual Average
07/01/2024	12/31/2024	01/28/2025	Iron, Total	<	0.02	Monitor and Report	mg/L	Semi-Annual Average
01/01/2025	06/30/2025	07/22/2025	Iron, Total	<	0.2	Monitor and Report	mg/L	Semi-Annual Average
			Min	<	0.02			
			Max	<	0.2			
			Average		0.148571429			

Monitoring Period Begin Date	Monitoring Period End Date	DMR Received Date	Parameter Name	DMR Value		Permit Limit	Units	Statistical Base Code
07/01/2021	12/31/2021	01/28/2022	Manganese, Total		0.1	Monitor and Report	mg/L	Semi-Annual Average
01/01/2022	06/30/2022	07/21/2022	Manganese, Total	<	0.02	Monitor and Report	mg/L	Semi-Annual Average
07/01/2022	12/31/2022	01/26/2023	Manganese, Total		0.0796	Monitor and Report	mg/L	Semi-Annual Average
01/01/2023	06/30/2023	07/27/2023	Manganese, Total	<	0.02	Monitor and Report	mg/L	Semi-Annual Average
07/01/2023	12/31/2023	01/24/2024	Manganese, Total		0.0255	Monitor and Report	mg/L	Semi-Annual Average
01/01/2024	06/30/2024	07/28/2024	Manganese, Total		0.007	Monitor and Report	mg/L	Semi-Annual Average
07/01/2024	12/31/2024	01/28/2025	Manganese, Total		0.038	Monitor and Report	mg/L	Semi-Annual Average
01/01/2025	06/30/2025	07/22/2025	Manganese, Total	<	0.02	Monitor and Report	mg/L	Semi-Annual Average
			Min		0.007			
			Max		0.1			
			Average		0.0387625			