pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0085529**
Facility Type	**Industrial**	APS ID	**17530**
Major / Minor	**Minor**	Authorization ID	**1369083**

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

Applicant and Facility Information

Applicant Name	**Altoona Water Authority**	Facility Name	**Altoona City Water System**
Applicant Address	900 Chestnut Avenue	Facility Address	878 Old Mill Run Road
	Altoona, PA 16601-4617		Altoona, PA 16601
Applicant Contact	Douglas DeAngelis	Facility Contact	Douglas DeAngelis
Applicant Phone	(814) 949-2222	Facility Phone	(814) 944-2597
Client ID	85897	Site ID	238359
SIC Code	4941	Municipality	Logan Township
SIC Description	Trans. & Utilities - Water Supply	County	Blair
Date Application Received	September 10, 2021	EPA Waived?	Yes
Date Application Accepted	September 14, 2021	If No, Reason	

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

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Altoona City Water- Mill Run WTP located at 878 Old Mill Run, Altoona, PA 16601 in Blair County, municipality of Logan Township. The existing permit became effective on April 1, 2017 and expires(d) on March 31, 2022. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on September 14, 2021.

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 0.12 MGD treatment facility. The applicant anticipates proposed upgrades to the treatment facility in the next five years. The facility is undergoing an upgrade to its ozone generating system. Within five years, the spillway at the Mill Run Dam will be replaced. At that time, the facility will received new micro-filtration which will replace existing gravity filters. 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 Logan Township Supervisors and the notice was received by the parties on October 25, 2021.

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineer Nick Hong (via electronic signature)	October 29, 2021
X		Daniel W. Martin, P.E. / Environmental Engineer Manager /s/	November 15, 2021

Summary of Review

Utilizing the DEP's web-based Emap-PA information system, the receiving waters has been determined to be Mill Run. The sequence of receiving streams that Mill Run discharges into are Beaverdam Branch, Frankstown Branch 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 cold water fishes (CWF) and migratory fishes (MF). No Class A Wild Trout fisheries are 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.

Mill Run is a Category 2 stream listed in the 2020 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an attaining stream that supports aquatic life. Mill Run discharges into Beaverdam Branch which has a local total maximum daily load (TMDL) plan to improve water quality in the subject facility's watershed. The TMDL is named the Beaverdam Branch Watershed TMDL.

The existing permit and proposed permit differ as follows:

There are no changes to the monitoring requirements or effluent limits.

Sludge use and disposal description and location(s): The facility is a water treatment plant. No Sludge was removed or anticipated to be removed in 2021.

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 City Water- Mill Run WTP
NPDES Permit #	PA0085529
Physical Address:	878 Old Mill Run Road Altoona, PA 16601
Mailing Address:	900 Chestnut Avenue Altoona, PA 16601
Contact:	Mike Sinisi, PE Authority Engineer (814) 949-2222 x2203 MSinisi@altoonawater.com Doug DeAngelis Water Treatment Supervisor ddeangelis@altoonawater.com (814) 944-2597
Consultant:	There was not a consultant utilized for this NPDES renewal.

1.2 Permit History

Permit submittal included the following information.

- NPDES Application
- Flow Diagrams
- Effluent Sample Data

2.0 Treatment Facility Summary

2.1.1 Site location

The physical address for the facility is 878 Old Mill Run Road, Altoona, PA 16601. A topographical and an aerial photograph of the facility are depicted as Figure 1 and Figure 2.

Figure 1: Topographical map of the subject facility

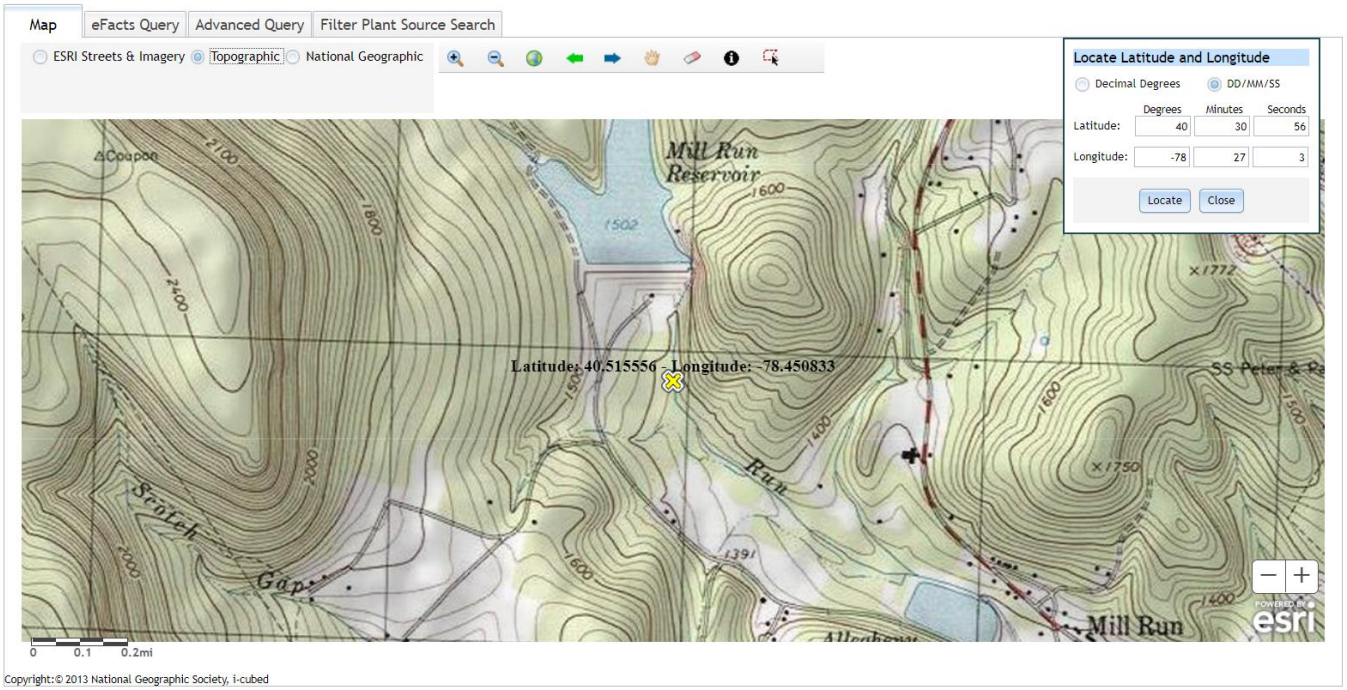
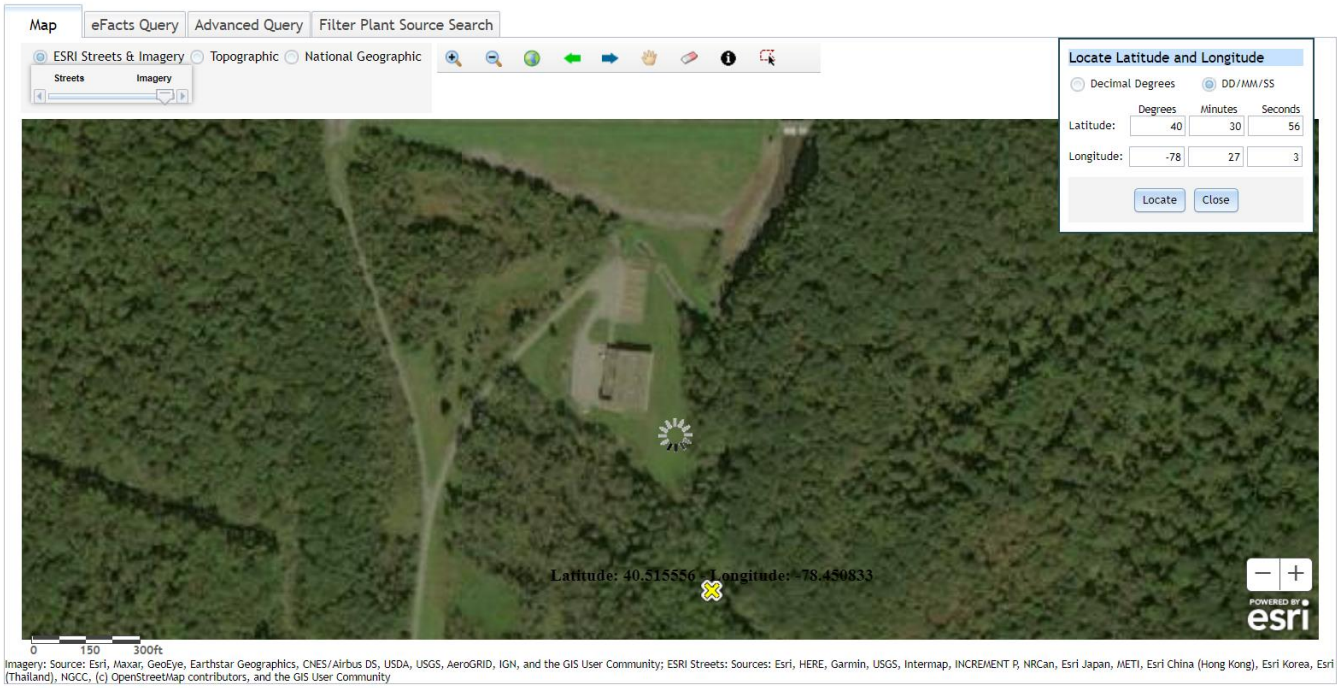


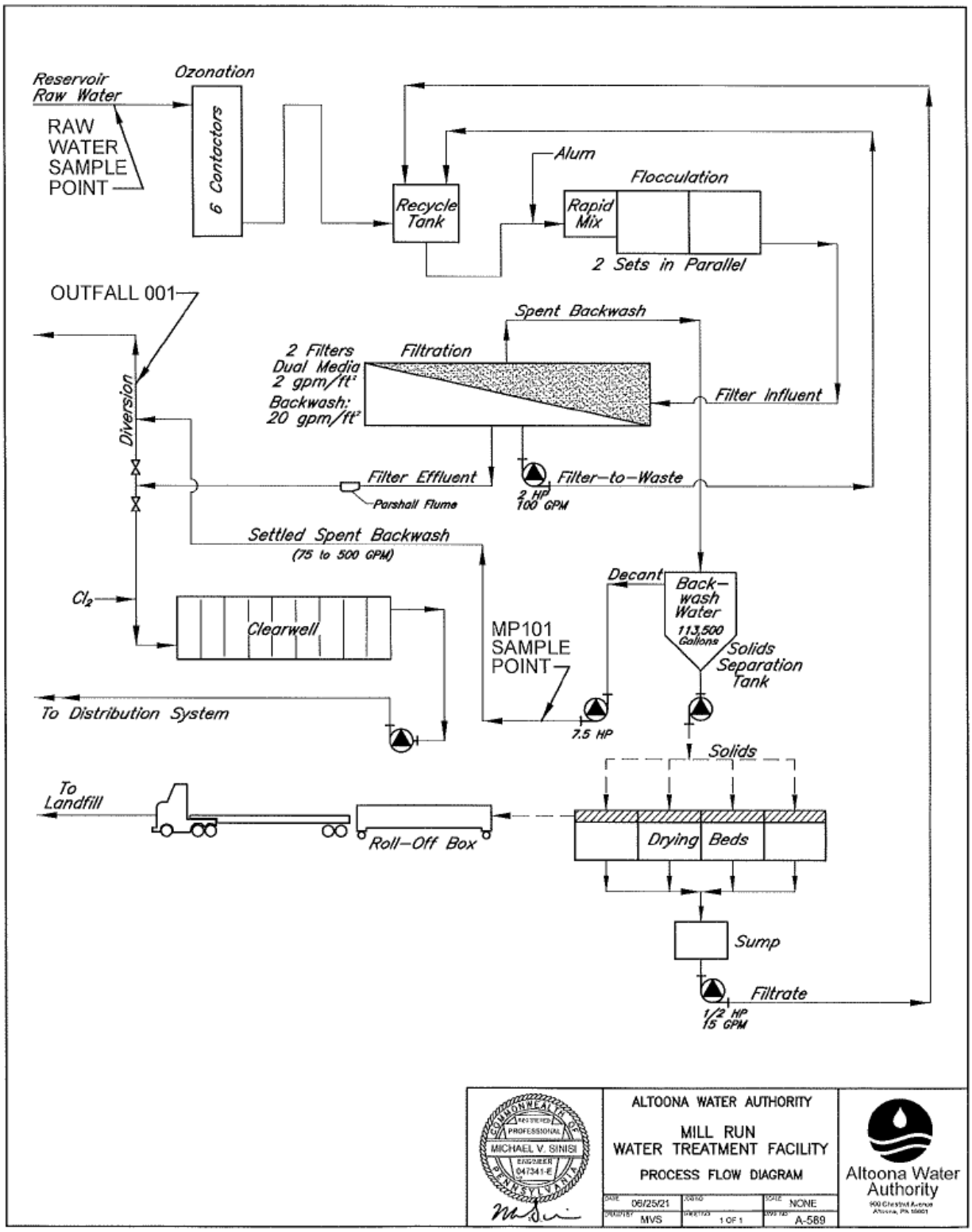
Figure 2: Aerial Photograph of the subject facility



2.2 Description of Wastewater Treatment Process

The subject facility is a 0.12 design flow facility. The wastewater originates from backwash water. The facility is being evaluated for flow, pH, TSS, nitrogen species, phosphorus, aluminum, iron, and manganese.

A schematic of the treatment process is shown in the diagram.


Reservoir Raw Water
RAW WATER SAMPLE POINT
Ozonation
6 Contactors
Recycle Tank
Alum
Flocculation
Rapid Mix
2 Sets in Parallel
OUTFALL 001
Diversion
Spent Backwash
2 Filters Dual Media 2 gpm/ft²
Backwash: 20 gpm/ft²
Filtration
Filter Influent
Filter Effluent
Parshall Flume
Filter-to-Waste
2 HP 100 GPM
Settled Spent Backwash (75 to 500 GPM)
Cl₂
Clearwell
MP101 SAMPLE POINT
Decant
Back-wash Water 113,500 Gallons
Solids Separation Tank
7.5 HP
To Distribution System
Solids
To Landfill
Roll-Off Box
Drying Beds
Sump
Filtrate
1/2 HP 15 GPM
ALTOONA WATER AUTHORITY
MILL RUN WATER TREATMENT FACILITY
PROCESS FLOW DIAGRAM
MICHAEL V. SINISI
ENGINEER
047341-E
06/25/21
MVS
NONE
A-589
Altoona Water Authority

The existing permits limits for the facility is summarized in Section 2.4.

2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

Outfall No. 001 **Design Flow (MGD)** .12
Latitude 40º 30' 56.00" **Longitude** -78º 27' 3.00"
Wastewater Description: Water Treatment Effluent

Outfall No. 101 **Design Flow (MGD)**
Latitude 40º 30' 56.00" **Longitude** -78º 27' 3.00"
Wastewater Description:

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** 40º 30' 56.00" , **Longitude** 78º 27' 3.00" , **River Mile Index** 5.75 , **Stream Code** 16403

Receiving Waters: Mill Run

Type of Effluent: Water Treatment Effluent

1. The permittee is authorized to discharge during the period from **April 1, 2017** through **March 31, 2022**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2]	Required
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Daily Max	XXX	1/day	Grab

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** 101 , **Latitude** 40° 30' 56.00" , **Longitude** 78° 27' 3.00" , **River Mile Index** 5.75 , **Stream Code** 16403

Receiving Waters: Mill Run

Type of Effluent: Filter backwash

1. The permittee is authorized to discharge during the period from **April 1, 2017** through **March 31, 2022**.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2)	Required
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	1/day	Grab
Total Suspended Solids	XXX	XXX	XXX	30	60	75	2/month	8-Hr Composite
Nitrate-Nitrite as N	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Calculation
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	8-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/6 months	8-Hr Composite
Aluminum, Total	2.1	4.2 Daily Max	XXX	2.1	4.2	5.2	2/month	8-Hr Composite
Iron, Total	Report	Report Daily Max	XXX	2.0	4.0	5	2/month	8-Hr Composite
Manganese, Total	Report	Report Daily Max	XXX	1.0	2.0	2.5	2/month	8-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at IMP 101

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.

04/18/2018:

- The treatment plant discharge is from two sources: (1) Backwash water and (2) Diversion Flow. Backwash water is treated in a settling tank prior to discharge. Diversion flow is composed of treated drinking water that cannot be used in the distribution system. Flows are discharged to the stream through a common pipe.
- Effluent pH test results should only be reported on DMR for days there is an effluent discharge from the plant.
- Sludge from settling tank goes to outdoor drying beds before being disposed at the landfill.

04/18/2019: There was nothing significant to report.

3.2 Summary of DMR Data

For Outfall 001, a review of approximately 1-year of DMR data shows that the monthly average flow data for the facility was above the design capacity of the treatment system. The maximum average flow data for the DMR reviewed was 0.2082 MGD in April 2021. The 12-month average flow was 0.088 MGD. The design capacity of the treatment system is 0.12 MGD.

For Outfall 101, 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 0.0911 MGD in July 2021. The 12-month average flow was 0.068 MGD. The design capacity of the treatment system is 0.12 MGD.

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

DMR Data for Outfall 001 (from September 1, 2020 to August 31, 2021)

Parameter	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20
Flow (MGD) Average Monthly	0.0239	0.0500	0.0701	0.0707	0.2082	0.1434	0.0989	0.0665	0.0336	0.0791	0.130	0.0823
Flow (MGD) Daily Maximum	0.0409	0.0839	0.1407	0.1789	0.2215	0.2788	0.1859	0.1212	0.0531	0.1359	0.1626	0.1181
pH (S.U.) Minimum	6.68	6.77	6.70	6.84	6.79	6.79	6.59	6.03	6.3	6.38	6.65	6.76
pH (S.U.) Daily Maximum	6.70	6.82	6.96	7.00	6.99	6.88	6.94	6.76	7.01	6.60	7.06	7.08

DMR Data for Outfall 101 (from September 1, 2020 to August 31, 2021)

Parameter	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20
Flow (MGD) Internal Monitoring Point Average Monthly	0.081526	0.0911	0.0823	0.0753	0.0642	0.0554	0.0689	0.0641	0.0546	0.0502	0.0693	0.063
Flow (MGD) Internal Monitoring Point Daily Maximum	0.1144	0.1217	0.1268	0.1177	0.1099	0.1022	0.1286	0.1175	0.0958	0.0649	0.0959	0.0863
pH (S.U.) Internal Monitoring Point Minimum	6.75	6.77	6.86	6.97	6.79	6.89	6.91	6.79	6.69	6.55	6.86	7.01
pH (S.U.) Internal Monitoring Point Maximum	7.03	7.06	7.11	7.12	6.99	7.00	7.16	6.99	6.81	7.70	7.05	7.12
TSS (mg/L) Internal Monitoring Point Average Monthly	< 2	< 2	< 2	< 2	2.0	< 3	< 2	< 2	< 2	< 2	2.1	< 2
TSS (mg/L) Internal Monitoring Point Daily Maximum	< 2	2.5	3.2	2.6	2.5	4.5	< 2.2	< 2.5	< 2	2	2.1	< 2.5
Nitrate-Nitrite (mg/L) Internal Monitoring Point Average Monthly			0.71						0.45			
Total Nitrogen (mg/L) Internal Monitoring Point Average Monthly			< 1.71						< 1.45			
TKN (mg/L) Internal Monitoring Point Average Monthly			< 1.0						< 1.0			
Total Phosphorus (mg/L) Internal Monitoring Point Average Monthly			< 0.11						< 0.11			
Total Aluminum (lbs/day) Internal Monitoring Point Average Monthly	< 0.05	0.2	0.2	0.2	0.90	0.18	0.1	< 0.13	< 0.05	< 0.03	0.2	0.08

Total Aluminum (lbs/day) Internal Monitoring Point Daily Maximum	0.09	0.4	0.4	0.3	2.10	0.4	0.2	0.2	0.1	< 0.03	0.3	0.1
Total Aluminum (mg/L) Internal Monitoring Point Average Monthly	< 0.1	0.2	0.3	0.3	1.4	0.4	0.2	< 0.2	< 0.1	< 0.1	0.3	0.1
Total Aluminum (mg/L) Internal Monitoring Point Daily Maximum	0.148	0.416	0.484	0.352	3.35	0.764	0.228	0.188	0.128	< 0.050	0.391	0.2
Total Iron (lbs/day) Internal Monitoring Point Average Monthly	< 0.03	< 0.05	< 0.04	< 0.04	< 0.06	< 0.03	< 0.05	< 0.04	< 0.1	< 0.03	< 0.06	< 0.03
Total Iron (lbs/day) Internal Monitoring Point Daily Maximum	< 0.05	< 0.05	< 0.05	< 0.05	0.1	0.05	< 0.05	< 0.05	0.3	0.05	0.08	< 0.04
Total Iron (mg/L) Internal Monitoring Point Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1
Total Iron (mg/L) Internal Monitoring Point Daily Maximum	< 0.05	< 0.05	< 0.05	< 0.05	0.17	0.142	< 0.05	< 0.05	0.422	0.19	0.106	< 0.05
Total Manganese (lbs/day) Internal Monitoring Point Average Monthly	< 0.03	< 0.06	< 0.04	< 0.04	< 0.03	< 0.03	< 0.06	0.1	0.1	0.3	0.3	0.2
Total Manganese (lbs/day) Internal Monitoring Point Daily Maximum	< 0.05	0.08	< 0.05	< 0.05	< 0.05	0.05	0.07	0.3	0.2	0.3	0.6	0.3
Total Manganese (mg/L) Internal Monitoring Point Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	0.2	0.6	0.5	0.3
Total Manganese (mg/L) Internal Monitoring Point Daily Maximum	0.051	0.086	0.065	< 0.05	< 0.05	0.092	0.072	0.412	0.263	0.944	0.838	0.348

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, 2017 and ending October 24, 2021, the observed effluent non-compliances are summarized in the table.

Summary of Non-Compliance with NPDES Effluent Limits
Beginning April 1, 2017 and ending October 24, 2021
Outfall 101

NON COMPLIANCE DATE	NON COMPLIANCE CATEGORY	PARAMETER	SAMPLE VALUE	VIOLATION CONDITION	PERMIT VALUE	UNIT OF MEASURE	STATISTICAL BASE CODE
12/20/2017	Concentration 1 Effluent Violation	pH	5.67	<	6.0	S.U.	Minimum
03/26/2019	Concentration 3 Effluent Violation	Aluminum, Total	6.677	>	4.2	mg/L	Daily Maximum
03/26/2019	Load 2 Effluent Violation	Aluminum, Total	6.1	>	4.2	lbs/day	Daily Maximum

3.3.2 Non-Compliance- Enforcement Actions

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

Beginning on April 1, 2017 and ending October 24, 2021, 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 facility is a water treatment plant. No Sludge was removed or anticipated to be removed in 2021.

3.5 Open Violations

No open violations existed as of October 2021.

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

The receiving waters has been determined to be Mill Run. The sequence of receiving streams that Mill Run discharges into are Beaverdam Branch, Frankstown Branch 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 108 miles downstream of the subject facility on the Juniata River Intake. Based upon the distance and the flow rate of the facility, the PWS should not be impacted.

4.3 Class A Wild Trout Streams

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

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

4.4 2020 Integrated List of All Waters (303d Listed Streams)

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

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

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

The receiving waters is listed in the 2020 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 waterbody. The surface waters is an attaining stream that supports aquatic life. The designated use has been classified as protected waters for cold water fishes (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 WQN station to the subject facility is the Beaver Branch Juniata River station (WQN252). This WQN station is located approximately 11 miles downstream of the subject facility.

The closest gauge station to the subject facility is the Frankstown Branch Juniata River at Williamsburg, PA (USGS station number 1556000). This gauge station is located approximately 25 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 7.3 and the stream water temperature was estimated to be 19.5 C.

The facility did not collect an upstream sample for hardness.

The hardness of the stream was estimated from the water quality network to be 120 mg/l $CaCO_3$.

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

Gauge Station Data			
USGS Station Number	1556000		
Station Name	Frankstown Branch Juniata River at Williamsburg, PA		
Q710	47.8	ft^3/sec	
Drainage Area (DA)	291	mi^2	
Calculations			
The low flow yield of the gauge station is:			
Low Flow Yield (LFY) = Q710 / DA			
LFY =	(47.8 ft^3/sec / 291 mi^2)		
LFY =	0.1643	$ft^3/sec/mi^2$	
The low flow at the subject site is based upon the DA of		4.34	mi^2
Q710 = (LFY@gauge station)(DA@Subject Site)			
Q710 = (0.1643$ft^3/sec/mi^2$)(4.34 mi^2)			
Q710 =	0.713	ft^3/sec	

In comparison the conservative release for Mill Run in the document titled *Engineer Report- Reservoir Operation and Management Plan* dated for June 2011 was 0.466 MGD (0.721 ft^3/s). This report was prepared by Gwin, Dobson, and Foreman. The Q710 calculated from StreamStats and Stream Gauge was very similar to the conservative release flow rate from the engineer report. The Q710 and low flow yield used for modeling was the flow rate from the engineer report (i.e. 0.166 $ft^3/s/mi^2$ and 0.721 ft^3/s).

The previous fact sheet utilized a daily minimum release of 6.46 MGD (1.0 ft^3/s) (Fact Sheet dated for December 21, 2016).

4.6 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.12
Latitude	40Âº 30' 56.00"	Longitude	-78Âº 27' 2.91"
Quad Name		Quad Code	
Wastewater Description:	Water Treatment Effluent		

Receiving Waters	Mill Run (HQ-CWF)	Stream Code	16403
NHD Com ID	65607688	RMI	5.7
Drainage Area	4.34	Yield (cfs/mi^2)	0.166
Q_{7-10} Flow (cfs)	0.721	Q_{7-10} Basis	Engineer Report
Elevation (ft)	1388	Slope (ft/ft)	
Watershed No.	11-A	Chapter 93 Class.	HQ-CWF, MF
Existing Use	Same as Chapter 93 class	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	METALS, PH, SILTATION		
Source(s) of Impairment	COMBINED SEWER OVERFLOWS, RURAL (RESIDENTIAL AREAS), URBAN RUNOFF/STORM SEWERS		
TMDL Status	Final	Name	Beaverdam Branch Watershed

Background/Ambient Data		Data Source
pH (SU)	7.3	WQN252; median July to Sept
Temperature (°C)	19.5	WQN252; median July to Sept
Hardness (mg/L)	120	WQN252; historical median
Other:		

Nearest Downstream Public Water Supply Intake		Mifflintown MA	
PWS Waters	Juniata River	Flow at Intake (cfs)	
PWS RMI	37	Distance from Outfall (mi)	108

Discharge, Receiving Waters and Water Supply Information

Outfall No.	101	Design Flow (MGD)	<0.12
Latitude	40Âº 30' 56.00"	Longitude	-78Âº 27' 2.91"
Quad Name		Quad Code	
Wastewater Description:	Filter Backwash		

Receiving Waters	Mill Run (HQ-CWF)	Stream Code	16403
NHD Com ID	65607688	RMI	5.7
Drainage Area	4.34	Yield (cfs/mi^2)	0.166
Q_{7-10} Flow (cfs)	0.721	Q_{7-10} Basis	Engineer Report
Elevation (ft)	1388	Slope (ft/ft)	
Watershed No.	11-A	Chapter 93 Class.	HQ-CWF, MF
Existing Use	Same as Chapter 93 class	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	METALS, PH, SILTATION		
Source(s) of Impairment	COMBINED SEWER OVERFLOWS, RURAL (RESIDENTIAL AREAS), URBAN RUNOFF/STORM SEWERS		
TMDL Status	Final	Name	Beaverdam Branch Watershed

Background/Ambient Data		Data Source
pH (SU)	7.3	WQN252; median July to Sept
Temperature (°C)	19.5	WQN252; median July to Sept
Hardness (mg/L)	120	WQN252; historical median
Other:		

Nearest Downstream Public Water Supply Intake		Mifflintown MA	
PWS Waters	Juniata River Intake	Flow at Intake (cfs)	
PWS RMI	37	Distance from Outfall (mi)	108

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).

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.

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

General Data 1 (Modeling Point #1)	***Input Value***
Stream Code	16403
River Mile Index	5.7
Elevation	1388
Latitude	40.515556
Longitude	-78.450833
Drainage Area	4.34
Reach Slope	Default
Low Flow Yield	0.1661
Potable Water Supply	Default

General Data 2 (Modeling Point #2)	***Input Value***
Stream Code	16403
River Mile Index	3.94
Elevation	1242
Latitude	40.501477
Longitude	-78.424354
Drainage Area	6.84
Reach Slope	Default
Low Flow Yield	0.1661
Potable Water Supply Withdrawal	Default

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.

Since the facility is a water treatment plant that does not concern CBOD, ammonia nitrogen, and dissolved oxygen, WQM modeling was not conducted for the facility.

5.3.2 Toxics Modeling

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

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

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

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

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

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

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

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

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

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

Toxics modeling runs were completed for both Outfalls 001 and 101 as separate runs. The modeling output for Outfall 001 did not have recommended monitoring requirements or effluent limits. The modeling output for Outfall 101 recommended monitoring requirements for aluminum and mercury.

The current and proposed permit include aluminum with effluent limits.

For mercury, the laboratory DEP target level is 0.2 ug/l. The effluent sample result was 0.1 ug/l for Outfall 101 which does not exceed the DEP target level. Further, for Outfall 001, the effluent sample result was <0.104 ug/l. Since Outfall 001 is closest to the discharge point and modeling did not recommend limits for Outfall 001, the proposed permit will not include monitoring requirements or effluent limits.

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.

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. Altoona Water- Mill Run discharges into Mill Run then subsequently into Beaverdam Branch which has a local TMDL

Beaverdam Branch flows about six miles from its headwaters to its confluence with the Frankstown Branch Juniata River. The entire length of Beaverdam Branch is listed as impaired, as well as three of its tributaries: Mill Run, Sugar Run, and Burgoon Run. These three tributaries all flow into Beaverdam Branch in its headwaters. The watershed is located predominantly in Blair County with a very small portion in Cambria County, draining approximately 87 square miles in State Water Plan Subbasin 11A.

A Total Maximum Daily Load (TMDL) was developed for a stream segment in the Beaverdam Branch Watershed. This was done to address impairments noted on the 1996, 1998, and 2002 Pennsylvania Section 303(d) lists, and the 2004 and 2006 Integrated Lists required under the Clean Water Act and covers one segment on this list. High levels of metals caused these impairments. The sources of the impairments are listed as urban runoff/storm sewers and combined sewer overflows (CSOs). The TMDL addresses the two primary metals (iron and aluminum) identified as the causes of impairment in the watershed.

Beaverdam Branch is listed for abandoned mine drainage; this is addressed in a draft TMDL proposed in 2003 (Beaverdam Branch Watershed TMDL). A TMDL is proposed for the impairments in the Mill Run Watershed; these reductions will be applied in the TMDL.

Waste load allocations have been assigned for Altoona Water Treatment Plant (PA0082538) and Altoona City Authority (PA0085120). The waste allocations are for iron and aluminum. A waste load allocation was not assigned for Altoona Water-Mill Run (PA0085529) in the TMDL. The proposed permit includes limits for metals.

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.

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 species and phosphorus shall be 2x/yr.

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 and the permit conditions are imposed to protect existing instream water quality and uses. The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. While the discharge is to a high-quality stream, neither HQ waters or EV waters should be impacted by this discharge.

5.6 Anti-Backsliding

Anti-backsliding is a federal regulation which prohibits a permit from being renewed, reissued, or modified containing effluent limitations which are less stringent than the comparable effluent limitations in the previous permit (40 CFR 122.l.1 and 40 CFR 122.l.2). A review of the existing permit limitations with the proposed permit limitations confirm that the facility is consistent with anti-backsliding requirements. The facility has proposed effluent limitations that are as stringent as the existing permit.

6.0 NPDES Parameter Details

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

The reader will find in this section:

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

6.1 Recommended Monitoring Requirements and Effluent Limitations

A summary of the recommended monitoring requirements and effluent limitations are itemized in the tables. The tables are categorized by (a) Conventional Pollutants and Disinfection, (b) Nitrogen Species and Phosphorus, and (c) Toxics.

6.1.1 Conventional Pollutants and Disinfection

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection			
Altoona Water- Mill Run; PA0085529; Outfall 001			
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).
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 0.12 MGD.			
3 Table 6-4 (Self Monitoring Requirements for Industrial Discharges) in Technical Guidance for the Development and Specification of Effluent			
4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)			
5 Phase 2 Watershed Implementation Plan Wastewater Supplement, Revised September 6, 2017			

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection			
Altoona Water- Mill Run; PA0085529; Outfall 101			
Parameter	**Permit Limitation Required by[1]:**	**Recommendation**	
pH (S.U.)	DEP Guidance Document-Water Treatment Plant Wastes	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 DEP Guidance Document- Technology-Based Control Requirements for Water Treatment Plant Wastes- Waste Water from Treatment of WTP Sludges and Filter Backwash
TSS	DEP Guidance Document-Water Treatment Plant Wastes	Monitoring:	The monitoring frequency shall be 2x/mo as an 8-hr composite sample (Table 6-4).
		Effluent Limit:	The effluent limits shall not exceed 30 mg/l as a monthly average.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-4 and the effluent limits assigned by DEP Guidance Document- Technology-Based Control Requirements for Water Treatment Plant Wastes- Waste Water from Treatment of WTP Sludges and Filter Backwash
Notes:			
1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other			
2 Monitoring frequency based on flow rate of 0.12 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 Phase 2 Watershed Implementation Plan Wastewater Supplement, Revised September 6, 2017			

6.1.2 Nitrogen Species and Phosphorus

Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus

Altoona Water- Mill Run; PA0085529; Outfall 101

Parameter	Permit Limitation Required by[1]:	Recommendation	
Nitrate-Nitrite as N	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/yr as an 8-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/yr.
Total Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/yr as an 8-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/yr.
TKN	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/yr as an 8-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/yr.
Total Phosphorus	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/yr as an 8-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/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 0.12 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 Phase 2 Watershed Implementation Plan Wastewater Supplement, Revised September 6, 2017

6.1.3 Toxics

Summary of Proposed NPDES Parameter Details for Toxics

Altoona Water- Mill Run; PA0085529; Outfall 101

Parameter	Permit Limitation Required by[1]:	Recommendation	
Iron	DEP Guidance Document-Water Treatment Plant Wastes	Monitoring:	The monitoring frequency shall be 2x/mo as an 8-hr composite sample (Table 6-4).
		Effluent Limit:	The performance effluent limit shall not exceed 2.1 lbs/day and 2.0 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
Aluminum	Antibacksliding	Monitoring:	The monitoring frequency shall be 2x/mo as an 8-hr composite sample (Table 6-4).
		Effluent Limit:	The performance effluent limit shall not exceed 2.1 lbs/day and 2.1 mg/l as a monthly average.
		Rationale:	The current permit limit is more stringent than the TBEL and toxics modeling. Due to antibacksliding, the current permit shall continue to the proposed permit.
Manganese	DEP Guidance Document-Water Treatment Plant Wastes	Monitoring:	The monitoring frequency shall be 2x/mo as an 8-hr composite sample (Table 6-4).
		Effluent Limit:	The performance effluent limit shall not exceed 1 lbs/day and 1 mg/l as a monthly average.
		Rationale:	Effluent limits are defined by DEP Guidance Document- Technology-Based Control Requirements for Water Treatment Plant Wastes- Waste Water from Treatment of WTP Sludges and Filter Backwash

Notes:

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

2 Monitoring frequency based on flow rate of 0.12 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 Phase 2 Watershed Implementation Plan Wastewater Supplement, Revised September 6, 2017

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.

There are no changes to the monitoring requirements or effluent limits.

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° 30' 56.00" , **Longitude** 78° 27' 3.00" , **River Mile Index** 5.7 , **Stream Code** 16403

Receiving Waters: Mill 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 Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab

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 101 , **Latitude** 40° 30' 56.00" , **Longitude** 78° 27' 3.00" , **River Mile Index** 5.7 , **Stream Code** 16403

Receiving Waters: Mill Run (HQ-CWF)

Type of Effluent: Backwash wastewater

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Total Suspended Solids	XXX	XXX	XXX	30	60	75	2/month	8-Hr Composite
Nitrate-Nitrite as N	XXX	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	Calculation
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report SEMI AVG	XXX	XXX	1/6 months	8-Hr Composite
Aluminum, Total	2.1	4.2 Daily Max	XXX	2.1	4.2	5.2	2/month	8-Hr Composite
Iron, Total	Report	Report Daily Max	XXX	2.0	4.0	5	2/month	8-Hr Composite
Manganese, Total	Report	Report Daily Max	XXX	1.0	2.0	2.5	2/month	8-Hr Composite

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

at Outfall 101

6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- Chesapeake Bay Nutrient Definitions
- Water Treatment Plant Cleaning

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: *New and Reissuance Industrial Waste and Industrial Stormwater, rev October 11, 2013*
☐	Other:

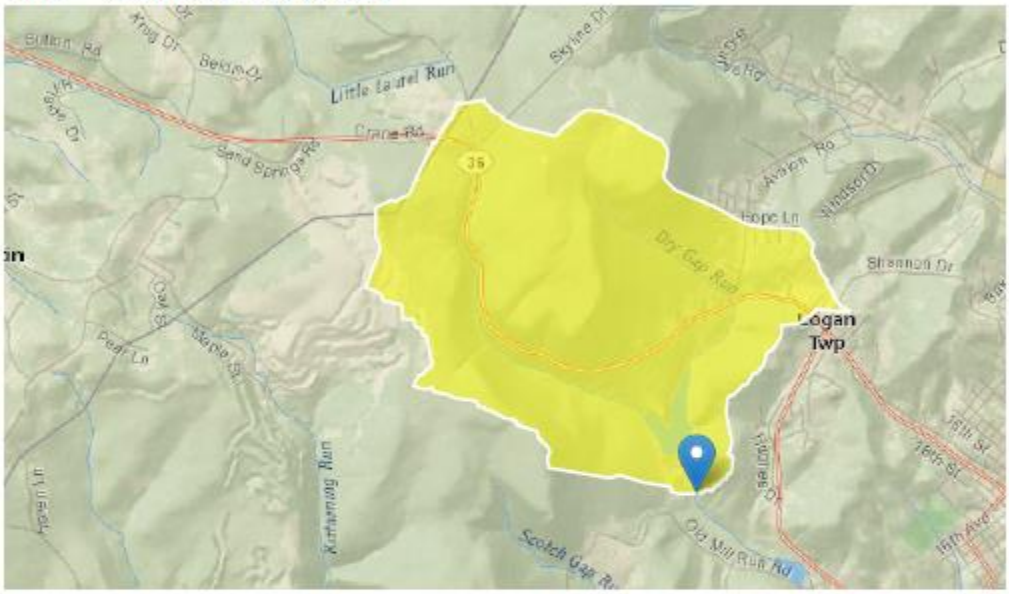
Attachment A

Stream Stats/Gauge Data

Engineer Report prepared by Gwin, Dobson, and Foreman

StreamStats Report

Region ID: PA
Workspace ID: PA20211025142618301000
Clicked Point (Latitude, Longitude): 40.51551, -78.45086
Time: 2021-10-25 10:26:37 -0400



Altoona City Water- Mill Run WTP PA0085529 Modeling Point #1 October 2021

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	4.34	square miles
PRECIP	Mean Annual Precipitation	43	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.4	miles per square mile
ROCKDEP	Depth to rock	4.4	feet
CARBON	Percentage of area of carbonate rock	0	percent

Low-Flow Statistics Parameters [99.9 Percent (4.33 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	4.34	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	43	inches	35	50.4
STRDEN	Stream Density	1.4	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.4	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

Low-Flow Statistics Disclaimers [99.9 Percent (4.33 square miles) Low Flow Region 2]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report [99.9 Percent (4.33 square miles) Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.582	ft^3/s
30 Day 2 Year Low Flow	0.797	ft^3/s
7 Day 10 Year Low Flow	0.253	ft^3/s
30 Day 10 Year Low Flow	0.348	ft^3/s
90 Day 10 Year Low Flow	0.567	ft^3/s

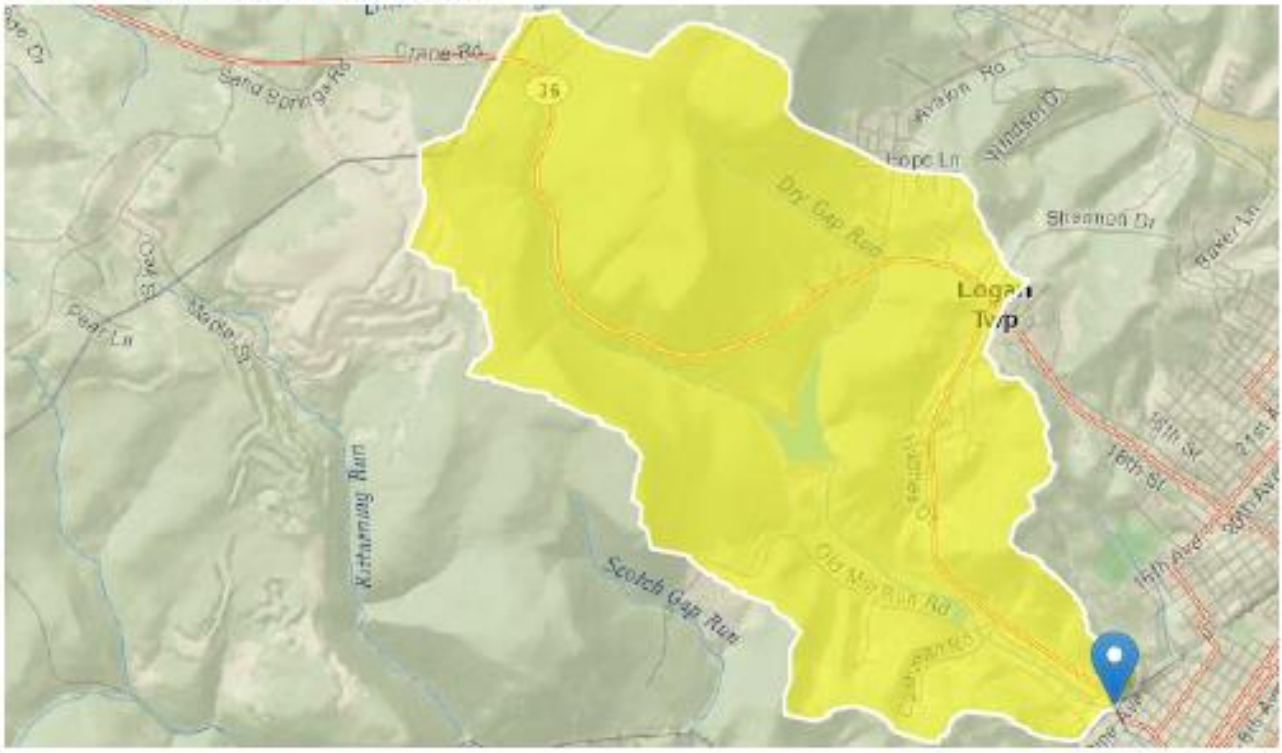
Low-Flow Statistics Citations

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: 4.6.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

StreamStats Report

Region ID: PA
Workspace ID: PA20211025142947913000
Clicked Point (Latitude, Longitude): 40.50166, -78.42412
Time: 2021-10-25 10:30:10 -0400



Altoona City Water- Mill Run WTP PA0085529 Modeling Point #2 October 2021

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	6.84	square miles
PRECIP	Mean Annual Precipitation	42	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.75	miles per square mile
ROCKDEP	Depth to rock	4	feet
CARBON	Percentage of area of carbonate rock	0	percent

Low-Flow Statistics Parameters [100.0 Percent (6.84 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	6.84	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	42	inches	35	50.4
STRDEN	Stream Density	1.75	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

Low-Flow Statistics Flow Report [100.0 Percent (6.84 square miles) Low Flow Region 2]

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	0.6	ft^3/s	38	38
30 Day 2 Year Low Flow	0.863	ft^3/s	33	33
7 Day 10 Year Low Flow	0.232	ft^3/s	51	51
30 Day 10 Year Low Flow	0.341	ft^3/s	46	46
90 Day 10 Year Low Flow	0.593	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/)

functionality of the software and related material nor shall the fact of release constitute any such warranty. Furthermore, the software is released on condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from its authorized or unauthorized use.

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

Application Version: 4.6.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

ENGINEERING REPORT

RESERVOIR OPERATION AND MANAGEMENT PLAN

ALTOONA WATER AUTHORITY
900 CHESTNUT AVENUE
ALTOONA, PA

JUNE 2011

PREPARED BY:

GWIN, DOBSON & FOREMAN, INC.
CONSULTING ENGINEERS
ALTOONA, PA

Table 17 - Reservoir Conservation Releases and Mean Average Inflows

Reservoir	Conservation Release (mgd)	Conservation Release (cfs)	Mean Inflow (cfs)	Mean Inflow (mgd)
Mill Run	0.466	0.721	5.68	3.67
Allegheny	0.283	0.438	8.33	5.38
Kittanning Point	N/A	N/A	12.02	7.77
Impounding (Cochran)	N/A	N/A	12.79	8.27
Lake Altoona	0.562	0.870	16.60	7.70
Homer Gap	0.130	0.201	3.22	2.08
Blair Gap	0.248	0.384	4.55	2.94
Muleshoe	0.600	0.928	9.62	6.22
Plane Nine	0.570	0.882	16.85	10.89
Kettle	0.240	0.371	3.34	2.16
Bellwood	1.080	1.671	24.3	15.70
Tipton	0.670	1.037	11.63	7.52
Loup Run	0.140	0.217	3.84	2.48

Diversions - Another subset of reservoir routing parameters are diversions to and from adjoining reservoir systems. In the case of the AWA systems, there are several direct and indirect diversions that need to be taken into account for the Res-Sim 3.0 model. Direct diversions are not considered water withdrawals by PADEP and must be accounted for as net inflow to the reservoir. For modeling purposes, indirect diversions are considered that part of the reservoir withdrawal that occurs within the total water demand. The "indirect" transfer is made in the distribution system downstream from the reservoir. The specific reservoir diversion narratives are as follows:

- **Blair Gap Reservoir** - A 12-inch gravity transmission main was constructed from Blair Gap reservoir to the Horseshoe Curve watershed in 1907. This five mile pipeline was built by the original reservoir builder, the Pennsylvania Railroad, to fill water tanks at Kittanning Point for steam locomotive tenders. Although long abandoned for these purposes, this line has supplemented the Impounding (Cochran) Reservoir with short term, high quality water. A 1980 flow study gaged the capacity of this line at 1.0 mgd.

  The flow transfer from Blair Gap reservoir to the Horseshoe Curve system is necessarily limited by the yield of the Blair Gap watershed and storage capacity at Blair Gap Reservoir. It is used to supplement water quality and short term storage needs at the Impounding (Cochran) Reservoir when stream flow conditions allow. The 2008 water allocation permit limits the flow from this

Attachment B

Toxics Management Spreadsheet Output Values

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Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: Altoona Water Plant - Mill Run NPDES Permit No.: PA0085529 Outfall No.: 101

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Filter 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
0.12	30.8	6.95						

					0 if left blank		0.6 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		60									
	Chloride (PWS)	mg/L		24.3									
	Bromide	mg/L		0.072									
	Sulfate (PWS)	mg/L		13.3									
	Fluoride (PWS)	mg/L		0.396									
Group 2	Total Aluminum	µg/L		350									
	Total Antimony	µg/L		0.23									
	Total Arsenic	µg/L		0.5003									
	Total Barium	µg/L		44.33									
	Total Beryllium	µg/L		0.496									
	Total Boron	µg/L		56.5									
	Total Cadmium	µg/L		0.09									
	Total Chromium (III)	µg/L		1.99									
	Hexavalent Chromium	µg/L		0.16									
	Total Cobalt	µg/L		0.107									
	Total Copper	µg/L		2.74									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		0.6									
	Dissolved Iron	µg/L		33.3									
	Total Iron	µg/L		99.7									
	Total Lead	µg/L		0.195									
	Total Manganese	µg/L		46									
	Total Mercury	µg/L		0.1									
	Total Nickel	µg/L		1.58									
	Total Phenols (Phenolics) (PWS)	µg/L		3									
	Total Selenium	µg/L		1.22									
	Total Silver	µg/L		0.46									
	Total Thallium	µg/L		0.05									
	Total Zinc	µg/L		11.6									
	Total Molybdenum	µg/L		0.15									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Altoona Water Plant - Mill Run, NPDES Permit No. PA0085529, Outfall 101

Instructions | Discharge | Stream

Receiving Surface Water Name: **Mill Run**

No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	016403	5.7	1388	4.34			Yes
End of Reach 1	016403	3.94	1242	6.84			Yes

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

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	5.7	0.166										120	7.3		
End of Reach 1	3.94	0.166										120	7.3		

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	5.7														
End of Reach 1	3.94														

☑ ***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	µg/L	2,346	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Mercury	Report	Report	Report	Report	Report	µg/L	0.24	THH	Discharge Conc > 10% WQBEL (no RP)

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Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: Altoona Water Plant - Mill Run | NPDES Permit No.: PA0085529 | Outfall No.: 001

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

Discharge Characteristics									
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.12	30.8	6.95						

					0 if left blank		0.6 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		50									
	Chloride (PWS)	mg/L		23.6									
	Bromide	mg/L		0.07									
	Sulfate (PWS)	mg/L		9.4									
	Fluoride (PWS)	mg/L		0.099									
Group 2	Total Aluminum	µg/L		43.5									
	Total Antimony	µg/L		0.348									
	Total Arsenic	µg/L		0.5									
	Total Barium	µg/L		45.8									
	Total Beryllium	µg/L		0.676									
	Total Boron	µg/L		56.5									
	Total Cadmium	µg/L		0.123									
	Total Chromium (III)	µg/L		1.99									
	Hexavalent Chromium	µg/L		0.06									
	Total Cobalt	µg/L		0.119									
	Total Copper	µg/L		2.53									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		6									
	Dissolved Iron	µg/L		20									
	Total Iron	µg/L		31									
	Total Lead	µg/L		0.172									
	Total Manganese	µg/L		34.7									
	Total Mercury	µg/L	<	0.104									
	Total Nickel	µg/L		1.44									
	Total Phenols (Phenolics) (PWS)	µg/L		2									
	Total Selenium	µg/L		1.67									
	Total Silver	µg/L		0.33									
	Total Thallium	µg/L		0.068									
	Total Zinc	µg/L		3.54									
	Total Molybdenum	µg/L		0.2									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Altoona Water Plant - Mill Run, NPDES Permit No. PA0085529, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: Mill Run

No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	016403	5.7	1388	4.34			Yes
End of Reach 1	016403	3.94	1242	6.84			Yes

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

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	5.7	0.166										120	7.3		
End of Reach 1	3.94	0.166										120	7.3		

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	5.7														
End of Reach 1	3.94														

☑ ***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			