Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0081850**
Facility Type	**Industrial**	APS ID	**1084**
Major / Minor	**Minor**	Authorization ID	**1511142**

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

Applicant and Facility Information

Applicant Name	**Gettysburg Borough Municipal Authority Adams County**	Facility Name	**Gettysburg Municipal Authority Water System**
Applicant Address	601 E Middle Street PO Box 3307	Facility Address	Water Works Road
	Gettysburg, PA 17325-1951		Gettysburg, PA 17325
Applicant Contact	Mark Guise	Facility Contact	Mark Guise
Applicant Phone	(717) 334-6738	Facility Phone	(717) 334-6738
Client ID	78262	Site ID	239068
SIC Code	4941	Municipality	Cumberland Township
SIC Description	Trans. & Utilities - Water Supply	County	Adams
Date Application Received	December 30, 2024	EPA Waived?	Yes
Date Application Accepted	January 3, 2025	If No, Reason	

Purpose of Application: NPDES permit renewal.

Summary of Review

Buchart Horn, Inc., on behalf of the Gettysburg Borough Municipal Authority Adams County (IW) (Authority/Permittee), applied to the Pennsylvania Department of Environmental Protection (DEP) for issuance of the NPDES permit. The permit was reissued on May 13, 2020, and became effective on June 1, 2020. The permit expires on May 31, 2025.

The Gettysburg Municipal Authority Water System NPDES PA0081850 A-1 amendment was issued on 4/8/2021 to add approximately 60,000 gallons (0.06 MGD) discharge of filter-to-waste to existing NPDES Outfall 001 during WTP start up. The modification will install the new filter-to-waste piping and automatic valves to discharge the filter-to-waste water through the existing Outfall 001.

The treatment plant is designed for 100% recycle of filter backwash water and treatment plant overflow. However, in the event that 100% recycle is not possible, the authority has chosen to continue to renew the NPDES permit for the discharge. Outfall 001 discharges to a dry swale which flows to Marsh Creek. The point of first use is the confluence with Marsh Creek approximately 8.14 miles.

Marsh Creek is classified as Cold-Water Fishes (CWF) according to chapter 93. The design flow is 0.215 MGD. According to previous protection reports, inspection reports, and DMR data, there has been only one discharge from this facility (in December 2018) since June 01, 2014.

Sludge use and disposal description and location(s): N/A because sludge is hauled by facility's contractor.

Changes from the previous permit: N/A

Based on the review outline in this fact sheet, it is recommended that the permit be drafted and publish in the Pennsylvania Bulletin for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	March 21, 2025
X		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	March 28, 2025

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.215
Latitude	39º 47' 53.64"	Longitude	-77º 16' 30.93"
Quad Name	Fairfield	Quad Code	
Wastewater Description:	Water Treatment Effluent		
Receiving Waters	Marsh Creek (CWF)	Stream Code	NA (dry swale) (58903)
NHD Com ID	53320624	RMI	8.14 miles
Drainage Area	56.3 mi.^{2}	Yield (cfs/mi^2)	0.05
Q_{7-10} Flow (cfs)	3.04	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	460.67	Slope (ft/ft)	
Watershed No.	13-D	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	City of Frederick, MD		
PWS Waters	Monocacy River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	Approximate 40.0 miles

Changes Since Last Permit Issuance:

Drainage Area
The discharge is to Marsh Creek at RMI 8.14 miles. A drainage area upstream of the discharge is estimated to be 56.3 mi.^{2}, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow
According to the previous protection report, the discharge is to a dry swale to Marsh Creek (58903). According to USGS StreamStats available at https://streamstats.usgs.gov/ss/, the discharge point has a Q_{7-10} of 3.04 cfs and a drainage area of 56.3 mi.^{2}, which results in a theoretical low flow yield of 0.05 cfs/mi.^{2} (3.04 cfs / 56.3 mi.^{2}).

The resulting Q_{7-10} dilution ratio is: Q_{stream} / $Q_{discharge}$ = 3.04 cfs / [0.215 MGD * (1.55 cfs/MGD)] = 9.12:1

Public Water Supply
The nearest downstream public water supply intake is for the City of Frederick, Maryland on the Monocacy River, approximately 40 miles downstream of this discharge. Considering distance and dilution, the discharge is not expected to impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: Gettysburg Water Treatment Plant				
WQM Permit No.	**Issuance Date**			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Industrial	Primary	Sedimentation Tanks	No Disinfection	0.215
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.215		Not Overloaded		

Changes Since Last Permit Issuance: Permit amendment to add approximately 60,000 gallons (0.06 MGD) discharge as filter-to-waste to existing NPDES Outfall 001 during WTP start up.

Other Comments: The treatment facility consists only of a gravity sludge thickener (used to treat filter backwash). Supernatant from the sludge thickener is designed to be recycled back through the water treatment plant with a discharge only occurring in emergency situations. Sludge is hauled out periodically.

Compliance History	
Summary of DMRs:	DMRs reported last 12 months are summarized in the next page.
Summary of Inspections:	12/21/2022: Mr. Hoy, DEP Environmental Trainee, conducted compliance evaluation inspection. There were no violations noted during inspection. NPDES permitted outfall receives flow from a gravity overflow standpipe on the water treatment plant backwash gravity thickener. Filters are generally backwashed once per three days. Sludge is removed from the thickener approximately every few months and hauled to Maryland for land application. Outfall 001 was observed.
Other Comments:	There are no open violations associated with this facility or permittee.

Other Comments:

Compliance History

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

Parameter	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24
Flow (MGD) Average Monthly	0.028911	0.027959	0.017214	0.0193	0.018189	0.020339	0.022824	0.021	0.018172	0.019415	0.021502	0.00423
Flow (MGD) Daily Maximum	0.080169	0.102735	0.037532	0.055125	0.027535	0.052565	0.070176	0.053	0.035044	0.053013	0.075137	0.017528
pH (S.U.) Daily Minimum	6.28	6.23	6.57	6.6	6.83	6.34	6.6	6.64	6.43	6.36	6.42	6.74
pH (S.U.) Instantaneous Maximum	7.5	7.33	8.5	7.35	7.51	7.3	7.02	7.04	7.26	7.2	7.56	7.08
TRC (mg/L) Average Monthly	0.04	0.03	0.04	0.02	0.03	< 0.04	< 0.03	0.03	0.02	0.04	0.03	0.1
TRC (mg/L) Instantaneous Maximum	0.09	0.09	0.3	0.04	0.06	0.27	0.05	0.05	0.06	0.06	0.04	0.4
TSS (mg/L) Average Monthly	1	2	2	2	2	1	4	1	2	1	1	1
TSS (mg/L) Daily Maximum	1	2	2	2	2	1	8	1	2	1	2	1
Total Aluminum (mg/L) Average Monthly	0.02	0.02	0.02	0.01	0.02	< 0.02	0.2	0.02	0.02	0.02	0.02	0.02
Total Aluminum (mg/L) Daily Maximum	0.024	0.019	0.021	0.013	0.018	< 0.02	0.49	0.017	0.02	0.019	0.03	0.023
Total Iron (mg/L) Average Monthly	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.04	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Iron (mg/L) Daily Maximum	< 0.05	0.05	< 0.05	< 0.05	0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05
Total Manganese (mg/L) Average Monthly	< 0.005	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 2.9	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total Manganese (mg/L) Daily Maximum	< 0.005	0.005	< 0.005	< 0.005	< 0.005	< 0.005	8.7	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Existing Effluent Limitations and Monitoring Requirements

Outfall 001,

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Daily when Discharging	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	Daily when Discharging	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.0	Daily when Discharging	Grab
TSS	XXX	XXX	XXX	30	60	75	2/month	8-Hr Composite
Total Aluminum	XXX	XXX	XXX	4.0	8.0	10	2/month	8-Hr Composite
Total Iron	XXX	XXX	XXX	2.0	4.0	5.0	2/month	8-Hr Composite
Total Manganese	XXX	XXX	XXX	1.0	2.0	2.5	2/month	8-Hr Composite

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.215
Latitude 39º 47' 53.64" **Longitude** -77º 16' 30.93"
Wastewater Description: Water Treatment Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments:

Water Quality-Based Limitations

Effluent Limitations Evaluation:
The previous protection report developed limitations based on Best Practicable Control Technology Currently Available (BPT), according to guidance document 362-2183-003 (*Technology-Based Control Requirements for Water Treatment Plant Wastes*).

The attached Total Residual Chlorine (TRC) Excel spreadsheet calculator, which uses the equations and calculations from guidance document 391-2000-015, was also used (Pages # 7). However, the limits from the existing permit will remain in the proposed permit since they are more stringent.

The Department's guidance document for discharges to "dry streams" (391-2000-014) states that "for wastewater discharges other than discharges of treated sewage and similar oxygen-consuming wastes, no additional treatment requirements are applicable under this guidance. However, federal Effluent Limitation Guidelines (ELGs) are still applicable, and other technology-based requirements may be applied consistent with regional requirements."

As noted in the previous protection report, document 362-2183-003 states that due to the cost of finished water quality concern, Best Available Technology Economically Achievable (BAT) options may not be feasible. Therefore, it may not be appropriate to require further effluent reduction to controls beyond BPT options. Except where the recycle of wastewater is feasible, BAT and Best Conventional Pollutant Control Technology (BCT) should be equivalent to BPT.

This facility has chosen to recycle as the first option for disposal of the backwash water and overflow. Therefore, BPT-based limitations are appropriate for this facility.

The guidance document defines BPT technology-based effluent control requirements as follows:

Parameter	Monthly Average (mg/L)	Daily Maximum (mg/L)
Total Suspended Solids	30	60
Total Iron	2	4
Total Aluminum	4	8
Total Manganese	1	2
Flow	Monitor	
pH	6 to 9 at all times	
Total Residual Chlorine	0.5	1.0

The limits in the above table are equivalent to the existing permit limits. It is recommended that all existing effluent limitations remain in effect.

Toxics:
DEP conducted a reasonable potential analysis using Toxics Management Spreadsheet (TMS). The TMS output shows no WQBELs are required for all pollutants.

☑ *Recommended WQBELs & Monitoring Requirements*

No. Samples/Month: 4

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

Chesapeake Bay Strategy:

The Supplement to Phase II Watershed Implementation Plan states the following (Pages # 19): "*For non-significant Industrial Waste (IW) facilities, monitoring and reporting of Total Nitrogen (TN) and Total Phosphorus (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.*"

This is a non-significant industrial discharge facility that will not need a phosphorus or nitrogen loading cap. TN and TP "Monitor & Report" requirement will not be necessary since this facility discharges groundwater without any chemical additives containing nitrogen or phosphorus.

WQM 7.0:

CBOD5 and NH3-N are not pollutants of concern for the water treatment waste as the discharge of these pollutants is not resulting from the water treatment process. Therefore, WQM 7.0 modeling is not necessary and permit requirements for these pollutants are not recommended.

Antidegradation (93.4)

The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

303d Listed Streams

The discharge is not located on a 303d listed stream segment.

Class A Wild Trout Fisheries

No Class A Wild Trout Fisheries are impacted by this discharge.

TRC Spreadsheet:

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

3.04	= Q stream (cfs)	0.5	= CV Daily
0.215	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 2.935	1.3.2.iii	WLA cfc = 2.854
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 1.094	5.1d	LTA_cfc = 1.659

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))... ...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))... ...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**

Proposed Effluent Limitations and Monitoring Requirements

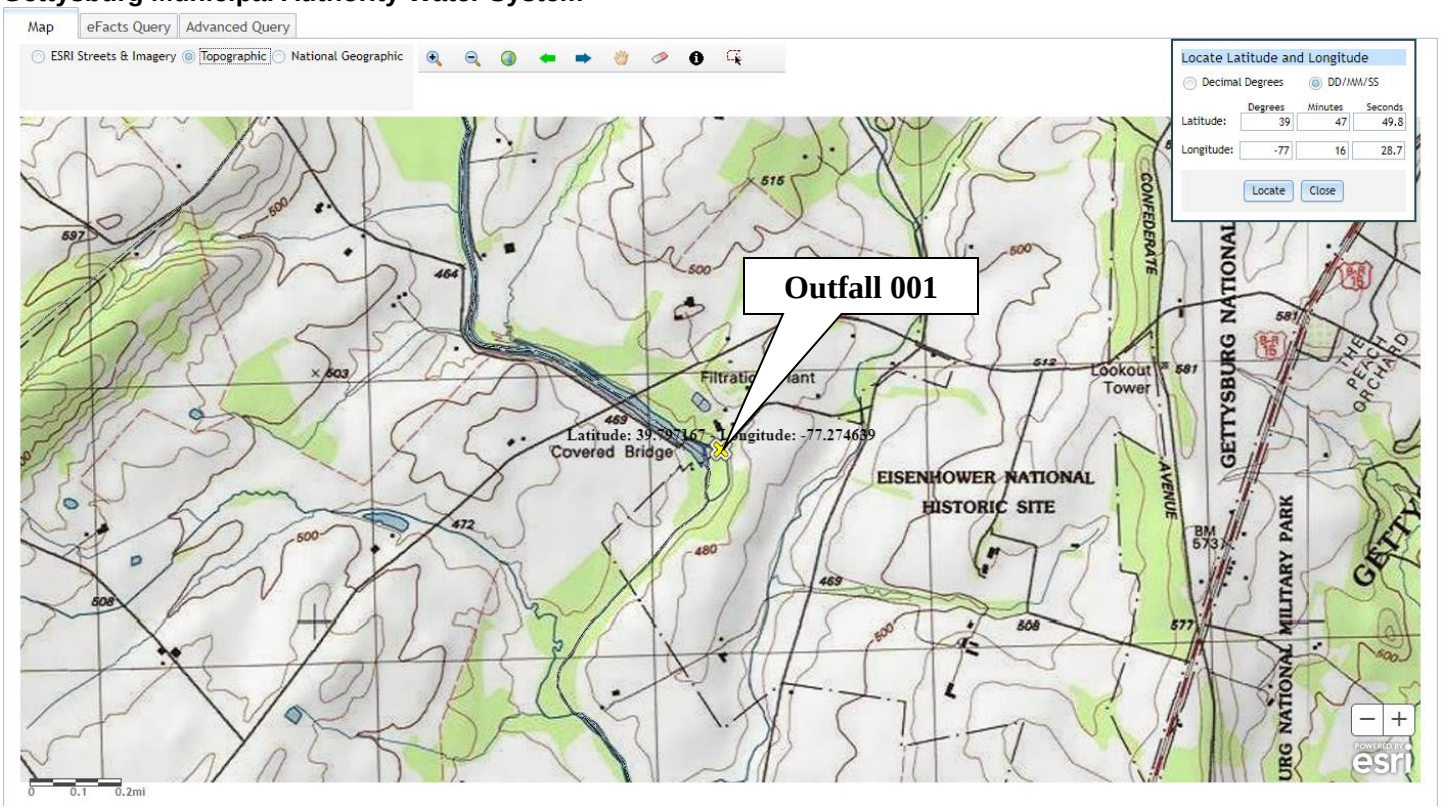
The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

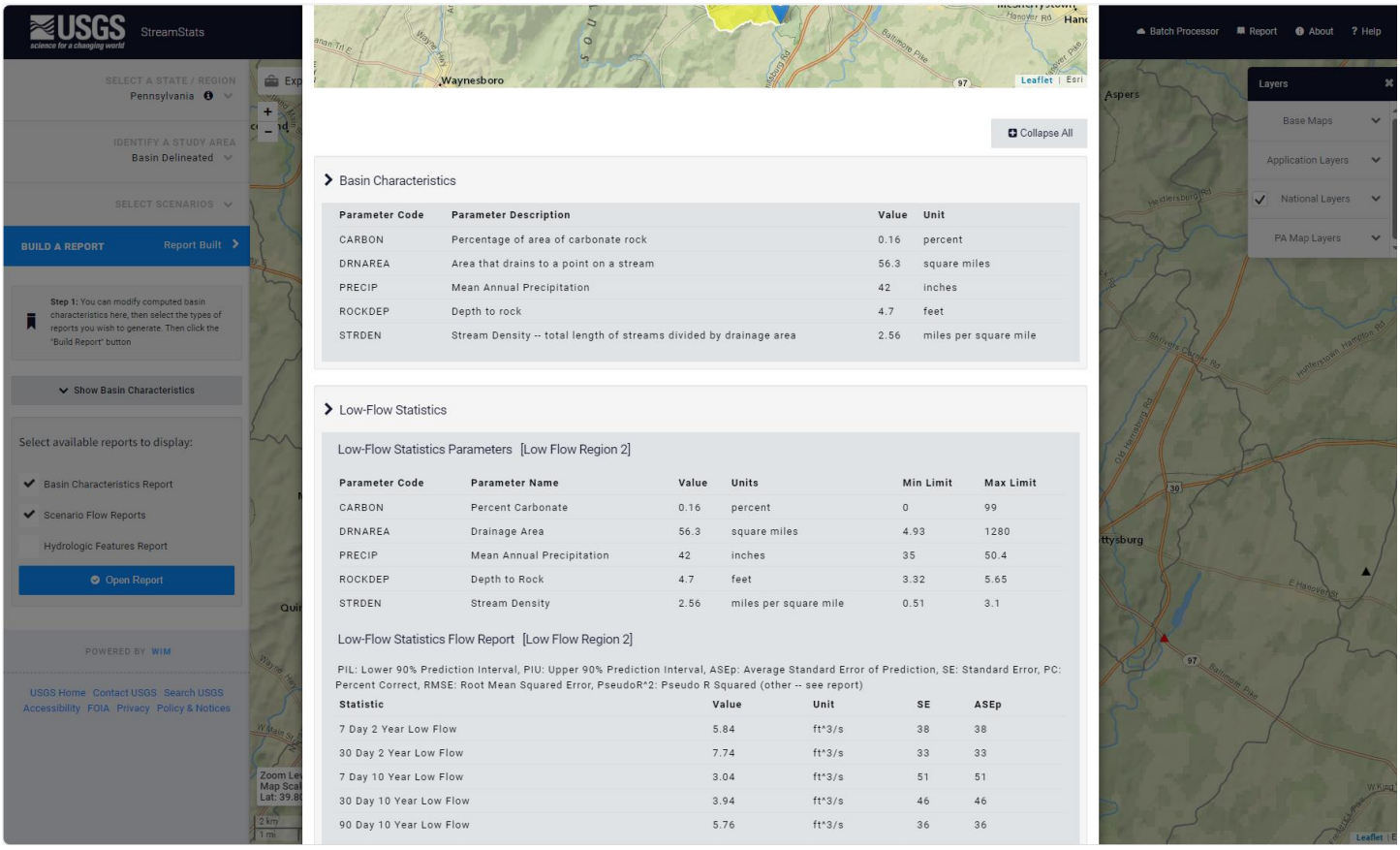
Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Daily when Discharging	Estimate
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	XXX	9.0	Daily when Discharging	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.0	Daily when Discharging	Grab
TSS	XXX	XXX	XXX	30.0	60.0	75.0	2/month	8-Hr Composite
Total Aluminum	XXX	XXX	XXX	4.0	8.0	10.0	2/month	8-Hr Composite
Total Iron	XXX	XXX	XXX	2.0	4.0	5.0	2/month	8-Hr Composite
Total Manganese	XXX	XXX	XXX	1.0	2.0	2.5	2/month	8-Hr Composite

Compliance Sampling Location:

Other Comments:



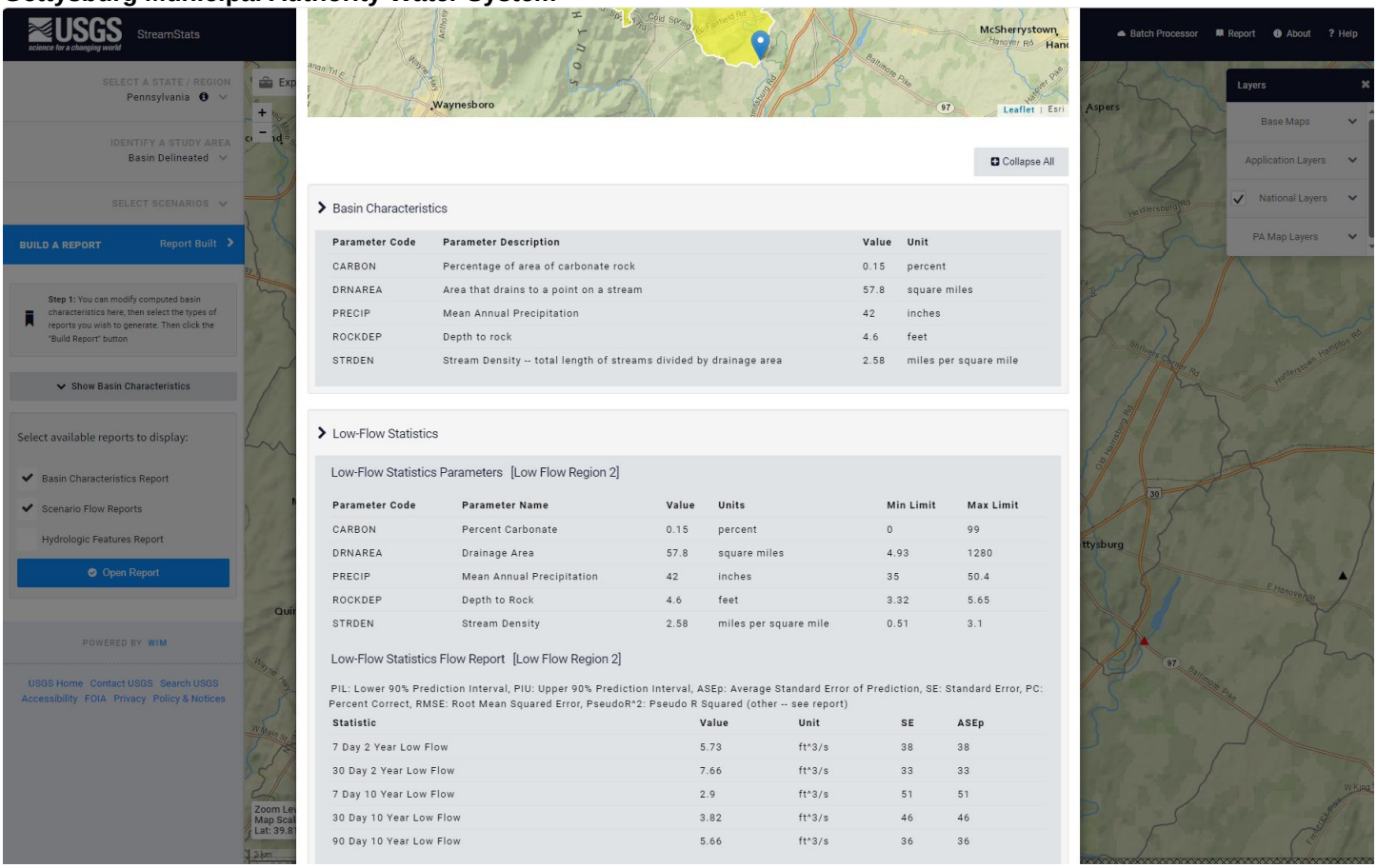


Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	0.16	percent
DRNAREA	Area that drains to a point on a stream	56.3	square miles
PRECIP	Mean Annual Precipitation	42	inches
ROCKDEP	Depth to rock	4.7	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	2.56	miles per square mile

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	0.16	percent	0	99
DRNAREA	Drainage Area	56.3	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	42	inches	35	50.4
ROCKDEP	Depth to Rock	4.7	feet	3.32	5.65
STRDEN	Stream Density	2.56	miles per square mile	0.51	3.1

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	5.84	ft^3/s	38	38
30 Day 2 Year Low Flow	7.74	ft^3/s	33	33
7 Day 10 Year Low Flow	3.04	ft^3/s	51	51
30 Day 10 Year Low Flow	3.94	ft^3/s	46	46
90 Day 10 Year Low Flow	5.76	ft^3/s	36	36



Toxic:

- Discharge pH = 7.1 (2024 renewal application average)
- Discharge Hardness = 106 mg/L (2024 renewal application)
- Stream pH = 7.0 (Default)
- Stream Hardness = 100 mg/L (Default)
- Background NH_3-N = 0 mg/L (Default)

The following two nodes were used in modeling:

Node 1: Outfall 001 on Marsh Creek (58903)
- Elevation: 460.67 ft (USGS National Map Viewer)
- Drainage Area: 56.3 $mi.^2$ (USGS PA StreamStats)
- River Mile Index: 8.14 (PA DEP eMapPA)
- Low Flow Yield: 0.05 $cfs/mi.^2$
- Discharge Flow: 0.215 MGD

Node 2: At the confluence before conjunction of Plum Run to Marsh Creek
- Elevation: 451.8 ft (USGS National Map Viewer)
- Drainage Area: 57.8 $mi.^2$ (USGS PA StreamStats)
- River Mile Index: 7.52 (PA DEP eMapPA)
- Low Flow Yield: 0.05 $cfs/mi.^2$
- Discharge Flow: 0.0 MGD

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Gettysburg MA Outfall 001** NPDES Permit No.: **PA0081850** Outfall No.: **001**

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

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
0.215	106	7.1						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		270									
	Chloride (PWS)	mg/L		18									
	Bromide	mg/L	<	0.5									
	Sulfate (PWS)	mg/L		42									
	Fluoride (PWS)	mg/L	<	0.2									
Group 2	Total Aluminum	µg/L		140									
	Total Antimony	µg/L	<	0.3									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		25									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L	<	200									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L	<	1									
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L	<	0.3									
	Total Copper	µg/L	<	1									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	10									
	Dissolved Iron	µg/L	<	20									
	Total Iron	µg/L		140									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		5									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L	<	1									
	Total Phenols (Phenolics) (PWS)	µg/L		2									
	Total Selenium	µg/L	<	1									
	Total Silver	µg/L	<	0.4									
	Total Thallium	µg/L	<	0.3									
	Total Zinc	µg/L	<	5									
	Total Molybdenum	µg/L	<	3									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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

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

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Gettysburg MA Outfall 001, NPDES Permit No. PA0081850, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Marsh Creek**

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	058903	8.14	460.67	56.3			Yes
End of Reach 1	058903	7.52	451.8	57.8			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	8.14	0.05										100	7		
End of Reach 1	7.52	0.05													

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	8.14														
End of Reach 1	7.52														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Gettysburg MA Outfall 001, NPDES Permit No. PA0081850, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.634 Analysis Hardness (mg/l): 100.94 Analysis pH: 7.01

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	4,774	
Total Antimony	0	0		0	1,100	1,100	7,001	
Total Arsenic	0	0		0	340	340	2,164	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	133,665	
Total Boron	0	0		0	8,100	8,100	51,556	
Total Cadmium	0	0		0	2.032	2.15	13.7	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	574.159	1,817	11,565	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	104	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	605	
Total Copper	0	0		0	13.558	14.1	89.9	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	65.244	82.6	526	Chem Translator of 0.79 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	10.5	Chem Translator of 0.85 applied
Total Nickel	0	0		0	471.967	473	3,010	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	3.269	3.85	24.5	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	414	
Total Zinc	0	0		0	118.116	121	769	Chem Translator of 0.978 applied

☑ *CFC* CCT (min): 37.330 PMF: 1 Analysis Hardness (mg/l): 100.63 Analysis pH: 7.01

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	2,082	
Total Arsenic	0	0		0	150	150	1,420	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	38,800	
Total Boron	0	0		0	1,600	1,600	15,142	
Total Cadmium	0	0		0	0.247	0.27	2.57	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.499	86.6	820	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	98.4	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	180	
Total Copper	0	0		0	9.004	9.38	88.8	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	14,195	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.534	3.21	30.4	Chem Translator of 0.79 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	8.57	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.285	52.4	496	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	47.2	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	123	
Total Zinc	0	0		0	118.773	120	1,140	Chem Translator of 0.986 applied

☑ *THH* CCT (min): 37.330 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	53.0	
Total Arsenic	0	0		0	10	10.0	94.6	
Total Barium	0	0		0	2,400	2,400	22,712	
Total Boron	0	0		0	3,100	3,100	29,337	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	

Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	2,839	
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	9,463	
Total Mercury	0	0		0	0.050	0.05	0.47	
Total Nickel	0	0		0	610	610	5,773	
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	2.27	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ *CRL* CCT (min): 13.895 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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

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

No. Samples/Month: 4

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

☑ ***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	3,060	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	22,712	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	15,142	µg/L	Discharge Conc < TQL
Total Cadmium	2.57	µg/L	Discharge Conc < TQL
Total Chromium (III)	820	µg/L	Discharge Conc < TQL
Hexavalent Chromium	66.5	µg/L	Discharge Conc < TQL
Total Cobalt	180	µg/L	Discharge Conc < TQL
Total Copper	57.6	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	2,839	µg/L	Discharge Conc < TQL
Total Iron	14,195	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	30.4	µg/L	Discharge Conc < TQL
Total Manganese	9,463	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.47	µg/L	Discharge Conc < TQL
Total Nickel	496	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	47.2	µg/L	Discharge Conc < TQL
Total Silver	15.7	µg/L	Discharge Conc < TQL
Total Thallium	2.27	µg/L	Discharge Conc < TQL
Total Zinc	493	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS

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