Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0088757**
Facility Type	**Industrial**	APS ID	**341412**
Major / Minor	**Minor**	Authorization ID	**1486999**

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

Applicant and Facility Information

Applicant Name	**Mount Union Municipal Authority Huntingdon County**	Facility Name	**Mt Union Singers Gap WTP**
Applicant Address	9 W. Market Street Mount Union, PA 17066-1233	Facility Address	State Route 747 Mount Union, PA 17066
Applicant Contact	William Shives	Facility Contact	J. Phil Stewart
Applicant Phone	(814) 542-4051	Facility Phone	(814) 644-9199
Client ID	24194	Site ID	544445
SIC Code	4941	Municipality	Shirley Township
SIC Description	Trans. & Utilities - Water Supply	County	Huntingdon
Date Application Received	May 31, 2024	EPA Waived?	Yes
Date Application Accepted	June 3, 2024	If No, Reason	

Purpose of Application: NPDES for filter backwash treatment plant renewal permit.

Summary of Review

Keller Engineers, on behalf of the Mount Union Municipal Authority (MUMA) (Authority/Permittee), applied to the Pennsylvania Department of Environmental Protection (DEP) for issuance of the NPDES permit. The permit was reissued on November 14, 2019 and became effective on December 1, 2019. The permit expires on November 30, 2024.

MUMA operates a wastewater treatment system (WWTP) receiving filter backwash from the water treatment plant located in Shirley Township, Huntingdon County. The facility did not discharge to the stream during the last permit cycle, however, wants to keep this permit active should discharge be required.

Sludge use and disposal description and location(s): N/A because it is hauled to a landfill.

Changes from the previous permit: The TRC limits changed to 0.17 mg/L average month & 0.55 mg/L IMAX in the proposed permit. The monitoring sample type requirements changed to Grab in the proposed permit.

Based on the review outlined in this fact sheet, it is recommended that the permit be drafted. A public notice of the draft permit will be published in the *Pennsylvania Bulletin* for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	October 3, 2024
X		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	October 4, 2024

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.061
Latitude	40º 19' 19.32"	Longitude	-77º 56' 36.08"
Quad Name	Butler Knob	Quad Code	1622
Wastewater Description:	Water Treatment Effluent Filter Backwater		
Receiving Waters	Singers Gap Run (HQ-CWF)	Stream Code	13247
NHD Com ID	66210735	RMI	2.96
Drainage Area	3.27 mi.^{2}	Yield (cfs/mi^2)	0.03
Q_{7-10} Flow (cfs)	0.103	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1225	Slope (ft/ft)	
Watershed No.	12-C	Chapter 93 Class.	HQ-CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Newport Borough		
PWS Waters	Juniata River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	Approximate 75.0 miles

Changes Since Last Permit Issuance:

Drainage Area
The discharge is to Singers Gap Run at RMI 2.96. A drainage area upstream of the point of discharge is estimated to be 3.27 sq.mi. using USGS StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow
USGS StreamStats produced a Q_{7-10} flow of 0.103 cfs at the point of discharge. (0.103 cfs / 3.27 mi.^{2} = 0.03 cfs/mi.^{2})

Singers Gap Run
Singers Gap Run is a tributary of Hill Valley Creek. Under 25 Pa Code §93.9n, the basin of Hill Valley Creek is classified as high quality-cold water fishes and supports migratory fishes. No existing use is identified for this basin. The permit requirements will be developed to ensure that the existing water quality will be maintained and protected in accordance with 25 Pa Code §93.4a(c). DEP's latest integrated water quality report indicates that the discharge is located within a stream segment listed as attaining use(s).

Public Water Supply Intake
The fact sheet developed during the previous permit renewal indicates that the nearest downstream public water supply intake is Newport Borough located on the Juniata River, approximate 75.0 miles. Given a distance, the discharge is not expected to affect the water supply.

Treatment Facility Summary				
Treatment Facility Name: Mt Union Singers Gap WTP				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Industrial	primary	Sedimentation	No Disinfection	See comments
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
See Comments	N/A	N/A	N/A	N/A

MUMA operates a wastewater treatment system (WWTP) receiving filter backwash from the water treatment plant located in Shirley Township, Huntingdon County. Water from Singer Gap Reservoir is sent to this water treatment plant and is processed through coagulation/flocculation/sedimentation/filtration/disinfection. Finished water is then stored in a 242,000-gallon water tank for distribution to the community.

The WWTP consists of two (2) lagoons and outfall structure. According to the application, MUMA recycled the discharge water from these lagoons to the headworks of the water treatment plant.

Any solids removed from lagoons will be sent to a landfill. Chlorine is added following the filtration; but some of the treated water is used for filter backwash.

Compliance History	
Summary of DMRs:	A summary of past 12-month DMR effluent data is not available as MUMA currently recycles lagoon effluent.
Summary of Inspections:	October 28, 2021: Frederick Clark, DEP Water Quality Specialist, conducted a routine compliance inspection. The NPDES permit for this facility is for the discharge of treated backwash water. The effluent is currently being recycled through the treatment plant and there is no discharge to the receiving stream. DMRs for this facility are being submitted each month and note that there was no discharge for the month. There was no discharge reported for all 2020 and 2021.
Other Comments:	There is currently no open violation associated with this facility or permittee.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from September 1, 2023 to August 31, 2024)

Parameter	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23
Total Hardness (mg/L) Intake Average Monthly	8.44	8.87	12.5	7.68	8.59	7.43		8.26	7.85	10.59	9.25	8.77
Total Hardness (mg/L) Intake Daily Maximum	8.55	8.88	12.9	7.93	9.63	7.56		8.26	8.91	12.60	9.40	9.60

Existing Effluent Limitations and Monitoring Requirements

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	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.27	XXX	0.88	1/day	Grab
TSS	Report	Report	XXX	30	60	75	2/month	8-Hr Composite
Total Aluminum	Report	Report	XXX	1.0	2.0	2.5	2/month	8-Hr Composite
Total Iron	Report	Report	XXX	2.0	4.0	5	2/month	8-Hr Composite
Total Manganese	Report	Report	XXX	1.0	2.0	2.5	2/month	8-Hr Composite
Total Zinc	Report	Report	XXX	Report	Report	XXX	2/month	8-Hr Composite
Total Hardness	XXX	XXX	XXX	Report	Report	XXX	2/month	8-Hr Composite
Total Hardness Intake (3)	XXX	XXX	XXX	Report	Report	XXX	2/month	8-Hr Composite

Development of Effluent Limitations

Outfall No.	001	**Design Flow (MGD)**	0.061
Latitude	40º 19' 19.32"	**Longitude**	-77º 56' 36.08"

Wastewater Description: Water Treatment Effluent

Technology-Based Limitations

DEP's technical guidance No. 362-2183-003 addresses technology-based control requirements along with the following recommended Best Practicable Control Technology Currently Available (BPT) effluent requirements for WTP sludge and filter backwash:

Parameter	Limit (mg/l)	SBC
Suspended Solids	30	Average Monthly
	60	Daily Maximum
Iron, Total	2.0	Average Monthly
	4.0	Daily Maximum
Aluminum, Total	4.0	Average Monthly
	8.0	Daily Maximum
Manganese, Total	1.0	Average Monthly
	2.0	Daily Maximum
Flow	Monitor	Average Monthly
pH	6.0	Minimum
	9.0	Maximum
Total Residual Chlorine	0.5	Average Monthly
	1.0	Daily Maximum

The existing permit renewal contains these requirements, assuming that the discharge pre-dates the HQ-CWF classification. This fact sheet dated 7/11/2006 confirmed this. These requirements apply, subject to water quality analysis and/or BPJ.

Water Quality-Based Limitations

DEP's SOP No. BPNPSM-PMT-032, version 1.3 revised September 10, 2013, recommends the average monthly flow as a design flow in water quality modeling unless a different flow is determined to be more representative of conditions. The effluent data is not available as no discharge has been occurred during the last permit term. It is therefore reasonable, in the opinion of DEP, to continue to use 0.061 MGD as the design flow to conduct a water quality analysis.

pH
Pennsylvania Water Quality Standards required effluent pH limits of 6.0 to 9.0 standard units at all time under PA Code Chapter 95.2(2). Therefore, the draft permit requires pH limits of 6.0 to 9.0 SU. This is consistent with the existing permit.

Total Suspended Solid (TSS)
A best professional judgment (BPJ) monthly average limit of 30.0 mg/L, 60.0 mg/L daily max, and 75.0 mg/L IMAX were established in the permit and will be continued in the proposed permit.

WQM 7.0
$CBOD_5$ and NH_3-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.

Total Residual Chlorine
Although chlorine is injected after filtration, MUMA utilizes finished water to backwash the filter. Any backwash discharged into the existing wastewater treatment lagoons is therefore expected to contain chlorine. DEP's TRC_CALC worksheet 0.168 (0.17) mg/L of average month and 0.551 (0.55) mg/L of IMAX are more stringent and will be placed in the proposed permit.

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.103	= Q stream (cfs)	0.5	= CV Daily
0.061	= 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 =	0.367	1.3.2.iii	WLA cfc =	0.350
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.137	5.1d	LTA_cfc =	0.204

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.168	AFC
		INST MAX LIMIT (mg/l) =	0.551	

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)

Toxics

The data was analyzed based on the guidelines found in DEP's Water Quality Toxics Management Strategy (Document No. 361-0100-003, version 1.4, revised 5/2023) and DEP's SOP No. BPNPSM-PMT-033. Spreadsheet results are attached to this fact sheet. The Toxics Management Spreadsheet uses the following logic:

a. Establish average monthly and IMAX limits in the draft permit where the maximum reported concentration 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.

Therefore, the results are as follows.

☑ *Recommended WQBELs & Monitoring Requirements*

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	Report	Report	Report	Report	Report	µg/L	1,005	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Cadmium	Report	Report	Report	Report	Report	µg/L	0.37	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	11.0	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	0.051	0.079	99.5	155	249	µg/L	99.5	AFC	Discharge Conc ≥ 50% WQBEL (RP)

- There are no monitoring or limitations recommended for Total Iron, & Total Manganese. Therefore, due to anti-backsliding restrictions, the existing technology limitations for Total Iron & Total Manganese will remain in the proposed permit.

- Monitoring is recommended for Total Aluminum, therefore the 2/month monitoring and reporting existing technology limitation for this pollutant will remain in the proposed permit.

- Monitoring is recommended for Total Cadmium, therefore 2/month monitoring and reporting requirements of this pollutant will be included in the proposed permit. During the next permit renewal cycle, the need for Cadmium monitoring in the permit will be re-evaluated.

- Monitoring is recommended for Total Copper, therefore 2/month monitoring and reporting requirements of this pollutant will be included in the proposed permit. During the next permit renewal cycle, the need for Copper monitoring in the permit will be re-evaluated.

- Monitoring and limits are recommended for Total Zinc, therefore the 0.0995 (0.1) mg/L average monthly, 0.155 mg/L maximum daily, and 0.249 mg/L IMAX; and 0.051 lbs/day AML & 0.079 lbs/day MDL. The facility did not discharge and had no data from the past permit cycle. Therefore, the monitoring and reporting existing permit will remain in the proposed permit until the facility is collect enough data to use in the toxic model to support including limits in the factsheet.

Additional Considerations

Flow Monitoring
Flow monitoring will remain in the permit and is required by 40 CFR § 122.44(i)(1)(ii).

Dissolved Oxygen
The existing permit renewal contains a minimum dissolved oxygen effluent limit of 5.0 mg/L. This however is unnecessary as D.O. is a parameter of concern for water treatment plant effluent as no depletion of dissolved oxygen is expected. This permitting approach is supported by 40 CFR §122.44(l)(i)(B)(2).

Chesapeake Bay TMDL
DEP's Supplement to Phase II Watershed Implementation Plan (WIP) indicates that monitoring and reporting of TN and TP are necessary for non-significant IW facilities throughout the permit term 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. No nutrient data is available at this time as the discharge has not occurred. In general, the discharge from a water treatment plant does not contain nutrients and even if it does contain nutrients, it is most likely coming from the source (reservoir water). Therefore, there are no monitoring and reporting of TN & TP requirements in the permit.

Total Hardness Monitoring
The existing permit renewal contains a routine monitoring requirement for Total Hardness (effluent and intake). This requirement was based on the decision made during the 2006 permit renewal that the facility utilizes Zinc phosphate as a softening agent. Upstream hardness data was determined to be necessary to determine if the softening agent is necessary and downstream hardness data was determined to be necessary to determine that a limit for Zinc is necessary. Also, it is not reasonable to collect intake hardness data when no discharge occurs since there is no effluent data to compare with. As a result, the permit will include a footnote indicating that intake samples are to be collected only when the discharge occurs.

Effluent Monitoring
Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits are less than the effluent limits. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

Additionally, the facility did not discharge to the stream during last permit cycle and requested to change to grab samples instead composite samples. Therefore, the monitoring sample type requirements changed to Grab in the proposed permit.

Anti-Degradation Requirements
The effluent limits for this discharge have been developed to ensure the existing in-stream uses and the level of water quality necessary to protect the existing uses are maintained and protected.

Anti-Backsliding Requirements
Unless stated otherwise in this fact sheet, permit requirements proposed in this fact sheet are at least as stringent as existing permit requirements.

Toxic:

The following data were used in the attached computer model (WQM 7.0) of the stream:

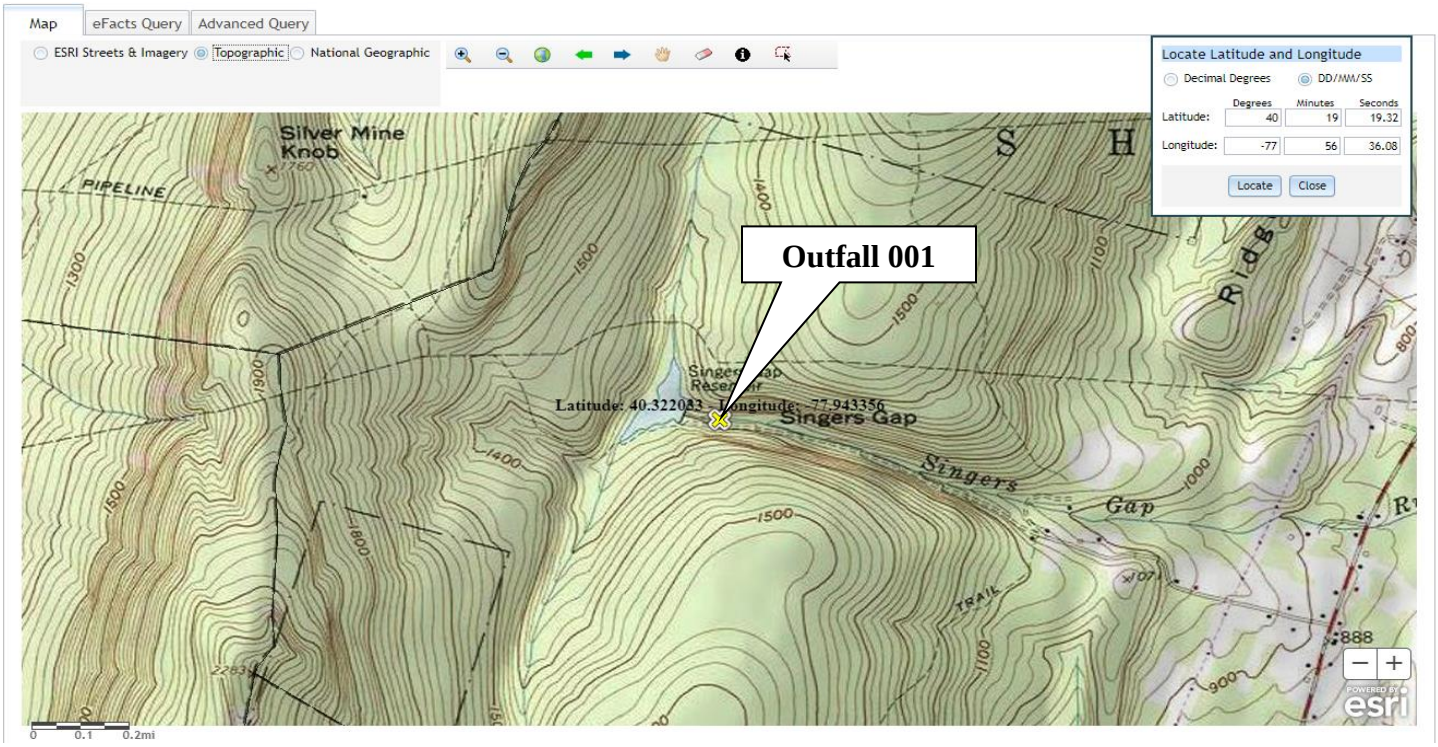
*	Discharge pH	=	6.92	(2024 renewal application)
*	Discharge Temperature	=	20°C	(Default)
*	Discharge Hardness	=	9.63 mg/L	(2024 renewal application)
*	Stream pH	=	7.0	(Default)
*	Stream Temperature	=	20°C	(Default)
*	Background NH_3-N	=	0 mg/L	(Default)
*	Hardness Stream	=	100 mg/L	(Default)

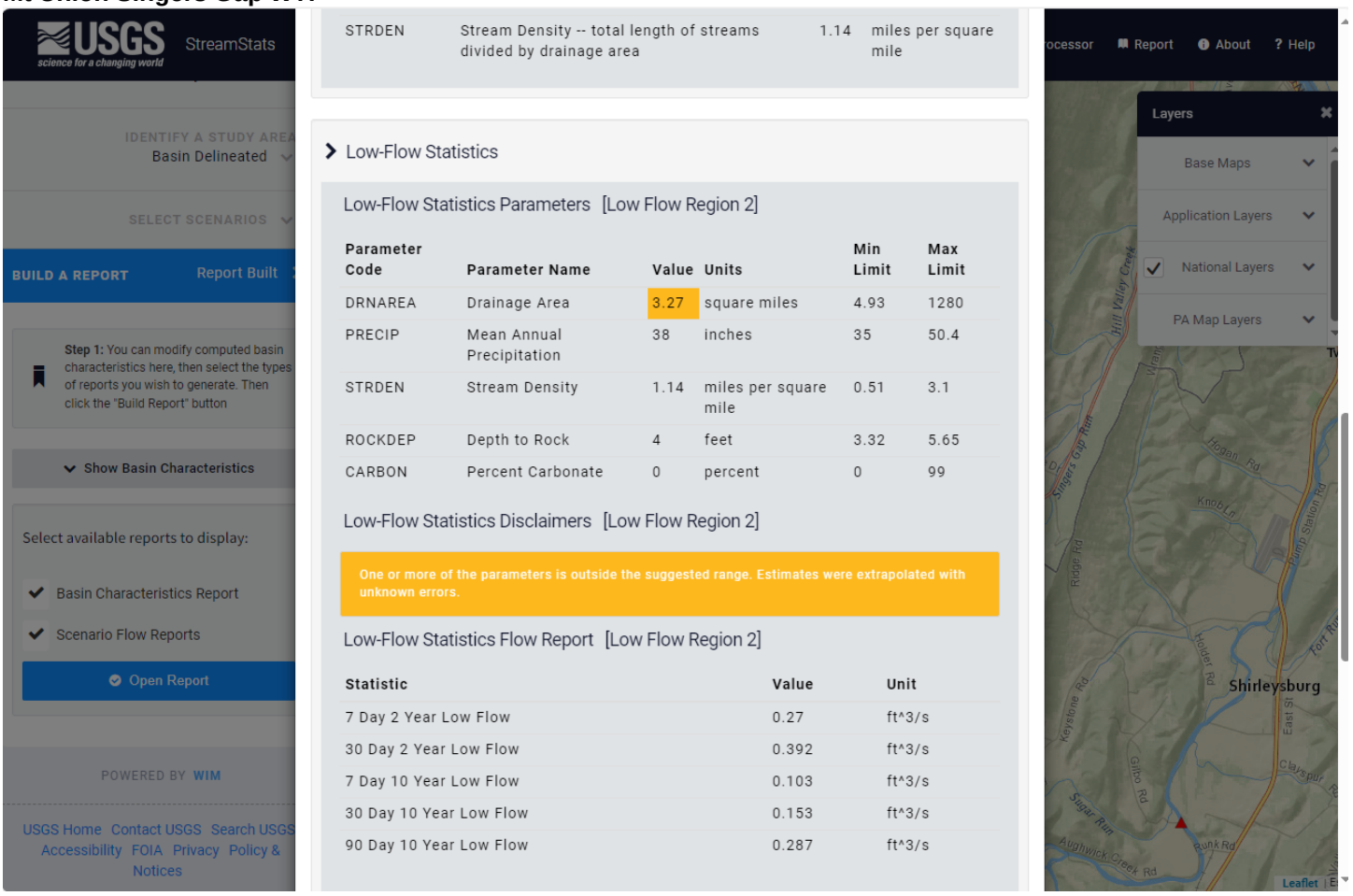
Node 1: Outfall 001 Singers Gap Run (13247)

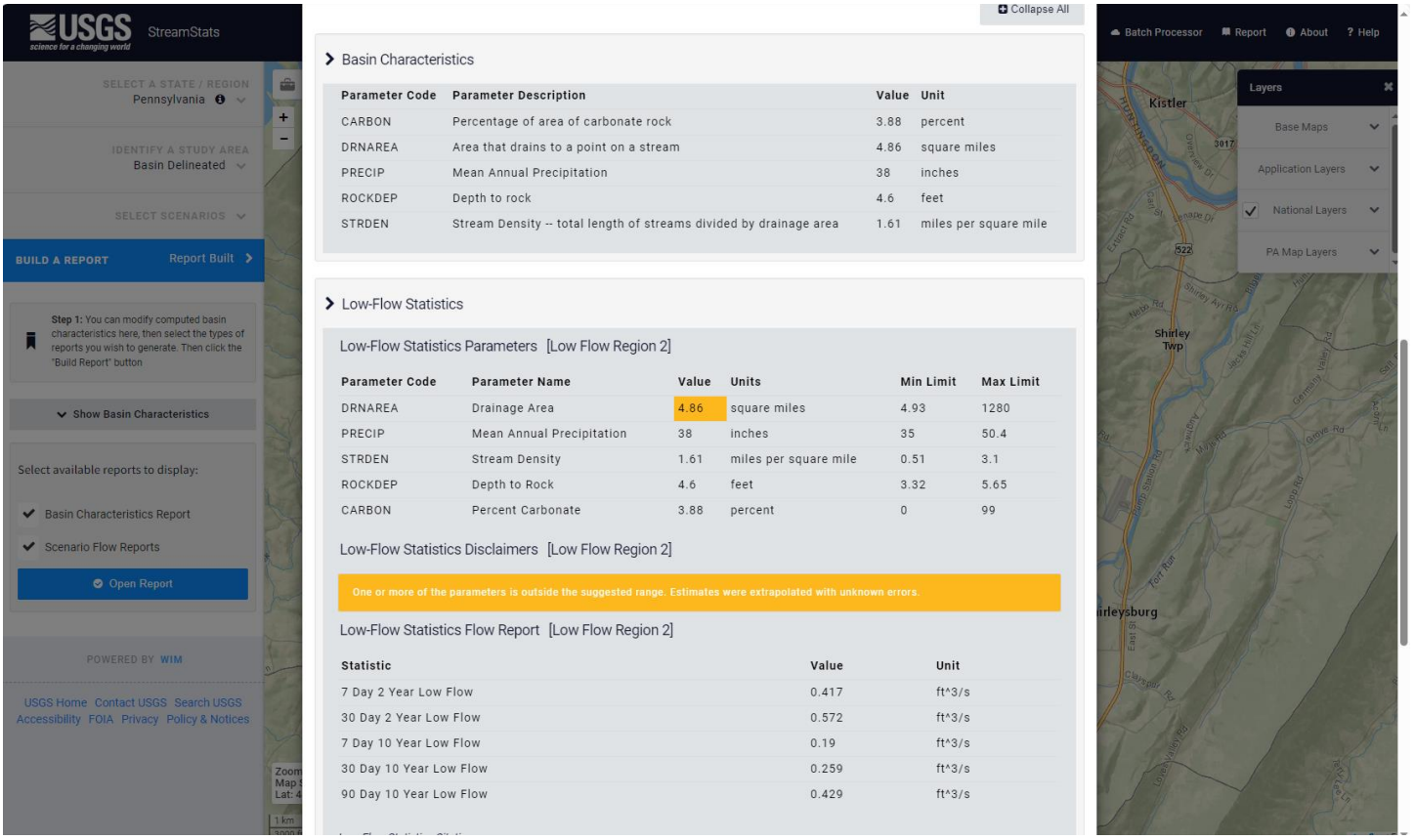
Elevation:	1225 ft (USGS National Map Viewer)
Drainage Area:	3.27 mi^2 (USGS PA StreamStats)
River Mile Index:	2.96 (PA DEP eMapPA)
Stream flow:	0.103 cfs
Low Flow Yield:	0.03 cfs/mi^2
Discharge Flow:	0.061 mgd (NPDES Application)

Node 2: Just after confluence of Singers Gap Run (13247) with Hill Valley Creek (13243)

Elevation:	689 ft (USGS National Map Viewer)
Drainage Area:	4.86 mi^2 (USGS PA StreamStats)
River Mile Index:	0.000 (PA DEP eMapPA)
Stream flow:	0.19 cfs
Low Flow Yield:	0.03 cfs/mi^2
Discharge Flow:	0.00 mgd




USGS
science for a changing world
StreamStats
IDENTIFY A STUDY AREA
Basin Delineated
SELECT SCENARIOS
BUILD A REPORT
Report Built
Step 1: You can modify computed basin characteristics here, then select the types of reports you wish to generate. Then click the "Build Report" button
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Open Report
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
STRDEN Stream Density -- total length of streams divided by drainage area 1.14 miles per square mile
Low-Flow Statistics
Low-Flow Statistics Parameters [Low Flow Region 2]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
DRNAREA | Drainage Area | 3.27 | square miles | 4.93 | 1280
PRECIP | Mean Annual Precipitation | 38 | inches | 35 | 50.4
STRDEN | Stream Density | 1.14 | 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 Disclaimers [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 [Low Flow Region 2]
Statistic | Value | Unit
7 Day 2 Year Low Flow | 0.27 | ft^3/s
30 Day 2 Year Low Flow | 0.392 | ft^3/s
7 Day 10 Year Low Flow | 0.103 | ft^3/s
30 Day 10 Year Low Flow | 0.153 | ft^3/s
90 Day 10 Year Low Flow | 0.287 | ft^3/s
Report
About
Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
Shirleysburg
Leaflet


USGS
science for a changing world
StreamStats
Collapse All
SELECT A STATE / REGION
Pennsylvania
IDENTIFY A STUDY AREA
Basin Delineated
SELECT SCENARIOS
BUILD A REPORT
Report Built
Step 1: You can modify computed basin characteristics here, then select the types of reports you wish to generate. Then click the "Build Report" button
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Open Report
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
CARBON | Percentage of area of carbonate rock | 3.88 | percent
DRNAREA | Area that drains to a point on a stream | 4.86 | square miles
PRECIP | Mean Annual Precipitation | 38 | inches
ROCKDEP | Depth to rock | 4.6 | feet
STRDEN | Stream Density -- total length of streams divided by drainage area | 1.61 | miles per square mile
Low-Flow Statistics
Low-Flow Statistics Parameters [Low Flow Region 2]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
DRNAREA | Drainage Area | 4.86 | square miles | 4.93 | 1280
PRECIP | Mean Annual Precipitation | 38 | inches | 35 | 50.4
STRDEN | Stream Density | 1.61 | miles per square mile | 0.51 | 3.1
ROCKDEP | Depth to Rock | 4.6 | feet | 3.32 | 5.65
CARBON | Percent Carbonate | 3.88 | percent | 0 | 99
Low-Flow Statistics Disclaimers [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 [Low Flow Region 2]
Statistic | Value | Unit
7 Day 2 Year Low Flow | 0.417 | ft^3/s
30 Day 2 Year Low Flow | 0.572 | ft^3/s
7 Day 10 Year Low Flow | 0.19 | ft^3/s
30 Day 10 Year Low Flow | 0.259 | ft^3/s
90 Day 10 Year Low Flow | 0.429 | ft^3/s
Batch Processor
Report
About
Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
Kistler
Shirley Twp

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Mount Union Municipal Authority** NPDES Permit No.: **PA0088757** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Singers Gap Run**

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
0.061	9.63	6.92						

					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		38									
	Chloride (PWS)	mg/L		6									
	Bromide	mg/L	<	0.011									
	Sulfate (PWS)	mg/L		4.02									
	Fluoride (PWS)	mg/L		0.203									
Group 2	Total Aluminum	µg/L		104									
	Total Antimony	µg/L	<	0.07									
	Total Arsenic	µg/L	<	2.5									
	Total Barium	µg/L		55.9									
	Total Beryllium	µg/L	<	0.135									
	Total Boron	µg/L	<	0.0565									
	Total Cadmium	µg/L		0.059									
	Total Chromium (III)	µg/L	<	0.00199									
	Hexavalent Chromium	µg/L	<	0.00025									
	Total Cobalt	µg/L		0.308									
	Total Copper	µg/L		5.25									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	0.006									
	Dissolved Iron	µg/L		38.7									
	Total Iron	µg/L		40									
	Total Lead	µg/L		0.134									
	Total Manganese	µg/L		26.8									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		1.3									
	Total Phenols (Phenolics) (PWS)	µg/L	<	0.005									
	Total Selenium	µg/L	<	2.5									
	Total Silver	µg/L	<	0.274									
	Total Thallium	µg/L	<	0.014									
	Total Zinc	µg/L		695									
	Total Molybdenum	µg/L	<	0.04									
	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											

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Mount Union Municipal Authority, NPDES Permit No. PA0088757, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: **Singlers Gap 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	013247	2.96	1225	3.27			Yes
End of Reach 1	013247	0	689	4.86			Yes

Q_{7-10}

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	2.96	0.03	0.103									100	7		
End of Reach 1	0	0.03	0.19									100	7		

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	2.96														
End of Reach 1	0														

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Mount Union Municipal Authority, NPDES Permit No. PA0088757, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | (●) All ( ) Inputs ( ) Results ( ) Limits

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 0.299 PMF: 1 Analysis Hardness (mg/l): 56.791 Analysis pH: 6.96

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,569	
Total Antimony	0	0		0	1,100	1,100	2,301	
Total Arsenic	0	0		0	340	340	711	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	43,921	
Total Boron	0	0		0	8,100	8,100	16,941	
Total Cadmium	0	0		0	1.161	1.2	2.51	Chem Translator of 0.968 applied
Total Chromium (III)	0	0		0	358.470	1,134	2,373	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	34.1	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	199	
Total Copper	0	0		0	7.886	8.21	17.2	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	34.703	39.7	83.1	Chem Translator of 0.873 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	3.44	Chem Translator of 0.85 applied
Total Nickel	0	0		0	290.127	291	608	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	1.216	1.43	2.99	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	136	
Total Zinc	0	0		0	72.554	74.2	155	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 0.299 PMF: 1 Analysis Hardness (mg/l): 56.791 Analysis pH: 6.96

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	460	
Total Arsenic	0	0		0	150	150	314	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	8,575	
Total Boron	0	0		0	1,600	1,600	3,346	
Total Cadmium	0	0		0	0.166	0.18	0.37	Chem Translator of 0.933 applied
Total Chromium (III)	0	0		0	46.630	54.2	113	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	21.7	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	39.7	
Total Copper	0	0		0	5.523	5.75	12.0	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	3,137	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	1.352	1.55	3.24	Chem Translator of 0.873 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.89	Chem Translator of 0.85 applied
Total Nickel	0	0		0	32.224	32.3	67.6	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	10.4	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	27.2	
Total Zinc	0	0		0	73.147	74.2	155	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 0.299 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	11.7	
Total Arsenic	0	0		0	10	10.0	20.9	
Total Barium	0	0		0	2,400	2,400	5,020	
Total Boron	0	0		0	3,100	3,100	6,484	
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	627	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	2,091	
Total Mercury	0	0		0	0.050	0.05	0.1	
Total Nickel	0	0		0	610	610	1,276	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.5	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 0.293 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* AML (lbs/day)	*Mass Limits* MDL (lbs/day)	*Concentration Limits* AML	*Concentration Limits* MDL	*Concentration Limits* IMAX	*Concentration Limits* Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	Report	Report	Report	Report	Report	µg/L	1,005	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Cadmium	Report	Report	Report	Report	Report	µg/L	0.37	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	11.0	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	0.051	0.079	99.5	155	249	µg/L	99.5	AFC	Discharge Conc ≥ 50% WQBEL (RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	5,020	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	3,346	µg/L	Discharge Conc < TQL
Total Chromium (III)	113	µg/L	Discharge Conc < TQL
Hexavalent Chromium	21.7	µg/L	Discharge Conc < TQL
Total Cobalt	39.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	627	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	3,137	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	3.24	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	2,091	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.1	µg/L	Discharge Conc < TQL
Total Nickel	67.6	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	10.4	µg/L	Discharge Conc < TQL
Total Silver	1.92	µg/L	Discharge Conc < TQL
Total Thallium	0.5	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS

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	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
TRC	XXX	XXX	XXX	0.17	XXX	0.55	1/day	Grab
TSS	Report	Report	XXX	30.0	60.0	75.0	2/month	Grab
Total Aluminum	Report	Report	XXX	1.0	2.0	2.5	2/month	Grab
Total Cadmium	Report	Report	XXX	Report	Report	XXX	2/month	Grab
Total Copper	Report	Report	XXX	Report	Report	XXX	2/month	Grab
Total Iron	Report	Report	XXX	2.0	4.0	5.0	2/month	Grab
Total Manganese	Report	Report	XXX	1.0	2.0	2.5	2/month	Grab
Total Zinc	Report	Report	XXX	Report	Report	XXX	2/month	Grab
Total Hardness Intake (3)	XXX	XXX	XXX	Report	Report	XXX	2/month	Grab
Total Hardness	XXX	XXX	XXX	Report	Report	XXX	2/month	Grab

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: Establishing effluent limitation for individual industrial permit.
☐	Other: