pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0022179**
Facility Type	**Municipal**	APS ID	**752822**
Major / Minor	**Minor**	Authorization ID	**1446061**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Mercersburg Sewer Authority**	Facility Name	**Mercersburg STP**
Applicant Address	113 S Main Street	Facility Address	43 Wolfe Drive
	Mercersburg, PA 17236-1517		Mercersburg, PA 17236-1517
Applicant Contact	Dan Chayes	Facility Contact	Melissa Price
Applicant Phone	(717) 328-3116	Facility Phone	(717) 328-3116
Client ID	288592	Site ID	445999
Ch 94 Load Status	Not Overloaded	Municipality	Mercersburg Borough
Connection Status	No Limitations	County	Franklin
Date Application Received	July 5, 2023	EPA Waived?	Yes
Date Application Accepted	July 26, 2023	If No, Reason	

Purpose of Application .

Summary of Review

Mercersburg Sewer Authority (MSA) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on October 26, 2018 and became effective on November 1, 2018. The permit amended on April 6, 2021 to include UV requirements in Part C of the permit and increase the fecal coliform sampling frequency in lieu of the UV monitoring requirement. The permit expired on October 31, 2023.

Based on the review, it is recommended that the permit be drafted.

Sludge use and disposal description and location(s): Two (2) sludge holding tanks and four (4) reed beds are provided as sludge handling process. Any solids removed from reed beds will be disposed of in a landfill.

Public Participation

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.

Approve	Deny	Signatures	Date
X		*Jinsu Kim* Jinsu Kim / Environmental Engineering Specialist	May 14, 2024
X		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	May 24, 2024
X		Maria D. Bebenek Maria D. Bebenek, P.E. / Program Manager	May 24, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.3
Latitude	39º 50' 0.00"	Longitude	-77º 53' 59.00"
Quad Name	Mercersburg	Quad Code	2022
Wastewater Description:	Sewage Effluent		
Receiving Waters	Johnston Run (WWF, MF)	Stream Code	59515
NHD Com ID	49472340	RMI	2.27
Drainage Area	6.26	Yield (cfs/mi^2)	0.0939
Q_{7-10} Flow (cfs)	0.588	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)		Slope (ft/ft)	
Watershed No.	13-C	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Nutrients, Siltation, Water/Flow Variability		
Source(s) of Impairment	Grazing Related Agric, Urban Runoff/Storm Sewers, Urban Runoff/Storm Sewers		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	PA-MD Border		
PWS Waters	Conococheague Creek	Flow at Intake (cfs)	N/A
PWS RMI	0.0	Distance from Outfall (mi)	~20

Drainage Area
The discharge is to Johnston Run at RMI 2.27. A drainage area upstream of the point of discharge is estimated to be 6.26 sq.mi. according to USGS StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow
USGS StreamStats produced the drainage area as well as computed low-flow statistics at the point of discharge. DEP determined that it is more reasonable to use the Q7-10 from USGS StreamStats than the low-flow yield method using the gage station that is located approximately 20 miles downstream from the point of discharge. Therefore, a Q7-10 of 0.588 cfs from USGS StreamStats will be considered for this permit renewal.

Johnston Run
Johnston Run is a tributary of West Branch Conococheague Creek. Under 25 Pa Code §93.9z, the entire basin of Johnston Run is designated as warm water and migratory fishes. No special protection water is therefore impacted by this discharge. DEP's latest integrated report prepared in 2024 indicated that Johnston Run is impaired for nutrients and siltation as a result of agricultural activities and runoff/storm sewers. The report also indicates that the stream is impaired for water/flow variability as a result of urban runoff/storm sewers. A Total Maximum Daily Load (TMDL) was scheduled to be developed in 2015 to address these impairments but such action has not occurred yet as of May 2024.

Public Water Supply Intake
The last permit renewal water quality protection report (also known as fact sheet) prepared on May 4, 2018 indicates that the nearest downstream public water supply intake is Hagerstown, Maryland on Potomac River. In general, DEP considers the interstate border as the public water supply intake when the downstream intake is not located within the state. Considering the distance to the PA-MD border line is approximately 20 miles, the discharge is not expected to impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: Mercersburg STP				
WQM Permit No.	**Issuance Date**			
2803407	01/20/2004			
2896402 98-1	01/30/1998			
2896402	07/30/1996			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Ammonia Reduction	Sequencing Batch Reactor	Ultraviolet	0.3
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.675	977	Not Overloaded	Sludge Holding	Landfill

The Mercersburg Wastewater Treatment Plant located at Chuchhill Road, Mercersburg, PA 17236 is operated and owned by MSA. The treatment plant currently serves only the borough of Mercersburg and all sewer systems are 100% separated. With having an annual average design flow of 0.3 MGD and hydraulic design capacity of 0.675 MGD, the facility utilizes a sequencing batch reactor (SBR) activated sludge treatment process. The treatment process, according to the application, is as follows:

Influent Pump Station → SBRs (2) → UV disinfection → Outfall 001 to Johnston Run

Two (2) sludge holding tanks and four (4) reed beds are provided as sludge handling process. Any solids removed from reed beds will be disposed of in a landfill. There are three (3) industrial users, D.L. Martin Company (a manufacturer of machined components and custom fabrications, 0.0005 MGD), APX Enclosures (Fabrication 0.0004 MGD), and Choice Collision (Repair Shop 0.0002 MGD) contributing industrial wastewater to the sewer system. Given the type and volume of industrial users, the facility is not required to have an EPA-approved pretreatment program.

Compliance History	
Summary of DMRs:	A summary of past 12-month DMR data is presented on the next page.
Summary of Inspections:	09/21/2023: Cody Hoy conducted a routine inspection and noted that the Keefer Drive Pump Station was constructed without an approved WQM permit which was considered a violation.
Other Comments:	Since the last permit reissuance, the facility had a number of permit violations. These violations are listed last in this fact sheet. DEP's database shows that there are five (5) open violations associated with this facility or permittee. A draft permit cover letter will indicate that the permit may not be finalized until all violations are resolved.

Effluent Data

DMR Data for Outfall 001 (from April 1, 2023 to March 31, 2024)

Parameter	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23
Flow (MGD) Average Monthly	0.2921	0.267995	0.2759	0.1299	0.1055	0.109	0.105	0.08575	0.1035	0.0974	0.1185	0.128
Flow (MGD) Daily Maximum	0.7764	0.592541	0.8192	0.2763	0.2220	0.173	0.136	0.1357	0.153	0.139	0.175	0.1955
pH (S.U.) Daily Minimum	8.21	8.28	8.09	7.78	7.68	7.46	7.32	7.22	6.99	6.91	6.95	6.81
pH (S.U.) Daily Maximum	8.81	8.53	8.51	8.28	8.11	7.91	7.85	7.59	7.52	7.44	7.29	7.22
DO (mg/L) Daily Minimum	5.0	5.01	2.50	5.01	5.65	4.36	5.20	5.03	2.22	5.00	5.33	5.73
CBOD5 (lbs/day) Average Monthly	24	11	< 18	6	4.00	5	2	3.00	4.60	2.88	2	6
CBOD5 (lbs/day) Weekly Average	65	29	60	7	8.00	14	2	5.00	11.50	6.9	2	14
CBOD5 (mg/L) Average Monthly	19.0	4.0	< 6.0	5.0	4.00	5.0	2.00	4.00	5.53	3.41	2.0	5.0
CBOD5 (mg/L) Weekly Average	60.0	10.0	17.0	6.0	9.81	12.0	3.00	7.02	14.50	7.71	3.0	10.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	317	352	323	244	335	346	210	171	171.57	99.24	142	150
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	398	579	578	362	579	413	287	278	272.8	140.7	159	200
BOD5 (mg/L) Raw Sewage Influent Average Monthly	196	144	165	228	298	353	245	203	197	119	146	162
TSS (lbs/day) Average Monthly	15	6	7.0	3	4.00	2	2.0	3.00	3.73	3.66	2	4
TSS (lbs/day) Raw Sewage Influent Average Monthly	209	55	101	126	262	253	88	102	279.34	38.27	62	68
TSS (lbs/day) Raw Sewage Influent Daily Maximum	328	74	170	210	615	358	138	177	870.2	50.9	72	79
TSS (lbs/day) Weekly Average	37	10	10.0	5	11.00	2	3.0	5.00	6.5	7.6	3	5
TSS (mg/L) Average Monthly	11.0	2.0	3.0	3.0	3.00	2.0	2.0	4.00	4.25	4.3	3.0	4.0

Parameter	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23
TSS (mg/L) Raw Sewage Influent Average Monthly	126	23	53	119	214	253	102	121	324	46.0	63	73
TSS (mg/L) Weekly Average	34.0	5.0	5.0	5.0	7.50	3.0	3.5	5.00	7.50	8.5	4.0	5.0
Fecal Coliform (No./100 ml) Geometric Mean	42	67	778	294	55	54	46	270	197.13	117.22	23	19
Fecal Coliform (No./100 ml) Instantaneous Maximum	19100	1100	35200	5600	8300	216	288	592	376	200	2130	78
Nitrate-Nitrite (lbs/day) Average Monthly	14	< 22	19.0	8	6.00	8	4.0	4.00	1.65	3.68	5	7
Nitrate-Nitrite (lbs/day) Daily Maximum	32	38	24.0	10	9.00	10	4.0	8.00	3.30	4.50	10	8
Nitrate-Nitrite (mg/L) Average Monthly	5.91	< 8.966	8.36	7.57	6.43	8.549	4.26	5.10	1.81	4.44	4.70	6.34
Nitrate-Nitrite (mg/L) Daily Maximum	12.1	19.7	10.8	9.56	10.30	9.951	5.47	6.86	3.81	4.97	8.68	7.58
Total Nitrogen (lbs/day) Average Monthly	29	< 27	< 30	10	8.0	12	5.0	6.00	4.92	6.97	9	8
Total Nitrogen (lbs/day) Daily Maximum	35	< 40	< 40	12	10.0	19	5.0	10.00	9.70	17.2	11	9
Total Nitrogen (mg/L) Average Monthly	16.27	< 10.43	< 11.38	8.99	8.17	12.01	5.54	7.753	5.64	8.18	10.07	7.88
Total Nitrogen (mg/L) Daily Maximum	30.51	< 20.7	< 11.5	11.6	11.30	15.366	6.46	13.83	11.54	19.17	13.02	9.62
Ammonia (lbs/day) Average Monthly	2.1	< 1.5	< 2.4	0.60	0.60	2.0	0.4	0.70	2.15	1.87	2.9	0.71
Ammonia (mg/L) Average Monthly	1.01	< 0.55	< 0.87	0.554	0.61	1.82	0.50	0.972	2.56	2.12	3.36	0.63
TKN (lbs/day) Average Monthly	14	< 4	< 6	2	2.0	4	1.0	2.00	3.27	3.29	5	2
TKN (lbs/day) Daily Maximum	32	10	16	2	2.0	9	1.0	5.00	9.0	12.7	10	2
TKN (mg/L) Average Monthly	10.36	< 1.46	< 2.04	1.42	1.74	3.46	1.27	2.655	3.83	3.74	5.37	1.54
TKN (mg/L) Daily Maximum	29.9	2.05	4.52	2.04	2.50	7.19	1.63	7.02	10.80	14.20	11.20	2.04

Parameter	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23
Total Phosphorus (lbs/day) Average Monthly	4	< 3	< 4	5	5.0	3	3.0	3.00	2.29	4.36	4	5
Total Phosphorus (lbs/day) Daily Maximum	8	6	8	7	11.0	5	4.0	5.00	5.60	7.97	5	7
Total Phosphorus (mg/L) Average Monthly	2.62	< 1.4	< 1.78	4.44	4.6	3.61	3.19	4.10	2.56	4.29	4.13	4.38
Total Phosphorus (mg/L) Daily Maximum	5.35	2.26	3.81	6.30	7.25	5.65	4.43	5.20	6.45	5.08	5.65	4.82

Permit Violations Since the last permit reissuance

Date	Violation Type	Parameter	Results	Limits	Units	SBC
10/27/2018	Violation of permit condition	Ammonia-Nitrogen	7.8	7.5	lbs/day	Average Monthly
11/25/2019	Late DMR Submission					
12/9/2019	Late DMR Submission					
12/9/2019	Violation of permit condition	CBOD5	22.04	20	mg/L	Average Monthly
12/9/2019	Violation of permit condition	CBOD5	58.2	30	mg/L	Weekly Average
12/9/2019	Violation of permit condition	Dissolved Oxygen	3.89	5	mg/L	Daily Minimum
12/9/2019	Violation of permit condition	Fecal Coliform	2900	1000	No./100 ml	Instantaneous Maximum
12/9/2019	Violation of permit condition	Fecal Coliform	869	200	No./100 ml	Geometric Mean
12/9/2019	Violation of permit condition	Total Suspended Solids	156	45	mg/L	Weekly Average
12/9/2019	Violation of permit condition	Total Suspended Solids	38.8	30	mg/L	Average Monthly
12/9/2019	Late DMR Submission					
11/1/2019	Late DMR Submission					
11/1/2019	Violation of permit condition	Ammonia-Nitrogen	4.6	3	mg/L	Average Monthly
11/25/2019	Violation of permit condition	Ammonia-Nitrogen	5.68	3	mg/L	Average Monthly
1/9/2020	Late DMR Submission					
1/9/2020	Violation of permit condition	Ammonia-Nitrogen	13.84	9	mg/L	Average Monthly
2/27/2020	Violation of permit condition	Ammonia-Nitrogen	18.7	9	mg/L	Average Monthly
3/26/2020	Violation of permit condition	Ammonia-Nitrogen	14.73	9	mg/L	Average Monthly
6/30/2020	Late DMR Submission					
6/30/2020	Violation of permit condition	Dissolved Oxygen	3.93	5	mg/L	Daily Minimum
7/29/2020	Late DMR Submission					
7/29/2020	Violation of permit condition	Dissolved Oxygen	3.58	5	mg/L	Daily Minimum
8/31/2020	Late DMR Submission					
8/31/2020	Violation of permit condition	Dissolved Oxygen	3.16	5	mg/L	Daily Minimum
9/29/2020	Late DMR Submission					
9/29/2020	Violation of permit condition	Dissolved Oxygen	3.96	5	mg/L	Daily Minimum
9/29/2020	Violation of permit condition	Fecal Coliform	284.75	200	No./100 ml	Geometric Mean
10/29/2020	Late DMR Submission					
10/29/2020	Violation of permit condition	Dissolved Oxygen	3.07	5	mg/L	Daily Minimum
10/29/2020	Violation of permit condition	Fecal Coliform	413	200	No./100 ml	Geometric Mean
11/24/2020	Violation of permit condition	Ammonia-Nitrogen	15.61	7.5	lbs/day	Average Monthly
11/24/2020	Violation of permit condition	Ammonia-Nitrogen	15.62	3	mg/L	Average Monthly
11/24/2020	Violation of permit condition	CBOD5	60.2	30	mg/L	Weekly Average
12/21/2020	Violation of permit condition	Ammonia-Nitrogen	17.38	9	mg/L	Average Monthly
12/21/2020	Violation of permit condition	Dissolved Oxygen	2.24	5	mg/L	Daily Minimum
12/21/2020	Violation of permit condition	Total Suspended Solids	76	45	mg/L	Weekly Average
1/21/2021	Violation of permit condition	Ammonia-Nitrogen	12.75	9	mg/L	Average Monthly
1/21/2021	Violation of permit condition	Dissolved Oxygen	4.98	5	mg/L	Daily Minimum
2/24/2021	Violation of permit condition	Ammonia-Nitrogen	14.13	9	mg/L	Average Monthly
2/24/2021	Violation of permit condition	Dissolved Oxygen	4.44	5	mg/L	Daily Minimum
3/17/2021	Violation of permit condition	Ammonia-Nitrogen	10.92	9	mg/L	Average Monthly
3/17/2021	Violation of permit condition	Dissolved Oxygen	4.69	5	mg/L	Daily Minimum
4/27/2021	Violation of permit condition	Dissolved Oxygen	2.78	5	mg/L	Daily Minimum
5/25/2021	Violation of permit condition	Dissolved Oxygen	2.28	5	mg/L	Daily Minimum
5/25/2021	Violation of permit condition	Fecal Coliform	16300	10000	No./100 ml	Instantaneous Maximum
6/28/2021	Violation of permit condition	Dissolved Oxygen	1.95	5	mg/L	Daily Minimum
7/30/2021	Late DMR Submission					
7/30/2021	Violation of permit condition	Dissolved Oxygen	2.97	5	mg/L	Daily Minimum
10/25/2021	Violation of permit condition	CBOD5	72.9	72	lbs/day	Weekly Average
10/25/2021	Violation of permit condition	Dissolved Oxygen	2.51	5	mg/L	Daily Minimum
1/28/2022	Violation of permit condition	Dissolved Oxygen	3.75	5	mg/L	Daily Minimum
3/30/2022	Late DMR Submission					
4/22/2022	Violation of permit condition	Dissolved Oxygen	3.65	5	mg/L	Daily Minimum
5/24/2022	Violation of permit condition	Dissolved Oxygen	2.09	5	mg/L	Daily Minimum
6/24/2022	Violation of permit condition	Dissolved Oxygen	2.23	5	mg/L	Daily Minimum
6/24/2022	Violation of permit condition	pH	9.71	9	S.U.	Daily Maximum
8/30/2022	Late DMR Submission					
4/26/2024	Violation of permit condition	Dissolved Oxygen	3.16	5	mg/L	Daily Minimum
5/3/2024	Violation of permit condition	Dissolved Oxygen	3.41	5	mg/L	Daily Minimum
5/7/2024	Violation of permit condition	Dissolved Oxygen	4.09	5	mg/L	Daily Minimum
7/18/2023	Late DMR Submission					
7/18/2023	Late DMR Submission					
5/7/2024	Violation of permit condition	Ammonia-Nitrogen	3.36	3	mg/L	Average Monthly
5/7/2024	Violation of permit condition	Fecal Coliform	2130	1000	No./100 ml	Instantaneous Maximum
8/22/2023	Violation of permit condition	Dissolved Oxygen	2.22	5	mg/L	Daily Minimum
9/27/2023	Violation of permit condition	Fecal Coliform	270	200	No./100 ml	Geometric Mean
11/28/2023	Violation of permit condition	Dissolved Oxygen	4.36	5	mg/L	Daily Minimum
2/23/2024	Violation of permit condition	Dissolved Oxygen	2.5	5	mg/L	Daily Minimum
2/23/2024	Violation of permit condition	Fecal Coliform	35200	10000	No./100 ml	Instantaneous Maximum
4/26/2024	Violation of permit condition	CBOD5	60	40	mg/L	Weekly Average
4/26/2024	Violation of permit condition	Fecal Coliform	19100	10000	No./100 ml	Instantaneous Maximum

Existing Effluent Limits and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Daily Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	62	100	XXX	25.0	40.0	50	1/week	8-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	50	72	XXX	20.0	30.0	40	1/week	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids	75	112	XXX	30.0	45.0	60	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Nitrate-Nitrite as N	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	8-Hr Composite
Total Nitrogen	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/month	Calculation
Ammonia-Nitrogen Nov 1 - Apr 30	22.5	XXX	XXX	9.0	XXX	18	1/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	7.5	XXX	XXX	3.0	XXX	9	1/week	8-Hr Composite
Total Kjeldahl Nitrogen	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	8-Hr Composite
Total Phosphorus	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	8-Hr Composite

Development of Effluent Limitations and Monitoring Requirements

Outfall No. 001 **Design Flow (MGD)** 0.3
Latitude 39º 50' 0.00" **Longitude** -77º 53' 59.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

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

Water Quality-Based Limitations

CBOD5, NH3-N and Dissolved Oxygen (DO)
WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD5, NH3-N and DO. DEP's guidance no. 391-2000-007 provides the technical methods contained in WQM 7.0 for conducting wasteload allocation and for determining recommended NPDES effluent limits for point source discharges. The model output indicated that existing WQBELs for CBOD5 (20 mg/L) and NH3-N (3.0 mg/L) for summer are still protective of water quality. Also, the existing TBEL for CBOD5 (25 mg/L) and WQBEL for NH3-N (9.0 mg/L) for winter are still adequate as well. Therefore, no change is recommended.

Total Residual Chlorine
The facility utilizes an UV system; therefore, the development of TRC effluent limits is not applicable.

Toxics
DEP's NPDES permit application for minor sewages greater 0.1 MGD requires sampling of heavy metals including Total Copper, Total Lead, and Total Zinc. Samples reported on the application were entered into DEP's Toxic Management Spreadsheet with discharge hardness of 219 mg/L that was previously sampled and stream hardness of 142 mg/L which was obtained from the historic data. The spreadsheet showed that a routine monitoring for Total Copper and Total Zinc are recommended.

Best Professional Judgment (BPJ) Limitations

Dissolved Oxygen
A minimum of 5.0 mg/L for DO is an existing effluent limit and is a current state water quality criterion found in 25 Pa. Code § 93.7(a). This effluent limit will remain unchanged for the upcoming permit renewal to ensure the protection of water quality standards. This approach is also consistent with DEP's guidance specified in the SOP no. BPNPSM-PMT-033. This requirement has also been assigned to other facilities throughout the state.

Additional Considerations

Flow Monitoring
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii).

Total Phosphorus & Total Nitrogen Monitoring Requirement
DEP's SOP no. BPNPSM-PMT-033 recommends monitoring requirements for Total Phosphorus and Total Nitrogen for all sewage facilities. Therefore, a routine monitoring for Total Phosphorus and Total Nitrogen is recommended. Since the receiving stream, Johnston Run, is impaired for nutrients, 2/monthly sampling of Total Phosphorus and Total Nitrogen will continue to be included in the permit.

Influent BOD & TSS Monitoring Requirement
As a result of negotiation with EPA, the existing influent monitoring reporting requirement for TSS and BOD5 will be maintained in the draft permit. This requirement has been consistently assigned to all municipal wastewater treatment facilities.

E. Coli Monitoring Requirement
DEP's SOP no. BPNPSM-PMT-033 recommends a quarterly routine monitoring of E. Coli for all sewage facilities that have design flow less than 1.0 MGD but greater than 0.05 MGD. A quarterly monitoring for E. Coli will therefore be included in the permit.

Ultraviolet (UV) Disinfection Requirement
During the last permit renewal term, the permit was amended to remove the UV disinfection output monitoring requirement and instead, include more frequency sampling requirement for fecal coliform and the following Part C condition:

The permittee shall report operation of the ultraviolet (UV) disinfection system on a daily basis using the Daily Effluent Monitoring Form (3800-FM-BCW0435) and the parameter named "UV Functional" The permittee shall report values of "1" for Yes (i.e., the UV system is functional) and "< 1" for No (i.e., the UV system is not functional). The UV system shall be considered functional when all components that are necessary for disinfection to achieve effluent limitations in Part A of this permit are operating properly.

Since there is no change to the facility, these requirements will continue to be included in the permit.

Chesapeake Bay TMDL
DEP's Phase II Watershed Implementation Plan (WIP) categorizes this facility as a phase 4 non-significant sewage facility that has a design flow less than 0.4 MGD but greater than 0.2 MGD. The WIP recommends monitoring and reporting for Total Nitrogen and Total Phosphorus throughout the permit term at a frequency no less than monthly. As mentioned above, monitoring of these pollutants will be written in the permit as recommended by DEP's SOP. Therefore, no additional requirements will be necessary.

Total Dissolved Solids (TDS)
The sample result shows that effluent contains a TDS concentration level of 26.5 mg/L. Accordingly, the requirement to monitor these pollutants is not necessary.

Monitoring Frequency and Sample Type
All monitoring frequencies and sample types will remain unchanged in the permit.

Mass Loading Limitations
All effluent mass loading limits will be based on the formula: design flow x concentration limit x conversion factor of 8.34.

Antidegradation Requirements
All effluent limitations and monitoring requirements 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.

Anti-Degradation Requirements
Unless stated otherwise in this fact sheet, all permit requirements proposed in this fact sheet are at least as stringent as permit requirements specified in the existing permit renewal in accordance with 40 CFR §122.44(l)(1).

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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	62	100	XXX	25.0	40.0	50	1/week	8-Hr Composite
CBOD5 May 1 - Oct 31	50	72	XXX	20.0	30.0	40	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	75	112	XXX	30.0	45.0	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Nitrate-Nitrite	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	8-Hr Composite
Total Nitrogen	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/month	Calculation
Ammonia Nov 1 - Apr 30	22.5	XXX	XXX	9.0	XXX	18	1/week	8-Hr Composite
Ammonia May 1 - Oct 31	7.5	XXX	XXX	3.0	XXX	9	1/week	8-Hr Composite

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
TKN	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	8-Hr Composite
Total Phosphorus	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	8-Hr Composite
E. Coli (No. / 100 mL)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Total Copper	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	8-Hr Composite
Total Zinc	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	8-Hr Composite

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:

StreamStats Report

Region ID: PA
Workspace ID: PA20180330135031006000
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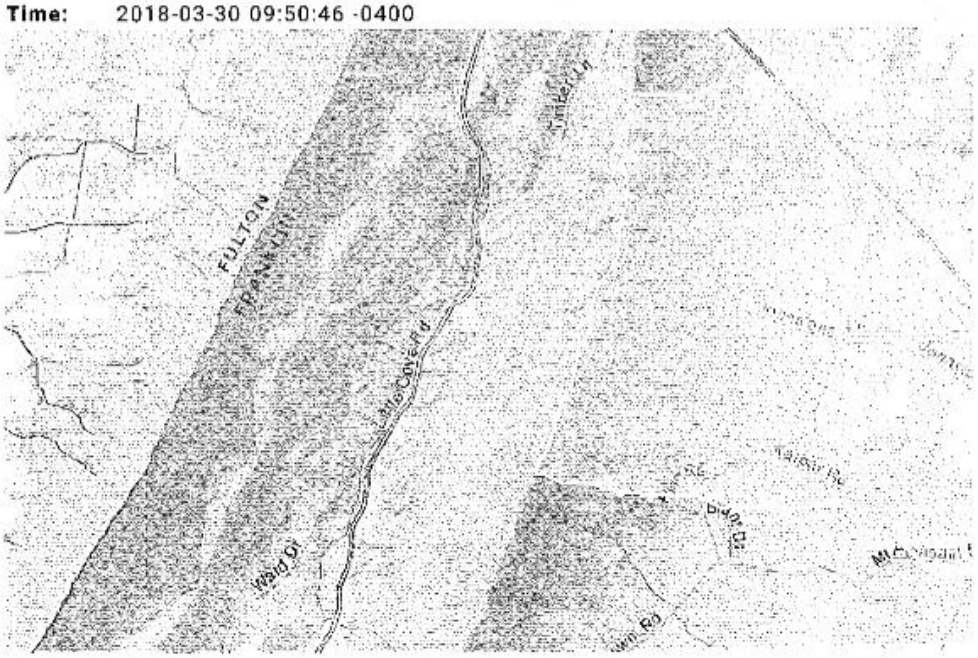
Time: 2018-03-30 09:50:46 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	6.26	square miles
PRECIP	Mean Annual Precipitation	41	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.92	miles per square mile
ROCKDEP	Depth to rock	4.5	feet
CARBON	Percentage of area of carbonate rock	63	percent

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	6.26	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	41	inches	35	50.4
STRDEN	Stream Density	1.92	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.5	feet	3.32	5.65
CARBON	Percent Carbonate	63	percent	0	99

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

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	1.14	ft^3/s	38	38
30 Day 2 Year Low Flow	1.41	ft^3/s	33	33
7 Day 10 Year Low Flow	0.588	ft^3/s	51	51
30 Day 10 Year Low Flow	0.735	ft^3/s	46	46
90 Day 10 Year Low Flow	0.949	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/)

StreamStats Report

Region ID: PA
Workspace ID: PA20180330154059155000
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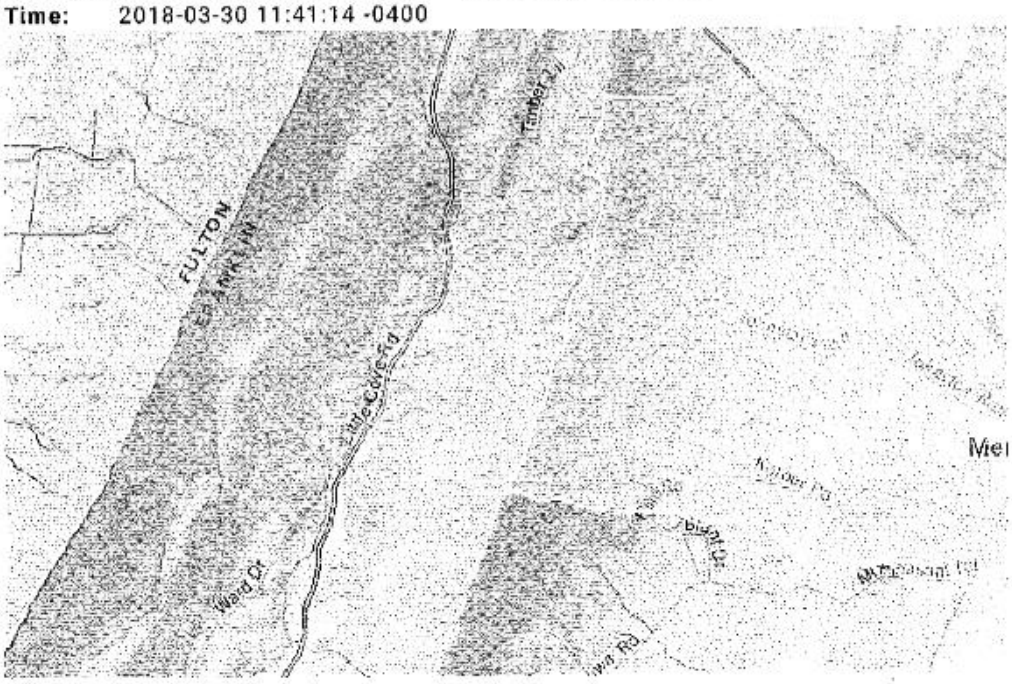
Time: 2018-03-30 11:41:14 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	7.72	square miles
PRECIP	Mean Annual Precipitation	41	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.65	miles per square mile
ROCKDEP	Depth to rock	4.6	feet
CARBON	Percentage of area of carbonate rock	64	percent

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	7.72	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	41	inches	35	50.4
STRDEN	Stream Density	1.65	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.6	feet	3.32	5.65
CARBON	Percent Carbonate	64	percent	0	99

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

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

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	1.74	ft^3/s	38	38
30 Day 2 Year Low Flow	2.09	ft^3/s	33	33
7 Day 10 Year Low Flow	0.947	ft^3/s	51	51
30 Day 10 Year Low Flow	1.15	ft^3/s	46	46
90 Day 10 Year Low Flow	1.45	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/)

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
13C	59515	JOHNSTON RUN	**2.270**	533.00	6.26	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.59	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Mercersburg STP	PA0022179	0.3000	0.3000	0.3000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	20.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	3.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
13C	59515	JOHNSTON RUN	**1.610**	515.00	7.72	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.95	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
13C	59515	JOHNSTON RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.270	0.300	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
14.236	0.511	27.863	0.145
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
9.93	1.286	1.32	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.815	8.009	Tsivoglou	5
Reach Travel Time (days)			
0.278			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.028	9.49	1.28	6.39
0.056	9.07	1.25	6.08
0.083	8.67	1.21	5.85
0.111	8.29	1.18	5.71
0.139	7.92	1.14	5.61
0.167	7.58	1.11	5.56
0.195	7.24	1.08	5.55
0.223	6.92	1.05	5.56
0.250	6.62	1.02	5.59
0.278	6.33	0.99	5.64

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
13C	59515	JOHNSTON RUN

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
2.270	0.59	0.00	0.59	.4641	0.00517	.511	14.24	27.86	0.14	0.278	25.00	7.00
Q1-10 Flow												
2.270	0.38	0.00	0.38	.4641	0.00517	NA	NA	NA	0.13	0.316	25.00	7.00
Q30-10 Flow												
2.270	0.80	0.00	0.80	.4641	0.00517	NA	NA	NA	0.16	0.251	25.00	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
13C	59515	JOHNSTON RUN

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
2.270	Mercersburg STP	11.07	6	11.07	6	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
2.270	Mercersburg STP	1.37	3	1.37	3	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
2.27	Mercersburg STP	20	20	3	3	5	5	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
13C	59515	JOHNSTON RUN

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
2.270	Mercersburg STP	PA0022179	0.300	CBOD5	20		
				NH3-N	3	6	
				Dissolved Oxygen			5

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: Mercersburg STP | NPDES Permit No.: PA0022179 | Outfall No.: 001

Evaluation Type: Custom / Additives | Wastewater Description: Minor Sewage

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
0.3	219	7						

				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
Total Copper	mg/L		0.017									
Total Lead	mg/L		0.008									
Total Zinc	mg/L		0.102									

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Mercersburg STP, NPDES Permit No. PA0022179, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Johnston 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	059515	2.27	533	6.26			Yes
End of Reach 1	059515	1.61	515	7.72			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	2.27	0.1	0.59									142	7		
End of Reach 1	1.61	0.1	0.95												

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	2.27														
End of Reach 1	1.61														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Mercersburg STP, NPDES Permit No. PA0022179, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 3.316 PMF: 1 Analysis Hardness (mg/l): 175.9 Analysis pH: 7.00

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 Copper	0	0		0	22.880	23.8	54.1	Chem Translator of 0.96 applied
Total Lead	0	0		0	118.748	168	381	Chem Translator of 0.709 applied
Total Zinc	0	0		0	189.092	193	439	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 3.316 PMF: 1 Analysis Hardness (mg/l): 175.9 Analysis pH: 7.00

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 Copper	0	0		0	14.511	15.1	34.3	Chem Translator of 0.96 applied
Total Lead	0	0		0	4.627	6.53	14.8	Chem Translator of 0.709 applied
Total Zinc	0	0		0	190.638	193	439	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 3.316 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 Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 3.076 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 Copper	0	0		0	N/A	N/A	N/A	
Total Lead	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

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	Report	Report	Report	Report	Report	mg/L	0.034	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	mg/L	0.28	AFC	Discharge Conc > 10% WQBEL (no RP)

Other Pollutants without Limits or Monitoring

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

Pollutants	Governing WQBEL	Units	Comments
Total Lead	14.8	µg/L	Discharge Conc ≤ 10% WQBEL