pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0084191**
Facility Type	**Municipal**	APS ID	**730999**
Major / Minor	**Minor**	Authorization ID	**1391341**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Peters Township Municipal Authority**	Facility Name	**Mercersburg Junction STP**
Applicant Address	PO Box 19 5000 Steele Avenue	Facility Address	4360 Mercersburg Road
	Lemasters, PA 17231-0019		Mercersburg, PA 17236
Applicant Contact	Forsyth Derek	Facility Contact	Forsyth Derek
Applicant Phone	(717) 328-3241	Facility Phone	(717) 977-1007
Client ID	273166	Site ID	451951
Ch 94 Load Status	Not Overloaded	Municipality	Peters Township
Connection Status	No Limitations	County	Franklin
Date Application Received	April 6, 2022	EPA Waived?	Yes
Date Application Accepted	April 20, 2022	If No, Reason	
Purpose of Application	NPDES Permit Renewal.		

Summary of Review

Peters Township Municipal Authority (PTMA) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on November 22, 2017 and became effective on December 1, 2017. The permit will expire on November 30, 2022.

Based on the review outlined in this fact sheet, it is recommended that the permit be drafted.

Sludge use and disposal description and location(s): Sludge is processed on-site prior to being sent to a landfill (Mt. View Reclamation) for ultimate disposal.

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	August 9, 2023
X		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	September 11, 2023
X		Maria D. Bebenek Maria D. Bebenek, P.E. / Program Manager	September 11, 2023

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.25
Latitude	39º 51' 30"	Longitude	-77º 53' 7"
Quad Name	Mercersburg	Quad Code	2022
Wastewater Description:	Treated Sewage		
Receiving Waters	West Branch Conococheague Creek	Stream Code	59398
NHD Com ID	49469840	RMI	14.8
Drainage Area	124	Yield (cfs/mi^2)	0.07
Q_{7-10} Flow (cfs)	8.37	Q_{7-10} Basis	USGS PA StreamStats
Elevation (ft)	521	Slope (ft/ft)	
Watershed No.	13-C	Chapter 93 Class.	TSF
Existing Use	None	Existing Use Qualifier	None
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Hagerstown		
PWS Waters	Potomac River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	43

Drainage Area
The discharge is to the West Branch Conococheague Creek at RMI 14.8. A drainage area upstream of the point of discharge is estimated to be 124 mi^2 according to the USGS Stream Stats available at https://streamstats.usgs.gov/ss/.

Stream Flow
There is no USGS gauging station in the vicinity of the point of discharge. A Q7-10 flow value of 8.37 cfs generated from USGS Stream Stats will be used in water quality modeling. This results in a low flow yield of 8.42 / 124 = 0.0675 cfs/sq.mi.

West Branch Conococheague Creek
25 Pa Code §93.9z classifies the West Branch Conococheague Creek (main stem, US 30 Bridge to PA-MD State Border) as trout stocking surface water. No special protection waters are impacted by this discharge. The discharge is located in a stream segment listed as attaining uses. No local TMDL has been taken into consideration during this review.

Public Water Supply Intake
The nearest downstream public water supply intake is the Hagerstown intake located on the Potomac River approximately 43 miles from the discharge. Considering the distance and nature, the discharge is not expected to significantly affect the water supply.

Class A Wild Trout Streams
The receiving stream is not a Class A Wild Trout stream; therefore no Class A Wild Trout Fishery is impacted by this discharge.

Treatment Facility Summary				
Treatment Facility Name: Mercersburg Junction STP				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Extended Aeration	Hypochlorite	0.25
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.25	521	Not Overloaded	Aerobic Digestion	Landfills

The Mercersburg Junction STP owned and operated by PTMA is located at 4360 Mercersburg Road, Mercersburg, PA 17236. This facility only serves Peters Township and all sewer systems are 100% separated. This facility utilizes an extended aeration activated sludge treatment process consisting of aeration tanks (2), clarifiers (2), chlorine contact tank, and outfall structure(s) to the West Branch Conococheague Creek. An aerobic digester and belt filter press for solids handling process prior to being sent to a landfill. Sodium hypochlorite is used for disinfection. Alum and lime are used for phosphorous removal and pH control, respectively. There is no industrial/commercial user contributing industrial wastewater to the sewer system.

Compliance History	
Summary of DMRs:	A summary of the past 12-month DMR data is presented on the next page.
Summary of Inspections:	05/28/2020: Brandon Bettinger, DEP Water Quality Specialist, conducted an administrative inspection and found no issues at the time of inspection. 03/06/2020: Brandon Bettinger conducted a routine inspection and noticed that the facility failed to use an NIST thermometer and failed to collect samples on days when there is return from belt filter press. No violations were noted.
Other Comments:	There is currently no open violation associated with this facility or permittee.

Effluent Data

DMR Data for Outfall 001 (from May 1, 2021 to April 30, 2022)

Parameter	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21
Flow (MGD) Average Monthly	0.044	0.046	0.049	0.045	0.046	0.048	0.049	0.055	0.05	0.045	0.043	0.045
Flow (MGD) Daily Maximum	0.058	0.059	0.07	0.06	0.058	0.067	0.071	0.133	0.075	0.058	0.054	0.057
pH (S.U.) Minimum	6.7	6.6	6.6	6.6	6.5	6.7	6.6	6.6	6.8	7.1	7.0	6.9
pH (S.U.) Instantaneous Maximum	7.1	7.1	6.9	6.9	7.0	7.0	7.0	7.3	7.4	7.6	7.4	7.3
DO (mg/L) Minimum	5.4	6.2	6.8	7.0	6.7	6.2	5.9	5.8	5.5	5.0	5.2	5.6
TRC (mg/L) Average Monthly	0.3	0.4	0.3	0.5	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.3
TRC (mg/L) Instantaneous Maximum	0.4	0.6	0.6	1.3	0.6	0.4	0.5	0.7	0.5	0.5	0.3	0.4
CBOD5 (lbs/day) Average Monthly	< 0.9	< 0.9	< 1.0	< 0.8	< 0.9	< 0.9	< 0.9	< 1.0	1.0	< 1.0	< 1.0	< 0.8
CBOD5 (lbs/day) Weekly Average	< 1	1.0	< 1.0	< 1.0	1.0	< 1.0	< 1.0	1.0	2.0	2.0	1.0	0.9
CBOD5 (mg/L) Average Monthly	< 2.0	< 2.2	< 2.0	< 2.1	< 2.1	< 2.1	< 2.0	< 2.1	2.8	< 3.0	< 3.0	< 2.3
CBOD5 (mg/L) Weekly Average	2.0	3.0	2.0	2.0	2.5	2.1	< 2.0	2.1	3.7	3.8	3.7	2.8
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	184	142	174	139	148	151	113	154	181	173	122	150
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	239	160	261	151	191	275	175	215	255	230	138	168
BOD5 (mg/L) Raw Sewage Influent Average Monthly	415	340	355	351	343	314	256	316	353	396	329	439
TSS (lbs/day) Average Monthly	2.0	2.0	2.0	3.0	1.0	1.0	1.0	< 1.0	1.0	1.0	2.0	2.0
TSS (lbs/day) Raw Sewage Influent Average Monthly	64	50	75	89	46	80	64	170	173	150	137	127

Parameter	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21
TSS (lbs/day) Raw Sewage Influent Daily Maximum	151	104	117	125	74	134	131	347	287	183	152	131
TSS (lbs/day) Weekly Average	2.0	3.0	3.0	8.0	2.0	3.0	2.0	3.0	2.0	2.0	3.0	2.0
TSS (mg/L) Average Monthly	3.6	4.0	3.5	8.0	2.9	3.1	2.6	< 2.3	2.8	3.0	4.3	5.3
TSS (mg/L) Raw Sewage Influent Average Monthly	139	123	163	237	108	169	142	337	328	347	372	375
TSS (mg/L) Weekly Average	4.5	8.5	6.0	23.5	3.5	6.0	4.0	4.0	4.5	5.0	7.0	6.0
Fecal Coliform (No./100 ml) Geometric Mean	7	< 3.0	< 3.0	< 1.0	< 1.0	< 2.0	4.0	< 5	< 2.0	< 2.0	< 2	< 1.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	12	30	29.0	< 1.0	< 1.0	8.0	11.0	49	7.0	8.0	6	1.0
Total Nitrogen (lbs/day) Average Monthly	< 33	< 28	< 29.0	< 25	< 28	< 25	< 25.0	< 27	< 31	< 26	< 27	< 27
Total Nitrogen (mg/L) Average Monthly	< 74.13	< 65.97	< 60.24	< 30	< 63.42	< 55.62	< 59.43	< 54.63	< 60.22	< 60.46	< 72.39	< 79.55
Total Nitrogen (lbs) Total Monthly	< 985	< 860	< 817	< 770	< 853	< 764	< 785	< 799	< 946	< 812	< 804	< 835
Ammonia (lbs/day) Average Monthly	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.3	< 0.2	< 0.2	< 0.2
Ammonia (mg/L) Average Monthly	< 0.5	< 0.525	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Phosphorus (lbs/day) Average Monthly	2.0	2.0	2.0	< 1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Total Phosphorus (mg/L) Average Monthly	4.9	4.53	3.84	< 3.18	4.32	3.86	3.61	3.39	3.52	3.93	4.92	5.12
Total Phosphorus (lbs) Total Monthly	65	59	52	< 41	58	53	48	49	55	53	55	54

Existing Effluent Limitations and Monitoring Requirements

The table below summarizes effluent limitations and monitoring requirements specified in the current NPDES permit renewal.

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	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	52	83	XXX	25.0	40.0	50	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	63	94	XXX	30.0	45.0	60	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Phosphorus (Total Load, lbs) (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Nitrogen (Total Load, lbs) (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation

Development of Effluent Limitations and Monitoring Requirements

Outfall No. 001 **Design Flow (MGD)** .25
Latitude 39º 51' 30.00" **Longitude** -77º 53' 7.00"
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)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

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 technical guidance no. 391-2000-007 describes the technical methods contained in the model for conducting wasteload allocation analyses and for determining recommended limits for point source discharges. DEP recently updated this model (ver. 1.1) to include new ammonia criteria that has been approved by US EPA as part of the 2017 Triennial Review. The model was utilized, and the model output indicated that all existing requirements are still appropriate. Therefore, no changes are recommended.

Total Residual Chlorine
Since sodium hypochlorite is used for disinfection, Total Residual Chlorine (TRC) effluent levels must be regulated in accordance with 25 Pa Code §92a.48(b). DEP's TRC_CALC worksheet is utilized to determine if the existing BAT TBEL of 0.5 mg/L is still appropriate. The worksheet indicates that existing limits of 0.5 mg/L (average monthly) and 1.6 mg/L (IMAX) are still protective of water quality.

Toxics
DEP's NPDES permit application for minor sewages (less than 1.0 MGD) requires samples of heavy metals including Total Copper, Total Lead, and Total Zinc when the facility receives industrial or commercial contributions. The application shows no sample results. The sample results for TDS and its constituents showed effluent levels of these pollutants are not of concern. Therefore, no toxic pollutants are determined to be pollutants of concern for this facility.

Best Professional Judgment (BPJ) Limitations

Dissolved Oxygen
A minimum of 5.0 mg/L for DO is an existing effluent limit and will remain unchanged in the draft permit as recommended by DEP's SOP. This requirement has also been assigned to other major sewage facilities in the region. 5.0 mg/L is taken directly from 25 Pa. Code § 93.7(a) and it is also determined to be appropriate according to water quality modeling.

Total Phosphorus & Total Nitrogen
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, West Branch Conococheague Creek is not impaired for nutrients, weekly sampling of Total Phosphorus and Total Nitrogen will provide ample data for the subsequent permit renewal.

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).

Influent BOD & TSS Monitoring
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.

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)
TDS and its associated solids including Bromide, Chloride, and Sulfate have become statewide pollutants of concern. The requirement to monitor these pollutants must be considered under the criteria specified in 25 Pa. Code § 95.10 and the following January 23, 2014 DEP Central Office Directive:

> *For point source discharges and upon issuance or reissuance of an individual NPDES permit:*
>
> *-Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.*

The sample result shows that effluent contains a TDS concentration level of 598 mg/L and Bromide was non-detected. Accordingly, the requirement to monitor these pollutants is not necessary.

E. Coli Monitoring
DEP's SOP No. BCW-PMT-033 recommends under 25 Pa Code §92a.61 a routine monitoring for E. Coli in all new and reissued permits. Since the facility has now the annual average design flow of 0.25 MGD, a quarterly monitoring will be included in the permit.

Monitoring Frequency and Sample Type
Unless otherwise specified throughout this fact sheet, existing monitoring frequencies and sample types will remain unchanged in the permit. DEP noticed that the last permit renewal requires 1/month calculation for Total Nitrogen. It is DEP's intention that the facility would be required to collect samples for Total Nitrogen 1/week and then calculate the results 1/month. Therefore, DEP will include 1/week sampling for ammonia, nitrate-nitrite as N, and TKN and then 1/month calculation for Total Nitrogen. 1/week sampling requirement is the same requirement applied to Total Phosphorus which is consistent with DEP's technical guidance no. 362-0400-001.

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.

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" (362-0400-001), 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 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	52	83	XXX	25.0	40.0	50	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	63	94	XXX	30.0	45.0	60	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Nitrogen (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Ammonia	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite

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		
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
E. Coli (no./100 mL)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab

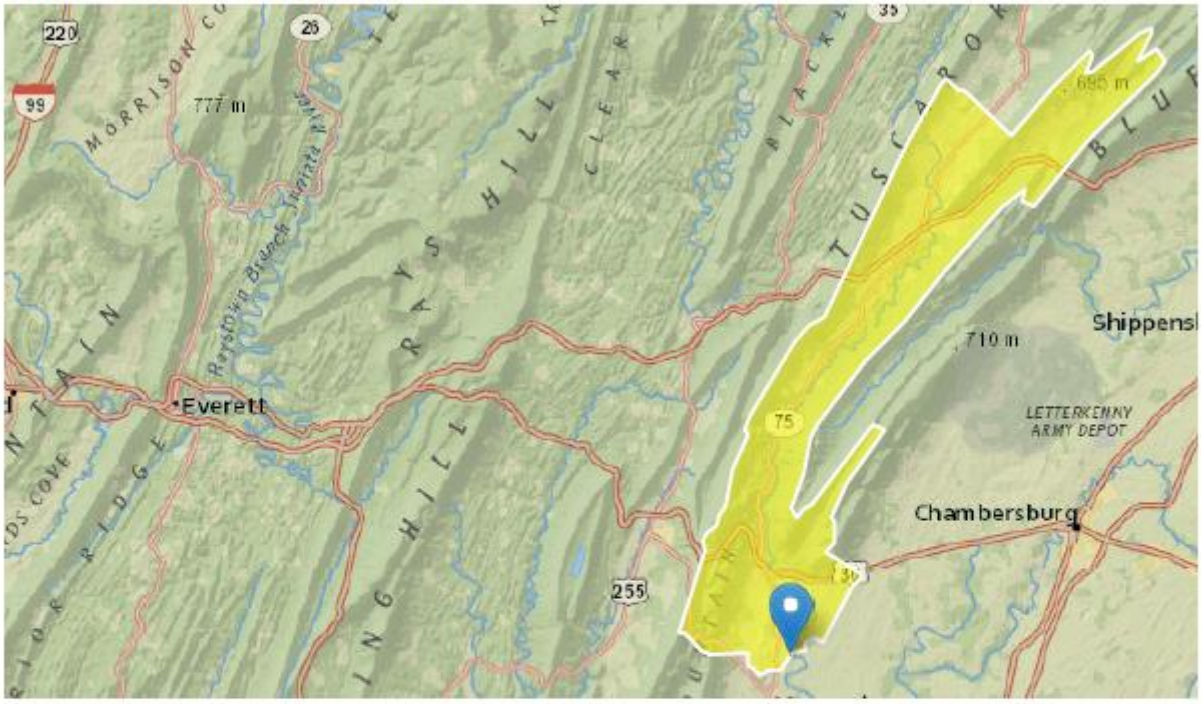
Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical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

Attachments

1. StreamStats

StreamStats Report

Region ID: PA
Workspace ID: PA20220616140454023000
Clicked Point (Latitude, Longitude): 39.85840, -77.88592
Time: 2022-06-16 10:05:15 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	24.93	percent
DRNAREA	Area that drains to a point on a stream	124	square miles
PRECIP	Mean Annual Precipitation	40	inches
ROCKDEP	Depth to rock	4.4	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	2.3	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	124	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
STRDEN	Stream Density	2.3	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.4	feet	3.32	5.65
CARBON	Percent Carbonate	24.93	percent	0	99

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

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	15.5	ft^3/s	38	38
30 Day 2 Year Low Flow	19.9	ft^3/s	33	33
7 Day 10 Year Low Flow	8.37	ft^3/s	51	51
30 Day 10 Year Low Flow	10.8	ft^3/s	46	46
90 Day 10 Year Low Flow	14.8	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/)

2. WQM 7.0 ver. 1.1

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	59398	WEST BRANCH CONOCOCHEAGUE	**14.800**	521.00	124.00	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	8.37	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
Merc. Junction	PA0084191	0.2500	0.2500	0.2500	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	5.00	8.24	0.00	0.00
NH3-N	25.00	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	59398	WEST BRANCH CONOCOCHEAGUE	**10.040**	495.00	141.00	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	10.80	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	59398	WEST BRANCH CONOCOCHEAGUE CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
14.800	0.250	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
51.378	0.792	64.862	0.215
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.02	0.241	1.10	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.100	2.381	Tsivoglou	5
Reach Travel Time (days)			
1.352			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.135	2.89	0.96	7.46
0.270	2.78	0.84	7.08
0.406	2.67	0.73	6.87
0.541	2.56	0.63	6.78
0.676	2.46	0.55	6.77
0.811	2.36	0.48	6.81
0.946	2.26	0.42	6.87
1.082	2.17	0.36	6.96
1.217	2.08	0.32	7.05
1.352	2.00	0.27	7.15

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
13C	59398	WEST BRANCH CONOCOCHEAGUE CREEK

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												
14.800	8.37	0.00	8.37	.3868	0.00103	.792	51.38	64.86	0.22	1.352	25.00	7.00
Q1-10 Flow												
14.800	5.36	0.00	5.36	.3868	0.00103	NA	NA	NA	0.17	1.712	25.00	7.00
Q30-10 Flow												
14.800	11.38	0.00	11.38	.3868	0.00103	NA	NA	NA	0.25	1.146	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	59398	WEST BRANCH CONOCOCHEAGUE CREEK

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
14.800	Merc. Junction	11.07	50	11.07	50	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
14.800	Merc. Junction	1.37	25	1.37	25	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)		
14.80	Merc. Junction	25	25	25	25	5	5	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
13C	59398	WEST BRANCH CONOCOCHEAGUE CREEK

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)
14.800	Merc. Junction	PA0084191	0.250	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

3. TRC_Calc Spreadsheet

TRC_CALC

1A	B	C	D	E	F	G
2	**TRC EVALUATION**					
3	Input appropriate values in B4:B8 and E4:E7					
4	8.37	**= Qstream (cfs)**		**0.5**	**= CV Daily**	
5	0.25	**= Qdischarge (MGD)**		**0.5**	**= CV Hourly**	
6	30	**= no. samples**		**1**	**= AFC_Partial Mix Factor**	
7	0.3	**= Chlorine Demand of Stream**		**1**	**= CFC_Partial Mix Factor**	
8	0	**= Chlorine Demand of Discharge**		**15**	**= AFC_Criteria Compliance Time (min)**	
9	**0.5**	**= BAT/BPJ Value**		**720**	**= CFC_Criteria Compliance Time (min)**	
	0	**= % Factor of Safety (FOS)**			**=Decay Coefficient (K)**	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	**1.3.2.iii**	WLA afc = 6.923		**1.3.2.iii**	WLA cfc = 6.742
12	PENTOXSD TRG	**5.1a**	LTAMULT afc = 0.373		**5.1c**	LTAMULT cfc = 0.581
13	PENTOXSD TRG	**5.1b**	LTA_afc= 2.580		**5.1d**	LTA_cfc = 3.919
14						
15	Source		Effluent Limit Calculations			
16	PENTOXSD TRG	5.1f	AML MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500		BAT/BPJ	
18			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)**