Southwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0096598**
Facility Type	**Municipal**	APS ID	**1117015**
Major / Minor	**Minor**	Authorization ID	**1490820**

Applicant and Facility Information

Applicant Name	**Lower Ten Mile Joint Sewer Authority**	Facility Name	**Mather STP**
Applicant Address	144 Chartiers Road	Facility Address	144 Chartiers Road
	Jefferson, PA 15344-4115		Jefferson, PA 15344-4115
Applicant Contact	Kenneth Frameli	Facility Contact	Bruce Howard
Applicant Phone	(724) 883-2743	Facility Phone	(724) 883-2743
Client ID	63436	Site ID	2586
Ch 94 Load Status	Organic Overload	Municipality	Morgan Township
Connection Status	No Limitations	County	Greene
Date Application Received	June 28, 2024	EPA Waived?	Yes
Date Application Accepted	July 08, 2024	If No, Reason	

Purpose of Application: Application for a renewal of a NPDES permit for discharge of treated sewage

Summary of Review

Approve	Deny	Signatures	Date
X		Fahmida Amin Fahmida Amin / Environmental Engineering Trainee	July 2, 2025
X		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	July 25, 2025

Summary of Review

The applicant has applied for a renewal of NPDES Permit No. PA0096598. NPDES Permit No. PA0096598 was previously issued by the PA Department of Environmental Protection (DEP) on December 11, 2019. That permit expired on December 31, 2024.

WQM Permit No. 3086401 issued on August 25, 1987, authorized construction of the Mather WWTP to treat an average design flow of 0.2 mgd.

The STP periodically experiences average monthly flows above 0.3 mgd during wet weather months. To address this and serve additional areas, the DEP SWRO approved an Act 537 Plan on December 6, 2002, for a STP expansion to treat an average design flow of 0.6 mgd. Part II Permit No. 3086401-A2 issued on September 30, 2011, authorized construction of the plant.

The treated effluent is discharged through Outfall 001 to the South Fork Tenmile Creek, classified as a warm water fishery, in the Monongahela River Basin. South Fork Tenmile Creek is located in State Watershed No 19-B.

The facility experienced organic overload in last 4 consecutive months in 2024.

The permittee has complied with Act 14 notifications as evidenced by updated letters sent to Morgan Township and Greene County

Changes since the last permit include:

None

Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

This facility is not seeking to revise the previously permitted effluent limits.

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.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.3
Latitude	39Âº 56' 19.94"	Longitude	-80Âº 3' 40.91"
Quad Name	Mather	Quad Code	39080H1
Wastewater Description:	Sewage Effluent		

Receiving Waters	South Fork Tenmile Creek (WWF)	Stream Code	40293
NHD Com ID	99414592	RMI	6.18
Drainage Area	185	Yield (cfs/mi^2)	0.028
Q_{7-10} Flow (cfs)	5.16	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1209	Slope (ft/ft)	
Watershed No.	19-B	Chapter 93 Class.	WWF
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	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Tri-County Joint Municipal Authority		
PWS Waters	Monongahela River	Flow at Intake (cfs)	4 MGD
PWS RMI	65.58	Distance from Outfall (mi)	10.2

Changes Since Last Permit Issuance: None

Other Comments: Organic Overload

Treatment Facility Summary

Treatment Facility Name: Mather STP

WQM Permit No.	Issuance Date
3086401	August 25, 1987
3086401	September 30, 2011

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with NH_3N reduction	Activated Sludge	Chlorine-existing plant Ultraviolet-when plant is expanded	0.294

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.6	499	Organic Overload	Aerobic Digestion	Land Application

Changes Since Last Permit Issuance: None

Other Comments: None

Operations Compliance Check Summary Report

Facility: MATHER STP

NPDES Permit No.: PA0096598

Compliance Review Period: 5/1/20-5/2/25

Inspection Summary:

INSPECTED DATE	INSP TYPE	INSPECTION RESULT DESC
12/18/2024	Compliance Evaluation	No Violations Noted
07/16/2021	Compliance Evaluation	No Violations Noted
07/16/2021	Biosolids Processor Compliance Eval Insp	No Violations Noted
07/16/2021	Administrative/File Review	No Violations Noted
07/21/2020	Administrative/File Review	No Violations Noted

Violation Summary:

No violations noted during review period

Open Violations by Client ID:

No open violations for Client ID 63436

Enforcement Summary:

No enforcements executed during review period

Effluent Violation Summary:

MON PD	PARAMETER	REPORTED VALUE	PERMIT LIMIT	UNIT	STAT_BASE_CODE
Sep-21	Fecal Coliform	1440	1000	No./100 ml	Instantaneous Maximum

Compliance Status: Facility is generally in compliance with no open violations or pending enforcements.

Completed by: Amanda Illar **Completed date:** 5/2/25

Compliance History

DMR Data for Outfall 001 (from June 1, 2024 to May 31, 2025)

Parameter	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24
Flow (MGD) Average Monthly	0.256	0.333	0.138	0.321	0.144	0.174	0.143	104	0.126	0.139	0.148	0.129
Flow (MGD) Daily Maximum	0.696	1.2	0.254	1.05	0.363	0.283	0.431	0.255	0.214	0.156	0.673	0.25
pH (S.U.) Instantaneous Minimum	6.4	6.0	6.0	6.6	6.9	6.0	6.0	6.0	6.0	7.0	6.0	6.2
pH (S.U.) Instantaneous Maximum	7.4	7.4	6.8	7.3	8.0	7.0	6.9	6.9	6.8	8.1	6.9	7.3
DO (mg/L) Instantaneous Minimum	7.0	7.9	8.2	10.0	10.0	8.0	6.2	4.5	6.2	7.3	7.5	6.0
CBOD5 (lbs/day) Average Monthly	5.0	3.0	3.0	5.0	4.0	4.0	2.0	3.0	2.0	2.0	5.2	3.0
CBOD5 (lbs/day) Weekly Average	5.0	3.0	3.0	5.0	4.0	4.0	2.0	3.0	2.0	2.0	5.2	3.0
CBOD5 (mg/L) Average Monthly	2.0	1.8	3.0	2.6	3.6	2.9	2.2	3.2	2.1	2.3	2.5	2.5
CBOD5 (mg/L) Weekly Average	2.0	1.8	3.0	2.6	3.6	2.9	2.2	3.2	2.1	2.3	2.5	2.5
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	151	198	103	99	82	84	64	58	91	153	114	165
BOD5 (lbs/day) Raw Sewage Influent Weekly Average	151	198	103	99	82	84	64	58	91	153	114	165
BOD5 (mg/L) Raw Sewage Influent Average Monthly	42	71	65	42	53	52	42	52	94	88	91	91
BOD5 (mg/L) Raw Sewage Influent Weekly Average	42	71	65	42	53	52	42	52	94	88	91	91
TSS (lbs/day) Average Monthly	17.0	5.0	11.0	10.0	6.0	9.0	7.0	7.0	5.0	4.0	13.0	7.0

TSS (lbs/day) Raw Sewage Influent Average Monthly	135	73	55	92	85	118	90	42	41	63	51	61
TSS (lbs/day) Raw Sewage Influent Weekly Average	135	73	55	92	85	118	90	42	41	63	51	61
TSS (lbs/day) Weekly Average	17.0	5.0	11.0	10.0	6.0	9.0	7.0	7.0	5.0	4.0	13.0	7.0
TSS (mg/L) Average Monthly	6.0	3.0	10.0	5.0	6.0	6.0	6.0	7.0	5.0	6.0	6.0	7.0
TSS (mg/L) Raw Sewage Influent Average Monthly	51	26	33	39	56	72	76	33	43	38	38	38
TSS (mg/L) Raw Sewage Influent Weekly Average	51	26	33	39	56	72	76	33	43	38	38	38
TSS (mg/L) Weekly Average	6.0	3.0	10.0	5.0	6.0	6.0	6.0	7.0	5.0	6.0	6.0	7.0
Fecal Coliform (No./100 ml) Geometric Mean	5.0	4.0	2.0	4.0	6.0	3.0	35	3.0	13	2.0	14	3.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	10.0	22	5.0	7.0	8.0	20	63	17	185	5	162	13
UV Transmittance (%) Instantaneous Minimum	1.0	1.4	1.2	1.1	1.3	1.4	0.7	0.4	0.7	1.0	1.4	1.0
UV Transmittance (%) Average Monthly	2.0	1.7	1.2	1.3	1.2	1.2	1.0	0.6	0.8	1.0	1.1	1.4
Total Nitrogen (lbs/day) Daily Maximum						30.7						
Total Nitrogen (mg/L) Daily Maximum						21.6						
Ammonia (lbs/day) Average Monthly	2.0	1.3	0.1	3.0	1.0	0.4	0.1	0.5	0.2	9.2	1.6	0.3
Ammonia (lbs/day) Weekly Average	2.0	1.3	0.1	3.0	1.0	0.4	0.1	0.5	0.2	9.2	1.6	0.3
Ammonia (mg/L) Average Monthly	0.99	3.0	0.14	1.5	1.0	0.2	0.1	0.7	0.2	0.2	0.4	0.3
Ammonia (mg/L) Weekly Average	0.99	3.0	0.14	1.5	1.0	0.2	0.1	0.7	0.2	0.2	0.4	0.3

Total Phosphorus (lbs/day) Daily Maximum						3.2						
Total Phosphorus (mg/L) Daily Maximum						2.3						

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.3
Latitude 39º 56' 20.00" **Longitude** -80º 3' 41.00"
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 (WQBELs)

Pursuant to EPA's approval of Pennsylvania's 2017 Triennial Review of Water Quality Standards and corresponding regulatory changes published in the Pennsylvania Bulletin on July 11, 2020, new water quality criteria for ammonia-nitrogen apply to waters of the commonwealth. Therefore, WQBELs for Outfall 001 are being re-evaluated even though there have been no changes to the treatment plant.

WQM 7.0 Water Quality Modeling

DEP's WQM 7.0 version 1.1 model is a Microsoft Access Program used for sewage dischargers to determine whether TBELs are sufficient to meet in-stream water quality criteria for ammonia-nitrogen, carbonaceous biochemical oxygen demand (CBOD5), and dissolved oxygen (DO). To accomplish this, the model simultaneously simulates mixing and degradation of ammonia-nitrogen and mixing and consumption of DO through CBOD5 and ammonia-nitrogen degradation. WQM 7.0 determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions.

The model is a two-step process. The discharge is first modeled for the summer period (May through October) because warm temperatures are more likely to result in critical loading conditions. Reduced DO levels likely also play a role in ammonia toxicity and solubility of DO decreases at increased water temperature. If summer modeling determines that WQBELs are appropriate for the summer period, then modeling is completed for the winter period (November through April). This is in accordance with DEP's Implementation Guidance of Section 93.7 Ammonia Criteria [Do. No. 391-2000-013] (Ammonia Guidance).

River Mile Index (RMI) was measured in eMAP PA as the distance from the facility's outfall to South Fork Tenmile Creek. Elevation was read by applying a topo map in eMAP PA. Discharge point and downstream drainage areas as well as Q_{7-10} were generated by USGS Stream Stats. USGS Stream Stats output files are included in Attachment 1. In the absence of site-specific data, discharge temperature, stream temperature, and stream pH were assumed to be 20, 25, and 7 in accordance with the Ammonia Guidance. Stream width to depth was assumed to be 10 in accordance with DEP's Technical Reference Guide (TRG) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and

Ammonia Nitrogen Version 1 [Doc. No. 391-2000-007]. The previous effluent limitations for ammonia-nitrogen, dissolved oxygen, and CBOD5 were used as the discharge concentrations.

WQM 7.0 modeling inputs are documented in the table below:

Discharge Characteristics		Basin/Stream Characteristics	
Parameter	**Value**	**Parameter**	**Value**
River Mile Index (RMI)	6.18	Drainage Area	185
Discharge Flow (MGD)	0.3	Q_{7-10} (cfs)	5.16
Discharge Temp (°C)	20	Low-flow yield (cfs/mi^2)	0.027
Summer Ammonia-Nitrogen (mg/L)	7.5	Elevation (ft)	1209
Winter Ammonia-Nitrogen (mg/L)	15	Stream Width/Depth	10
$CBOD_5$ (mg/L)	25	Stream Temp (°C)	25
		Stream pH (s.u.)	7

The discharge was modeled using WQM 7.0 to evaluate the ammonia-nitrogen, $CBOD_5$, and DO parameters. The modeling confirmed that water quality-based effluent limits are necessary for ammonia-nitrogen, $CBOD_5$, and DO. In accordance with DEP's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033 revised March 24, 2021, Version 1.9], winter ammonia-nitrogen limits are assessed by comparing winter WQM 7.0 output value with one calculated by multiplying the summer limit by a multiplier of three. The more restrictive limit is then imposed. For this facility, the more restrictive limit comes from the winter model. WQM 7.0 output files are included in Attachments 2 and 3.

Water Quality-Based Limitations

The following limitations were determined through water quality modeling (output files attached):

Parameter	Limit (mg/l)	SBC	Model
CBOD5	25.0	Average Monthly	WQM 7.0 Version 1.1
Ammonia Nitrogen (May 1 to Oct 31)	7.5	Average Monthly	WQM 7.0 Version 1.1
Ammonia Nitrogen (Nov 1 to Apr 30)	15	Average Monthly	WQM 7.0 Version 1.1
Dissolved Oxygen	4.0(Minimum)	Average Monthly	WQM 7.0 Version 1.1

Comments: No Changes in the limits.

Additional Considerations

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Departments Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits (Document No. 386-0400-001).

For POTWs, mass loading limits will be established for CBOD5, TSS, NH3-N, and where necessary Total P and Total N. In general, average monthly mass loading limits will be established for CBOD5, TSS, NH3-N, and where necessary Total P and Total N, and average weekly mass loading limits will be established for CBOD5 and TSS (Section IV, SOP No. BCW-PMT-033, Establishing Effluent Limitations for Individual Sewage Permits).

For POTWs with design flows greater than 2,000 GPD and for non-municipal sewage facilities that service municipalities or portions thereof, the application manager will establish influent BOD5 and TSS monitoring in the permit using the same frequency and sample type as is used for other effluent parameters (Section IV.E.8, SOP No BCW-PWT-002, New and Reissuance Sewage Individual NPDES Permit Applications).

Where ultraviolet (UV) disinfection is used, TRC limits are not applicable, but the limits table(s) in Part A will generally contain, at a minimum, routine monitoring of UV transmittance (%) at the same monitoring frequency that would be used for TRC (Section I.A, Note 4, SOP No. BCW-PMT-033, Establishing Effluent Limitations for Individual Sewage Permits).

Nutrient monitoring is required to establish the nutrient load from the wastewater treatment facility and the impacts that load may have on the quality of the receiving stream(s). The discharge is to waters not impaired for nutrients. A 1/year monitoring requirement for Total N & Total P has been added to the permit per Chapter 92a.61 and Section I.A, Note 7 & 8, SOP No. BCW-PMT-033, Establishing Effluent Limitations for Individual Sewage Permits.

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	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
CBOD5	125.2	190.3	XXX	25	38	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
TSS	150.2	225.3	XXX	30	45	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/week	8-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
UV Transmittance (%)	XXX	XXX	Report	Report	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	75.1	112.7	XXX	15.0	22.5	30	1/week	8-Hr Composite

Commented [MI1]: Justification for Total Nitrogen and Total Phosphorus monitoring needs to be added.

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

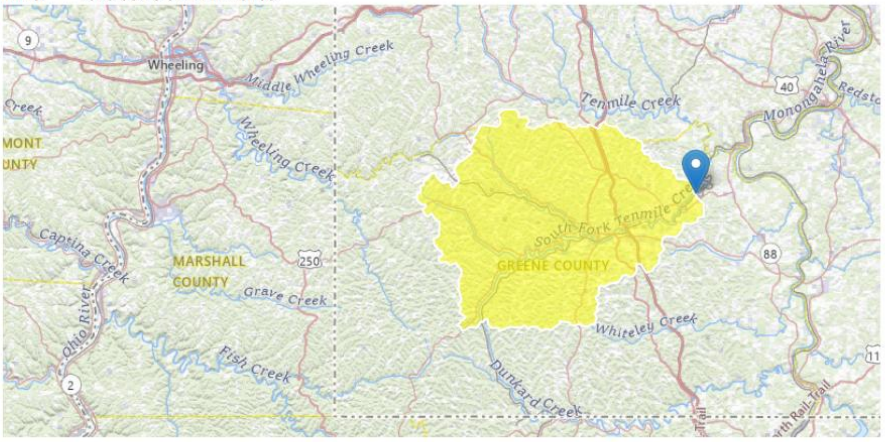
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ammonia-Nitrogen May 1 - Oct 31	37.6	56.6	XXX	7.5	11.3	15	1/week	8-Hr Composite
Total Phosphorus	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite

Compliance Sampling Location:

Attachment 1 – USGS StreamStats Report

StreamStats Report

Region ID: PA
Workspace ID: PA20250528131119649000
Clicked Point (Latitude, Longitude): 39.93863, -80.06145
Time: 2025-05-28 09:11:44 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	185	square miles
ELEV	Mean Basin Elevation	1209	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	185	square miles	2.26	1400
ELEV	Mean Basin Elevation	1209	feet	1050	2580

Low-Flow Statistics Flow Report [Low Flow Region 4]

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	10.8	ft^3/s	43	43
30 Day 2 Year Low Flow	16.4	ft^3/s	38	38
7 Day 10 Year Low Flow	5.16	ft^3/s	66	66
30 Day 10 Year Low Flow	7.47	ft^3/s	54	54
90 Day 10 Year Low Flow	11.9	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.29.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment 2 – WQM 7.0 Version 1.1 – Summer Period

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
19B	40293	SOUTH FORK TENMILE CREEK	**6.180**	834.00	185.00	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	0.028	0.00	0.00	0.000	0.000	10.0	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
Mather STP	PA0096598	0.0000	0.3000	0.0000	0.000	20.00	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	4.00	8.24	0.00	0.00
NH3-N	7.50	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
19B	40293	SOUTH FORK TENMILE CREEK	**4.500**	815.08	191.00	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	0.028	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	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 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
19B	40293	SOUTH FORK TENMILE 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												
6.180	5.16	0.00	5.16	.4641	0.00213	.764	45.07	58.97	0.16	0.629	24.59	7.00
Q1-10 Flow												
6.180	3.30	0.00	3.30	.4641	0.00213	NA	NA	NA	0.13	0.787	24.38	7.00
Q30-10 Flow												
6.180	7.02	0.00	7.02	.4641	0.00213	NA	NA	NA	0.19	0.536	24.69	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	5.5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19B	40293	SOUTH FORK TENMILE 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
6.180	Mather STP	NA	15	11.65	15	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
6.180	Mather STP	NA	7.5	1.39	7.5	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)		
6.18	Mather STP	25	25	7.5	7.5	4	4	0	0

Tuesday, June 10, 2025 Version 1.1 Page 1 of 1

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19B	40293	SOUTH FORK TENMILE CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
6.180	0.300	24.588	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
45.069	0.764	58.968	0.163
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.90	0.583	0.62	0.996
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.893	3.690	Tsivoglou	NA
Reach Travel Time (days)			
0.629			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.063	3.73	0.58	7.59
0.126	3.56	0.55	7.43
0.189	3.40	0.51	7.29
0.251	3.25	0.48	7.20
0.314	3.11	0.45	7.14
0.377	2.97	0.42	7.11
0.440	2.84	0.40	7.11
0.503	2.71	0.37	7.12
0.566	2.59	0.35	7.14
0.629	2.48	0.33	7.16

Tuesday, June 10, 2025 Version 1.1 Page 1 of 1

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19B	40293	SOUTH FORK TENMILE 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)
6.180	Mather STP	PA0096598	0.000	CBOD5	25		
				NH3-N	7.5	15	
				Dissolved Oxygen			4

Attachment 3 – WQM 7.0 Version 1.1 – Winter Period

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
19B	40293	SOUTH FORK TENMILE CREEK	**6.180**	834.00	185.00	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	0.056	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	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
Mather STP	PA0096598	0.0000	0.3000	0.0000	0.000	15.00	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	4.00	12.51	0.00	0.00
NH3-N	15.00	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
19B	40293	SOUTH FORK TENMILE CREEK	**4.500**	815.08	191.00	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	0.056	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	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 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	5.5		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
19B	40293	SOUTH FORK TENMILE 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												
6.180	10.32	0.00	10.32	.4641	0.00213	.815	56.28	69.06	0.24	0.437	5.43	7.00
Q1-10 Flow												
6.180	6.61	0.00	6.61	.4641	0.00213	NA	NA	NA	0.19	0.553	5.66	7.00
Q30-10 Flow												
6.180	14.04	0.00	14.04	.4641	0.00213	NA	NA	NA	0.28	0.370	5.32	7.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19B	40293	SOUTH FORK TENMILE 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
6.180	Mather STP	NA	30	24.1	30	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
6.180	Mather STP	NA	15	4.36	15	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)		
6.18	Mather STP	25	25	15	15	4	4	0	0

Tuesday, June 10, 2025 Version 1.1 Page 1 of 1

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19B	40293	SOUTH FORK TENMILE CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
6.180	0.300	5.430	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
56.284	0.815	69.059	0.235
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.99	0.484	0.65	0.228
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
12.144	2.423	Tsivoglou	NA
Reach Travel Time (days)			
0.437			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.044	2.96	0.64	11.33
0.087	2.93	0.63	11.33
0.131	2.89	0.63	11.33
0.175	2.86	0.62	11.33
0.218	2.83	0.61	11.33
0.262	2.80	0.61	11.33
0.306	2.77	0.60	11.33
0.349	2.74	0.60	11.33
0.393	2.71	0.59	11.33
0.437	2.68	0.58	11.33

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19B	40293	SOUTH FORK TENMILE 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)
6.180	Mather STP	PA0096598	0.000	CBOD5	25		
				NH3-N	15	30	
				Dissolved Oxygen			4