Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0094382**
Facility Type	**Non-Municipal**	APS ID	**1140874**
Major / Minor	**Minor**	Authorization ID	**1533050**

Applicant and Facility Information

Applicant Name	**Greensburg Salem School District**	Facility Name	**Metzgar Elementary School STP**
Applicant Address	140 CC Hall Drive	Facility Address	140 CC Hall Drive
	New Alexandria, PA 15670-3089		New Alexandria, PA 15670-3089
Applicant Contact	Kenneth Bissell	Facility Contact	Kenneth Bissell
Applicant Phone	(724) 832-2900	Facility Phone	(724) 832-2900
Client ID	3556	Site ID	243272
Ch 94 Load Status	Not Overloaded	Municipality	Salem Township
Connection Status	No Prohibition	County	Westmoreland
Date Application Received	July 1, 2025	EPA Waived?	Yes
Date Application Accepted	July 7, 2025	If No, Reason	

Purpose of Application: Application for a renewal of an NPDES permit for discharge of treated Sewage.

Summary of Review

The permittee has applied for renewal of NPDES Permit No. PA0094382, which was previously issued by the PA Department of Environmental Protection (DEP) on July 24, 2020. The application was received on June 12, 2025, which considered late.

The WWTP serves a closed sanitary sewer system for an elementary school and is permitted for 0.005 MGD, receiving stream is Trib. 43341 of Loyalhanna Creek, classified as WWF, and located in State Watershed 18–C per CH93.

WQM No. 467S015 authorized the construction of the STP that consists of: a comminutor, extended aeration tank, secondary clarifier, chlorine contact system, and dechlorination.

An Operations Compliance Check Summary Report was completed by DEP's Operations Section on July 16, 2025 and concluded that this facility is generally in compliance with no open violations or pending enforcements. Checking on last time this facility was inspected, the inspection report on March 20, 2025 stated that the permittee failed to submit the renewal application on time. Also, the report notify the permittee to update the certified Operator (s) information over DEP website. Part C6 for responsible Operator notification, and Part C7 to develop O&M plan will be included in this renewal permit.

The application stated that there were no changes to the facility conditions regarding discharge, receiving stream, or treatment technology, also not foreseen for the next five years, thus Act 537 was not needed.

The applicant provided proof of Act 14, P.L. 834 compliance with the June 25, 2025 letters, no comments were received.

Approve	Deny	Signatures	Date
X		Hazim Aldalli / Project Manager	February 11, 2026
X		Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	February 23, 2026

Summary of Review

Sludge use and disposal description and location(s): This system has a sludge holding tank/ lagoon. Application estimated that about 0.1 dry ton of biosolids produced last year. The application stated that the facility is processing its sludge in the Allegheny Valley JSA STP hauling by private contractors.

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)	0.005
Latitude	40º 23' 28"	Longitude	-79º 26' 10"
Quad Name	Saltsburg	Quad Code	40079D4
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Loyalhanna Creek (WWF)	Stream Code	43341
NHD Com ID	125292271	RMI	0.36
Drainage Area	0.55	Yield (cfs/mi^2)	0.023
Q_{7-10} Flow (cfs)	0.0127	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1073	Slope (ft/ft)	0.002
Watershed No.	18-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL

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

Nearest Downstream Public Water Supply Intake	Buffalo Twp Mun Auth Freeport		
PWS Waters	Allegheny River	Flow at Intake (cfs)	2070
PWS RMI	310.75	Distance from Outfall (mi)	>50

Changes Since Last Permit Issuance:

- Q7-10 flow, elevation, drainage area, and low flow yield were all updated (see appendix A) to match USGS Stream Stats new data.

- *E. Coli* monitoring requirements will be introduced to this renewal which is in compliance with DEP SOP No. BCW-PMT-033 revised February 5, 2024.

Other Comments: None.

Treatment Facility Summary

Treatment Facility Name: Metzgar Elementary School STP

WQM Permit No.	Issuance Date
467S015	April 4, 1967

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Chlorination & De-chlorination	0.0017

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.005	15.0	Not Overloaded	Aerobic	Landfill

Changes Since Last Permit Issuance: None.

Compliance History

Operations Compliance Check Summary Report

Facility: METZGAR ELEM SCHOOL STP

NPDES Permit No.: PA0094382

Compliance Review Period: 7/1/20-7/16/25

Inspection Summary:

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC	INSPECTION COMMENT
03/21/2025	Administrative/File Review	PA Dept of Environmental Protection	No Violations Noted	DISCHARGE MONITORING REPORT ("DMR") REVIEW (January 2024 – December 2024): - The eDMR review for the indicated review period revealed zero effluent exceedance(s). - The eDMR review for the indicated review period revealed zero reported unauthorized discharge(s). - The eDMR review for the indicated review period revealed zero reported "other" non¿¿compliance(s), such as late or incomplete eDMR submittals. - The eDMR review for the indicated period showed that all monthly and annual DMRs had been submitted on-time and were complete. No missed samples were reported. Lab analysis, Sewage Sludge/Biosolids Production, and treatment plant operating summary forms are attached to the eDMRs. - TRC, DO, and pH measurements are collected/reported daily, as outlined in the permit. - According to the Department's records, no complaints have been filed with the Department regarding the Metzgar Elementary School STP during the indicated period. - According to the eDMR submittals, 0.095dt of sludge were disposed of during 2024. - According to the Department's records, the permittee began utilizing the eDMR system with the ~December 2017 DMR submittal.
03/20/2025	Compliance Evaluation	PA Dept of Environmental Protection	Viol(s) Noted & Immediately Corrected	
07/16/2020	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted	
07/16/2020	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted	

Violation Summary:

VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE
03/20/2025	92A.75(A)	NPDES - Failure to submit NPDES renewal application at least 180 days prior to expiration or later approved date	06/10/2025

Open Violations by Client ID:

No open violations for Client ID 3556

Enforcement Summary:

No enforcements executed during review period

Effluent Violation Summary:

No effluent exceedances reported during review period

Unauthorized Discharges:

No unauthorized discharges reported in eDMR during review period

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

Completed by: Amanda Illar **Completed date:** 7/16/25

Other Comments: None.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.005
Latitude 40º 23' 28.00" **Longitude** -79º 26' 10.00"
Wastewater Description: Treated 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)
E. Coli (No./100 ml)	Report	IMAX	-	92a.61
D.O. (mg/L)	4.0	Min	-	BPJ
NH_3-N (mg/L)	25	Average Monthly	-	BPJ
	50	IMAX		
Total N (mg/L)	Report	Average Monthly	-	92a.61
Total P (mg/L)	Report	Average Monthly	-	92a.61

Comments: The existing discharge was evaluated using WQM 7.0 for $CBOD_5$, Ammonia Nitrogen and Dissolved Oxygen. The Total Suspended Solids, pH, and Fecal Coliform parameters are not evaluated using WQM 7.0. The bases for the proposed technology-based limitations are listed in the above table.

Water Quality-Based Limitations

The following limitations were determined through water quality modeling (output files attached, see Appendix B):

Parameter	Limit (mg/l)	SBC	Model
TRC	0.24	Average Monthly	DEP TRC
$CBOD_5$ (May1-Oct 31)	25	Average Monthly	WQM7.0
$CBOD_5$ (Nov 1- Apr 30)	25	Average Monthly	WQM7.0
NH_3-N (May1-Oct 31)	4.8	Average Monthly	WQM7.0
NH_3-N (Nov 1- Apr 30)	13.1	Average Monthly	WQM7.0
Dissolved Oxygen	4.0	Minimum	WQM7.0

Best Professional Judgment (BPJ) Limitations

A minimum Dissolved Oxygen (DO) WQBEL of 4.0 mg/L should be maintained based on DEP water quality model WQM 7.0 version 1.10 (Appendix B), and on Best Professional Judgment (BPJ) to ensure adequate operation and maintenance as listed in the table under Technology-Based Limitations section.

WQM 7.0 was used to generate warm period seasonal limits for Ammonia-Nitrogen (NH_3-N) AML of 4.8 mg/L, and Ins. Max of 9.6 mg/L, also the model generated cold period seasonal limits of AML 13.1 mg/L, and Ins. Max of 26.2 mg/L. The new WQBELs Ammonia-Nitrogen are more stringent than the previous permit limit.
Checking on how this facility can comply with the new Ammonia limits, the reviewed renewal application effluent sampling, and the eDMRs showed that this facility can meet the new limits as this treatment plant has achieved effluent sampling results of NH_3-N lower than the new stringent limits; no compliance schedule is necessary. Twice a month monitoring will be required.

WQM 7.0 generated $CBOD_5$ WQBEL year around limits of AML 25.0 mg/L, and Ins. Max of 50.0 mg/L, this finding matches the previous permit limits; therefore, no changes to the current $CBOD_5$ limits, twice a month monitoring will be required.

Anti-Backsliding

The previously imposed limits for pH Effluent Limitation of (6.0 Minimum, and 9.0 Maximum SIU), and Fecal Coliform AML Geo Mean seasonal limits of (200 & 2000 CFU/100 ml); will be all unchanged due to Anti-Backsliding as stated in 40 CFR Section 122.44(l).

Disinfection

Using the Department's calculation spreadsheet (see appendix C), the new Total Residual Chlorine (TRC) WQBEL will be an AML of 0.24 mg/L. Checking TRC effluent sampling results over the renewal application is 0.02 mg/L; the facility can meet the new stringent limit without a compliance schedule. Daily monitoring frequency will be assigned for this parameter during this renewal cycle.

E. Coli

Pursuant to 25 Pa. code § 92a.61, annual monitoring for *E. Coli* will be imposed at Outfall 001 to determine if *E. Coli* will be a pollutant of concern, which is consistent with DEP SOP No. BCW-PMT-033 revised February 5, 2024.

TN and TP Monitoring

Nutrient monitoring is required to establish the nutrient load from the wastewater treatment facility discharge and the impacts that load may have on the quality of the receiving stream(s). Sewage discharges with design flows > 2,000 gpd require monitoring. The receiving stream is not impaired with nutrients (per PA eMAP, see page 3), no limits are needed to be imposed or frequency increases per DEP-SOP No. BCW-PMT-033 Part I.C.1&3 revised February 5, 2024.

Annual monitoring for Total Nitrogen and Total Phosphorus will be applied at Outfall 001.

Kiskiminetas-Conemaugh River Watershed TMDL

In accordance with 40 CFR § 122.44(d)(1)(vii)(B), when developing WQBELs the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available Wasteload allocation (WLA) for the discharge prepared by the State and approved by EPA pursuant to 40 CFR § 130.7.

According to Appendix G of the Kiskiminetas-Conemaugh River Watershed TMDL, PA0094382 for James H. Metzgar Elementary School STP which considered to be a "Minor Non-Mining WLAs" was assigned an aggregate Wasteload Allocations (WLAs) for aluminum, iron, and manganese by the Kiskiminetas-Conemaugh TMDL. EPA developed aggregate WLAs based on the sum of available information regarding flow from each facility multiplied by the applicable numeric water quality criterion. According to Page 65 of the TMDL document, these facilities do not currently have permit limits for the pollutants of concern, and there may not be reasonable potential for the NPDES permitting authority to determine that a numeric effluent limit in the permit is necessary. The decision to provide an aggregate WLA to these sources does not reflect any determination by EPA that an effluent limit is needed or required in the NPDES permit.

Checking on the applicant's TMDL sampling results, there is no reasonable potential for the pollutants of concern. The concentrations are well below 10% of the Aggregate WLAs for Total Iron and Total Manganese. For Total Aluminum, the concentration is 13% of the aggregate WLA, and therefore, no RP is detected according to the RP determination guideline for the Department's TMS analysis. (see the table below). Additionally, this facility discharges to an unimpaired stream which is attaining its uses (see page 3 of this Fact Sheet).
The TMDL's waste load allocations and the facility's discharge concentrations are summarized in the table below.

TMDL Effluent Limits for Outfall 001

Pollutant	Average Monthly (mg/L)	Maximum Daily (mg/L)	Application TMDL Sampling (mg/L)
Aluminum, Total	0.75	0.75	0.1
Iron, Total	1.5	3.0	0.09
Manganese, Total	1.0	2.0	0.02

Annual monitoring frequency will be imposed during the current renewal to evaluate this facility's discharge impact on the watershed's TMDL.

Monitoring Frequency Considerations

Pursuant to 25 Pa. code § 92a.12 and 92a.61, effluent limits applicable at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory standards, and monitoring requirements as summarized in the table in the following page.

Monitoring frequencies and sample types are established pursuant to DEPs "Technical Guidance for the Development and Specification of Effluent Limitations, and Other Permit Conditions in NPDES Permits", and per DEP SOP - Establishing Effluent Limitations for Individual Sewage Permits SOP No. BCW-PMT-033 Revised, February 5, 2024.

The imposed monitoring frequencies are consistent with current policy and Table 6-3 of DEP's Technical Guidance mentioned above.

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.24	XXX	0.81	1/day	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	13.1	XXX	26.2	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	4.8	XXX	9.6	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

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	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Aluminum	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Iron	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Manganese	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

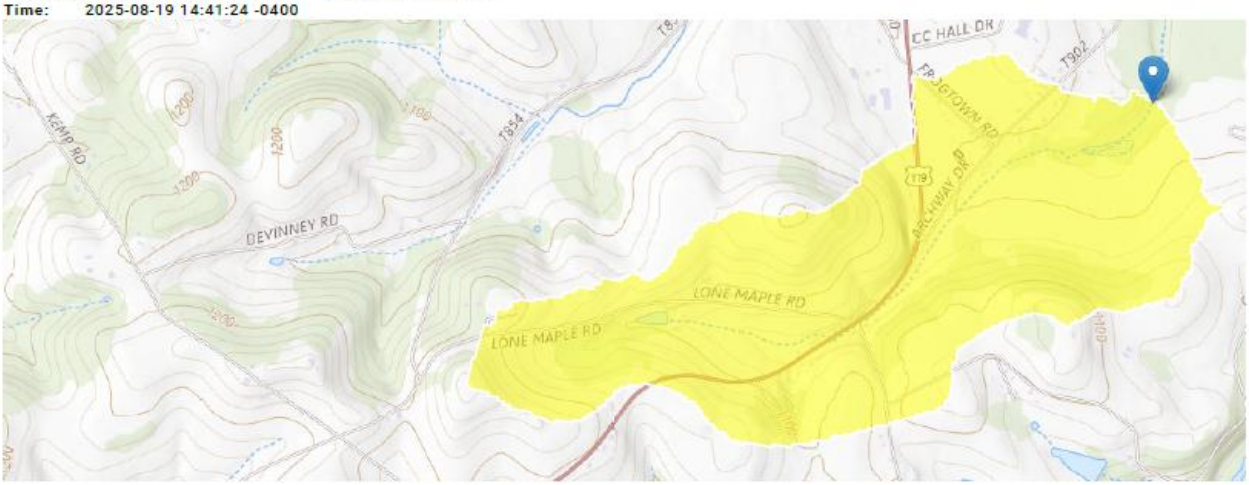
Compliance Sampling Location: At Outfall 001.

Other Comments: None.

Appendix -A- USGS Stream Stats

StreamStats Report

Region ID: PA
Workspace ID: PA20250819184103908000
Clicked Point (Latitude, Longitude): 40.38890, -79.43342
Time: 2025-08-19 14:41:24 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.55	square miles
ELEV	Mean Basin Elevation	1073	feet
PRECIP	Mean Annual Precipitation	41	inches

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.55	square miles	2.33	1720
ELEV	Mean Basin Elevation	1073	feet	898	2700
PRECIP	Mean Annual Precipitation	41	inches	38.7	47.9

Low-Flow Statistics Disclaimers [Low Flow Region 3]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Low-Flow Statistics Flow Report [Low Flow Region 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0368	ft^3/s
30 Day 2 Year Low Flow	0.0561	ft^3/s
7 Day 10 Year Low Flow	0.0127	ft^3/s
30 Day 10 Year Low Flow	0.0203	ft^3/s

Statistic	Value	Unit
90 Day 10 Year Low Flow	0.0313	ft^3/s

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: 4.29.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Appendix -B- WQM 7.0 Modeling – Summer Conditions

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
18C	43341	Trib 43341 to Loyalhanna Creek	**0.360**	1073.00	0.55	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	0.023	0.01	0.00	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
Metz Elem STP	PA0094382	0.0050	0.0050	0.0050	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	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
18C	43341	Trib 43341 to Loyalhanna Creek	**0.010**	1057.00	0.69	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	0.023	0.02	0.00	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
Metz Elem STP	PA0094382	0.0000	0.0000	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	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18C	43341	Trib 43341 to Loyalhanna 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												
0.360	0.01	0.00	0.01	.0077	0.00866	.27	2.66	9.86	0.03	0.753	23.11	7.00
Q1-10 Flow												
0.360	0.01	0.00	0.01	.0077	0.00866	NA	NA	NA	0.02	0.868	22.56	7.00
Q30-10 Flow												
0.360	0.02	0.00	0.02	.0077	0.00866	NA	NA	NA	0.03	0.673	23.45	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 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18C	43341	Trib 43341 to Loyalhanna Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.360	0.005	23.107	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.664	0.270	9.858	0.028
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
10.71	1.188	1.85	0.889
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.637	24.177	Owens	5
Reach Travel Time (days)			
0.753			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.075	9.66	1.73	7.37
0.151	8.71	1.62	7.57
0.226	7.85	1.51	7.68
0.301	7.08	1.41	7.77
0.377	6.39	1.32	7.79
0.452	5.76	1.24	7.79
0.527	5.20	1.16	7.79
0.603	4.69	1.08	7.79
0.678	4.23	1.01	7.79
0.753	3.81	0.95	7.79

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18C	43341	Trib 43341 to Loyalhanna 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
0.360	Metz Elem STP	13.55	27.8	13.55	27.8	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
0.360	Metz Elem STP	1.51	4.88	1.51	4.88	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)		
0.36	Metz Elem STP	25	25	4.88	4.88	4	4	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18C	43341	Trib 43341 to Loyalhanna 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)
0.360	Metz Elem STP	PA0094382	0.005	CBOD5	25		
				NH3-N	4.88	9.76	
				Dissolved Oxygen			4

Appendix -B- WQM 7.0 Modeling – Winter Conditions

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
18C	43341	Trib 43341 to Loyalhanna Creek	**0.360**	1073.00	0.55	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	0.046	0.01	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
Metz Elem STP	PA0094382	0.0050	0.0050	0.0050	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	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
18C	43341	Trib 43341 to Loyalhanna Creek	**0.010**	1057.00	0.69	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	0.046	0.02	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
Metz Elem STP	PA0094382	0.0000	0.0000	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	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18C	43341	Trib 43341 to Loyalhanna 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												
0.360	0.01	0.00	0.01	.0077	0.00866	.27	2.66	9.86	0.03	0.753	8.79	7.00
Q1-10 Flow												
0.360	0.01	0.00	0.01	.0077	0.00866	NA	NA	NA	0.02	0.868	9.88	7.00
Q30-10 Flow												
0.360	0.02	0.00	0.02	.0077	0.00866	NA	NA	NA	0.03	0.673	8.09	7.00

Thursday, August 21, 2025 Version 1.1 Page 1 of 1

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 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18C	43341	Trib 43341 to Loyalhanna Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.360	0.005	8.785	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.664	0.270	9.858	0.028
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
10.71	1.264	4.98	0.295
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
9.289	17.214	Owens	5
Reach Travel Time (days)			
0.753			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.075	10.11	4.87	10.19
0.151	9.55	4.76	10.43
0.226	9.03	4.65	10.43
0.301	8.53	4.55	10.43
0.377	8.05	4.45	10.43
0.452	7.61	4.35	10.43
0.527	7.19	4.26	10.43
0.603	6.79	4.16	10.43
0.678	6.41	4.07	10.43
0.753	6.06	3.98	10.43

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18C	43341	Trib 43341 to Loyalhanna 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
0.360	Metz Elem STP	24.1	49.43	24.1	49.43	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
0.360	Metz Elem STP	4.07	13.15	4.07	13.15	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)		
0.36	Metz Elem STP	25	25	13.15	13.15	4	4	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18C	43341	Trib 43341 to Loyalhanna 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)
0.360	Metz Elem STP	PA0094382	0.005	CBOD5	25		
				NH3-N	13.15	26.3	
				Dissolved Oxygen			4

Appendix -C- TRC Calculation

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.0127	= Q stream (cfs)	0.5	= CV Daily
0.005	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.543	1.3.2.iii	WLA cfc = 0.522
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.202	5.1d	LTA_cfc = 0.303

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.249	AFC
		INST MAX LIMIT (mg/l) = 0.814	

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)