pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0095362**
Facility Type	**Non-Municipal**	APS ID	**1025959**
Major / Minor	**Minor**	Authorization ID	**1331679**

Applicant and Facility Information

Applicant Name	**Laurelville Mennonite Church Center Association**	Facility Name	**Laurelville Mennonite Church**
Applicant Address	941 Laurelville Lane	Facility Address	941 Laurelville Lane
	Mt Pleasant, PA 15666-2540		Mt Pleasant, PA 15666-2540
Applicant Contact	Robert Emerson	Facility Contact	Jared Hay
Applicant Phone	(724) 423-2632	Facility Phone	(814) 443-3344
Client ID	40132	Site ID	244092
Ch 94 Load Status	Not Overloaded	Municipality	Mount Pleasant Township
Connection Status		County	Westmoreland
Date Application Received	October 23, 2020	EPA Waived?	Yes
Date Application Accepted	October 27, 2020	If No, Reason	

Purpose of Application: Minor Sewage Facility <0.05 MGD renewal of Individual NPDES Permit.

Summary of Review

On October 23, 2020, the Department received an NPDES Permit Renewal Application from Laurelville Mennonite Church Center Association for the Laurelville Mennonite Church Sewage Treatment Plant STP property located in Mt. Pleasant Township, Westmoreland County.

The facility's treatment system is authorized by Water Quality Management (WQM) Part II Permit 6575418 A2 issued on October 16, 2014. The WQM Part II Permit Amendment was to construct a new sanitary wastewater facility replacing the existing facility. The design average daily flow for this plant is 20,000 gpd with peak instantaneous flow being 50,000 gpd.

The new facility consists of one equalization tank with a manual bar screen and a flow splitter weir box, two SBR tanks, two sludge holding tanks, and UV disinfection unit. The equalization tank will have a capacity of 5, 228 gallons, with grinder pumps delivering 18.5 gpm flow to SBR basins. Total SBR tanks volume will be 3, 245 cubic feet. The decant volume per basin will be 1, 666 gallons. Two sludge holding tanks with a total of 1,622 cubic feet will be provided. Two air blowers will be provided for equalization tanks each rated at 20 cfm. Two Process Air Blowers will be provided with each rated at 50 cfm for SBR. One blower will be provided for sludge holding tank rated at 50 cfm. This is also backed by SBR blowers. Supernatant will be decanted via telescoping valves in SBR tanks, drain by suction and airlifted to the equalization tank where it will be mixed with incoming raw sewage for reprocessing in the system.

The receiving stream is Jacobs Creek, which is classified by Chapter 93 as Cold-Water Fishes (CWF) located in watershed 19-D.

Approve	Deny	Signatures	Date
X		Curtis Holes, P.E. / Environmental Engineering Specialist	September 27, 2021
X		James Vanek James Vanek, P.E. / Environmental Engineer Manager	September 30, 2021

Summary of Review

To establish the renewal effluent limitations, the Water Quality Based Effluent Limitations (WQBEL) are compared to the minimum technology based and BPJ standards for individual sewage permits. The most stringent of those limitations are imposed on the renewal permit as per the SOP-Establishing Effluent Limitations for Individual Sewage Permits.

WQM 7.0 and TRC spreadsheet modeling results are enclosed.

The Department inspected the treatment system on June 11, 2021 by Lisa Milsop with no violations.

The Act – 14 PL 834 Municipal Notification were provided by the September 10, 2020 letters and no comments were received.

Sludge is hauled by Zelmore Brothers to Unity Township for disposal.

An Operations Compliance Check Summary Report was completed.

It is recommended that a draft permit be published for public comment in response to this application.

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.

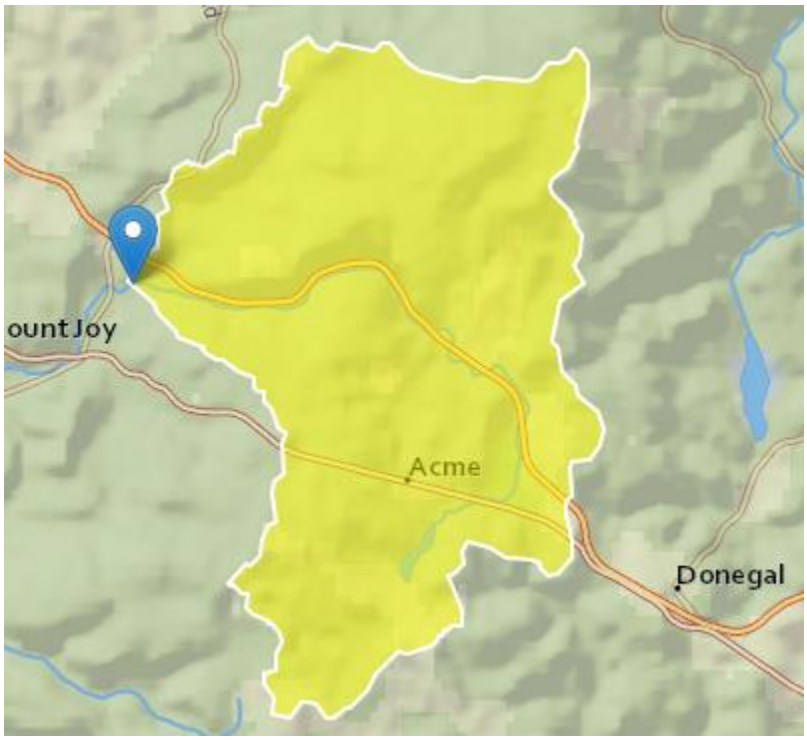
Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.02
Latitude	40º 09' 10.39"	Longitude	-79º 28' 29.45"
Quad Name	Mammoth	Quad Code	1710
Wastewater Description:	Treated Sewage Effluent		

Receiving Waters	Jacobs Creek (CWF)	Stream Code	37868
NHD Com ID	69913855	RMI	23.9
Drainage Area	16.3	Yield (cfs/mi^2)	0.02
Q_{7-10} Flow (cfs)	0.326	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1217	Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	CWF
Existing Use	**Aquatic Life**	Existing Use Qualifier	None
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		

Nearest Downstream Public Water Supply Intake	Westmoreland County Municipal Authority McKeesport (10MGD)		
PWS Waters	Youghiogheny River	Flow at Intake (cfs)	510
PWS RMI	1.5	Distance from Outfall (mi)	~50

Outfall 001 Drainage Area



Treatment Facility Summary

Treatment Facility Name: Laurelville Mennonite Church Camp

WQM Permit No.	Issuance Date
6575418 A2	October 09, 2014

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	SBR	UV	0.02

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.02	36.7	Not Overloaded		

Changes Since Last Permit Issuance: None

Other Comments: The previous treatment process consisted of a sequential batch reactor, a dosing tank, two sand filters, and a chlorine contact tank with tablet chlorinator. The plant was rated for a flow of 0.012 mgd.

WQM Permit No. 6575418-A2 issued on October 9, 2014 approved a new facility that consists of one equalization tank with a manual bar screen and a flow splitter weir box, two sequential batch reactor tanks, two sludge holding tanks, and an ultraviolet disinfection unit. The design average flow is 0.02 mgd and the design peak instantaneous flow is 0.05 mgd. The plant was designed for an influent BOD_5 concentration of 220 mg/l or 36.7 lbs/BOD_5/day.

Operations Compliance Check Summary Report

Facility: Laurelville Mennonite Church STP

NPDES Permit No.: PA0095362

Compliance Review Period: 09/2016 – 09/2021

Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
3202905	06/02/2021	Administrative/File Review	PA Dept of Environmental Protection	No Violations Noted
3204604	06/02/2021	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted
3004945	02/12/2020	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted
2610730	04/11/2017	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted

Violation Summary:

VIOL ID	VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE	INSP ID
920177	06/02/2021	92A.44	NPDES - Violation of effluent limits in Part A of permit		3204604
878743	02/12/2020	92A.44	NPDES - Violation of effluent limits in Part A of permit	03/02/2020	3004945
789709	04/11/2017	92A.61(G)	NPDES - Failure to use a format or process required by DEP for self-monitoring results	04/19/2017	2610730

Open Violations by Client ID:

CLIENT ID	INSP ID	VIOLATION ID	VIOLATION DATE	VIOLATION CODE	VIOLATION
40132	3204604	920177	06/02/2021	92A.44	NPDES - Violation of effluent limits in Part A of permit

Enforcement Summary:

ENF ID	ENF TYPE	ENF CREATION DATE	EXECUTED DATE	VIOLATIONS	ENF FINALSTATUS	ENF CLOSED DATE
384387	NOV	03/02/2020	03/02/2020	92A.44		
354861	NOV	07/05/2017	04/11/2017	92A.61(G)	Comply/Closed	04/19/2017

DMR Violation Summary:

MONITORING START DATE	MONITORING END DATE	OUTFALL	PARAMETER	SAMPLE VALUE	PERMIT VALUE	UNIT OF MEASURE	STATISTICAL BASE CODE
07/01/2021	07/31/2021	001	Fecal Coliform	1017	200	CFU/100 ml	Geometric Mean
07/01/2021	07/31/2021	001	Fecal Coliform	12100	1000	CFU/100 ml	Instantaneous Maximum
03/01/2020	03/31/2020	001	Total Suspended Solids	34	30	mg/L	Average Monthly
03/01/2020	03/31/2020	001	Total Suspended Solids	63	60	mg/L	Instantaneous Maximum
08/01/2019	08/31/2019	001	Fecal Coliform	202.8	200	CFU/100 ml	Geometric Mean
08/01/2019	08/31/2019	001	Total Suspended Solids	32.5	30	mg/L	Average Monthly
08/01/2019	08/31/2019	001	Fecal Coliform	2420	1000	CFU/100 ml	Instantaneous Maximum
07/01/2019	07/31/2019	001	Fecal Coliform	250	200	CFU/100 ml	Geometric Mean
07/01/2019	07/31/2019	001	Fecal Coliform	2420	1000	CFU/100 ml	Instantaneous Maximum
09/01/2018	09/30/2018	001	Fecal Coliform	2420	1000	CFU/100 ml	Instantaneous Maximum
08/01/2018	08/31/2018	001	Carbonaceous Biochemical Oxygen Demand (CBOD5)	29.6	25	mg/L	Average Monthly
08/01/2018	08/31/2018	001	Fecal Coliform	325.3	200	CFU/100 ml	Geometric Mean
08/01/2018	08/31/2018	001	Total Suspended Solids	63.3	30	mg/L	Average Monthly
08/01/2018	08/31/2018	001	Carbonaceous Biochemical Oxygen Demand (CBOD5)	80	50	mg/L	Instantaneous Maximum

MONITORING START DATE	MONITORING END DATE	OUTFALL	PARAMETER	SAMPLE VALUE	PERMIT VALUE	UNIT OF MEASURE	STATISTICAL BASE CODE
08/01/2018	08/31/2018	001	Fecal Coliform	12100	1000	CFU/100 ml	Instantaneous Maximum
08/01/2018	08/31/2018	001	Total Suspended Solids	159	60	mg/L	Instantaneous Maximum

Compliance Status:

Permittee has an open violation which will need resolution before permit submittal.

Completed by: John Murphy

Completed date: 9/14/2021

Compliance History

DMR Data for Outfall 001 (from August 1, 2020 to July 31, 2021)

Parameter	Limit	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20
Flow (MGD) Average Monthly	Report	0.01	0.01	0.01	0.01	0.01	0.016	0.01	0.01	0.005	0.002	0.01	0.01
pH (S.U.) Minimum	6.0	6.5	6.6	6.8	6.7	6.4	6.3	6.5	6.6	6.3	6.1	6.1	6.0
pH (S.U.) Maximum	9.0	7.3	7.3	7.8	7.9	7.5	8.9	7.7	8.0	7.3	7.3	8.2	7.5
DO (mg/L) Minimum	4.0	4.1	4.1	5.2	7.5	10.0	6.0	6.3	6.9	5.6	6.4	5.0	4.2
CBOD5 (mg/L) Average Monthly	25	24.9	2.0	3.6	4.1	3.0	2.5	3.0	4.5	7.5	3.7	3.0	3.0
CBOD5 (mg/L) Instantaneous Maximum	50	36	2.0	5.1	6.1	3.9	3.0	3.0	6	12	4.3	3.0	3.0
TSS (mg/L) Average Monthly	30	8.5	5.0	11	5	25.5	5	5	5	5	5.5	5.0	5
TSS (mg/L) Instantaneous Maximum	60	12	5.0	17	5	28.0	5	5	5	5	6	5.0	5
Fecal Coliform (CFU/100 ml) Geometric Mean	200	**1017**	1	2	1	1	1	1	1	1	1	1.0	6.5
Fecal Coliform (CFU/100 ml) IMAX	1,000	**12100**	1	4	1	1	1	1	1	1	1	1.0	42
UV Transmittance (%) Instantaneous Minimum	Report	00	1	2	2	1	00	3	3	2	2	3	1
UV Transmittance (%) Average Monthly	Report	3	5	9	8	7	3.5	11	8.5	8	8	8	6
Total Nitrogen (mg/L) Daily Maximum	Report								30.81				
Ammonia (mg/L) Average Monthly	18.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.3	0.8	0.8
Ammonia (mg/L) Instantaneous Maximum	36.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.7	0.8	0.8
Total Phosphorus (mg/L) Daily Maximum	Report								0.94				

Compliance History

Effluent Violations for Outfall 001, from: September 1, 2020 To: July 31, 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	07/31/21	Geo Mean	1017	CFU/100 ml	200	CFU/100 ml
Fecal Coliform	07/31/21	IMAX	12100	CFU/100 ml	1000	CFU/100 ml

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.02
Latitude 40º 09' 10" **Longitude** -79º 28' 30"
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
Flow (MGD)	Report	Average Monthly		92a.27, 92a.61
	Report	Max Daily		92a.27, 92a.61
$CBOD_5$	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)
E. Coli	Report	IMAX	-	92.a.61
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
NH3-N	21.41	Average Monthly	WQM7.0 Version 1.0b

The Ammonia-Nitrogen limitation of 21.41 $^{mg}/_{L}$ Average Monthly was computed by the WQM7.0 model. The facility has maintained compliance with the previously imposed Ammonia-Nitrogen limitation of 18.0 $^{mg}/_{L}$ and will be maintained in the NPDES Permit. A seasonal multiplier of 3 times the summertime average monthly limit was used to establish the cold weather limitations.

WQM 7.0 Modeling confirmed Technology-Based Limitations and Best Professional Judgment Limitations for $CBOD_5$, Ammonia and DO.

Disinfection

Ultraviolet (UV) disinfection is used therefore Total Residual Chlorine (TRC) limits are not applicable. Routine monitoring of UV intensity is at the same monitoring frequency that is used for TRC

Best Professional Judgment (BPJ) Limitations

A minimum DO limit of 4.0 $^{mg}/_{L}$ per Pa Code Chapter 93 and BPJ. The WQM 7.0 Modeling confirmed the BPJ limitation of DO.

Sewage discharges with design flows > 2,000 GPD are required to monitor for Total Nitrogen and Total Phosphorus in new and reissued permits. Monitor and Report requirements for Total Nitrogen and Total Phosphorus with a once per year sampling frequency is imposed.

Sewage discharges with design flows of 0.002 to 0.05 MGD are required to monitor and report the IMAX for E. Coli once per year.

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.

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

Additional Comments:

Monitoring frequencies for the proposed effluent limits are based upon Table 6-3 Self-Monitoring Requirements for Sewage Dischargers of the DEP's Technical Guidance for the Development and Specification of Effluent Limitations.

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	Average Weekly	Instant. Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	0.02	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	Daily when Discharging	Grab
DO	XXX	XXX	4.0	XXX	XXX	XXX	Daily when Discharging	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	2/month	Grab
Fecal Coliform (No./100 ml) (5/1 – 9/30)	XXX	XXX	XXX	200 Geo Mean	XXX	1,000 Geo Mean	2/month	Grab
Fecal Coliform (No./100 ml) (10/1 – 4/30)	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000 Geo Mean	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	XXX	Report Daily Max	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	XXX	Report Daily Max	1/year	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	18.0	XXX	36.0	2/month	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	54.0	XXX	108.0	2/month	Grab
UV Transmittance (%)	XXX	XXX	Report	Report	XXX	XXX	Daily when Discharging	Record
E. Coli	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

Compliance Sampling Location: Outfall 001

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **A**)
☐	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: USGS StreamStats

Attachment A – WQM Model

Attachment B – USGS StreamStats

Attachment A – WQM Model

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
19D	37868	JACOBS CREEK	23.900	1217.00	12.13	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	0.020	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
Laurelville Men	PA0095362	0.0200	0.0200	0.0200	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	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
19D	37868	JACOBS CREEK	23.000	1136.00	20.00	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	0.020	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	0.00	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	6		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
19D	37868	JACOBS 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												
23.900	0.24	0.00	0.24	.0309	0.01705	.438	9.61	21.94	0.06	0.846	20.57	7.00
Q1-10 Flow												
23.900	0.16	0.00	0.16	.0309	0.01705	NA	NA	NA	0.05	1.050	20.83	7.00
Q30-10 Flow												
23.900	0.33	0.00	0.33	.0309	0.01705	NA	NA	NA	0.08	0.725	20.43	7.00

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WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19D	37868	JACOBS 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
23.900	Laurelville Men	15.64	50	15.64	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
23.900	Laurelville Men	1.84	21.41	1.84	21.41	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)		
23.90	Laurelville Men	25	25	21.41	21.41	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19D	37868	JACOBS CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
23.900	0.020	20.566	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
9.610	0.438	21.944	0.065
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
4.60	0.683	2.42	0.731
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.763	16.231	Owens	6
Reach Travel Time (days)			
0.846			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.085	4.34	2.28	8.16
0.169	4.09	2.14	8.16
0.254	3.85	2.01	8.16
0.338	3.63	1.89	8.16
0.423	3.42	1.78	8.16
0.508	3.22	1.67	8.16
0.592	3.04	1.57	8.16
0.677	2.86	1.48	8.16
0.762	2.70	1.39	8.16
0.846	2.54	1.30	8.16

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19D	37868	JACOBS 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)
23.900	Laurelville Men	PA0095362	0.020	CBOD5	25		
				NH3-N	21.41	42.82	
				Dissolved Oxygen			4

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
19D	37868	JACOBS CREEK	23.900	1217.00	12.13	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	0.040	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
Laurelville Men	PA0095362	0.0200	0.0200	0.0200	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	8.24	0.00	0.00
NH3-N	54.00	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
19D	37868	JACOBS CREEK	23.000	1136.00	20.00	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	0.040	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	0.00	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	6		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
19D	37868	JACOBS 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												
23.900	0.49	0.00	0.49	.0309	0.01705	.48	11.59	24.14	0.09	0.593	5.60	7.00
Q1-10 Flow												
23.900	0.31	0.00	0.31	.0309	0.01705	NA	NA	NA	0.07	0.747	5.91	7.00
Q30-10 Flow												
23.900	0.66	0.00	0.66	.0309	0.01705	NA	NA	NA	0.11	0.504	5.45	7.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19D	37868	JACOBS 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
23.900	Laurelville Men	24.1	108	24.1	108	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
23.900	Laurelville Men	4.36	54	4.36	54	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)		
23.90	Laurelville Men	25	25	54	54	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19D	37868	JACOBS CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
23.900	0.020	5.599	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
11.590	0.480	24.139	0.093
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.38	0.582	3.24	0.231
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.989	12.182	Owens	6
Reach Travel Time (days)			
0.593			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.059	3.32	3.19	8.24
0.119	3.26	3.15	8.24
0.178	3.20	3.11	8.24
0.237	3.15	3.06	8.24
0.296	3.09	3.02	8.24
0.356	3.04	2.98	8.24
0.415	2.98	2.94	8.24
0.474	2.93	2.90	8.24
0.534	2.88	2.86	8.24
0.593	2.83	2.82	8.24

WQM 7.0 Effluent Limits

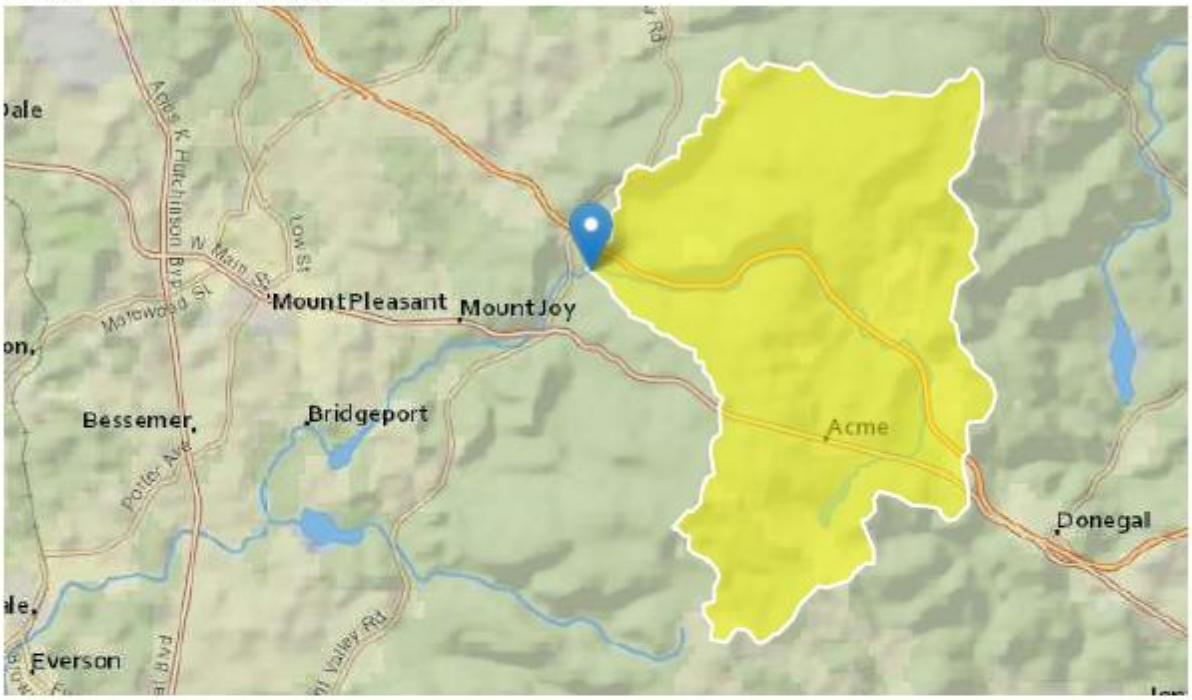
SWP Basin	Stream Code	Stream Name
19D	37868	JACOBS CREEK

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)
23.900	Laurelville Men	PA0095362	0.020	CBOD5	25		
				NH3-N	54	108	
				Dissolved Oxygen			4

Attachment B – USGS StreamStats

StreamStats Report

Region ID: PA
Workspace ID: PA20210909104659953000
Clicked Point (Latitude, Longitude): 40.15244, -79.47617
Time: 2021-09-09 06:47:19 -0400



Laurelville Mennonite Church STP

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	16.3	square miles
STORAGE	Percentage of area of storage (lakes ponds reservoirs wet|ands)	0.49	percent
ELEV	Mean Basin Elevation	1839	feet

Low-Flow Statistics Parameters [100.0 Percent (16.2 square miles) Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	16.3	square miles	2.26	1400
ELEV	Mean Basin Elevation	1839	feet	1050	2580

Low-Flow Statistics Flow Report [100.0 Percent (16.2 square miles) Low Flow Region 4]

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	0.964	ft^3/s	43	43
30 Day 2 Year Low Flow	1.67	ft^3/s	38	38
7 Day 10 Year Low Flow	0.326	ft^3/s	66	66
30 Day 10 Year Low Flow	0.59	ft^3/s	54	54
90 Day 10 Year Low Flow	1.16	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: 4.6.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2