pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0219169**
Facility Type	**Municipal**	APS ID	**1068171**
Major / Minor	**Minor**	Authorization ID	**1404435**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Laurel Highland Municipal Authority**	Facility Name	**New Centerville Borough STP**
Applicant Address	PO Box 93	Facility Address	380 Reese Street
	Rockwood, PA 15557-0093		Rockwood, PA 15557
Applicant Contact	Thomas Barry	Facility Contact	Thomas Barry
Applicant Phone	(814) 926-3221	Facility Phone	(814) 926-3221
Client ID	162072	Site ID	557739
Ch 94 Load Status	Not Overloaded	Municipality	New Centerville Borough
Connection Status	No Limitations	County	Somerset
Date Application Received	July 1, 2022	EPA Waived?	Yes
Date Application Accepted	July 1, 2022	If No, Reason	

Purpose of Application: Renewal of an existing NPDES permit

Summary of Review

The permittee has applied for a renewal of NPDES Permit No. PA0219169 on July 1, 2022. NPDES Permit No. PA0219169 was previously issued by the PA Department of Environmental Protection (DEP) on January 1, 2018 and expired on December 31, 2022.

Sewage from this facility is treated through Extended air activated sludge, a barscreen grinder, a flow Equalization tank, two aeration tanks, two settling tanks, a chlorine contact tank, a dechlorination tank, and an aerated digester.

The applicant is currently enrolled in and will continue to use eDMR.

The applicant has complied with Act 14 Notifications and no comments were received.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Approve	Deny	Signatures	Date
X		Jordan T Coldsmith Jordan Coldsmith / Environmental Engineering Specialist	January 24, 2023
x		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	March 3, 2023

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.04
Latitude	39º 55' 52.52"	Longitude	-79º 12' 37.53"
Quad Name	Rockwood	Quad Code	39079H2
Wastewater Description:	Sewage Effluent		

Receiving Waters	Middle Creek (TSF)	Stream Code	38870
NHD Com ID	69918927	RMI	2.96
Drainage Area	12.9	Yield (cfs/mi^2)	0.021
Q_{7-10} Flow (cfs)	0.265	Q_{7-10} Basis	USGS StreamStat
Elevation (ft)	2121	Slope (ft/ft)	
Watershed No.	19-F	Chapter 93 Class.	TSF
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	**N/A**	Name	

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

Nearest Downstream Public Water Supply Intake	INDIAN CREEK VALLEY WATER AUTH		
PWS Waters	Youghiogheny River (HQ-CWF)	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	32

Changes Since Last Permit Issuance: None

Other Comments: N/A

Treatment Facility Summary

Treatment Facility Name: New Centerville Borough STP

WQM Permit No.	Issuance Date
5602402	03/10/2003

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Extended Aeration	Chlorine	0.04

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.04	67.0	Not Overloaded		

Changes Since Last Permit Issuance: None

Other Comments: N/A

Compliance History

Operations Compliance Check Summary Report

Facility: New Centerville Borough STP

NPDES Permit No.: PA0219169

Compliance Review Period: 2/2018 – 2/2023

Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
3134891	01/13/2021	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted
2869247	03/20/2019	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted

Violation Summary:

No violations

Open Violations by Client ID:

No Clean Water open violations for Client ID 162072

Enforcement Summary:

No enforcements

DMR Violation Summary:

START	END	NON COMPLIANCE CATEGORY	PARAMETER	SAMPLE	PERMIT	UNIT OF MEASURE	STATISTICAL BASE CODE
06/01/2021	06/30/2021	Concentration 3 Effluent Violation	Fecal Coliform	691	400	No./100 ml	Instantaneous Maximum
05/01/2020	05/31/2020	Concentration 3 Effluent Violation	Fecal Coliform	9804	400	No./100 ml	Instantaneous Maximum

Compliance Status: In compliance. Ops will monitor further effluent exceedances.

Completed by: John Murphy

Completed date: 2/9/2023

Compliance History

DMR Data for Outfall 001 (from December 1, 2021 to November 30, 2022)

Parameter	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21
Flow (MGD) Average Monthly	0.017	0.010	0.014	0.012	0.009	0.014	0.0225	0.022	0.015	0.035	0.026	0.016
Flow (MGD) Daily Maximum	0.020	0.019	0.021	0.014	0.01	0.027	0.035	0.030	0.02	0.043	0.039	0.025
pH (S.U.) Instantaneous Minimum	6.80	6.51	6.80	6.44	6.79	6.79	6.52	6.44	6.73	6.65	6.61	6.68
pH (S.U.) Instantaneous Maximum	7.04	7.08	7.08	7.36	7.25	7.20	6.92	7.69	7.17	7.13	7.04	7.19
DO (mg/L) Instantaneous Minimum	6.63	6.09	5.70	6.58	5.5	7.13	7.94	8.38	8.19	7.01	5.95	7.08
TRC (mg/L) Average Monthly	0.34	0.25	0.22	0.26	0.25	0.27	0.34	0.26	0.12	0.31	0.39	0.35
TRC (mg/L) Instantaneous Maximum	0.86	0.46	0.62	0.58	0.67	0.77	0.60	0.77	0.38	0.97	0.69	0.72
CBOD5 (lbs/day) Average Monthly	0.43	0.47	0.37	0.49	0.33	0.50	0.76	1.22	0.70	1.02	0.65	1.35
CBOD5 (mg/L) Average Monthly	3.0	5.63	3.14	4.9	4.42	4.325	4.05	6.63	5.61	3.5	3.0	10.12
CBOD5 (mg/L) Instantaneous Maximum	3.0	6.61	3.28	6.81	5.83	5.65	5.10	9.17	6.26	4.01	3.0	11.5
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	13.3	16.49	35.3	16.8	12.6	23.15	38.25	22.4	16.85	57.9	14.36	16.35
BOD5 (mg/L) Raw Sewage Influent Average Monthly	110	162.0	201.35	163.5	156.5	293.1	131	120.45	123	210.5	132.5	160.8
TSS (lbs/day) Average Monthly	0.74	0.93	1.61	0.54	0.29	0.63	1.99	2.39	0.85	1.35	1.93	2.0

TSS (lbs/day) Raw Sewage Influent Average Monthly	12.63	9.9	73.5	11.25	10.4	29.5	27.3	19.5	13.15	81.6	16.75	29.0
TSS (mg/L) Average Monthly	5.2	11.2	13.8	5.4	3.8	5.4	10.6	13.0	6.8	4.6	8.9	15.0
TSS (mg/L) Raw Sewage Influent Average Monthly	105	94.0	419.5	124	129	306	93.5	108.5	96	296.5	146.5	276
TSS (mg/L) Instantaneous Maximum	5.6	13.6	19.6	6.8	4.4	5.6	12.8	15.2	7.2	4.8	9.0	15.6
Fecal Coliform (No./100 ml) Geometric Mean	1.0	58.35	7.13	7.3	12.4	1.0	4.4	2.72	1.76	2.28	4.5	16.6
Fecal Coliform (No./100 ml) Instantaneous Maximum	1.0	112.6	12.4	8.6	49.6	1.0	6.3	7.4	3.1	5.2	20.3	275.5
Total Nitrogen (mg/L) Daily Maximum												< 0.5
Ammonia (mg/L) Average Monthly	0.51	0.10	0.145	0.10	0.10	0.212	0.10	0.613	0.111	0.238	0.286	0.762
Ammonia (mg/L) Instantaneous Maximum	0.917	0.10	0.19	0.10	0.10	0.224	0.10	1.026	0.122	0.376	0.471	1.313
Total Phosphorus (mg/L) Daily Maximum												3.43

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .04
Latitude 39º 55' 52.52" **Longitude** -79º 12' 37.53"
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

The following limitations were imposed in the previous permit. It was determined through WQM 7 modeling (Attachments 3 & 4), TRC Calculations (Attachment 2), and anti-backsliding regulations that these limits will be reimposed for this permit

Parameter	Limit (mg/l)	SBC	Model
TRC	0.5 1.6	Average Monthly IMAX	TRC-CALC
Ammonia-Nitrogen (May 1 – Oct 31)	9.7 19.5	Average Monthly IMAX	WQM 7
Ammonia-Nitrogen (Nov 1 – Apr 30)	25.0 50.0	Average Monthly IMAX	WQM 7
$CBOD_5$	25.0 50.0	Average Monthly IMAX	WQM 7

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 Considerations

Sewage discharges will include monitoring, at a minimum, for *E. Coli*, in new and reissued permits, with a monitoring frequency of 1/year for facilities with design flows of 0.002 – 0.05 MGD.

An annual sampling frequency for total phosphorus and total nitrogen will again be imposed per 25 PA Code §92a.61.

New Centerville Borough STP is an existing facility and is not expanding. Therefore, anti-degradation requirements are not evaluated during this permit cycle.

Per DEP SOP New and Reissuance Sewage Individual NPDES Permit Applications SOP No. BCW-PMT-002, that for POTWs with design flows greater than 2,000 GPD, non-municipal sewage facilities, and other non-municipal sewage facilities where justified influent BOD5 and TSS monitoring in the permit using the same frequency and sample type as is used for effluent will be established. The department finds it appropriate to again impose influent BOD5 and TSS monitoring for this facility,

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	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	3/week	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	3/week	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	3/week	Grab
CBOD5	8.3	XXX	XXX	25.0	XXX	50.0	2/month	Grab
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
TSS	10.0	XXX	XXX	30.0	XXX	60.0	2/month	Grab
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
Fecal Coliform (No./100 ml) Nov 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Oct 31	XXX	XXX	XXX	200 Geo Mean	XXX	400	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	25.0	XXX	50.0	2/month	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		
Ammonia May 1 - Oct 31	XXX	XXX	XXX	9.7	XXX	19.5	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

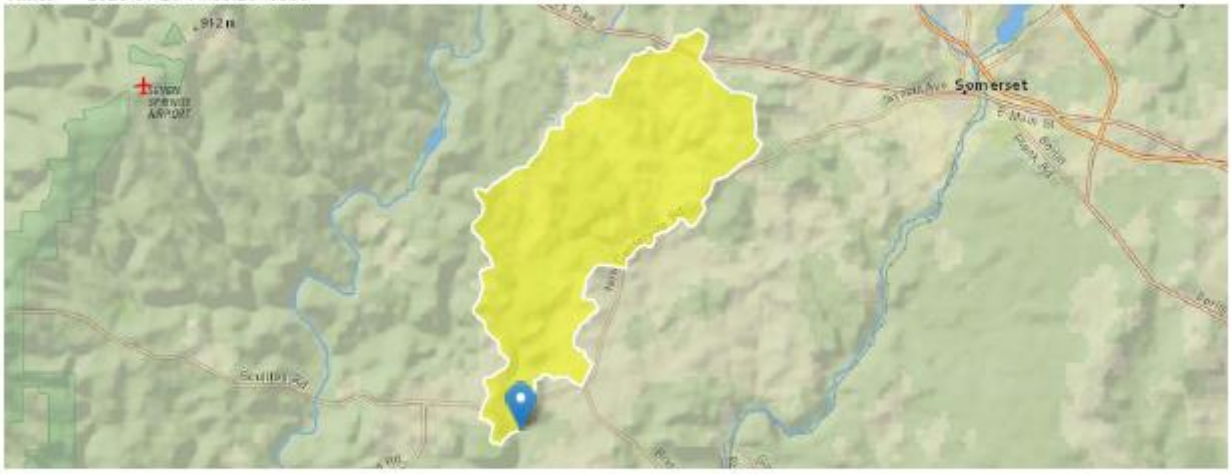
Compliance Sampling Location: Outfall 001

Other Comments: N/A

Attachment 1
USGS Stream Stats Mapping

StreamStats Report

Region ID: PA
Workspace ID: PA20230125195502235000
Clicked Point (Latitude, Longitude): 39.93138, -79.21050
Time: 2023-01-25 14:55:23 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	12.9	square miles
ELEV	Mean Basin Elevation	2121	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	12.9	square miles	2.26	1400
ELEV	Mean Basin Elevation	2121	feet	1050	2580

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

PII: Prediction Interval-Lower, PIu: 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	0.832	ft^3/s	43	43
30 Day 2 Year Low Flow	1.47	ft^3/s	38	38
7 Day 10 Year Low Flow	0.265	ft^3/s	66	66
30 Day 10 Year Low Flow	0.494	ft^3/s	54	54
90 Day 10 Year Low Flow	1.01	ft^3/s	41	41

Low-Flow Statistics Citations

StreamStats Report

Region ID: PA
Workspace ID: PA20230125195937809000
Clicked Point (Latitude, Longitude): 39.89551, -79.20707
Time: 2023-01-25 14:59:59 -0500

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	19.7	square miles
ELEV	Mean Basin Elevation	2102	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	19.7	square miles	2.26	1400
ELEV	Mean Basin Elevation	2102	feet	1050	2580

Low-Flow Statistics Flow Report [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	1.34	ft^3/s	43	43
30 Day 2 Year Low Flow	2.32	ft^3/s	38	38
7 Day 10 Year Low Flow	0.445	ft^3/s	66	66
30 Day 10 Year Low Flow	0.802	ft^3/s	54	54
90 Day 10 Year Low Flow	1.61	ft^3/s	41	41

Low-Flow Statistics Citations

Attachment 2
TRC Calculations

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.265	= Q stream (cfs)	0.5	= CV Daily
0.04	= 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 = 1.385	1.3.2.iii	WLA cfc = 1.343
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.516	5.1d	LTA_cfc = 0.781

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...
	...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...
	...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)

Attachment 3
WQM Summer Modeling

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
19F	38870	MIDDLE CREEK	**2.960**	2121.00	12.90	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	0.200	0.26	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
New Centerville	PA0219169	0.0400	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
19F	38870	MIDDLE 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												
2.960	0.26	0.00	0.26	.0619	0.00122	.465	12.36	26.61	0.06	3.167	24.05	7.00
Q1-10 Flow												
2.960	0.17	0.00	0.17	.0619	0.00122	NA	NA	NA	0.05	3.842	23.66	7.00
Q30-10 Flow												
2.960	0.36	0.00	0.36	.0619	0.00122	NA	NA	NA	0.07	2.744	24.27	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	6		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19F	38870	MIDDLE 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
2.960	New Centerville	12.37	46.28	12.37	46.28	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
2.960	New Centerville	1.43	9.78	1.43	9.78	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
2.96	New Centerville	25	25	9.78	9.78	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19F	38870	MIDDLE CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.960	0.040	24.053	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
12.361	0.465	26.607	0.057
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
6.35	0.303	1.85	0.956
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.440	14.462	Owens	6
Reach Travel Time (days)			
3.167			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.317	5.66	1.37	7.66
0.633	5.04	1.01	7.66
0.950	4.49	0.75	7.66
1.267	4.00	0.55	7.66
1.584	3.56	0.41	7.66
1.900	3.18	0.30	7.66
2.217	2.83	0.22	7.66
2.534	2.52	0.16	7.66
2.850	2.25	0.12	7.66
3.167	2.00	0.09	7.66

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19F	38870	MIDDLE 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)
2.960	New Centerville	PA0219169	0.040	CBOD5	25		
				NH3-N	9.78	19.56	
				Dissolved Oxygen			4

Attachment 4
WQM Winter Modeling

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
19F	38870	MIDDLE CREEK	**2.960**	2121.00	12.90	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	0.400	0.26	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
New Centerville	PA0219169	0.0400	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
19F	38870	MIDDLE 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												
2.960	0.26	0.00	0.26	.0619	0.00122	.465	12.36	26.61	0.06	3.167	6.89	7.00
Q1-10 Flow												
2.960	0.17	0.00	0.17	.0619	0.00122	NA	NA	NA	0.05	3.842	7.67	7.00
Q30-10 Flow												
2.960	0.36	0.00	0.36	.0619	0.00122	NA	NA	NA	0.07	2.744	6.47	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	6		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19F	38870	MIDDLE 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
2.960	New Centerville	24.1	50	24.1	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
2.960	New Centerville	4.36	25	4.36	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
2.96	New Centerville	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19F	38870	MIDDLE CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.960	0.040	6.893	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
12.361	0.465	26.607	0.057
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
6.35	0.666	4.73	0.255
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
10.899	9.626	Owens	6
Reach Travel Time (days)			
3.167			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.317	5.66	4.37	10.92
0.633	5.04	4.03	10.92
0.950	4.49	3.71	10.92
1.267	4.00	3.42	10.92
1.584	3.56	3.16	10.92
1.900	3.18	2.91	10.92
2.217	2.83	2.69	10.92
2.534	2.52	2.48	10.92
2.850	2.25	2.29	10.92
3.167	2.00	2.11	10.92

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19F	38870	MIDDLE 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)
2.960	New Centerville	PA0219169	0.040	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4