pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0217727**
Facility Type	**Municipal**	APS ID	**1097554**
Major / Minor	**Minor**	Authorization ID	**1456181**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Rices Landing Borough Greene County**	Facility Name	**Rices Landing Borough STP**
Applicant Address	137 Main Street PO Box 185	Facility Address	Main Street
	Rices Landing, PA 15357-1194		Rices Landing, PA 15357
Applicant Contact	Lori Durr	Facility Contact	Tom Teegarden
Applicant Phone	(724) 592-6055	Facility Phone	724-344-7984
Client ID	77820	Site ID	443338
Ch 94 Load Status	Not Overloaded	Municipality	Rices Landing Borough
Connection Status	No Limitations	County	Greene
Date Application Received	September 27, 2023	EPA Waived?	Yes
Date Application Accepted	September 28, 2023	If No, Reason	

Purpose of Application: NPDES Permit Renewal for Discharge of Treated Sewage Effluent.

Summary of Review

The Rices Landing Borough has applied for a renewal of the NPDES Permit PA0217727, which was last issued on April 26th, 2019 and it will expire on April 30, 2024, the renewal permit was submitted to the Department on September 27, 2023 which considered on time.

WQM Part II Permit No. 3098405 was issued by DEP on February 8, 1999 to authorize the construction of this facility, the STP is an extended aeration process consisting of flow equalization, aeration, final clarification, aerobic digestion, and chlorination.

The receiving stream is the Monongahela River, which is classified as a Warm Water Fishery (WWF) per CH93 and located in the State watershed 19-B.

No industrial users are discharging to this facility per the application.

Operations compliance report on November 13, 2023 concluded that the permittee is in compliance.

The Act – 14 PL 834 Municipal Notifications were provided by the August 10, 2023 letter and no comments were received.

Sludge use and disposal description and location(s): The biological solids and the wasted sludge are temporarily stored in an aerobic digester and transported as a liquid sludge. The digester is mixed with diffused air to reduce the volume and weight of the solids.

Approve	Deny	Signatures	Date
X		Hazim Aldalli / Environmental Engineering Specialist	January 11, 2024
x		Mahbuba Iasmin / Mahbuba Iasmin, Ph.D. P.E./ Environmental Engineering Manager	January 19, 2024

Summary of Review

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)	0.080
Latitude	39º 57' 13"	Longitude	-80º 0' 22"
Quad Name	Mather	Quad Code	39080H1
Wastewater Description:	Sewage Effluent		
Receiving Waters	Monongahela River (WWF)	Stream Code	37185
NHD Com ID	99413958	RMI	68.35
Drainage Area	4610	Yield (cfs/mi^2)	0.115
Q_{7-10} Flow (cfs)	530	Q_{7-10} Basis	US Army Corp of Engineers & USGS StreamStats
Elevation (ft)	765 (Pool elevation)	Slope (ft/ft)	N/A*
Watershed No.	19-B	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	None.	Exceptions to Criteria	None.
Assessment Status	Attaining Use(s): Drinking Water; Recreational; Aquatic Life.		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Monongahela River TMDL

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

Nearest Downstream Public Water Supply Intake		Pennsylvania-American Water Company, Pittsburgh	
PWS Waters	Monongahela River	Flow at Intake (cfs)	1230
PWS RMI	4.4	Distance from Outfall (mi)	>40.0

Changes Since Last Permit Issuance:

- Q_{7-10} flow, elevation, drainage area, and low flow yield were all updated to match USGS Stream Stats new data (see Appendix A).
- DEP updated its WQM 7.0 criteria for Ammonia-Nitrogen (NH_3-N) in 2019. Limits and conditions of this permit need to be redeveloped to an adequate level to protect water quality.
- *E. Coli* monitoring requirements will be introduced to this renewal which is in compliance with DEP SOP No. BCW-PMT-033 revised March 24, 2021

Other Comments: * Hydraulic slope will depend on locks and dam operation.

Treatment Facility Summary

Treatment Facility Name: Rices Landing Borough STP

WQM Permit No.	Issuance Date
3098405	February 8, 1999
3098405 T-1	January 27, 2021

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Primary	Septic Tank	Chlorine/Tablets	0.031

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.08	136	Not Overloaded	Aerobic Digestion	Off Site

Changes Since Last Permit Issuance: WQM No. 3098405 T-1 was issued on January 27, 2021 to authorize the replacement of Main Street Pump Station old pumps, also it authorized to add a mechanical bar screen for Rices Landing Borough STP. This project included 2 new pumps, new force main inside the PS wet well, new pump control panel, STP mechanical bar screen, STP manual bar screen, and appurtenances.

Other Comments: None.

Compliance History

Operations Compliance Check Summary Report

Facility: Rices Landing Borough STP
NPDES Permit No.: PA0217727
Compliance Review Period: 11/1/18-11/13/23
Inspection Summary:

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
09/24/2021	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted
07/21/2020	Administrative/File Review	PA Dept of Environmental Protection	No Violations Noted

Violation Summary:
No violations noted during review period.

Open Violations by Client ID:
No open violations for Client ID 77820.

Enforcement Summary: No enforcements executed during review period.

Effluent Violation Summary: No Effluent exceedances indicated during review period.

Compliance Status: Facility does not currently have any open violations or pending enforcements.

Completed by: Amanda Illar
Completed date: 11/13/23

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.080
Latitude 39º 57' 13.00" **Longitude** -80º 0' 22.00"
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. Stream water flow ratio to wastewater discharge = 342.55/0.08= 4,282.

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 (Appendix B & C):

Parameter	Limit (mg/L)	SBC	Model
TRC	0.5	Average Monthly	DEP TRC Cal.
$CBOD_5$ (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)	25	Average Monthly	WQM7.0
NH_3-N (Nov 1- Apr 30)	25	Average Monthly	WQM7.0
Dissolved Oxygen	5.0	Minimum	WQM7.0

Per *DEP-SOP – Establishing Effluent Limitations for Individual Sewage Permits, Revised, March 24, 2021*, for existing discharges, for Ammonia-Nitrogen if WQM modeling results for summer indicates that an average monthly limit of 25 mg/L is acceptable, the application manager will generally establish a year-round monitoring requirement for Ammonia-Nitrogen, at a minimum. A year around WQBEL AML of 25 mg/L and an Ins. Max of 50 mg/L with a twice monthly sampling frequency will be imposed for this renewal. The previous permit did not include a limit for Ammonia-Nitrogen and only required monitoring.

Checking on the eDMR, the facility can meet the newly imposed Ammonia limits as the plant has achieved effluent limits of NH_3-N lower than the proposed limits. No compliance schedule is necessary.

For the Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), the WQM 7.0 model generated a WQBEL AML of 25 mg/L a year around, which shows no change from the current permit limits. Therefore, a year around WQBEL AML of 25 mg/L and an Ins. Max of 50 mg/L with a twice monthly sampling frequency will be imposed for this renewal.

Best Professional Judgment (BPJ) Limitations

A minimum Dissolved Oxygen (DO) limit of 5.0 mg/L was established based on Best Professional Judgment (BPJ) to ensure adequate operation and maintenance as listed in the table under Technology-Based Limitations section.

Anti-Backsliding

The previously imposed limits for pH Effluent Limitation of (6.0 Minimum, and 9.0 Maximum SIU), Fecal Coliform AML Geo Mean seasonal limits of (200 & 2000 CFU/100 ml), TSS AML, Weekly Average, and Ins. Max of (30, 45, and 60 mg/L), and TRC Ins. Max of (1.6 mg/L); will be all unchanged due to Anti-Backsliding as stated in 40 CFR Section 122.44(l).

TN and TP Monitoring

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). Sewage discharges with design flows > 2,000 gpd require monitoring. Monongahela River segment within the facility is not impaired for nutrients. Per DEP-SOP No. BCW-PMT-033 revised March 24, 2021, 1/year monitoring for Total Nitrogen and Total Phosphorus will be applied at Outfall 001.

Disinfection

Total Residual Chlorine (TRC) limits are updated based on the DEP preset values entered in the Department Calculation Sheet (see Appendix B) for chlorine stream and discharge demands. Pursuant to State Regulation 92a.48(b)(1), a BAT limit of 0.5 mg/L and IMAX of 1.6 mg/L will be imposed.

E. Coli

Pursuant to 25 Pa. code § 92a.61(b) quarterly 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 March 24, 2021.

Monongahela River TMDL

The STP discharges directly to the Monongahela River which has an EPA Approved TMDL set for PCBs and Chlordane. No WLAs have been developed for this sewage discharge as neither PCBs nor Chlordane is typically found in sanitary sewage. The river segment upstream and downstream the point of discharge is attaining its uses as described on page 3.

Influent Monitoring

Per DEP SOP No. BCW-PMT-033 revised March 24, 2021, for POTWs with design flows greater than 2,000 GPD, influent BOD_5 and TSS monitoring must be established in the permit, and the monitoring should be consistent with the same frequency and sample type as is used for other effluent parameters.

Mass Loadings

Mass loading limits are applicable for Publicly Owned Treatment Works (POTW). Current policy requires average monthly mass loading limits be established for $CBOD_5$, TSS, and NH_3-N and average weekly mass loading limits be established for $CBOD_5$ and TSS.

Average monthly mass loading limits (lbs/day) are based on the formula: design flow (MGD) x concentration limit (mg/L) x conversion factor (8.34).

Monitoring Frequency Considerations

For pH, TRC, and Dissolved Oxygen (DO), a monitoring frequency of 1/day has been imposed. The daily monitoring frequencies and other frequencies justified above are consistent with current policy and Table 6-3 of DEP's Technical Guidance for the Development and Specification of Effluent Limitations. Daily monitoring is required for these parameters to provide minimum assurance that the facility is being operated properly.

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.

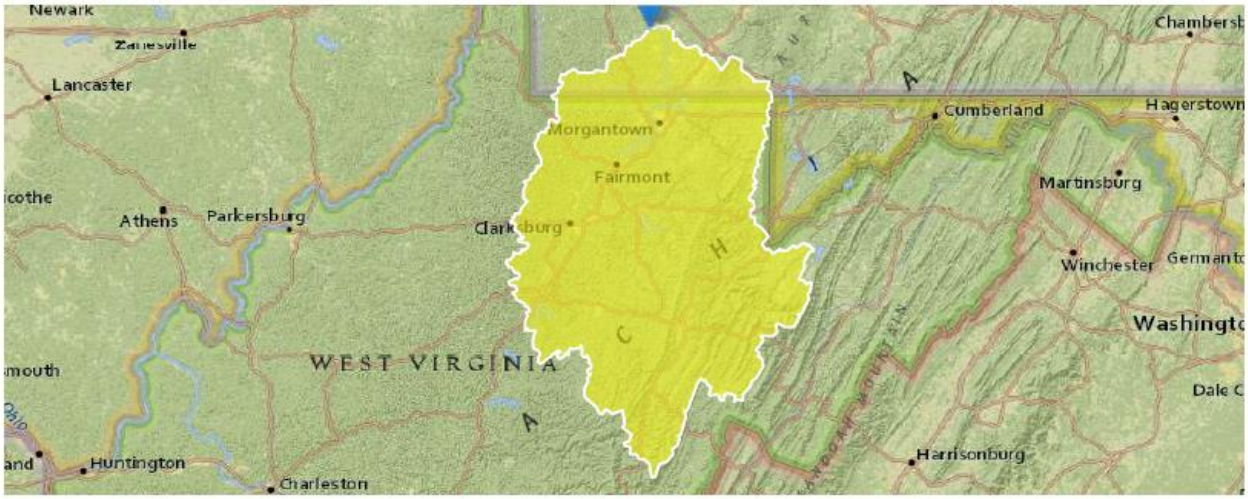
Parameter	Effluent Limitations						Monitorin Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	16.6	XXX	XXX	25.0	XXX	50.0	2/month	Grab
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
TSS	20.0	XXX	XXX	30.0	XXX	60.0	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
Ammonia-Nitrogen	16.6	XXX	XXX	25	XXX	50	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report Daily Max	1/quarter	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001.

Appendix -A- USGS Stream Stats

StreamStats Report

Region ID: PA
Workspace ID: PA20231106185347445000
Clicked Point (Latitude, Longitude): 39.95423, -80.00422
Time: 2023-11-06 13:54:15 -0500



Rices Landing Borough STP

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	4610	square miles
ELEV	Mean Basin Elevation	1931	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [99.9 Percent (4600 square miles) Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	4610	square miles	2.26	1400
ELEV	Mean Basin Elevation	1931	feet	1050	2580

Low-Flow Statistics Disclaimers [99.9 Percent (4600 square miles) Low Flow Region 4]

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

Low-Flow Statistics Flow Report [99.9 Percent (4600 square miles) Low Flow Region 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	623	ft^3/s

Statistic	Value	Unit
30 Day 2 Year Low Flow	834	ft^3/s
7 Day 10 Year Low Flow	354	ft^3/s
30 Day 10 Year Low Flow	420	ft^3/s
90 Day 10 Year Low Flow	635	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: 4.18.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Appendix -B- TRC Calculation

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

530	= Q stream (cfs)	0.5	= CV Daily
0.08	= 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 Discharg	15	= AFC_Criteria Compliance Time (mi
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (mi
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 1366.131	1.3.2.iii	WLA cfc = ########
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 509.053	5.1d	LTA_cfc = 774.283

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)**

Appendix –C– 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
19A	37185	MONONGAHELA RIVER	**68.350**	1931.00	4610.00	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	0.115	0.00	530.00	0.000	0.000	0.0	971.00	765.00	20.00	7.00	25.00	7.00
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
Rices Land STP	PA0217727	0.0800	0.0800	0.0800	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	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19A	37185	MONONGAHELA RIVER	**65.990**	1880.00	4950.00	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	0.111	0.00	530.00	0.000	0.000	0.0	785.00	763.00	20.00	7.00	25.00	7.00
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
Rices Land STP	PA0217727	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	5.00	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
19A	37185	MONONGAHELA RIVER

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												
68.350	530.00	0.00	530.00	.1238	0.00409	765	971	1.27	0.00	202.086	25.00	7.00
Q1-10 Flow												
68.350	339.20	0.00	339.20	.1238	0.00409	NA	NA	NA	0.00	315.718	25.00	7.00
Q30-10 Flow												
68.350	720.80	0.00	720.80	.1238	0.00409	NA	NA	NA	0.00	148.602	25.00	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☑
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19A	37185	MONONGAHELA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
68.350	0.080	24.999	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
971.000	765.000	1.269	0.001
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.01	0.000	0.01	1.028
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.242	0.000	O'Connor	5
Reach Travel Time (days)			
202.086			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
20.209	2.00	0.00	7.54
40.417	2.00	0.00	7.54
60.626	2.00	0.00	7.54
80.834	2.00	0.00	7.54
101.043	2.00	0.00	7.54
121.251	2.00	0.00	7.54
141.460	2.00	0.00	7.54
161.669	2.00	0.00	7.54
181.877	2.00	0.00	7.54
202.086	2.00	0.00	7.54

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19A	37185	MONONGAHELA RIVER

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
68.350	Rices Land STP	6.76	50	6.76	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
68.350	Rices Land STP	1.34	25	1.34	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)		
68.35	Rices Land STP	25	25	25	25	5	5	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19A	37185	MONONGAHELA RIVER

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)
68.350	Rices Land STP	PA0217727	0.080	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

Appendix –C– 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
19A	37185	MONONGAHELA RIVER	**68.350**	1931.00	4610.00	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	0.230	0.00	530.00	0.000	0.000	0.0	971.00	765.00	20.00	7.00	5.00	7.00
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
Rices Land STP	PA0217727	0.0800	0.0800	0.0800	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	5.00	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
19A	37185	MONONGAHELA RIVER	**65.990**	1880.00	4950.00	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	0.222	0.00	530.00	0.000	0.000	0.0	785.00	763.00	20.00	7.00	5.00	7.00
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
Rices Land STP	PA0217727	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	5.00	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
19A	37185	MONONGAHELA RIVER

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												
68.350	530.00	0.00	530.00	.1238	0.00409	765	971	1.27	0.00	202.086	5.00	7.00
Q1-10 Flow												
68.350	339.20	0.00	339.20	.1238	0.00409	NA	NA	NA	0.00	315.718	5.00	7.00
Q30-10 Flow												
68.350	720.80	0.00	720.80	.1238	0.00409	NA	NA	NA	0.00	148.602	5.00	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☑
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19A	37185	MONONGAHELA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
68.350	0.080	5.002	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
971.000	765.000	1.269	0.001
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.01	0.000	0.01	0.221
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
12.508	0.000	O'Connor	5
Reach Travel Time (days)			
202.086			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
20.209	2.00	0.00	11.45
40.417	2.00	0.00	11.45
60.626	2.00	0.00	11.45
80.834	2.00	0.00	11.45
101.043	2.00	0.00	11.45
121.251	2.00	0.00	11.45
141.460	2.00	0.00	11.45
161.669	2.00	0.00	11.45
181.877	2.00	0.00	11.45
202.086	2.00	0.00	11.45

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19A	37185	MONONGAHELA RIVER

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
68.350	Rices Land STP	20.59	50	20.59	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
68.350	Rices Land STP	4.08	25	4.08	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)		
68.35	Rices Land STP	25	25	25	25	5	5	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19A	37185	MONONGAHELA RIVER

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)
68.350	Rices Land STP	PA0217727	0.080	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5