Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0216178**
Facility Type	**Municipal**	APS ID	**1101911**
Major / Minor	**Minor**	Authorization ID	**1463634**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Cecil Township Municipal Authority**	Facility Name	**Cherrybrook WWTP**
Applicant Address	375 Southpointe Boulevard Suite 350	Facility Address	542 Cherryhill Drive
	Canonsburg, PA 15317-8587		Bridgeville, PA 15017
Applicant Contact	Michael J. Zrenchak	Facility Contact	Same as Applicant
Applicant Phone	(724) 746-4848	Facility Phone	Same as Applicant
Client ID	74993	Site ID	250326
Ch 94 Load Status	Not Overloaded	Municipality	Cecil Township
Connection Status	No Limitations	County	Washington
Date Application Received	December 1, 2023	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

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

Summary of Review

Introduction

The Authority has applied for the renewal of NPDES Permit No. PA0216178, which was previously issued on May 22, 2019, and expired on May 31, 2024.

Facility Overview

WQM Permit No. 6393406 was issued on March 30, 1994, authorizing the construction of an WWTP and sewer collection system. The WWTP has an annual average design flow of 0.09005 MGD. The design hydraulic capacity (for Chapter 94 determinations) and design organic capacity of the WWTP are 0.09005 MGD and 180 lbs/day.

Secondary treatment is provided by two identical process trains (process type is extended aeration) consisting of aerated flow equalization tanks, aeration tanks, final clarifiers, and aerated sludge holding tanks. Chlorine is used for disinfection and de-chlorination is provided prior to discharge (Outfall 001) to UNT to Chartiers Creek, which is designated as a Warm Water Fishery (WWF) per 25 Pa. Chapter 93 Designated Use, located in State Watershed 20-F.

Sludge use and disposal description and location(s): All sludge is hauled to WM Arden Landfill, Permit No. 100172. Application data indicates that the WWTP does not receive any hauled in waste.

The renewal application does not list any industrial contributors to the sewer system.

Approve	Deny	Signatures	Date
X		William C. Mitchell, E.I.T. / Project Manager	August 14, 2025
X		Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	August 19, 2025

Summary of Review

Summary of Changes Since Last Permit Issuance

- Flow monitoring changed from 2/month to 1/week
- Summer and winter seasonal ammonia-nitrogen limitations became more restrictive
- *E. Coli* monitoring added

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)	0.09005
Latitude	40º 18' 50.00"	Longitude	-80º 08' 24.00"
Quad Name	Canonsburg	Quad Code	1604
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Chartiers Creek (WWF)	Stream Code	36871
NHD Com ID	99691190	RMI	1.435
Drainage Area	0.41	Yield (cfs/mi^2)	0.006463
Q_{7-10} Flow (cfs)	0.00265	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1005	Slope (ft/ft)	0.02343
Watershed No.	20-F	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	NONE	Exceptions to Criteria	NONE
Assessment Status	Impaired		
Cause(s) of Impairment	NUTRIENTS, SILTATION		
Source(s) of Impairment	AGRICULTURE, CONSTRUCTION		
TMDL Status	Final, Final	Name	Chartiers Creek, Chartiers Creek Watershed

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

Nearest Downstream Public Water Supply Intake		West View MA – Neville Island	
PWS Waters	Ohio River	Flow at Intake (cfs)	4,730
PWS RMI	976.1	Distance from Outfall (mi)	Greater than 25 Miles

Changes Since Last Permit Issuance:

- Elevation, Slope, DA, Q7/10 Flow, and Yield updated with current data taken from USGS StreamStats (Attachment 1).

Other Comments:

- The discharge is to UNT to Chartiers Creek which flows into Chartiers Creek Watershed that has a Final TMDL and is impaired by PCB and Chlordane. No WLAs have been developed for this sewage discharge, and they are not expected to contribute to the stream impairment for these pollutants.

- The discharge is to UNT to Chartiers Creek which flows into the Chartiers Creek Watershed that has a Final TMDL and is impaired by metals and pH. This sewage discharge is not expected to contribute to stream impairment for which abandoned mine drainage is source of such impairment. No WLAs have been developed for this sewage discharge, and they are not expected to contribute to the stream impairment for these pollutants. eDMR data indicates in the past year that maximum concentration values for total aluminum, total iron, and total manganese are 0.243 mg/L, < 0.03 mg/L, and <0.01 mg/L, which are below the criteria-based concentration values. 1/Year monitoring for these pollutants will again be re-imposed and these pollutants will be re-evaluated

during the next permit renewal cycle. Please note that the receiving stream, UNT to Chartiers Creek, is not impaired by metals or pH.

Treatment Facility Summary

Treatment Facility Name: Cherrybrook WWTP

WQM Permit No.	Issuance Date
6393406	03/30/1994

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Chlorine With Dechlorination	0.09005

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.09005	180.0	Not Overloaded	Aerated Sludge Holding Tank	Landfill

Changes Since Last Permit Issuance: NONE

Other Comments: N/A

Compliance History

Operations Compliance Check Summary Report

Facility: CHERRYBROOK STP

NPDES Permit No.: PA0216178

Compliance Review Period: 4/1/20-4/28/25

Inspection Summary:

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
08/16/2022	Compliance Evaluation	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 74993

Enforcement Summary:

No enforcements executed during review period

Effluent Violation Summary:

MON PD	PARAMETER	REPORTED VALUE	PERMIT LIMIT	UNIT	STAT_BASE_CODE	FACILITY COMMENTS
Jul-24	Dissolved Oxygen	4.74	5.0	mg/L	Daily Minimum	Portable Dissolved Oxygen Meter getting erroneous readings. Cleaned probe and replaced sensor cap.

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

Completed by: Amanda Illar **Completed date:** 4/28/25

Compliance History

DMR Data for Outfall 001 (from July 1, 2024 to June 30, 2025)

Parameter	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24
Flow (MGD) Average Monthly	0.013	0.014	0.15677	0.0079	0.011	0.0111	0.010953	0.011133	0.012503	0.015006	0.021292	0.0023
pH (S.U.) Daily Minimum	7.0	6.8	7.0	6.7	6.8	6.8	6.8	7.0	6.9	6.7	6.7	6.9
pH (S.U.) Daily Maximum	7.8	7.7	7.6	7.6	7.5	7.7	7.5	7.6	7.6	7.7	7.5	7.6
DO (mg/L) Daily Minimum	6.12	6.04	7.8	5.72	9.2	8.3	5.9	6.75	6.47	5.75	5.21	4.74
TRC (mg/L) Average Monthly	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
TRC (mg/L) Instantaneous Maximum	0.05	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03
CBOD5 (lbs/day) Average Monthly	< 0.3	< 0.4	0.7	0.4	0.3	0.4	0.5	0.4	0.1	0.4	< 0.4	< 0.9
CBOD5 (mg/L) Average Monthly	< 2.8	< 3.6	3.4	4.1	3.9	4.9	5.2	3.7	2.6	3.8	< 2.0	< 3.7
CBOD5 (mg/L) Instantaneous Maximum	3.5	5.2	4.1	4.8	5.0	5.7	5.4	4.7	3.1	5.4	2.0	5.4
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	17.0	33	50	21	20	20	18	22	11	34	39	106
BOD5 (mg/L) Raw Sewage Influent Average Monthly	171.0	387	171	214	273	233	195	238	190	191	215	249
TSS (lbs/day) Average Monthly	< 0.5	< 0.5	< 1.1	0.6	< 0.6	0.7	< 0.8	< 0.6	< 0.3	1.3	< 0.9	< 2.5
TSS (lbs/day) Raw Sewage Influent Average Monthly	14.0	41	45	18	20	21	21	24	13	35	50	133
TSS (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	6.0	< 8.5	9.0	< 8.5	< 6.0	< 5.0	10.0	< 5.0	< 13.5

TSS (mg/L) Raw Sewage Influent Average Monthly	144.0	508	156	190	284	264	214	258	226	180	274	250
TSS (mg/L) Instantaneous Maximum	< 5.0	< 5.0	5.0	6.0	12.0	12.0	12.0	7.0	5.0	12.0	< 5.0	22.0
Fecal Coliform (No./100 ml) Geometric Mean	4	19	2.0	6	4	21	19	13	18	20	< 2	24
Fecal Coliform (No./100 ml) Instantaneous Maximum	16	43	4.0	6	8	22	41	13	45	195	4	58
Total Nitrogen (mg/L) Daily Maximum							22.4					
Ammonia (lbs/day) Average Monthly	< 0.01	< 0.02	0.02	0.03	0.02	0.02	0.3	0.04	0.02	0.05	0.05	0.2
Ammonia (mg/L) Average Monthly	< 0.2	< 0.2	0.1	0.3	0.3	0.3	2.6	0.4	0.3	0.4	0.3	0.5
Ammonia (mg/L) Instantaneous Maximum	0.2	0.2	0.2	0.3	0.3	0.3	5.1	0.4	0.3	0.5	0.3	0.6
Total Phosphorus (mg/L) Daily Maximum							3.6					
Total Aluminum (mg/L) Daily Maximum							0.243					
Total Iron (mg/L) Daily Maximum							< 0.03					
Total Manganese (mg/L) Daily Maximum							< 0.01					

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.09005
Latitude 40º 18' 50.00" **Longitude** -80º 08' 24.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments: The discharge was evaluated using WQM 7.0 Version 1.1 (Attachment 2 & 3) and TRC_CALC (Attachment 4) to evaluate $CBOD_5$, Ammonia Nitrogen, Dissolved Oxygen, and TRC. The above technology based effluent limitations are appropriate for $CBOD_5$, TSS, pH, and Fecal Coliform.

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
Ammonia-Nitrogen May 1 – Oct 31	1.9	Average Monthly	WQM 7.0 Version 1.1
Ammonia-Nitrogen Nov 1 – Apr 30	3.0	Average Monthly	WQM 7.0 Version 1.1
Dissolved Oxygen	5.0	Minimum	WQM 7.0 Version 1.1
TRC	0.02	Average Monthly	TRC_CALC (see comment below)

Comments:

- For existing discharges, where the existing TRC limit is at or below 0.1 mg/L, the existing limit may remain in the reissued permit (no modeling required). The existing TRC limit of 0.02 mg/L will be re-imposed per Section II.C.4, SOP No. BCW-PMT-033, Establishing Effluent Limitations for Individual Sewage Permits.

- eDMR data confirms that the new (slightly more restrictive) ammonia-nitrogen limitations can be met and will be effective upon permit issuance. No compliance schedule is necessary.

Best Professional Judgment (BPJ) Limitations

Comments: N/A

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.

Due to anti-backsliding, the previously permitted limits seasonal ammonia-nitrogen limitations of 11 mg/L (summer) and 25.0 mg/L (winter) will be re-imposed. These limits were based upon regulations, guidance, and models that were valid at the time of permit issuance.

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

Additional Considerations

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

For POTWs, mass loading limits will be established for $CBOD_5$, TSS, NH_3-N, and where necessary Total P and Total N. In general, average monthly mass loading limits will be established for $CBOD_5$, TSS, NH_3-N, and where necessary Total P and Total N, and average weekly mass loading limits will be established for $CBOD_5$ and TSS.

For POTWs with design flows greater than 2,000 GPD and for non-municipal sewage facilities that service municipalities or portions thereof, the application manager will establish influent BOD_5 and TSS monitoring in the permit using the same frequency and sample type as is used for other effluent parameters (Section IV.E.8, SOP No BCW-PWT-002, New and Reissuance Sewage Individual NPDES Permit Applications).

Sewage discharges will include monitoring, at a minimum, for *E. Coli*, in new and reissued permits, with a monitoring frequency of 1/quarter for design flows >= 0.05 and < 1 MGD per 25 Pa. Code § 92a.061 and Section I.A, Note 12, SOP No. BCW-PMT-033, Establishing Effluent Limitations for Individual Sewage Permits.

Nutrient monitoring is required to establish the nutrient load from the wastewater treatment facility and the impacts that load may have on the quality of the receiving stream(s). The discharge is to waters impaired for nutrients. A 1/year monitoring requirement for Total N & Total P has been added to the permit per 25 Pa. Code § 92a.61 and Section I.A, Note 7 & 8, SOP No. BCW-PMT-033, Establishing Effluent Limitations for Individual Sewage Permits.

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	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	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.02	XXX	0.08	1/day	Grab
CBOD5	18.0	XXX	XXX	25.0	XXX	50.0	2/month	Grab
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	Report	2/month	Grab
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	Report	2/month	Grab
TSS	22.0	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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia-Nitrogen Oct 1 - Apr 30	2.0	XXX	XXX	2.83	XXX	5.66	2/month	Grab
Ammonia-Nitrogen May 1 - Sep 30	1.0	XXX	XXX	1.92	XXX	3.84	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		
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
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

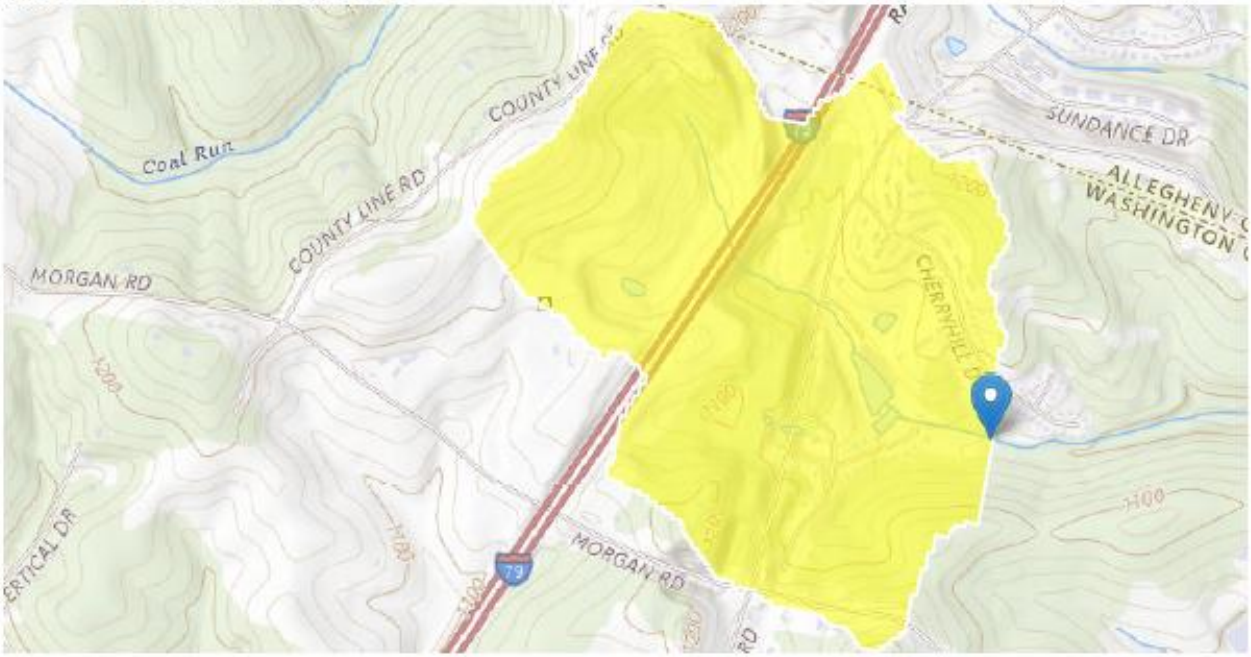
Compliance Sampling Location: Outfall 001

Other Comments: N/A

Attachment 1 – USGS StreamStats Report

StreamStats Report - PA0216178

Region ID: PA
Workspace ID: PA20250814124949716000
Clicked Point (Latitude, Longitude): 40.31399, -80.14172
Time: 2025-08-14 08:50:12 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.41	square miles
ELEV	Mean Basin Elevation	1131	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	0.41	square miles	2.26	1400
ELEV	Mean Basin Elevation	1131	feet	1050	2580

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

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.00968	ft^3/s
30 Day 2 Year Low Flow	0.0194	ft^3/s
7 Day 10 Year Low Flow	0.00265	ft^3/s
30 Day 10 Year Low Flow	0.00603	ft^3/s
90 Day 10 Year Low Flow	0.0127	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

Attachment 2 – WQM 7.0 Version 1.1 – Summer Period

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36871	Trib 36871 to Chartiers Creek	1.435	1005.00	0.41	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	0.006	0.00	0.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Cherrybrook STP	PA0216178	0.0900	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	3.00	8.38	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
20F	36871	Trib 36871 to Chartiers Creek	0.255	859.00	1.45	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	0.006	0.00	0.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20F	36871	Trib 36871 to Chartiers 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												
1.435	0.00	0.00	0.00	.1393	0.02343	.379	3.84	10.13	0.10	0.740	20.09	7.00
Q1-10 Flow												
1.435	0.00	0.00	0.00	.1393	0.02343	NA	NA	NA	0.10	0.743	20.06	7.00
Q30-10 Flow												
1.435	0.00	0.00	0.00	.1393	0.02343	NA	NA	NA	0.10	0.738	20.13	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 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20F	36871	Trib 36871 to Chartiers 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
1.435	Cherrybrook STP	16.68	16.88	16.68	16.88	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
1.435	Cherrybrook STP	1.87	1.92	1.87	1.92	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)		
1.43	Cherrybrook STP	25	25	1.92	1.92	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20F	36871	Trib 36871 to Chartiers Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.435	0.090	20.093	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.842	0.379	10.128	0.097
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.57	1.496	1.88	0.705
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.063	27.444	Owens	5
Reach Travel Time (days)			
0.740			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.074	21.98	1.79	6.79
0.148	19.67	1.70	7.20
0.222	17.60	1.61	7.42
0.296	15.75	1.53	7.59
0.370	14.09	1.45	7.74
0.444	12.61	1.38	7.88
0.518	11.28	1.31	8.01
0.592	10.09	1.24	8.12
0.666	9.03	1.18	8.22
0.740	8.08	1.12	8.23

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20F	36871	Trib 36871 to Chartiers 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)
1.435	Cherrybrook STP	PA0216178	0.090	CBOD5	25		
				NH3-N	1.92	3.84	
				Dissolved Oxygen			5

Attachment 3 – WQM 7.0 Version 1.1 – Winter Period

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36871	Trib 36871 to Chartiers Creek	1.435	1005.00	0.41	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	0.013	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Cherrybrook STP	PA0216178	0.0900	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	3.00	12.80	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
20F	36871	Trib 36871 to Chartiers Creek	0.255	859.00	1.45	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	0.013	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20F	36871	Trib 36871 to Chartiers 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												
1.435	0.01	0.00	0.01	.1393	0.02343	.381	3.86	10.15	0.10	0.733	14.63	7.00
Q1-10 Flow												
1.435	0.00	0.00	0.00	.1393	0.02343	NA	NA	NA	0.10	0.738	14.76	7.00
Q30-10 Flow												
1.435	0.01	0.00	0.01	.1393	0.02343	NA	NA	NA	0.10	0.727	14.51	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 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20F	36871	Trib 36871 to Chartiers 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
1.435	Cherrybrook STP	24.1	24.69	24.1	24.69	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
1.435	Cherrybrook STP	2.69	2.83	2.69	2.83	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)		
1.43	Cherrybrook STP	25	25	2.83	2.83	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20F	36871	Trib 36871 to Chartiers Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.435	0.090	14.634	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.861	0.381	10.145	0.098
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.16	1.493	2.72	0.463
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.286	24.134	Owens	5
Reach Travel Time (days)			
0.733			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.073	22.18	2.63	7.78
0.147	20.36	2.55	8.32
0.220	18.69	2.46	8.52
0.293	17.16	2.38	8.66
0.366	15.75	2.30	8.77
0.440	14.46	2.22	8.88
0.513	13.28	2.15	8.98
0.586	12.19	2.08	9.07
0.660	11.19	2.01	9.15
0.733	10.27	1.94	9.16

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20F	36871	Trib 36871 to Chartiers 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)
1.435	Cherrybrook STP	PA0216178	0.090	CBOD5	25		
				NH3-N	2.83	5.66	
				Dissolved Oxygen			5