Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0094706**
Facility Type	**Non-Municipal**	APS ID	**1132371**
Major / Minor	**Minor**	Authorization ID	**1518231**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Economy Development Co. Inc.**	Facility Name	**Tri County Soccer & Sports Center**
Applicant Address	1220 Freedom Crider Road	Facility Address	1220 Freedom Crider Road
	Freedom, PA 15042-2879		Freedom, PA 15042-2879
Applicant Contact	Nicholas Zunic	Facility Contact	Same as Applicant
Applicant Phone	(724) 513-4597	Facility Phone	Same as Applicant
Client ID	74764	Site ID	250666
Ch 94 Load Status	Not Overloaded	Municipality	New Sewickley Township
Connection Status	No Limitations	County	Beaver
Date Application Received	February 27, 2025	EPA Waived?	Yes
Date Application Accepted	March 5, 2025	If No, Reason	

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

Summary of Review

This application is for a renewal of the NPDES Permit PA0094706, which was previously issued on March 1, 2020.

The existing treatment process consists of Comminutor, bar screen, flow equalization, extended aeration, settling tank, sand filters, chlorination and dichlorination.

The plant has a discharge of 0.015 MGD to an UNT to North Fork of Sewickley Creek, which is classified as trout-stocking fishery within the Pennsylvania watershed No. 20-G.

An Operations compliance check summary report was completed by DEP's Operations section on March 26, 2025 and concluded that this facility is generally in compliance with no open violations or pending enforcements. Checking on last time this facility was inspected, the inspection report on July 28, 2021 stated that no violations were noticed, and the facility is well maintained with no odors or operational issues.

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

Two industrial users are discharging to this facility per the renewal application, this facility has an EPA waiver for pretreatment requirements (per the previous reviews).

The applicant provides a proof of Act 14, P.L. 834 compliance with the January 17, 2025 letters, no comments were received.

Approve	Deny	Signatures	Date
X		Hazim Aldalli / Environmental Engineering Specialist	June 12, 2025
X		Mahbuba Iasmin / Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	August 4, 2025

Summary of Review
Sludge use and disposal description and location(s): Off site, no biosolids application and no permits were approved for this site. 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)	0.015
Latitude	40º 40' 27.0"	Longitude	-80º 9' 28.0"
Quad Name	Baden	Quad Code	40080F2
Wastewater Description:	Sewage Effluent		

Receiving Waters	North Fork Big Sewickley Creek	Stream Code	36614
NHD Com ID	99679020	RMI	0.074
Drainage Area	0.079	Yield (cfs/mi^2)	0.0044
Q_{7-10} Flow (cfs)	0.000349	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1143	Slope (ft/ft)	0.0269
Watershed No.	20-G	Chapter 93 Class.	Trout Stocking Fishery
Existing Use		Existing Use Qualifier	
Exceptions to Use	None.	Exceptions to Criteria	None.
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake		WESTVIEW NEW BADEN PLANT	
PWS Waters	Ohio River	Flow at Intake (cfs)	5880
PWS RMI	20.95	Distance from Outfall (mi)	>15.0

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 Attachment 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 February 5, 2024.

Other Comments: None.

Treatment Facility Summary

Treatment Facility Name: Tri County Soccer & Sports Center STP

WQM Permit No.	Issuance Date
0485402 A-1	December 24, 2001
0485402	November 6, 1985

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Gas Chlorine	0.011

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.015	25.5	Not Overloaded	Sludge Holding Tank	Off Site

Changes Since Last Permit Issuance: None.

Compliance History

Operations Compliance Check Summary Report

Facility: TRI CNTY SOCCER & SPORTS CTR STP

NPDES Permit No.: PA0094706

Compliance Review Period: 3/1/20-3/26/25

Inspection Summary:

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
07/28/2021	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 74764

Enforcement Summary:

No enforcements executed during review period

Effluent Violation Summary:

MON PD	PARAMETER	REPORTED VALUE	PERMT LIMIT	UNT	STAT BASE CODE	FACILITY COMMENT
Dec-24	Ammonia-Nitrogen	3.7	2.0	mg/L	Average Monthly	Adjusted Air Distribution in System
Dec-24	Ammonia-Nitrogen	4.3	4.0	mg/L	Instantaneous Maximum	Adjusted Air Distribution in System
Nov-24	Ammonia-Nitrogen	2.07	2.0	mg/L	Average Monthly	Exceedance likely due to cold weather adjustments made to air flow.
Dec-23	Ammonia-Nitrogen	5.82	2.0	mg/L	Average Monthly	
Dec-23	Ammonia-Nitrogen	7.87	4.0	mg/L	Instantaneous Maximum	
Nov-23	Ammonia-Nitrogen	2.79	2.0	mg/L	Average Monthly	
Nov-23	Ammonia-Nitrogen	5.27	4.0	mg/L	Instantaneous Maximum	
Jul-23	Ammonia-Nitrogen	1.95	1.5	mg/L	Average Monthly	
Dec-21	Ammonia-Nitrogen	2.15	2.0	mg/L	Average Monthly	

Compliance Status: Facility is generally in compliance with no open violations or pending enforcements. Exceedances have re-occurred since previous inspection and will need to be addressed with an NOV at the time of the next CEI.

Completed by: Amanda Illar **Completed date:** 3/26/25

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.015
Latitude 40º 40' 27.00" **Longitude** -80º 9' 28.00"
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 Total Suspended Solids, pH, and Fecal Coliform parameters are not evaluated using WQM 7.0. The grounds for the proposed technology-based limitations are listed in the above table.

Water Quality-Based Limitations

The following limitations were determined through water quality modeling output files attached (see Attachment B and C):

Parameter	Limit (mg/l)	SBC	Model
TRC	0.01	Average Monthly	DEP TRC Calculation
$CBOD_5$ (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)	1.9	Average Monthly	WQM7.0
NH_3-N (Nov 1- Apr 30)	2.8	Average Monthly	WQM7.0
Dissolved Oxygen	6.0	Minimum	WQM7.0

Best Professional Judgment (BPJ) Limitations

Comments: A WQBEL for Dissolved Oxygen D.O. of 6.0 mg/L should be maintained all the time based on DEP's water quality model WQM 7.0 version 1.10 (Appendix B).

WQM 7.0 was used to determine the newly WQBEL seasonal limits for Ammonia Nitrogen (NH_3-N) following PADEP's Implementation Guidance of Section 93.7 Ammonia Criteria, 1997.; The new Average Monthly Limits (AMLs) of 1.9 mg/L for the warm period is less stringent than the current permit limit of 1.5 mg/L. Also, WQM model produced a new AML of

2.8 mg/L for the cold period, which is less stringent than the current permit limit of 2.0 mg/L; previous limits will be carried over in accordance with the anti-backsliding requirements, twice a month monitoring is required.

For the Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), the WQM 7.0 model generated a WQBEL AML of 25 mg/L a year around; no changes to $CBOD_5$ limits on this renewal, twice a month monitoring is required.

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, and Ins. Max of (25, and 50 mg/L), Ammonia-Nitrogen warm period AML of (1.5 mg/L), and Ammonia-Nitrogen cold period AML of (2.0 mg/L); will be all unchanged due to Anti-Backsliding as stated in 40 CFR Section 122.44(l).

TN and TP Monitoring

Per SOP (No. BCW-PMT-033, *Establishing Effluent Limitations for Individual Sewage Permits, ver 2.0*):

- Nutrient monitoring is required, at a minimum, 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, at a minimum, for Total Nitrogen and Total Phosphorus in new and reissued permits.

The receiving stream (Trib. 36614 of North Fork Big Sewickley Creek) is not impaired for nutrients (per eMapPA, and the reviewed eDMRs), also, the stringent effective Ammonia limits will help in lowering Total Nitrogen, therefore; advanced treatment requirements for TN, and TP will not be imposed.

Annual monitoring is recommended.

Disinfection

Total Residual Chlorine (TRC) AML limit of 0.01 mg/L and IMAX of 0.03 mg/L were calculated based on the DEP preset values entered in the Department Calculation Sheet (Appendix C) for chlorine stream and discharge demands. Reviewing renewal application effluent sampling and eDMR values for TRC; this facility can meet the newly imposed TRC limits as this plant has achieved the new proposed limits; no compliance schedule is necessary.

The new WQBEL is below DEP TRC TQL of 0.02 mg/L; therefore, Part C120 will be added to the permit.

E. Coli

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

Monitoring Frequency Considerations

The permit writer asked the applicant and their engineer about the pattren that this facility is receiving discharges, it seems that there will be no events for the Soccer field during the cold period (October to April) but the resturant, sport centre bathrooms, and the office building will not be closed for the same period; and for that the renewal permit will change the 5/week frequency to be daily when discharging.
The monitoring 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.

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.

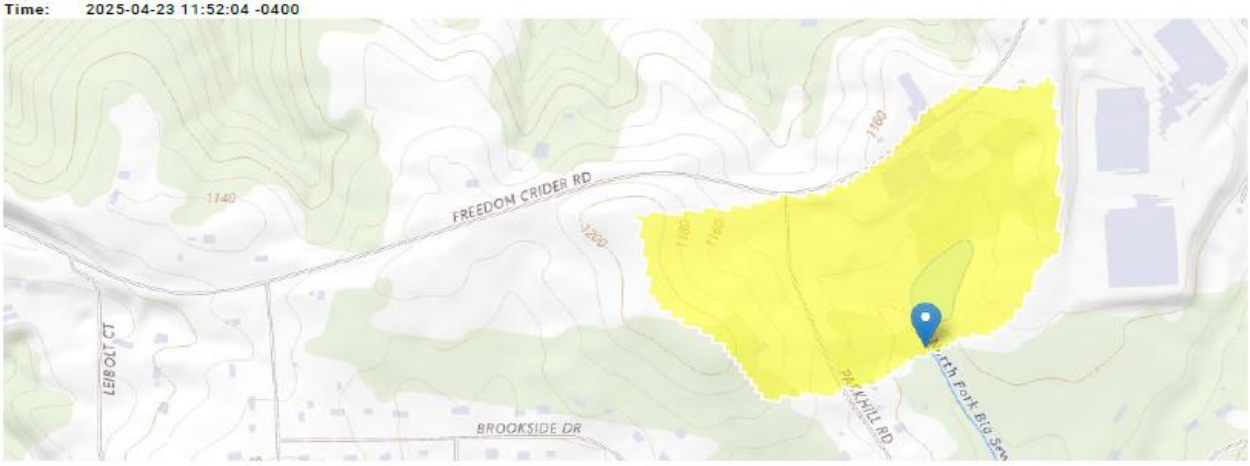
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2)	Required
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	0.015	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	Daily when Discharging	Grab
DO	XXX	XXX	6.0 Inst Min	XXX	XXX	XXX	Daily when Discharging	Grab
TRC	XXX	XXX	XXX	0.01	XXX	0.03	Daily when Discharging	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	2.0	XXX	4.0	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	1.5	XXX	3.0	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001.

ATTACHMENT A:
USGS StreamStats

StreamStats Report

Region ID: PA
Workspace ID: PA20250423155120090000
Clicked Point (Latitude, Longitude): 40.67384, -80.15885
Time: 2025-04-23 11:52:04 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.079	square miles
ELEV	Mean Basin Elevation	1143	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	0.079	square miles	2.26	1400
ELEV	Mean Basin Elevation	1143	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	0.0015	ft^3/s
30 Day 2 Year Low Flow	0.00324	ft^3/s
7 Day 10 Year Low Flow	0.000349	ft^3/s
30 Day 10 Year Low Flow	0.000901	ft^3/s
90 Day 10 Year Low Flow	0.00206	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: 4.28.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

ATTACHMENT B:
WQM7.0 Model Results (Summer)

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
20G	36614	Trib 36614 of N Fk Big Sewickley Cr	**0.074**	1143.00	0.08	0.02690	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	0.004	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Tri Cnty STP	PA0094706	0.0150	0.0150	0.0150	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20G	36614	Trib 36614 of N Fk Big Sewickley Cr	**0.050**	1137.00	0.44	0.02690	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	0.007	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Tri County STP	PA0094706	0.0000	0.0000	0.0000	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20G	36614	Trib 36614 of N Fk Big Sewickley Cr

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.074	0.00	0.00	0.00	.0232	0.02690	.3	1.52	5.06	0.05	0.028	20.07	7.00
Q1-10 Flow												
0.074	0.00	0.00	0.00	.0232	0.02690	NA	NA	NA	0.05	0.028	20.05	7.00
Q30-10 Flow												
0.074	0.00	0.00	0.00	.0232	0.02690	NA	NA	NA	0.05	0.028	20.10	7.00

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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		

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WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20G	36614	Trib 36614 of N Fk Big Sewickley Cr

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.074	0.015	20.074	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.518	0.300	5.063	0.052
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.66	1.498	1.91	0.704
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.033	27.756	Owens	6
Reach Travel Time (days)			
0.028			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.003	24.55	1.91	6.10
0.006	24.45	1.91	6.16
0.009	24.35	1.90	6.22
0.011	24.24	1.90	6.28
0.014	24.14	1.89	6.33
0.017	24.04	1.89	6.38
0.020	23.93	1.89	6.42
0.023	23.83	1.88	6.47
0.026	23.73	1.88	6.51
0.028	23.63	1.88	6.54

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20G	36614	Trib 36614 of N Fk Big Sewickley Cr

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.074	Tri Cnty STP	9.64	9.73	9.64	9.73	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.074	Tri Cnty STP	1.9	1.94	1.9	1.94	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.07	Tri Cnty STP	25	25	1.94	1.94	6	6	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20G	36614	Trib 36614 of N Fk Big Sewickley Cr

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.074	Tri Cnty STP	PA0094706	0.015	CBOD5	25		
				NH3-N	1.94	3.88	
				Dissolved Oxygen			6

ATTACHMENT B:
WQM7.0 Model Results (Winter)

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
20G	36614	Trib 36614 of N Fk Big Sewickley Cr	**0.074**	1143.00	0.08	0.02690	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	0.009	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
Tri Cnty STP	PA0094706	0.0150	0.0150	0.0150	0.000	15.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	12.51	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20G	36614	Trib 36614 of N Fk Big Sewickley Cr	**0.050**	1137.00	0.44	0.02690	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	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
Tri County STP	PA0094706	0.0000	0.0000	0.0000	0.000	15.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	12.51	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20G	36614	Trib 36614 of N Fk Big Sewickley Cr

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.074	0.00	0.00	0.00	.0232	0.02690	.3	1.52	5.06	0.05	0.028	14.85	7.00
Q1-10 Flow												
0.074	0.00	0.00	0.00	.0232	0.02690	NA	NA	NA	0.05	0.028	14.90	7.00
Q30-10 Flow												
0.074	0.00	0.00	0.00	.0232	0.02690	NA	NA	NA	0.05	0.028	14.80	7.00

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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		

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WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20G	36614	Trib 36614 of N Fk Big Sewickley Cr

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.074	0.015	14.852	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.518	0.300	5.063	0.052
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.66	1.498	2.84	0.471
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.096	24.523	Owens	6
Reach Travel Time (days)			
0.028			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.003	24.58	2.83	6.23
0.006	24.49	2.83	6.36
0.009	24.41	2.82	6.48
0.011	24.33	2.82	6.59
0.014	24.25	2.82	6.69
0.017	24.17	2.81	6.79
0.020	24.09	2.81	6.88
0.023	24.01	2.81	6.96
0.026	23.93	2.80	7.04
0.028	23.85	2.80	7.12

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20G	36614	Trib 36614 of N Fk Big Sewickley Cr

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.074	Tri Cnty STP	14.12	14.25	14.12	14.25	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.074	Tri Cnty STP	2.82	2.88	2.82	2.88	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.07	Tri Cnty STP	25	25	2.88	2.88	6	6	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20G	36614	Trib 36614 of N Fk Big Sewickley Cr

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.074	Tri Cnty STP	PA0094706	0.015	CBOD5	25		
				NH3-N	2.88	5.76	
				Dissolved Oxygen			6

ATTACHMENT C:
DEP Total Residual Chlorine Calculation Sheet

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.000349	= Q stream (cfs)	0.5	= CV Daily
0.015	= Q discharge (MGD)	0.5	= CV Hourly
20	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	0.024	1.3.2.iii	WLA cfc =	0.016
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.009	5.1d	LTA_cfc =	0.009

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.288	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.011	AFC
		INST MAX LIMIT (mg/l) =	0.036	

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)**