pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0029971**
Facility Type	**Non-Municipal**	APS ID	**752677**
Major / Minor	**Minor**	Authorization ID	**1381050**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Avella Area School District**	Facility Name	**Avella Elementary & High School STP**
Applicant Address	1000 Avella Road	Facility Address	1000 Avella Road
	Avella, PA 15312-2109		Avella, PA 15312-2109
Applicant Contact	Brian Smitsky	Facility Contact	Brian Smitsky
Applicant Phone	(724) 356-2218	Facility Phone	(724) 356-2218
Client ID	62385	Site ID	4405
Ch 94 Load Status	Not Overloaded	Municipality	Cross Creek Township
Connection Status		County	Washington
Date Application Received	December 22, 2021	EPA Waived?	Yes
Date Application Accepted	January 10, 2022	If No, Reason	

Purpose of Application: Individual NPDES permit renewal.

Summary of Review

Act 14 – Proof of notification were submitted and received.

There are no open violations for subject client no. 62385 as of 3/10/2022.

This facility is currently submitting eDMR reports.

There has been no change to the discharge or receiving stream since the last permit issuance.

Sludge use and disposal description and location(s): Septage must be pumped and hauled off-site by a septage hauler for land application under a general permit authorized by DEP or disposal at an STP.

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		Jon F. Bucha Jonathan F. Bucha / Civil Engineer General	March 10, 2022
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	March 14, 2022

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.012
Latitude	40º 16' 25"	Longitude	-80º 25' 0"
Quad Name	Avella	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to South Fork Cross Creek (HQ-WWF)	Stream Code	33074
NHD Com ID	99693348	RMI	0.182
Drainage Area	0.28 mi^2	Yield (cfs/mi^2)	0.0067
Q_{7-10} Flow (cfs)	0.00188	Q_{7-10} Basis	Gage# 03111150, Brush Run near Buffalo
Elevation (ft)	995 (Google Earth)	Slope (ft/ft)	-
Watershed No.	20-D	Chapter 93 Class.	HQ-WWF
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	-	Name	-

Background/Ambient Data		Data Source
pH (SU)	7.0	default
Temperature (°C)	25	WWF default
Hardness (mg/L)	-	-
Other:	-	-

Nearest Downstream Public Water Supply Intake		Located in West Virginia	
PWS Waters	-	Flow at Intake (cfs)	-
PWS RMI	-	Distance from Outfall (mi)	8.70 miles to state line

Changes Since Last Permit Issuance: None

Other Comments: This treatment facility is capable of meeting effluent requirements.

Treatment Facility Summary

Treatment Facility Name: Avella Jr/Sr High School STP

WQM Permit No.	Issuance Date
6381413	February 5, 1982
6381413 A-1	July 5, 2001

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage			No Disinfection	

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

Changes Since Last Permit Issuance: None

Other Comments: The existing treatment process consists of flow equalization, extended aeration, final clarification, settling tank, filtration, chlorination and de-chlorination.

Compliance History	
Summary of DMRs:	The past 3 years of eDMR data shows this facility to be in general compliance with effluent limitations. There have been exceedances for CBOD5 avg monthly and imax during February of 2021. 2019 had two exceedances for fecal coliform imax, and 1 for TRC avg monthly. Effluent violations are listed in the table below.
Summary of Inspections:	An Inspection occurred on 12/4/18, where violations were noted for the following: - Violations of effluent limits in Part A of the NPDES permit [25 Pa. Code 92a.44] - Failure to monitor pollutants as required by the NPDES permit [25 Pa. Code 92a.61c] - Violation of Part C condition [25 Pa. Code 92a.46] It was recommended that the permittee submits the Influent & Process Control Form monthly as required by Part C of the NPDES permit, and also to ensure samples are collected daily for TRC, pH, and DO on days where the plant is discharging.

Other Comments: **When the new more stringent TRC limit becomes effective in May 2025 it will be important to monitor the dichlorination tablet system daily to ensure there are no violations.**

Compliance History

DMR Data for Outfall 001 (from February 1, 2021 to January 31, 2022)

Parameter	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21
Flow (MGD) Average Monthly	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
pH (S.U.) Minimum	7.6	7.5	7.6	7.1	7.4	7.4	7.2	7.6	7.6	7.6	7.6	7.5
pH (S.U.) Maximum	8.0	8.1	7.9	7.6	7.9	7.8	7.7	7.9	7.8	7.8	7.8	7.8
DO (mg/L) Minimum	9.0	10	9.0	8.0	9.0	8.0	8.0	9.0	9.0	10	10	10
TRC (mg/L) Average Monthly	0.04	0.02	0.02	0.02	0.03	0.03	0.01	0.03	0.02	0.02	0.02	0.02
TRC (mg/L) Instantaneous Maximum	0.05	0.05	0.06	0.04	0.05	0.05	0.03	0.05	0.05	0.04	0.05	0.04
CBOD5 (mg/L) Average Monthly	< 3.0	< 4	< 7.0	< 2.0	5.0	< 6.0	< 3	7.0	6.0	5.0	< 3.0	**18**
CBOD5 (mg/L) Instantaneous Maximum	3.0	6.0	< 12	< 2.0	6.0	6.0	4	10.0	6.0	6.0	3.0	**30**
TSS (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TSS (mg/L) Instantaneous Maximum	< 5.0	< 5.0	< 5.0	< 5.0	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Fecal Coliform (No./100 ml) Geometric Mean	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Nitrogen (mg/L) Daily Maximum		< 39.8										
Ammonia (mg/L) Average Monthly	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Ammonia (mg/L) Instantaneous Maximum	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Total Phosphorus (mg/L) Daily Maximum		3.3										

Compliance History

Effluent Violations for outfall 001 (from between March, 2019 to March, 2022)

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
CBOD5	02/28/21	imax	30	mg/L	20.0	mg/L
CBOD5	02/28/21	Avg Mo	18	mg/L	10.0	mg/L
Fecal Coliform	09/30/19	imax	1410	No./100 mL	1000	No./100 mL
Fecal Coliform	05/31/19	imax	>2420	No./100 mL	1000	No./100 mL
TRC	02/28/19	Avg Mo	0.08	mg/L	0.07	mg/L

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0
Latitude 40º 16' 25.00" **Longitude** -80º 25' 0.00"
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)

Water Quality-Based Limitations

The following limitations were determined through water quality modeling:

Parameter	Limit (mg/l)	SBC	Model
Ammonia Nitrogen (May 1 – Oct 31)	1.5	Avg Monthly	Min Anti-Deg Limits for HQ Stream
Ammonia Nitrogen (Nov 1 – Apr 30)	4.0	Avg Monthly	WQAM63
CBOD5	10.0	Avg Monthly	Min Anti-Deg Limits for HQ Stream
TRC	0.02	Avg Monthly	TRC Calc Spreadsheet
TRC	0.07	IMAX	TRC Calc Spreadsheet
Dissolved Oxygen	6.0	Daily Minimum	WQAM63

Comments: WQM 7.0 Modeling (Attachment D) was conducted for ammonia nitrogen, CBOD5, and dissolved oxygen, which determined that the current limitations are sufficient to protect the stream uses, therefore the existing limits will be continued on this permit renewal. The existing CBOD5 and warm period Ammonia Nitrogen limits were considered minimum anti-degradation limits for discharges to high quality streams and were used as initial discharge concentrations in the previous WQAM63 modeling. Cold period ammonia nitrogen limit of 4.0 mg/L was also determined to be necessary to protect in-stream water quality criteria on previous WQAM63 modeling.

The previous Total Residual Chlorine (TRC) limits were based on in-stream and discharge chlorine demands of 0.8 mg/l and 0 mg/l. Current guidance requires TRC limits be based on in-stream and discharge demands of 0.3 mg/L and 0 mg/L. This lowered the average monthly TRC limit from 0.07 mg/L to 0.02 mg/L and IMAX from 0.16 mg/L to 0.07 mg/L. A compliance schedule is being implemented into this permit renewal to give the permittee time to make any necessary adjustments to prevent a non-compliance scenario.

Best Professional Judgment (BPJ) Limitations

Comments: Monitoring for Total Nitrogen, Total Phosphorus, and E. Coli is based on Ch. 92a.61 and the Departments SOP for Establishing Effluent Limitations for Individual Sewage Permits (SOP No. BPNPSM-PMT-033). E. Coli monitoring of 1/year is a new addition to this permit renewal. Total Nitrogen and Total Phosphorus monitoring frequencies will remain at 1/year based on eDMR data and Table 6-3 of the Permit Writers Manual.

Anti-Backsliding

Anti-backsliding does not apply since effluent limitations are not being relaxed.

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: May 1, 2025 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		
TRC	XXX	XXX	XXX	0.02	XXX	0.07	1/day	Grab

Compliance Sampling Location: Outfall 001 after disinfection.

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 April 30, 2025.

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		
TRC	XXX	XXX	XXX	0.07	XXX	0.16	Daily when Discharging	Grab

Compliance Sampling Location: Outfall 001 after disinfection.

Proposed Effluent Limitations and Monitoring Requirements

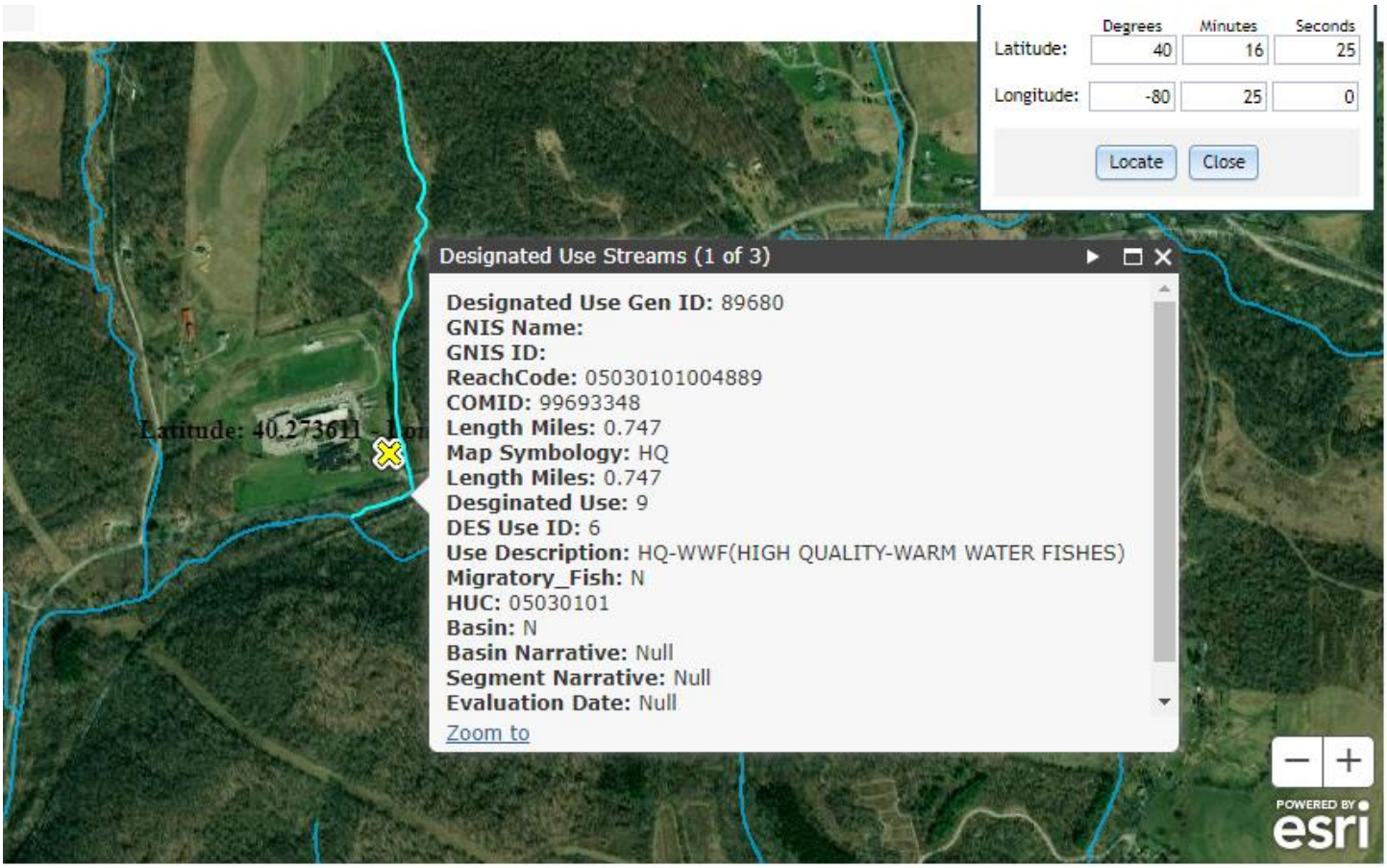
The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). 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 Wkly Avg	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0 Daily Min	XXX	XXX	XXX	1/day	Grab
CBOD5	XXX	XXX	XXX	10.0	XXX	20.0	2/month	Grab
TSS	XXX	XXX	XXX	25.0	XXX	50.0	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/year	Grab
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	4.0	XXX	8.0	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	1.5	XXX	3.0	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001 after disinfection.

Attachment A – eMAP Stream Designation



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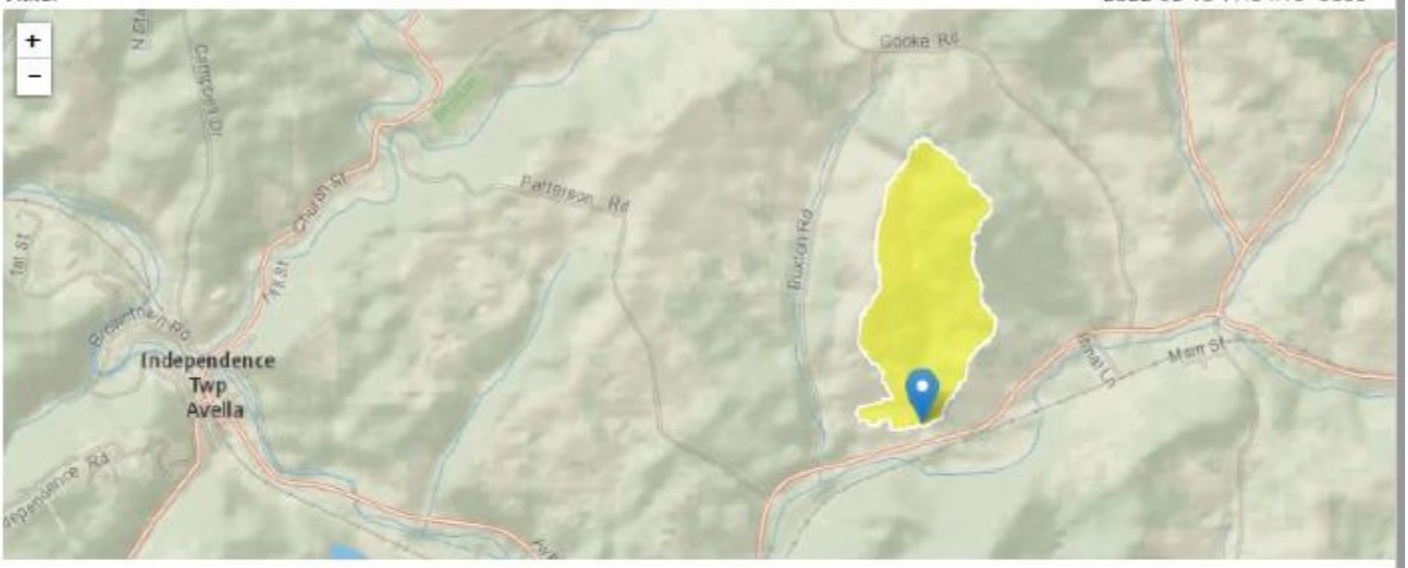
ATTACHMENT B

StreamStats REPORT – RMI 0.182 On Unnamed Trib to South Fork Cross Creek

Region ID:	PA
Workspace ID:	PA20220210220353312000
Clicked Point (Latitude, Longitude):	40.27396, -80.41637
Time:	2022-02-10 17:04:13 -0500



Basin Characteristics

Parameter Code	Parameter Description	Valu
DRNAREA	Area that drains to a point on a stream	0.28
ELEV	Mean Basin Elevation	1172

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min
DRNAREA	Drainage Area	0.28	square miles	2.2
ELEV	Mean Basin Elevation	1172	feet	105

Low-Flow Statistics Disclaimers [Low Flow Region 4]

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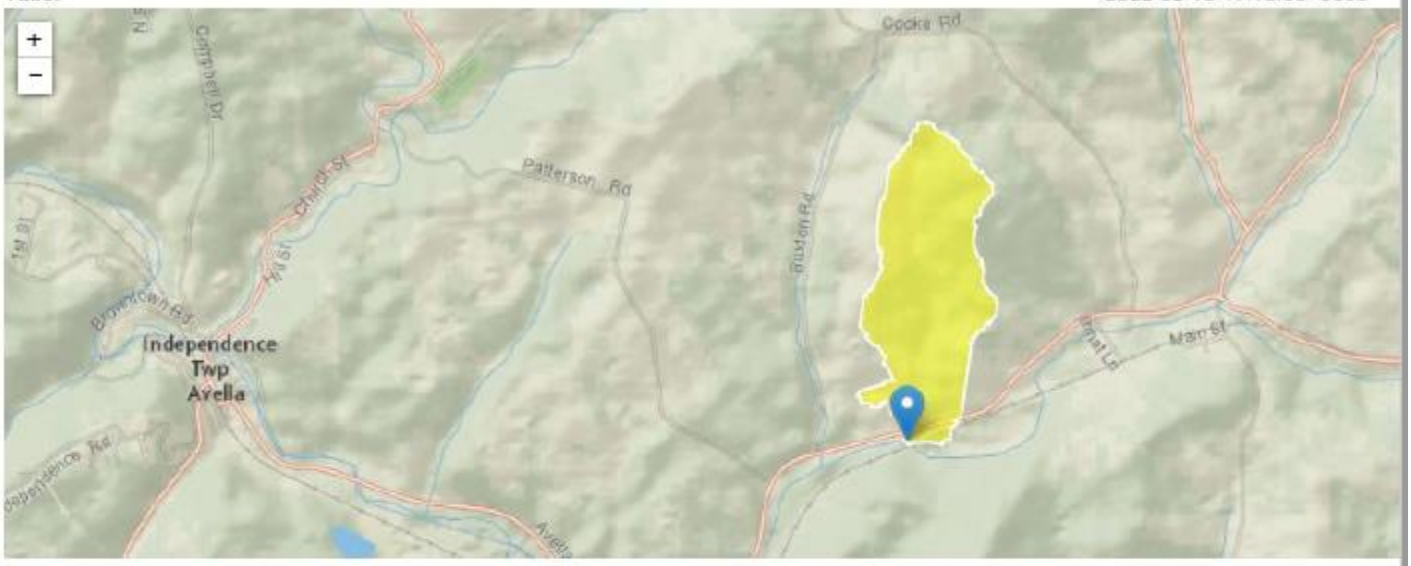
ATTACHMENT C

StreamStats REPORT – RMI 0.001 On Unnamed Trib to South Fork Cross Creek

Region ID:	PA
Workspace ID:	PA20220210220945712000
Clicked Point (Latitude, Longitude):	40.27242, -80.41746
Time:	2022-02-10 17:10:05 -0500



Basin Characteristics

Parameter Code	Parameter Description	Valu
DRNAREA	Area that drains to a point on a stream	0.31
ELEV	Mean Basin Elevation	1159

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min
DRNAREA	Drainage Area	0.31	square miles	2.26
ELEV	Mean Basin Elevation	1159	feet	105

Low-Flow Statistics Disclaimers [Low Flow Region 4]

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ATTACHMENT D
WQM 7.0 MODEL OUTPUT FILE

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20D	33074	Trib 33074 to South Fork Cross 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)
0.182	Avella Schl STP	PA0029971	0.012	CBOD5	25		
				NH3-N	1.65	3.3	
				Dissolved Oxygen			5

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20D	33074	Trib 33074 to South Fork Cross Cr

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.182	0.012	20.459	7.421
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.123	0.273	7.785	0.035
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
22.89	1.485	1.50	0.725
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.233	25.819	Owens	5
Reach Travel Time (days)			
0.313			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.031	21.83	1.47	6.17
0.063	20.81	1.44	6.64
0.094	19.85	1.40	6.91
0.125	18.93	1.37	7.07
0.157	18.05	1.34	7.19
0.188	17.21	1.31	7.29
0.219	16.41	1.28	7.37
0.251	15.65	1.25	7.45
0.282	14.92	1.22	7.52
0.313	14.23	1.20	7.54

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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
20D	33074	Trib 33074 to South Fork Cross Cr	0.182	995.00	0.28	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	0.007	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
Avella Schl STP	PA0029971	0.0120	0.0120	0.0120	0.000	20.00	7.50

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	7.54	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
20D	33074	Trib 33074 to South Fork Cross Cr	0.001	976.00	0.31	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	0.007	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
		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

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WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20D	33074	Trib 33074 to South Fork Cross 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												
0.182	0.00	0.00	0.00	.0186	0.01988	.273	2.12	7.79	0.04	0.313	20.46	7.42
Q1-10 Flow												
0.182	0.00	0.00	0.00	.0186	0.01988	NA	NA	NA	0.03	0.319	20.30	7.45
Q30-10 Flow												
0.182	0.00	0.00	0.00	.0186	0.01988	NA	NA	NA	0.04	0.308	20.60	7.40

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20D	33074	Trib 33074 to South Fork Cross 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
0.182	Avella Schl STP	9.74	10.37	9.74	10.37	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
0.182	Avella Schl STP	1.45	1.65	1.45	1.65	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)		
0.18	Avella Schl STP	25	25	1.65	1.65	5	5	0	0

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		

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Attachment E – Discharge pH

Avella Elem & High Schl STP
Cross Creek Twp, Washington County
PA0029971 Discharge pH

Date	pH min	pH max	10^ -pH min	10^ -pH max	& pH max)	-Log (Ave pH)
Sep-21	7.4	7.9	3.98107E-08	1.2589E-08	2.62E-08	7.6
Aug-21	7.4	7.8	3.98107E-08	1.5849E-08	2.783E-08	7.6
Jul-21	7.2	7.7	6.30957E-08	1.9953E-08	4.1524E-08	7.4
Sep-20	7.2	7.8	6.30957E-08	1.5849E-08	3.9472E-08	7.4
Aug-20	7.2	7.6	6.30957E-08	2.5119E-08	4.4107E-08	7.4
Jul-20	7	7.7	0.0000001	1.9953E-08	5.9976E-08	7.2
Sep-19	7.5	7.9	3.16228E-08	1.2589E-08	2.2106E-08	7.7
Aug-19	7.2	7.7	6.30957E-08	1.9953E-08	4.1524E-08	7.4
Jul-19	7.4	7.9	3.98107E-08	1.2589E-08	2.62E-08	7.6
Sep-18	7.7	7.8	1.99526E-08	1.5849E-08	1.7901E-08	7.7
					Median:	7.5

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Attachment F – TRC_Calc Spreadsheet

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.00188	= Q stream (cfs)	0.5	= CV Daily
0.012	= 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 = 0.051	1.3.2.iii	WLA cfc = 0.042
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.019	5.1d	LTA_cfc = 0.025

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.024	AFC
		INST MAX LIMIT (mg/l) = 0.077	

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)**

(0.011/EXP(-K*CFC_tc/1440))+(((CFC_Yc*Qs*0.011)/(1.547*Qd)....
....*EXP(-K*CFC_tc/1440)))+Xd+(CFC_Yc*Qs*Xs/1.547*Qd))*(1-FOS/100)