Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0096113**
Facility Type	**Non-Municipal**	APS ID	**1097776**
Major / Minor	**Minor**	Authorization ID	**1456544**

Applicant and Facility Information

Applicant Name	**Mcguffey School District**	Facility Name	**Mcguffey Jr Middle & Sr High School**
Applicant Address	90 Mcguffey Drive	Facility Address	90 Mcguffey Drive
	Claysville, PA 15323-2304		Claysville, PA 15323-2304
Applicant Contact	Craig Mckee	Facility Contact	Same as Applicant
Applicant Phone	(724) 948-3731	Facility Phone	Same as Applicant
Client ID	23970	Site ID	262270
Ch 94 Load Status	Not Overloaded	Municipality	Buffalo Township
Connection Status		County	Washington
Date Application Received	September 28, 2023	EPA Waived?	Yes
Date Application Accepted	September 28, 2023	If No, Reason	

Purpose of Application: Renewal of the NPDES Permit

Summary of Review

The permittee has applied for a renewal of NPDES Permit No. PA0096113 on September 28, 2023. NPDES Permit No. PA0096113 was previously issued by the PA Department of Environmental Protection (DEP) on August 1, 2019 and expired on September 31, 2024.

Sewage from this facility is treated through flow equalization, extended aeration, final clarification, ultra-violet disinfection and post aeration.

The treated effluent is discharged to a dry drainage swale which ultimately discharges to Buffalo Creek (HQ-WWF), which is approximately 900 feet from the discharge point at the dry swale. PADEP's Dry Stream Policy and Antidegradation Policy were taken into consideration while developing the permit effluent limitations for this renewed NPDES Permit.

For the previous permit cycle, at the applicant's request, the facility was given sampling frequencies of 3/week for DO, pH, and UV. The permittee was informed that they would receive 1/day sampling frequencies at their next permit renewal. Sampling frequencies for DO, pH, and UV were updated as to be in compliance with the *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (SOP No. 362-0400-001).

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

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

Approve	Deny	Signatures	Date
X		Jordan T Coldsmith Jordan Coldsmith / Environmental Engineering Specialist	September 5, 2024
X		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	September 27, 2024

Summary of Review
Draft Permit issuance is recommended. 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)	.024
Latitude	40º 8' 29.76"	Longitude	-80º 22' 10.15"
Quad Name	Washington West	Quad Code	40080B3
Wastewater Description:	Sewage Effluent		

Receiving Waters	Buffalo Creek (HQ-WWF)	Stream Code	24877
NHD Com ID	73866060	RMI	0.54
Drainage Area	13	Yield (cfs/mi^2)	0.015
Q_{7-10} Flow (cfs)	0.197	Q_{7-10} Basis	USGS StreamStat
Elevation (ft)		Slope (ft/ft)	
Watershed No.	20-E	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)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Outside of Pennsylvania		
PWS Waters	Outside of Pennsylvania	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance: None

Other Comments: N/A

Treatment Facility Summary

Treatment Facility Name: Mcguffey Jr & Sr High School

WQM Permit No.	Issuance Date
6301404	06/27/2002

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Aeration	UV	0.008

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

Changes Since Last Permit Issuance: None

Other Comments: N/A

Compliance History

Operations Compliance Check Summary Report

Facility: MCGUFFEY JR MIDDLE & SR HIGH SCHOOL STP

NPDES Permit No.: PA0096113

Compliance Review Period: 9/1/19-9/3/24

Inspection Summary:

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
09/03/2021	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 23970

Enforcement Summary:

No enforcements executed during review period

Effluent Violation Summary:

MON_PD	PARAMETER	SAMPLE	PERMIT	UNIT	STAT_BASE_CODE	FACILITY_COMMENTS
Jul-22	Fecal Coliform	223	200	No./100 ml	Geometric Mean	Treatment at the plant has been disrupted by the addition of floor stripper being used at the school combined with lack of dilution due to the low influent flow rate during the summer months. The operator has cleaned the UV unit in order to provide the best possible chance of disinfection.
Feb-22	Total Suspended Solids	117	60	mg/L	Instantaneous Maximum	This facility will have TSS violations for the month of February. These were caused by a frozen waste valve. The operator was unable to waste enough to keep the plant in compliance. With warmer months we do not see this being an issue moving forward
Feb-22	Total Suspended Solids	42.7	30	mg/L	Average Monthly	This facility will have TSS violations for the month of February. These were caused by a frozen waste valve. The operator was unable to waste enough to keep the plant in compliance. With warmer months we do not see this being an issue moving forward
Jul-21	Fecal Coliform	2420	1000	No./100 ml	Instantaneous Maximum	The operator has increased the chlorine dosage in order to more effectively disinfect the effluent.
Sep-19	Fecal Coliform	2420	1000	No./100 ml	Instantaneous Maximum	The operator has experienced one sample with a higher than normal fecal coliform result. He increased the disinfection and all samples have been below the effluent limitations since.
Mar-19	Fecal Coliform	10810	10000	CFU/100 ml	Instantaneous Maximum	At the beginning of the month the sewage plant had a fecal violation. The operator cleaned the UV system and continued to sample FC throughout the month with little to no presence of fecal in samples after.

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

Completed by: Amanda Illar **Completed date:** 9/3/24

Compliance History

DMR Data for Outfall 001 (from August 1, 2023 to July 31, 2024)

Parameter	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23
Flow (MGD) Average Monthly	0.004	0.004	0.004	0.004	0.0045	0.004	0.004	0.004	0.004	0.003	0.004	0.004
pH (S.U.) Instantaneous Minimum	6.6	7.2	6.0	6.1	7.0	6.3	6.2	6.70	6.4	6.2	6.2	7.0
pH (S.U.) Instantaneous Maximum	7.5	8.3	7.8	8.3	7.8	7.7	7.6	7.2	6.9	7.1	7.1	7.6
DO (mg/L) Instantaneous Minimum	10.27	11.85	11.74	13.23	14.12	14.44	7.92	7.32	7.72	7.44	7.44	7.37
CBOD5 (mg/L) Average Monthly	3.2	3.0	3.0	3.0	4.2	6.1	6.9	3.3	3.0	3.0	3.0	3.0
CBOD5 (mg/L) Instantaneous Maximum	3.4	3.0	3.0	3.0	5.3	6.9	7.1	3.6	3.0	3.0	3.0	3.0
TSS (mg/L) Average Monthly	16.0	2.0	3.3	6.3	20.7	13.0	16.7	15.0	3.0	5.3	5.3	3.0
TSS (mg/L) Instantaneous Maximum	28.0	3.0	7.0	16.0	44.0	28.0	30.0	26.0	6.0	10.0	10.0	6.0
Fecal Coliform (No./100 ml) Geometric Mean	1.0	1.0	2.0	1.0	1.0	37.0	4.0	110.00	144	27	27	3.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	1.0	1.0	2.0	1.0	1.0	45.0	15.0	361.00	436	687	687	6.0
UV Transmittance (%) Average Monthly	0.93	1.60	3.32	0.36	0.39	0.60	2.16	2.40	2.40	2.40	2.40	2.40
UV Transmittance (%) Instantaneous Maximum	1.75	2.29	3.60	0.44	0.49	2.57	4.39	2.40	2.40	2.40	2.40	2.40
Total Nitrogen (mg/L) Daily Maximum								1.20				
Ammonia (mg/L) Average Monthly	0.14	0.14	0.10	0.56	0.33	7.17	2.0	0.31	2.48	0.83	0.83	0.14

Ammonia (mg/L) Instantaneous Maximum	0.17	0.17	0.10	0.88	0.55	14.20	2.65	0.52	2.80	1.56	1.56	0.18
Total Phosphorus (mg/L) Daily Maximum								12.6				

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .024
Latitude 40º 8' 30.00" **Longitude** -80º 22' 10.00"
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 discharge was evaluated using WQM7.0 to determine the $CBOD_5$, ammonia nitrogen, and dissolved oxygen parameters. The model results show slightly more restrictive limits for ammonia-nitrogen. The limits evaluated for CBOD5 are the same as previous imposed permit limits and limits for DO are less restrictive than limits previously imposed.

Submitted eDMR data shows that the facility will be able to meet the new, more stringent limits for ammonia-nitrogen, therefore, a compliance schedule is not necessary.

To comply with anti-backsliding regulations, the previous, more restrictive limits for DO, will again be imposed for the facility.

Parameter	Limit (mg/l)	SBC	Model
DO	4	Inst Min.	WQM 7
Ammonia-Nitrogen (May 1 – Oct 31)	2.8 5.7	Average Monthly IMAX	WQM 7
Ammonia-Nitrogen (Nov 1 – Apr 30)	8.5 17.0	Average Monthly IMAX	WQM 7
$CBOD_5$	25.0 50.0	Average Monthly IMAX	WQM 7

Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

No permit limits and/or monitoring requirements have been relaxed in this permit cycle.

The facility uses ultraviolet light for disinfection rather than chlorine, so the TBELs for TRC from 92a.47(a)(8) are replaced with minimum and average monthly reporting requirements for ultraviolet light transmittance pursuant to § 92a.61(b).

Additional Considerations

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

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

Dry Stream Considerations

Per Section I.C.3 of PADEP's SOP (Establishing Effluent limitations for Individual Sewage Permits, SOP No. BCW-PMT-033, Version 2.0, Revised, February 5, 2024), "*For existing discharges, if the more stringent treatment requirements cannot be achieved, do not apply the standards in DEP guidance (391-2000-014) unless the receiving stream is impaired and the point source discharge contributes to the impairment. If this is the case, apply the more stringent treatment requirements and provide a schedule to meet final limitations not exceeding three years in the draft permit. Do not approve design flow increases without applying the more stringent treatment requirements where the discharge meets the criteria in the guidance for a dry stream*".

The facility does not have the ability to meet the more stringent treatment requirements for phosphorus and the receiving stream is not impaired. Therefore, dry stream limits will not be imposed at this time. Dry stream limits will only be imposed in the case of new or expanded discharge from the facility.

Part C 3 – Dry Streams condition have been added to the permit.

Antidegradation Considerations

McGuffey Jr Middle and SR High School is an existing facility and is not expanding. Therefore, per Section IV.C of PADEP's SOP - New and Reissuance Sewage Individual NPDES Permit Applications (SOP No. BCW-PMT-002, Version 2.0, Revised, February 3, 2022), anti-degradation requirements are not required to be applied during the renewed permit cycle.

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)	0.024	XXX	XXX	XXX	XXX	XXX	2/month	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
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
TSS	XXX	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/year	Grab
UV Transmittance (%)	XXX	XXX	Report	Report	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	8.5	XXX	17.0	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	2.8	XXX	5.7	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

Compliance Sampling Location: Outfall 001

Other Comments: N/A

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Attachment 1
Upstream Stream Stats

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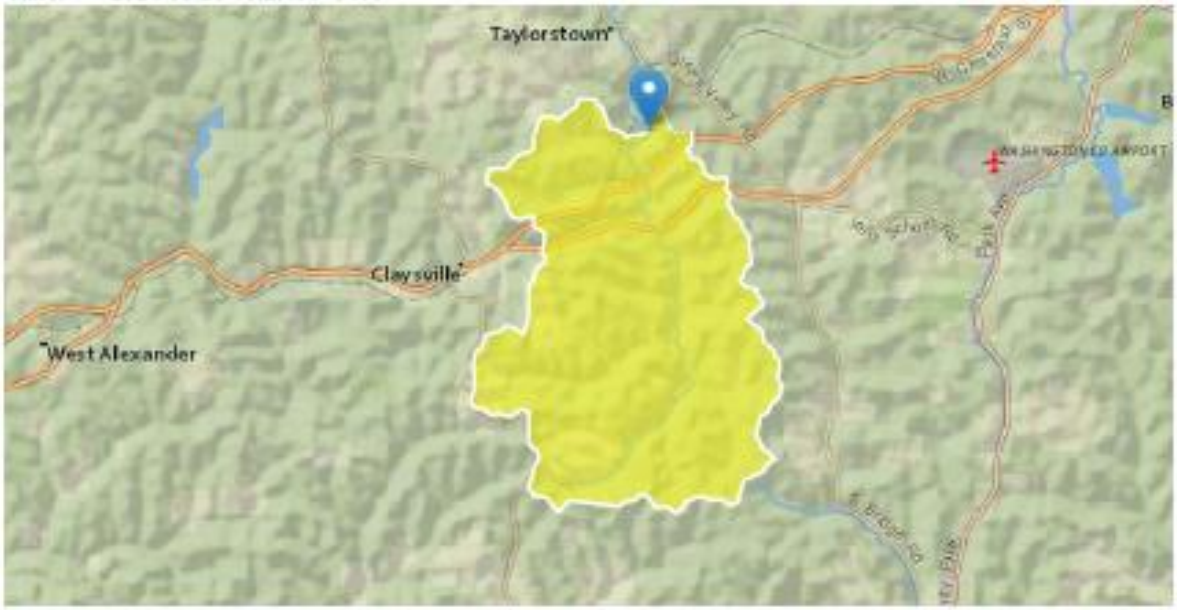
StreamStats Report

Region ID: PA
Workspace ID: PA20240826192731537000
Clicked Point (Latitude, Longitude): 40.14162, -80.36954
Time: 2024-08-26 15:27:56 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	13	square miles
ELEV	Mean Basin Elevation	1235	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	13	square miles	2.26	1400
ELEV	Mean Basin Elevation	1235	feet	1050	2580

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

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	0.534	ft^3/s	43	43
30 Day 2 Year Low Flow	0.916	ft^3/s	38	38
7 Day 10 Year Low Flow	0.197	ft^3/s	66	66
30 Day 10 Year Low Flow	0.35	ft^3/s	54	54
90 Day 10 Year Low Flow	0.635	ft^3/s	41	41

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/)

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Application Version: 4.23.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

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Attachment 2
Downstream Stream Stat

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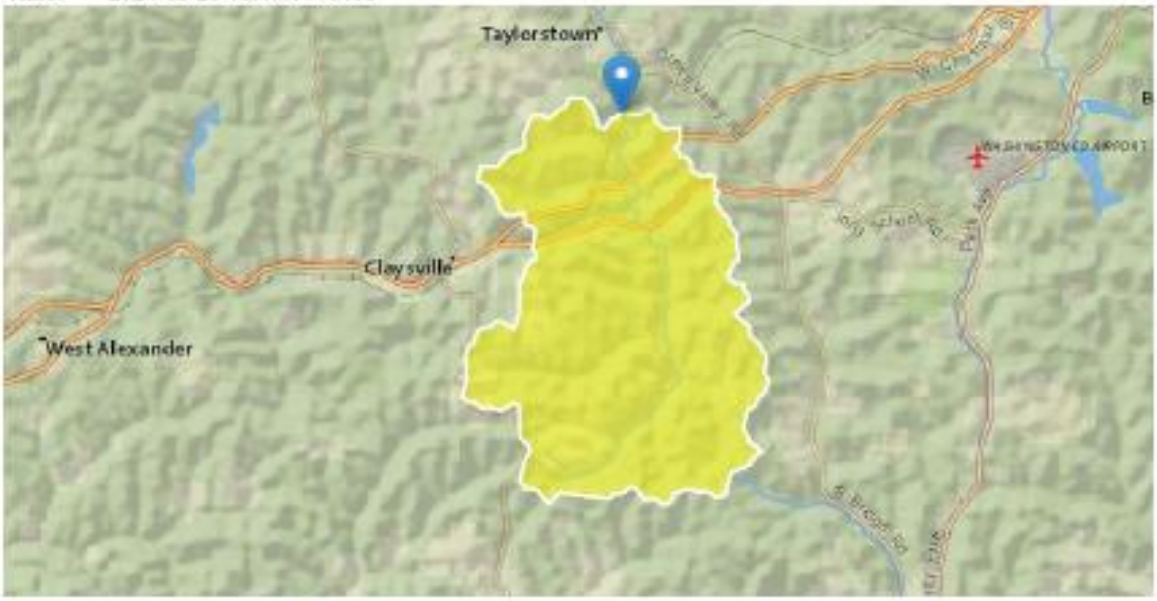
StreamStats Report

Region ID: PA
Workspace ID: PA20240826194843027000
Clicked Point (Latitude, Longitude): 40.14414, -80.37336
Time: 2024-08-26 15:49:11 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	13	square miles
ELEV	Mean Basin Elevation	1234	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	13	square miles	2.26	1400
ELEV	Mean Basin Elevation	1234	feet	1050	2580

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

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	0.534	ft^3/s	43	43
30 Day 2 Year Low Flow	0.915	ft^3/s	38	38
7 Day 10 Year Low Flow	0.197	ft^3/s	66	66
30 Day 10 Year Low Flow	0.349	ft^3/s	54	54
90 Day 10 Year Low Flow	0.635	ft^3/s	41	41

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/)

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Application Version: 4.23.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

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Attachment 3
Summer WQM7 Modeling

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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
08A	24877	BYRNES RUN	0.540	1235.00	13.00	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	0.010	0.20	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
McGuffey STP	PA0096113	0.2400	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
08A	24877	BYRNES RUN

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												
0.540	0.20	0.00	0.20	.3713	0.00179	.494	14.38	29.09	0.08	0.405	21.73	7.00
Q1-10 Flow												
0.540	0.13	0.00	0.13	.3713	0.00179	NA	NA	NA	0.07	0.437	21.27	7.00
Q30-10 Flow												
0.540	0.27	0.00	0.27	.3713	0.00179	NA	NA	NA	0.09	0.379	22.10	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
08A	24877	BYRNES RUN

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
0.540	McGuffey STP	15.09	20.21	15.09	20.21	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
0.540	McGuffey STP	1.65	2.84	1.65	2.84	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)		
0.54	McGuffey STP	25	25	2.84	2.84	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
08A	24877	BYRNES RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.540	0.240	21.733	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
14.380	0.494	29.093	0.080
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
17.03	1.415	1.85	0.800
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.471	15.322	Owens	5
Reach Travel Time (days)			
0.405			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.041	16.00	1.80	5.70
0.081	15.04	1.74	5.90
0.122	14.13	1.68	6.08
0.162	13.28	1.63	6.24
0.203	12.48	1.58	6.39
0.243	11.73	1.53	6.53
0.284	11.03	1.48	6.66
0.324	10.36	1.43	6.78
0.365	9.74	1.39	6.90
0.405	9.15	1.34	7.01

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
08A	24877	BYRNES RUN

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)
0.540	McGuffey STP	PA0096113	0.240	CBOD5	25		
				NH3-N	2.84	5.68	
				Dissolved Oxygen			4

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Attachment 4
Winter WQM7 Modeling

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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
08A	24877	BYRNES RUN	0.540	1235.00	13.00	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	0.020	0.20	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
McGuffey STP	PA0096113	0.2400	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
08A	24877	BYRNES RUN

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												
0.540	0.20	0.00	0.20	.3713	0.00179	.494	14.38	29.09	0.08	0.405	11.53	7.00
Q1-10 Flow												
0.540	0.13	0.00	0.13	.3713	0.00179	NA	NA	NA	0.07	0.437	12.47	7.00
Q30-10 Flow												
0.540	0.27	0.00	0.27	.3713	0.00179	NA	NA	NA	0.09	0.379	10.81	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
08A	24877	BYRNES RUN

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
0.540	McGuffey STP	24.1	32.29	24.1	32.29	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
0.540	McGuffey STP	3.41	5.88	3.41	5.88	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)		
0.54	McGuffey STP	25	25	5.88	5.88	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
08A	24877	BYRNES RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.540	0.240	11.533	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
14.380	0.494	29.093	0.080
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
17.03	1.425	3.84	0.365
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.950	12.030	Owens	5
Reach Travel Time (days)			
0.405			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.041	16.37	3.78	7.49
0.081	15.74	3.73	7.85
0.122	15.14	3.67	8.11
0.162	14.56	3.62	8.29
0.203	14.00	3.57	8.44
0.243	13.46	3.51	8.55
0.284	12.95	3.46	8.65
0.324	12.45	3.41	8.74
0.365	11.97	3.36	8.82
0.405	11.51	3.31	8.89

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
08A	24877	BYRNES RUN

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)
0.540	McGuffey STP	PA0096113	0.240	CBOD5	25		
				NH3-N	5.88	11.76	
				Dissolved Oxygen			4