Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0023434**
Facility Type	**Non-Municipal**	APS ID	**1122452**
Major / Minor	**Minor**	Authorization ID	**1500898**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**PA American Water Co.**	Facility Name	**Koppel Borough**
Applicant Address	852 Wesley Drive	Facility Address	5001 5th Avenue Rt 351
	Mechanicsburg, PA 17055-4436		Koppel, PA 16136-1129
Applicant Contact	Li An	Facility Contact	Michelle Cavallo
Applicant Phone	(724) 743-3131	Facility Phone	724-255-6640
Client ID	87712	Site ID	257788
Ch 94 Load Status	Not Overloaded	Municipality	Koppel Borough
Connection Status	No Limitations	County	Beaver
Date Application Received	September 23, 2024	EPA Waived?	Yes
Date Application Accepted	September 30, 2024	If No, Reason	

Purpose of Application: Renewal of NPDES Permit

Summary of Review

The applicant has applied for the renewal of NPDES Permit PA0023434. The previous permit was issued on November 1, 2021 and will expire on March 31, 2025.

Sewage from this plant is treated with Muffin Monster and Bypass Bar Screen, Two ICEAS SBR basins, Aerated Sludge Digester, and UV Disinfection.

A flow rerate was approved on July 11, 2024 under WQM 0474418 A-5 that approved the annual average design flow of 0.31 MGD and a design hydraulic capacity of 0.31 MGD with a design organic capacity of 408 lbs/day.

Monitoring frequencies for the proposed effluent limits have been updated to comply with Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Department's "Technical Guidance for the Development and Specification of Effluent Limitations".

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

The Notification letters were provided dated August 13, 2024 and no comments were received.

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-

Approve	Deny	Signatures	Date
X		Jordan T Coldsmith Jordan Coldsmith / Environmental Engineering Specialist	January 7, 2025
X		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	January 24, 2025

Summary of Review
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)	.31
Latitude	40º 50' 22.93"	Longitude	-80º 18' 54.50"
Quad Name	Beaver Falls	Quad Code	40080G3
Wastewater Description:	Sewage Effluent		
Receiving Waters	Beaver River (WWF)	Stream Code	33953
NHD Com ID	123918307	RMI	11.2
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	20-B	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	CAUSE UNKNOWN, POLYCHLORINATED BIPHENYLS (PCBS)		
Source(s) of Impairment	SOURCE UNKNOWN, SOURCE UNKNOWN		
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake	Beaver Falls Muni Auth		
PWS Waters	Beaver River (WWF)	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	5.68

Changes Since Last Permit Issuance: None

Other Comments: N/A

Treatment Facility Summary

Treatment Facility Name: Koppel Borough WWTP

WQM Permit No.	Issuance Date
0474418	11/04/1974
0474418 A-1	03/12/2002
0474418 A-2	11/01/2014
0474418 A-3	03/30/2020
0474418 A-4	03/20/2024
0474418 A-5	07/11/2024

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Sequencing Batch Reactor	UV	0.31

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.31	408	Not Overloaded		

Changes Since Last Permit Issuance:

Other Comments: The treatment process consists of;

- Muffin Monster and Bypass Bar Screen
- Two ICEAS SBR basins
- Aerated Sludge Digester
- UV Disinfection

Compliance History

Operations Compliance Check Summary Report

Facility: KOPPEL BORO WWTP

NPDES Permit No.: PA0023434

Compliance Review Period: 1/1/20-1/16/25

Inspection Summary:

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC	INSPECTION COMMENT
05/22/2023	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted	
06/22/2021	Administrative/File Review	PA Dept of Environmental Protection	Administratively Closed	Review of eDMR Non-Compliance data for routine monitoring
05/04/2021	Administrative/File Review	PA Dept of Environmental Protection	No Violations Noted	Compliance assistance regarding usage of FF NODI Code vs GG NODI Code for eDMR reporting of TRC while awaiting NPDES amendment
04/30/2021	Routine/Partial Inspection	PA Dept of Environmental Protection	No Violations Noted	
02/22/2021	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted	
08/12/2020	Routine/Partial Inspection	PA Dept of Environmental Protection	No Violations Noted	

Violation Summary:

VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC
05/22/2023	92A.44	NPDES - Violation of effluent limits in Part A of permit
02/22/2021	92A.44	NPDES - Violation of effluent limits in Part A of permit

Open Violations by Client ID:

No open violations for Client ID 87712 for Clean Water Program or within Southwest Region, but the following open violations exist at other facilities in Southeast, South Central, and Northeast Regions.

INSP PROGRAM	PROGRAM SPECIFIC ID	INSP ID	VIOLATION ID	VIOLATION DATE	VIOLATION CODE	VIOLATION	INSP REGION
Air Quality	25-1008096-5	3850104	8204416	10/10/2024	127.444	Construction, Modification, Reactivation and Operation of Sources, Operating Permit Requirements, Compliance requirements. A person may not cause or permit the operation of a source subject to this article unless the source and air cleaning devices identified in the application for the plan approval and operating permit and the plan approval issued to the source are operated and maintained in accordance with specifications in the application and conditions in the plan approval and operating permit issued by the Department. A person may not cause or permit the operation of an air contamination source subject to this chapter in a manner inconsistent with good operating practices.	NERO
Storage Tanks	15-35902	3899999	8213605	11/20/2024	245.612(D)	Failure to meet aboveground storage tank secondary and/or emergency containment requirements	SERO
WPC NPDES	PA0026492	3830416	8201850	08/21/2024	92A.44	NPDES - Violation of effluent limits in Part A of permit	NERO
WPC NPDES	PA0026492	3830416	8201851	08/21/2024	92A.61(C)	NPDES - Failure to monitor pollutants as required by the NPDES permit	NERO
WPC NPDES	PA0026492	3830416	8201852	08/21/2024	92A.47(C)	NPDES - Illegal discharge to waters of the Commonwealth from a sanitary sewer overflow (SSO)	NERO
WPC NPDES	PA0026492	3831748	8201290	08/21/2024	92A.44	NPDES - Violation of effluent limits in Part A of permit	NERO
WPC NPDES	PA0026492	3831748	8201291	08/21/2024	92A.61(C)	NPDES - Failure to monitor pollutants as required by the NPDES permit	NERO
WPC NPDES	PA0026492	3831748	8201292	08/21/2024	92A.47(C)	NPDES - Illegal discharge to waters of the Commonwealth from a sanitary sewer overflow (SSO)	NERO

WPC NPDES	PA0026972	3848782	8204100	07/23/2024	CSL201	CSL - Unauthorized, unpermitted discharge of sewage to waters of the Commonwealth	SCRO
WPC State Water Pollution Control	WQG02460510	3605646	8156718	08/21/2023	92A.47(C)	NPDES - Illegal discharge to waters of the Commonwealth from a sanitary sewer overflow (SSO)	SERO

Enforcement Summary:

ENF TYPE	ENF TYPE DESC	EXECUTED DATE	VIOLATIONS	AMOUNT RECEIVED	ENF FINAL STATUS	ENF CLOSED DATE
NOV	Notice of Violation	07/28/2023	92A.44		Comply/Closed	09/07/2023
CACP	Consent Assessment of Civil Penalty	05/10/2021	92A.44	$3,600.00	Comply/Closed	05/26/2021
NOV	Notice of Violation	02/22/2021	92A.44		Comply/Closed	12/31/2021

Effluent Violation Summary:

MON PD	Parameter	Reported Value	Permit Limit	Unit	Stat Base Code	Facility Comments
Sep-24	Fecal Coliform	1204	1000	No./100 ml	Instantaneous Maximum	The fecal coliform sample from 9-17-2024 exceeded the permitted instantaneous maximum level. This occurred due to fouling inside UV Train 2's reactor. The manufacturer's recommendation is to switch the UV trains every 6-8 weeks, but going forward the UV trains will be switched and cleaned monthly to ensure we mitigate any fouling before it becomes an issue.
Aug-20	Total Residual Chlorine (TRC)	1.99	1.6	mg/L	Instantaneous Maximum	See attached non-compliance form.

Compliance Status: Facility is generally in compliance with its ongoing CAP and the NPDES permit. There are no pending enforcement actions at this time.

Completed by: Amanda Illar **Completed date:** 1/16/25

Compliance History

DMR Data for Outfall 001 (from December 1, 2023 to November 30, 2024)

Parameter	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23
Flow (MGD) Average Monthly	0.097	0.07	0.089	0.118	0.128	0.11	0.144	0.301	0.155	0.098	0.170	0.097
Flow (MGD) Daily Maximum	0.195	0.132	0.116	0.199	0.343	0.169	0.255	1.158	0.347	0.142	0.511	0.278
pH (S.U.) Instantaneous Minimum	7.02	6.85	7.11	7.13	7.02	6.9	6.94	6.95	6.9	6.9	6.8	6.9
pH (S.U.) Instantaneous Maximum	7.33	7.51	7.42	7.35	7.36	7.64	7.34	7.8	7.2	7.1	7.4	7.28
DO (mg/L) Instantaneous Minimum	4.45	5.01	4.44	4.39	4.37	4.25	4.42	4.3	4.5	4.3	4.5	4.8
TRC (mg/L) Average Monthly	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
TRC (mg/L) Instantaneous Maximum	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
CBOD5 (lbs/day) Average Monthly	< 2.8	< 2.0	< 2.3	< 3.2	< 3.5	< 3.1	< 3.4	< 7.3	< 4.7	< 2.4	< 4.6	< 2.1
CBOD5 (lbs/day) Weekly Average	< 4.9	< 3.3	< 2.5	< 4.0	< 5.4	< 4.0	< 3.9	< 19.9	< 8.7	< 2.8	< 10.5	< 2.6
CBOD5 (mg/L) Average Monthly	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3	< 3.0
CBOD5 (mg/L) Weekly Average	< 3.0	< 3.0	3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
BOD5 (mg/L) Raw Sewage Influent Average Monthly	107	188	76	65	54	108	110	86	79	146	90	163
TSS (lbs/day) Average Monthly	< 3.7	< 2.0	< 2.3	< 3.2	< 5.3	< 3.1	< 3.4	< 7.3	< 4.7	< 2.4	< 5.6	< 2.1
TSS (lbs/day) Weekly Average	6.4	< 3.3	< 2.5	< 4.0	14.3	< 4.0	< 3.9	< 19.9	< 8.7	< 2.8	< 10.5	< 2.6
TSS (mg/L) Average Monthly	< 4.0	< 3.0	< 3.0	< 3.0	< 4.0	< 3.0	< 3.0	< 3.0	< 3	< 3	< 4	< 3.0

TSS (mg/L) Raw Sewage Influent Average Monthly	402	717	119	184	163	442	242	122	151	427	315	417
TSS (mg/L) Weekly Average	7.0	< 3.0	< 3.0	< 3.0	8.0	< 3.0	< 3.0	< 3.0	< 3	< 3	5	< 3.0
Fecal Coliform (No./100 ml) Geometric Mean	< 6	< 3.0	72	< 13	< 1	< 4	< 1	< 2	< 2	< 3	< 3	2
Fecal Coliform (No./100 ml) Instantaneous Maximum	1414	11	1204	240	4	191	2	2	4	15	10	5
UV Intensity (µw/cm²) Daily Minimum	59.32	163.3	42.3	86.4	260.5	116.2	287.9	20.1	25.4	134	2.7	3.7
Total Nitrogen (mg/L) Daily Maximum												2.00
Ammonia (mg/L) Average Monthly	< 0.17	< 0.16	< 0.51	< 0.1	< 0.13	< 0.1	< 0.13	0.19	0.19	0.25	< 0.31	< 0.14
Total Phosphorus (mg/L) Daily Maximum												0.83

Compliance History

Effluent Violations for Outfall 001, from: January 1, 2024 To: November 30, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	09/30/24	IMAX	1204	No./100 ml	1000	No./100 ml

Summary of Inspections:

Other Comments:

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .31
Latitude 40º 50' 22.00" **Longitude** -80º 18' 56.00"
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 showed that the limits for $CBOD_5$ and dissolved oxygen will not change.

Parameter	Limit (mg/l)	SBC	Model
$CBOD_5$	25 50	Average Monthly IMAX	WQM7.0
Dissolved Oxygen	4	Minimum	WQM7.0
Ammonia Nitrogen	25 50	Average Monthly IMAX	WQM7.0

Per Department SOP “Establishing Effluent Limitations for Individual Sewage Permits” (BCW-PMT-033), For existing discharges, if WQM modeling results for summer indicates that an average monthly limit of 25 mg/L is acceptable, the application manager will generally establish a year-round monitoring requirement for ammonia-nitrogen, at a minimum. A seasonal multiplier of 3 times the summertime average monthly limit should be established for the winter period.

A weekly monitoring frequency for Ammonia-Nitrogen will again be imposed.

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.

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

Mass Loading Limitations

Per Department SOP "Establishing Effluent Limitations for Individual Sewage Permits" (BCW-PMT-033), mass loading limits will be established for POTWs for $CBOD_5$, TSS, ammonia nitrogen. Average monthly mass loading limits will be established for $CBOD_5$, TSS, and ammonia nitrogen. Average weekly mass loading limits will be established for $CBOD_5$ and TSS. Mass loading limits will be calculated according to the formula below:

$$average\ annual\ design\ flow\ (MGD) \times concentration\ limit\ \left(\frac{mg}{L}\right) \times 8.34\ (converstion\ factor)$$
$$= mass\ loading\ limit\ (\frac{lbs}{day})$$

The following mass loading limitations were calculated:

Parameter	Average Monthly (lbs/day)	Average Weekly (lbs/day)
$CBOD_5$	64.64	96.95
TSS	77.56	116.34
Ammonia Nitrogen	N/A	N/A

Influent Monitoring

Per Department SOP "New and Reissuance Sewage Individual NPDES Permit Applications" (BCW-PMT-002), POTWs with design flows greater than 2,000 GPD, influent BOD_5 and TSS monitoring will again be included in the permit. The influent monitoring will be established with the same frequency and sample type as the effluent sampling.

Additional Considerations

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.

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Department's "Technical Guidance for the Development and Specification of Effluent Limitations".

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

Per Department SOP "New and Reissuance Sewage Individual NPDES Permit Applications" (BCW-PMT-002) Where ultraviolet (UV) disinfection is used, TRC limits are not applicable, but the limits table(s) in Part A will generally contain, at a minimum, routine monitoring of UV transmittance (%), UV dosage (µWs/cm2 or mWs/cm2 or mjoules/cm2) or UV intensity (µW/cm2 or mW/cm2) at the same monitoring frequency that would be used for TRC.

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	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	64.6	97.0	XXX	25	37.5	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	77.6	116.3	XXX	30	45	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Intensity (µw/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite

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)	Required
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: N/A

Pennsylvania
Department of
Environmental Protection

Attachment 1
Summer WQM7 Results

Pennsylvania
Department of
Environmental Protection

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
20B	33953	BEAVER RIVER	11.200	1128.00	3090.00	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	0.200	640.00	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
Koppel Boro	PA0023434	0.3100	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
20B	33953	BEAVER RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
11.200	640.00	0.00	640.00	.4796	0.00019	1.162	492.34	423.77	1.12	0.055	25.00	7.00
Q1-10 Flow												
11.200	409.60	0.00	409.60	.4796	0.00019	NA	NA	NA	0.87	0.070	24.99	7.00
Q30-10 Flow												
11.200	870.40	0.00	870.40	.4796	0.00019	NA	NA	NA	1.33	0.046	25.00	7.00

WQM 7.0 Modeling Specifications

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

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20B	33953	BEAVER RIVER

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
11.200	Koppel Boro	11.08	50	11.08	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
11.200	Koppel Boro	1.37	25	1.37	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
11.20	Koppel Boro	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20B	33953	BEAVER RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
11.200	0.310	24.996	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
492.336	1.162	423.772	1.120
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.02	0.013	0.02	1.028
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.240	1.114	Tsivoglou	5
Reach Travel Time (days)			
0.055			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.005	2.02	0.02	7.54
0.011	2.02	0.02	7.54
0.016	2.02	0.02	7.54
0.022	2.02	0.02	7.54
0.027	2.02	0.02	7.54
0.033	2.02	0.02	7.54
0.038	2.02	0.02	7.54
0.044	2.02	0.02	7.54
0.049	2.02	0.02	7.54
0.055	2.02	0.02	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20B	33953	BEAVER RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
11.200	Koppel Boro	PA0023434	0.310	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

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Attachment 2
Winter WQM Inputs & Results

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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
20B	33953	BEAVER RIVER	11.200	1128.00	3090.00	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	0.400	640.00	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
Koppel Boro	PA0023434	0.3100	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
20B	33953	BEAVER RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
11.200	640.00	0.00	640.00	.4796	0.00019	1.162	492.34	423.77	1.12	0.055	5.01	7.00
Q1-10 Flow												
11.200	409.60	0.00	409.60	.4796	0.00019	NA	NA	NA	0.87	0.070	5.01	7.00
Q30-10 Flow												
11.200	870.40	0.00	870.40	.4796	0.00019	NA	NA	NA	1.33	0.046	5.01	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
20B	33953	BEAVER RIVER

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
11.200	Koppel Boro	24.1	50	24.1	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
11.200	Koppel Boro	4.36	25	4.36	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
11.20	Koppel Boro	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20B	33953	BEAVER RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
11.200	0.310	5.007	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
492.336	1.162	423.772	1.120
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.02	0.014	0.02	0.221
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
12.504	0.693	Tsivoglou	5
Reach Travel Time (days)			
0.055			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.005	2.02	0.02	11.45
0.011	2.02	0.02	11.45
0.016	2.02	0.02	11.45
0.022	2.02	0.02	11.45
0.027	2.02	0.02	11.45
0.033	2.02	0.02	11.45
0.038	2.02	0.02	11.45
0.044	2.02	0.02	11.45
0.049	2.02	0.02	11.45
0.055	2.02	0.02	11.45

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20B	33953	BEAVER RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
11.200	Koppel Boro	PA0023434	0.310	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

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Attachment 3
Upstream StreamStat

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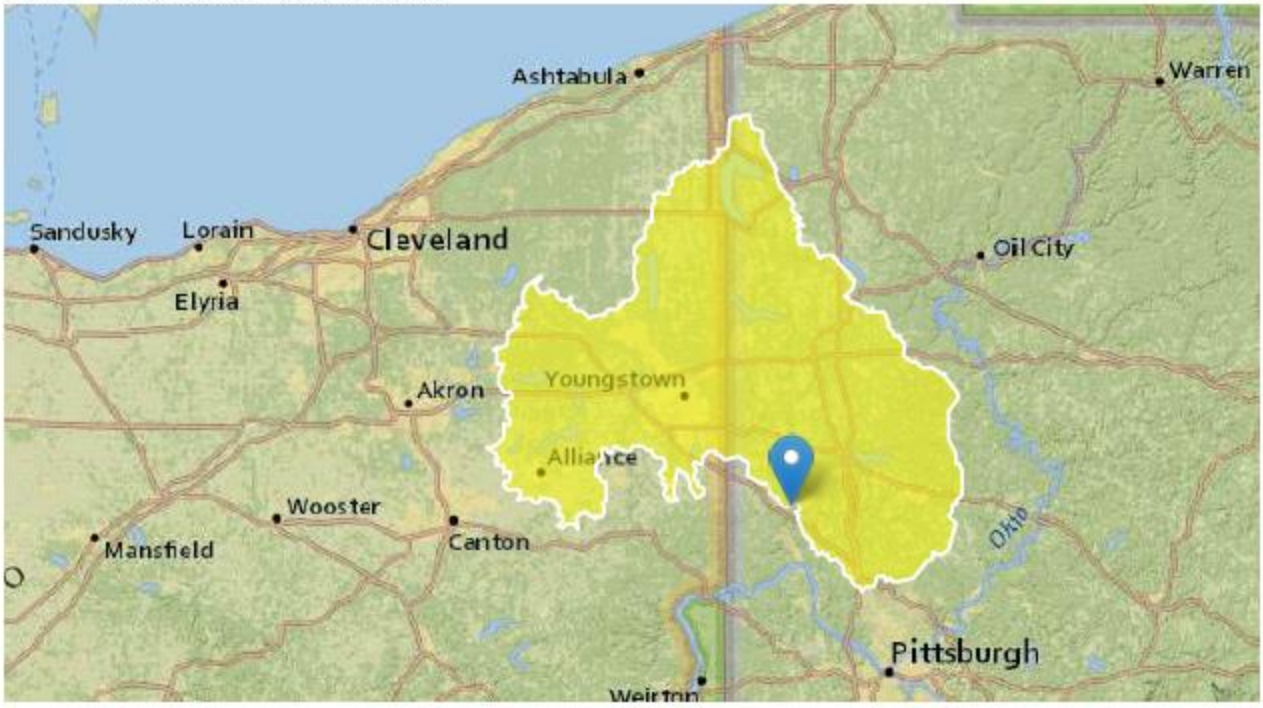
StreamStats Report

Region ID: PA
Workspace ID: PA20250108204513977000
Clicked Point (Latitude, Longitude): 40.83971, -80.31525
Time: 2025-01-08 15:45:40 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	3090	square miles
ELEV	Mean Basin Elevation	1128	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	3090	square miles	2.26	1400
ELEV	Mean Basin Elevation	1128	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	252	ft^3/s
30 Day 2 Year Low Flow	333	ft^3/s
7 Day 10 Year Low Flow	160	ft^3/s
30 Day 10 Year Low Flow	186	ft^3/s
90 Day 10 Year Low Flow	254	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/)

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Attachment 4
Downstream StreamStat

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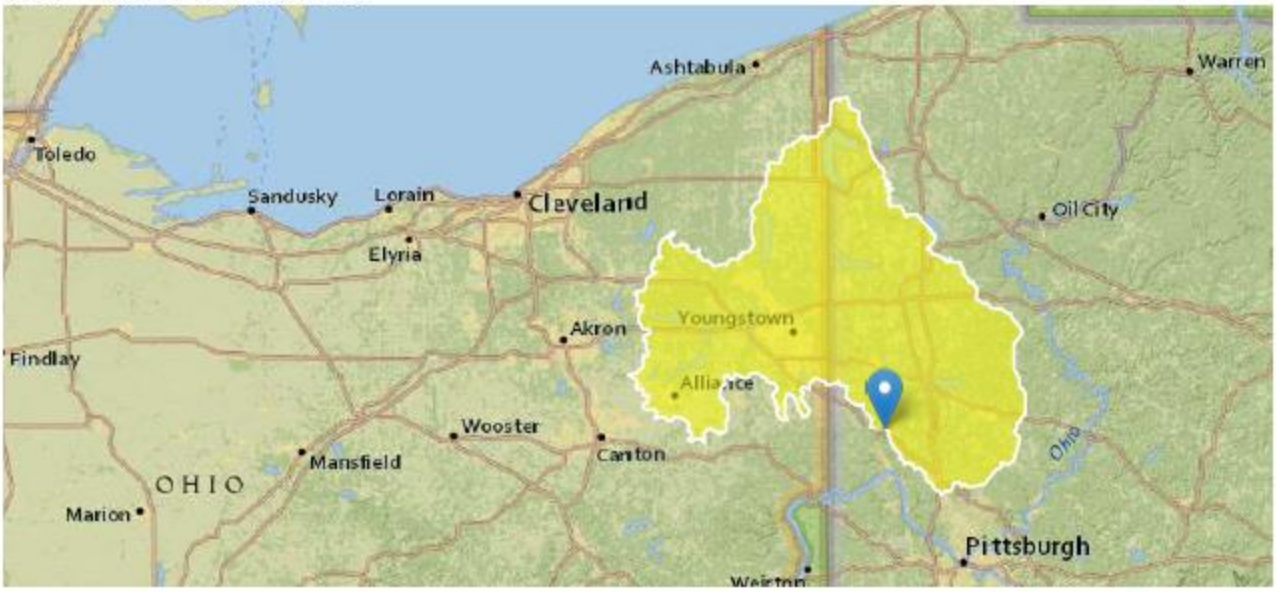
StreamStats Report

Region ID: PA
Workspace ID: PA20250108205027613000
Clicked Point (Latitude, Longitude): 40.82612, -80.31195
Time: 2025-01-08 15:50:51 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	3090	square miles
ELEV	Mean Basin Elevation	1128	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	3090	square miles	2.26	1400
ELEV	Mean Basin Elevation	1128	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	252	ft^3/s
30 Day 2 Year Low Flow	333	ft^3/s
7 Day 10 Year Low Flow	160	ft^3/s
30 Day 10 Year Low Flow	186	ft^3/s
90 Day 10 Year Low Flow	254	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: 4.25.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1