Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0216984**
Facility Type	**Municipal**	APS ID	**1146423**
Major / Minor	**Minor**	Authorization ID	**1542427**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Shannock Valley Gen Service Authority**	Facility Name	**Numine WWTP**
Applicant Address	111 South Center Street	Facility Address	111 South Center Street
	Numine, PA 16244-0168		Numine, PA 16244
Applicant Contact	Lee Calarie	Facility Contact	Lee Calarie
Applicant Phone	(724) 873-2454	Facility Phone	(724) 873-2454
Client ID	45258	Site ID	238113
Ch 94 Load Status		Municipality	Cowanshannock Township
Connection Status		County	Armstrong
Date Application Received	September 16, 2025	EPA Waived?	Yes
Date Application Accepted		If No, Reason	--

Purpose of Application: Renewal Application for Minor Sewage Facility

Summary of Review

On September 16, 2025, the Department received a renewal application for Individual Permit No. PA0216984 for Numine Wastewater Treatment Plant. The WWTP serves the Cowanshannock Township which has a population of 2,742. There is one outfall (Outfall 001) that discharges to Cowanshannock Creek (WWF).

Act 14 notifications were submitted and received.

The facility is currently enrolled in the eDMR system.

Sludge use and disposal description and location(s): Sludge from the Yatesboro STP is accepted at this facility. The sludge is managed under beneficial use permits for disposal at the Homer City Waste Management Site and the Carbon Limestone Landfill. All sludge not used is disposed of at an approved landfill.

There are no open violations in WMS for the subject Client ID (45258) as of October 29, 2025.

Proposed Changes:

- None

Approve	Deny	Signatures	Date
X		Carlee Wilson Carlee Wilson / Environmental Engineering Trainee	October 31, 2025
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	November 12, 2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.065
Latitude	40º 47' 36.02"	Longitude	-79º 16' 55.01"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Cowanshannock Creek (WWF)	Stream Code	46965
NHD Com ID	134403962	RMI	18.52
Drainage Area	16.1	Yield (cfs/mi^2)	0.042
Q_{7-10} Flow (cfs)	0.679	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1119	Slope (ft/ft)	-
Watershed No.	17-E	Chapter 93 Class.	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 (°F)	68	default
Hardness (mg/L)	100	default
Other:	-	-

Nearest Downstream Public Water Supply Intake	PA American Water Company		
PWS Waters	Allegheny River	Flow at Intake (cfs)	987
PWS RMI	45.6	Distance from Outfall (mi)	22.0

Changes Since Last Permit Issuance: None

Other Comments:

Public Participation

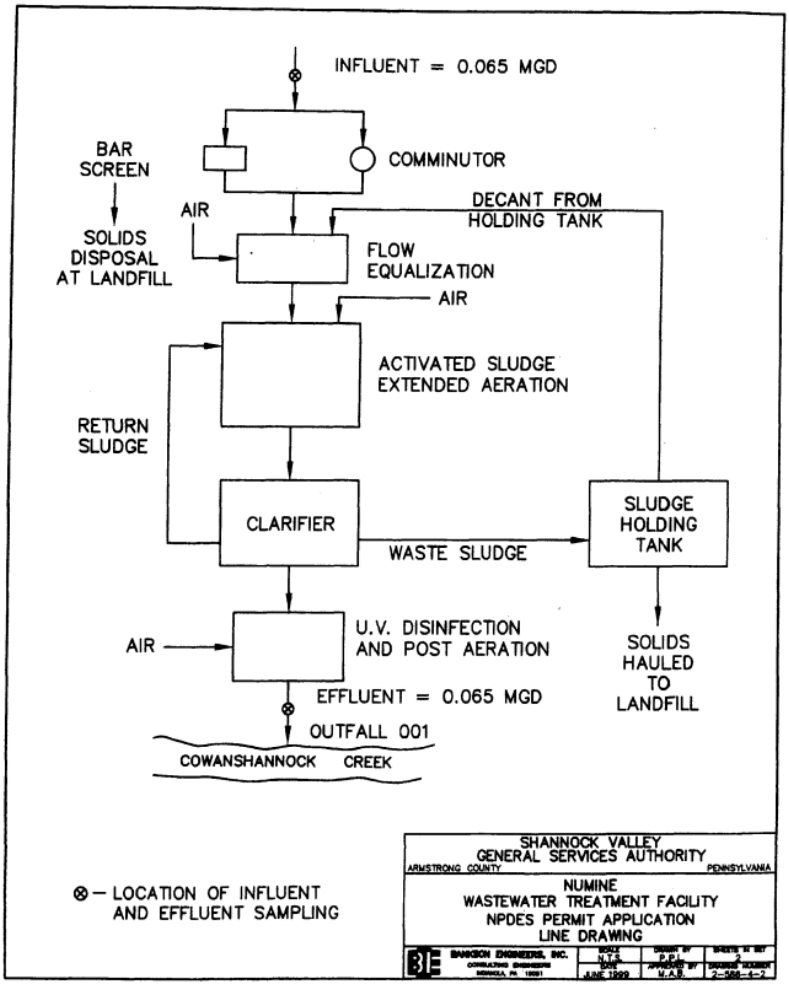
DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested 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.

Treatment Facility Summary				
Treatment Facility Name: Numine WWTP				
WQM Permit No.	**Issuance Date**			
0399402 A-1	8/09/2001			
0399402	9/20/1999			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Activated Sludge	Ultraviolet (UV)	0.030
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.065	108	Not Overloaded	Aerated Holding Tank	Landfill

Changes Since Last Permit Issuance: None

WQM 0399402

An equalization tank, two clarification tanks, and Ultraviolet (UV) light disinfection. Sludge is stored in an aerated holding tank.



Compliance History

DMR Data for Outfall 001 (from September 1, 2024, to August 31, 2025)

Parameter	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24
Flow (MGD) Average Monthly	0.015	0.012	0.015	0.019	0.020	0.025	0.024	0.009	0.011	0.014	0.009	0.009
Flow (MGD) Daily Maximum	0.022	0.022	0.026	0.026	0.029	0.029	0.026	0.024	0.025	0.022	0.023	0.019
pH (S.U.) Instantaneous Minimum	6.9	7.0	7.1	7.1	7.1	7.0	7.0	7.0	7.0	7.0	7.0	7.0
pH (S.U.) Instantaneous Maximum	7.9	7.7	7.9	7.8	7.8	7.9	7.7	7.8	7.8	7.8	7.9	7.6
DO (mg/L) Instantaneous Minimum	5.0	5.0	5.1	5.6	5.4	5.1	5.1	5.5	5.2	5.1	5.1	5.1
CBOD5 (lbs/day) Average Monthly	3.75	0.300	0.37	0.258	0.500	0.6255	0.60	0.24	0.60	0.035	3.0	0.23
CBOD5 (mg/L) Average Monthly	3.005	3.0	3.0	3.68	3.0	3.0	3.0	3.15	6.6	3.0	4.5	3.0
CBOD5 (mg/L) Instantaneous Maximum	3.01	3.0	3.0	4.36	3.0	3.0	3.0	3.30	8.67	3.0	5.97	3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	43	26.6	15.8	21	33	56.6	41	8.8	29.1	26	22.9	17.3
BOD5 (mg/L) Raw Sewage Influent Average Monthly	342	266	126.75	129.5	198.8	271.5	206	117.5	312.5	224.5	306	230.5
BOD5 (mg/L) Raw Sewage Influent Instantaneous Maximum	410	401	182	192	335	330	278	134	414	231	440	247
TSS (lbs/day) Average Monthly	0.43	0.280	2.0	0.98	1.6	1.17	1.8	0.54	0.60	0.46	0.33	0.49
TSS (lbs/day) Raw Sewage Influent Average Monthly	28.9	34.7	18.5	44	39	43.8	41	15.0	22	27	32.5	15

TSS (mg/L) Average Monthly	3.4	2.8	16.1	6.2	9.80	5.6	9.20	7.2	6.6	4.0	4.5	6.6
TSS (mg/L) Raw Sewage Influent Average Monthly	231.5	347.52	148	278	235	210.5	206	201	241	230	434	199
TSS (mg/L) Instantaneous Maximum	5.20	3.60	23.0	8.0	10.0	7.20	10.8	8.40	6.80	6.40	5.97	7.20
TSS (mg/L) Raw Sewage Influent Instantaneous Maximum	312	415	176	316	342	245	278	288	258	234	630	274
Fecal Coliform (No./100 ml) Geometric Mean	926	220	3022	15	184	645	47	70	337.7	54	53	10.2
Fecal Coliform (No./100 ml) Instantaneous Maximum	3076.0	2420	9678.4	29.6	580.0	995.6	586.4	121.0	2190.0	344.8	96.0	10.4
E. Coli (No./100 ml) Instantaneous Maximum			509.4			1102.0			1376.4			432.4
UV Transmittance (%) Average Monthly	10.9	10.2	10.9	11.0	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.2
UV Transmittance (%) Instantaneous Maximum	11.5	11.1	11.1	11.1	11.0	11.8	11.0	11.0	11.0	10.9	10.9	10.4
Total Nitrogen (mg/L) Instantaneous Maximum			9.042			0.5000			0.5000			0.5000
Ammonia (lbs/day) Average Monthly	0.307	0.1413	0.0125	0.0831	0.0166	0.0471	0.020016	0.007	0.0091	0.01	0.08	0.008
Ammonia (mg/L) Average Monthly	2.4569	1.412	0.1000	0.5248	0.1000	0.226	0.1000	0.1000	0.1000	0.1000	1.09	0.1000
Ammonia (mg/L) Instantaneous Maximum	4.777	2.305	0.1000	0.8356	0.1000	0.1260	0.1000	0.1000	0.1000	0.1000	2.1	0.1000
Total Phosphorus (mg/L) Instantaneous Maximum			2.65			2.96			3.66			4.56

Compliance History

Effluent Violations for Outfall 001, from: October 1, 2024, To: August 31, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	06/30/25	Geo Mean	3022	No./100 ml	200	No./100 ml
Fecal Coliform	07/31/25	Geo Mean	220	No./100 ml	200	No./100 ml
Fecal Coliform	08/31/25	Geo Mean	926	No./100 ml	200	No./100 ml
Fecal Coliform	08/31/25	IMAX	3076.0	No./100 ml	1000	No./100 ml
Fecal Coliform	06/30/25	IMAX	9678.4	No./100 ml	1000	No./100 ml
Fecal Coliform	07/31/25	IMAX	2420	No./100 ml	1000	No./100 ml

Summary of Inspections:

Table 1. Inspection Summary of the Last 5 Years

Site Name	Inspected Date	Inspection Type	Inspection Result	Inspector	No. of Violations
NUMINE WWTP	09/22/2025	Compliance Evaluation	No Violations Noted	TOLLINI, BRIAN	0

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .065
Latitude 40º 47' 36.00" **Longitude** -79º 16' 55.00"
Wastewater Description: Sewage Effluent

1. Technology-Based Limitations

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)
Total Phosphorous	Report	Average Quarterly	-	92a.61
Total Nitrogen	Report	Average Quarterly	-	92a.61
E. Coli	Report	IMAX	-	92a.61

The above limits are minimum technology-based and BPJ standards for individual sewage permits which are found in the Department's "*Establishing Effluent Limitations for Individual Sewage Permits"* document (SOP. No. BCW-PMT-033). The limits for pH are technology-based on Chapter 93.7. The limits for Total Suspended Solids, and Fecal Coliforms are technology-based on Chapter 92a.47. Monitoring for E. Coli, Total Nitrogen, and Total Phosphorus are based on Chapter 92a.61.

2. Water Quality-Based Limitations

Table 1. WQM 7 Results

Parameter	Limit (mg/l)	SBC
CBOD5	25	Average Monthly
NH3-N	18.62	Average Monthly
	37.24	IMAX
DO	4	Instantaneous Minimum

The Department's Toxics Management Spreadsheet was not used for this case since no sampling other than sewage-related parameters was performed for this facility with the renewal application. The above parameters were evaluated using water quality modeling (Attachment 5). This model (WQM 7) is used to determine and/or establish WQBELs to protect water quality. In this evaluation, the model provided the above limits for CBOD5, Ammonia-Nitrogen and Dissolved Oxygen. The existing permit limits (Table 2) are equal to or more stringent than the limits above, therefore the current limitations will remain.

Since Ultraviolet (UV) disinfection is used, Total Residual Chlorine (TRC) limits are not imposed. UV transmittance (%) will retained into this renewal.

3. Anti-Backsliding

Table 2. Existing Permit Limitations for Outfall 001

Parameter	Effluent Limitations					
	Mass Units (lbs/day) (1)		Concentrations (mg/L)			
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX
CBOD5	13.6	XXX	XXX	25.0	XXX	50.0
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	Report
TSS	16.3	XXX	XXX	30.0	XXX	60.0
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	Report
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report
UV Transmittance (%)	XXX	XXX	XXX	Report	XXX	Report
Total Nitrogen	XXX	XXX	XXX	XXX	XXX	Report
Ammonia Nov 1 - Apr 30	13.6	XXX	XXX	25.0	XXX	50.0
Ammonia May 1 - Oct 31	5.4	XXX	XXX	10.0	XXX	20.0
Total Phosphorus	XXX	XXX	XXX	XXX	XXX	Report

Comments: There are no proposed changes to the limitations in the current permit. All permit limitations, monitoring, requirements, and conditions will be retained into the next permit.

Proposed Effluent Limitations and Monitoring Requirements

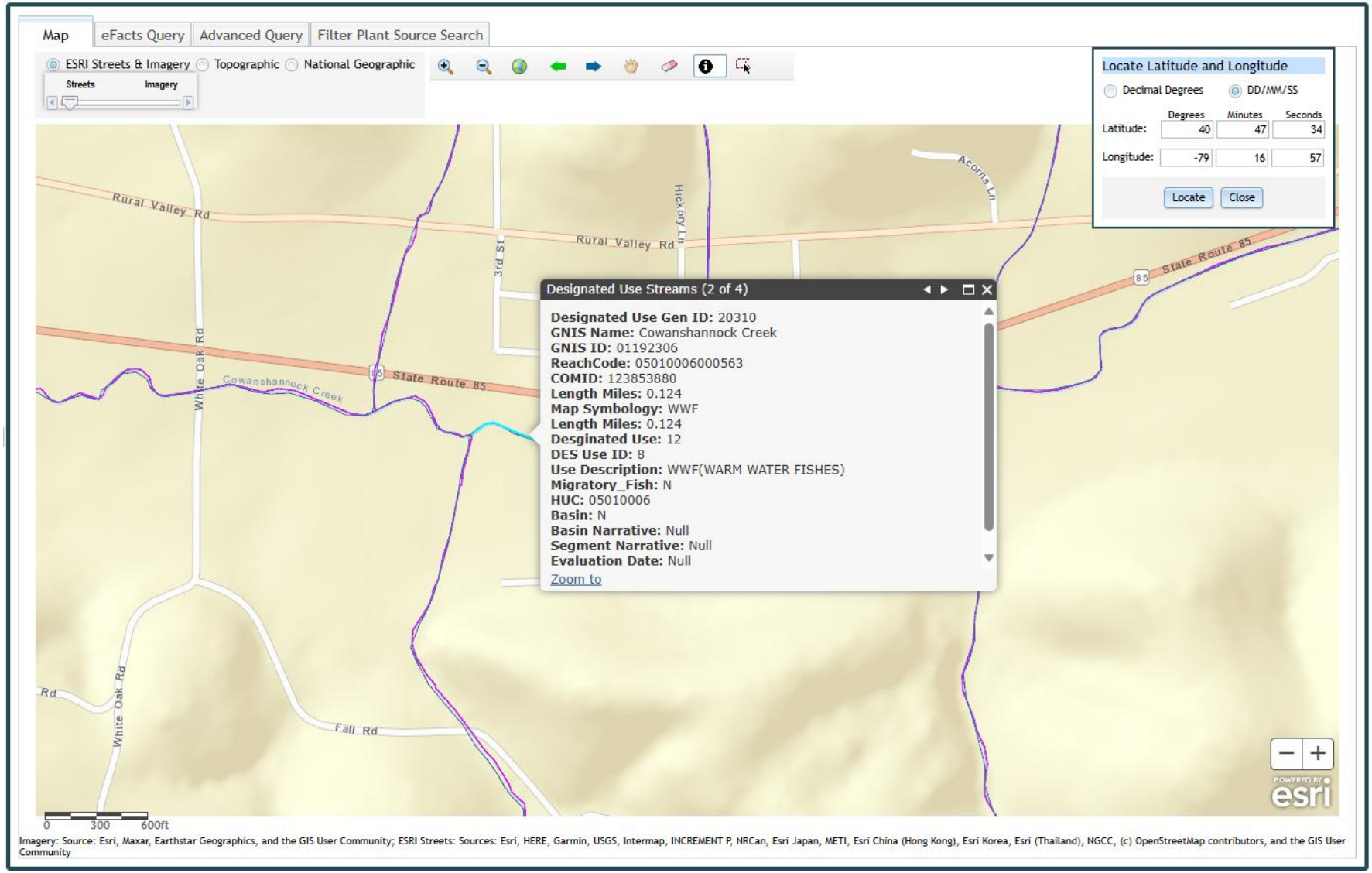
The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants).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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	2/month	Measured
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
CBOD5	13.6	XXX	XXX	25.0	XXX	50.0	2/month	Grab
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	Report	2/month	Grab
TSS	16.3	XXX	XXX	30.0	XXX	60.0	2/month	Grab
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	Report	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Transmittance (%)	XXX	XXX	XXX	Report	XXX	Report	1/day	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Ammonia Nov 1 - Apr 30	13.6	XXX	XXX	25.0	XXX	50.0	2/month	Grab
Ammonia May 1 - Oct 31	5.4	XXX	XXX	10.0	XXX	20.0	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab

Compliance Sampling Location: Outfall 001 – after disinfection

Attachment 1
eMapPA – Receiving Stream Details

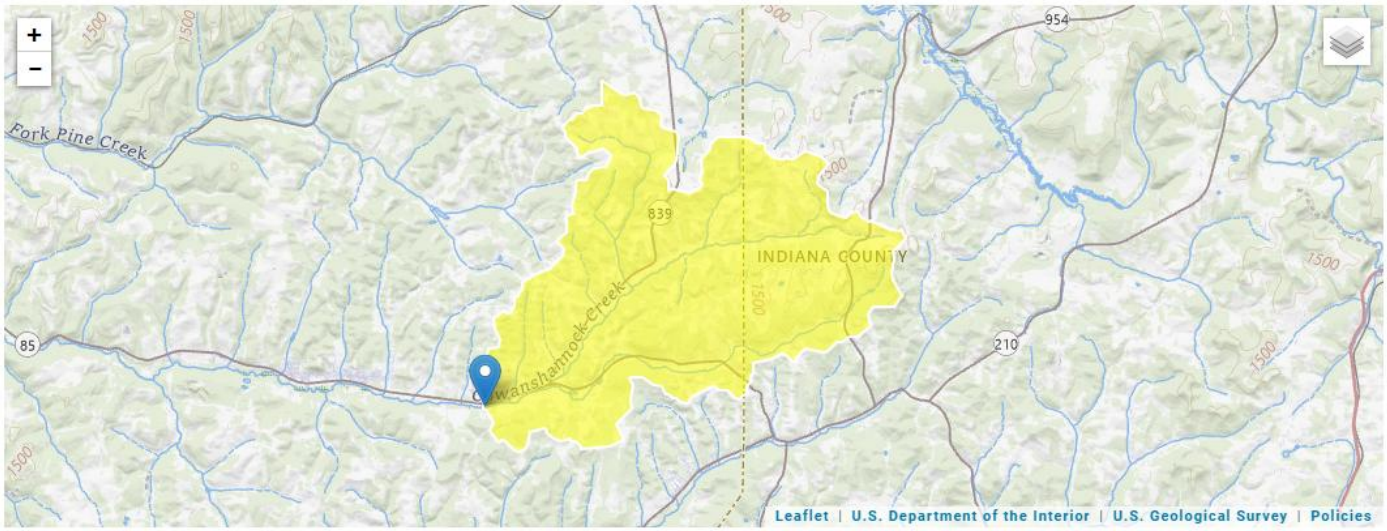


Attachment 2
Google Earth – Aerial Site View

Attachment 3
USGS StreamStats – Point of First Use (RMI 18.52)

StreamStats Report

Region ID:	PA
Workspace ID:	PA20251030123258772000
Clicked Point (Latitude, Longitude):	40.79295, -79.28322
Time:	2025-10-30 08:33:22 -0400



Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	16.1	square miles	2.33	1720
ELEV	Mean Basin Elevation	1329	feet	898	2700
PRECIP	Mean Annual Precipitation	43	inches	38.7	47.9

Low-Flow Statistics Flow Report [Low Flow Region 3]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	1.52	ft^3/s	43	43
30 Day 2 Year Low Flow	2.18	ft^3/s	38	38
7 Day 10 Year Low Flow	0.679	ft^3/s	54	54
30 Day 10 Year Low Flow	0.963	ft^3/s	49	49
90 Day 10 Year Low Flow	1.41	ft^3/s	41	41

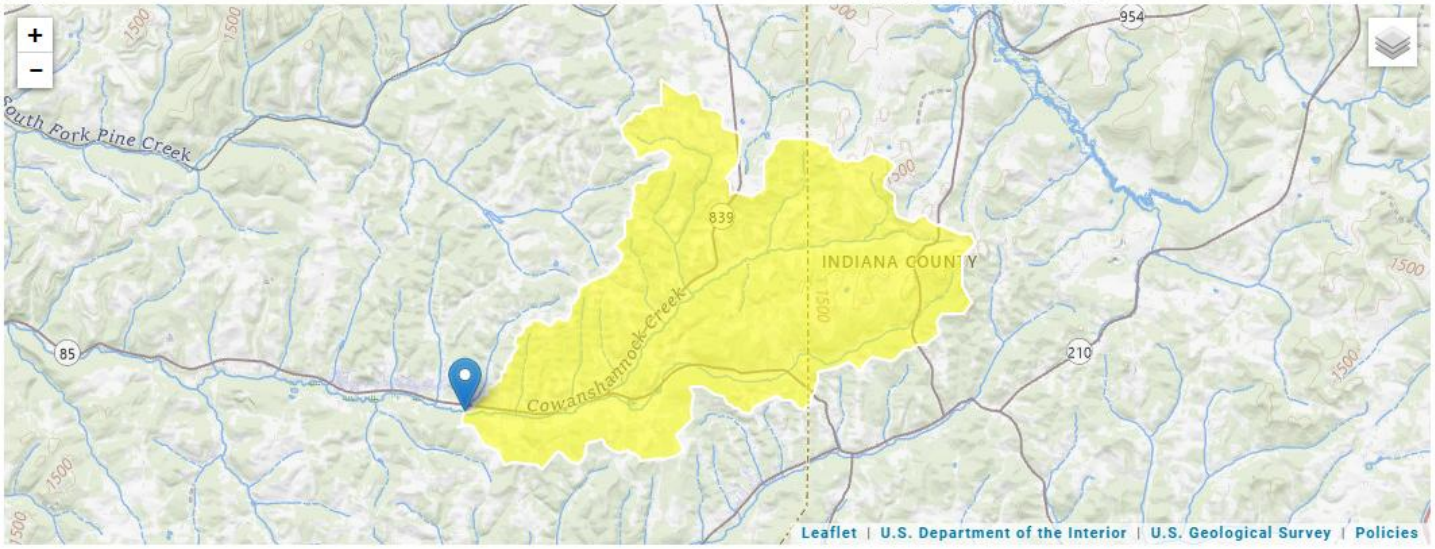
Low-Flow Statistics Citations

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.

Attachment 4
USGS StreamStats – Endpoint (RMI 17.2)

StreamStats Report

Region ID:	PA
Workspace ID:	PA20251030123827201000
Clicked Point (Latitude, Longitude):	40.79406, -79.30228
Time:	2025-10-30 08:38:50 -0400



Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	17.4	square miles	2.33	1720
ELEV	Mean Basin Elevation	1320	feet	898	2700
PRECIP	Mean Annual Precipitation	43	inches	38.7	47.9

Low-Flow Statistics Flow Report [Low Flow Region 3]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	1.63	ft^3/s	43	43
30 Day 2 Year Low Flow	2.34	ft^3/s	38	38
7 Day 10 Year Low Flow	0.734	ft^3/s	54	54
30 Day 10 Year Low Flow	1.04	ft^3/s	49	49
90 Day 10 Year Low Flow	1.53	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.

Attachment 5
Water Quality Modeling (WQM 7)

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
17E	46965	COWANSHANNOCK CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
18.520	Numine WWTP	PA0216984	0.065	CBOD5	25		
				NH3-N	18.62	37.24	
				Dissolved Oxygen			4

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
17E	46965	COWANSHANNOCK CREEK	**18.520**	1119.00	16.10	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	0.042	0.00	0.68	0.000	0.000	0.0	0.00	0.00	20.00	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
Numine WWTP	PA0216984	0.0650	0.0650	0.0650	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	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
17E	46965	COWANSHANNOCK CREEK	**17.200**	1105.00	17.40	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	0.042	0.00	0.73	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
17E	46965	COWANSHANNOCK CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
18.520	0.68	0.00	0.68	.1006	0.00201	.519	16.35	31.51	0.09	0.877	20.64	7.00
Q1-10 Flow												
18.520	0.43	0.00	0.43	.1006	0.00201	NA	NA	NA	0.07	1.083	20.94	7.00
Q30-10 Flow												
18.520	0.92	0.00	0.92	.1006	0.00201	NA	NA	NA	0.11	0.753	20.49	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
17E	46965	COWANSHANNOCK CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
18.520	Numine WWTP	15.5	50	15.5	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
18.520	Numine WWTP	1.83	18.62	1.83	18.62	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)		
18.52	Numine WWTP	25	25	18.62	18.62	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
17E	46965	COWANSHANNOCK CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
18.520	0.065	20.645	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
16.345	0.519	31.507	0.092
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
4.97	0.728	2.40	0.736
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.696	14.994	Owens	5
Reach Travel Time (days)			
0.877			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.088	4.65	2.25	8.05
0.175	4.35	2.11	8.14
0.263	4.08	1.98	8.14
0.351	3.82	1.86	8.14
0.439	3.58	1.74	8.14
0.526	3.35	1.63	8.14
0.614	3.13	1.53	8.14
0.702	2.93	1.43	8.14
0.790	2.75	1.34	8.14
0.877	2.57	1.26	8.14

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other: