Pennsylvania Department of Environmental Protection

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0113956**
Facility Type	**Municipal**	APS ID	**1149520**
Major / Minor	**Minor**	Authorization ID	**1547552**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Locust Township Municipal Authority Columbia County**	Facility Name	**Locust Township**
Applicant Address	1223a Numidia Drive	Facility Address	E. Lake Glory Road
	Catawissa, PA 17820-8632		Catawissa, PA 17820
Applicant Contact	Debbie Long	Facility Contact	George Myers
Applicant Phone	(570) 799-5710	Facility Phone	(570) 458-5701
Client ID	241299	Site ID	262380
Ch 94 Load Status	Existing Organic Overload	Municipality	Locust Township
Connection Status	No Limitations	County	Columbia
Date Application Received	October 27, 2025	EPA Waived?	Yes
Date Application Accepted	October 30, 2025	If No, Reason	

Purpose of Application: Renewal of a NPDES Permit

Summary of Review

The subject facility is a minor Publicly Owned Treatment Works (POTW) serving the area of the Village of Slabtown in Locust Township in Columbia County.

Sludge use and disposal description and location(s): Per the application no sludge was disposed of in the previous year. Septic tanks discharging to the sewer system are required to be pumped out every three years.

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
✓		Keith C. Allison / Project Manager	March 30, 2026
✓		Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	March 30, 2026

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.01
Latitude	40º 54' 22.33"	Longitude	-76º 24' 53.50"
Quad Name	Catawissa, PA	Quad Code	1134
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary of Roaring Creek (CWF)	Stream Code	27497
NHD Com ID	65642311	RMI	0.12
Drainage Area	3.01 mi^2	Yield (cfs/mi^2)	0.382
Q_{7-10} Flow (cfs)	1.15	Q_{7-10} Basis	USGS Stream gage 01468500, Schuylkill River @ Landingville, PA
Elevation (ft)	750	Slope (ft/ft)	0.0079
Watershed No.	5-E	Chapter 93 Class.	CWF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use(s)		
Nearest Downstream Public Water Supply Intake	Danville Municipal Water Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	1,120
PWS RMI	138.06	Distance from Outfall (mi)	16.67

Changes Since Last Permit Issuance: None. The above stream and drainage characteristics from the previous review remain adequate.

Other Comments: The discharge is not expected to affect any downstream water supply at this time with the limitations and monitoring proposed.

Treatment Facility Summary

Treatment Facility Name: Slabtown WWTP

WQM Permit No.	Issuance Date	Permit Coverage:
1988404	June 22, 1988	Original Treatment Plant Permitting
1900402	March 19, 2001 Letter Amendment- 3/13/18	Plant Rerate from 0.006 to 0.01 MGD Inclusion of dechlorination

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Sequencing Batch Reactor	Hypochlorite	0.01

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.01	15	Existing Organic Overload	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: None

Other Comments: This facility receives effluent from individual home septic tanks. The treatment facilities as permitted under WQM Permit Nos. 1988404 and 1900402 consist of a Cromaglass sequencing batch reactor unit, tablet chlorination, and tablet dechlorination.

Industrial Users

The facility has no industrial users.

Hauled-In-Waste

The facility receives no hauled in waste.

Compliance History

DMR Data for Outfall 001 (from February 1, 2025 to January 31, 2026)

Parameter	JAN-26	DEC-25	NOV-25	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25
Flow (MGD) Average Monthly	0.00254	0.00232	0.00171	0.0021	0.00233	0.00182	0.00342	0.00732	0.00755	0.00507	0.005	0.00326
Flow (MGD) Daily Maximum	0.00364	0.00378	0.0027	0.00405	0.00702	0.0027	0.00783	0.0189	0.01296	0.00959	0.00945	0.00493
pH (S.U.) Instantaneous Minimum	6.5	6.1	6.3	6.7	6.6	6.6	6.5	6.4	6.5	6.2	6.5	6.3
pH (S.U.) Instantaneous Maximum	7.1	7.0	7.0	7.1	7.0	7.1	7.4	7.0	7.0	6.9	7.2	7.3
DO (mg/L) Instantaneous Minimum	4.2	3.1	3.5	3	3.1	3.1	2.9	3.3	3.1	3.5	3.5	3.2
TRC (mg/L) Average Monthly	0.1	0.2	0.1	0.2	< 0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2
TRC (mg/L) Instantaneous Maximum	0.49	0.38	0.36	0.41	0.43	0.48	0.61	0.43	0.41	0.52	0.47	0.42
CBOD5 (lbs/day) Average Monthly	< 0.06	< 0.06	< 0.04	< 0.08	< 0.06	< 0.1	< 0.1	< 0.2	< 0.2	< 0.1	< 0.2	< 0.08
CBOD5 (lbs/day) Weekly Average	< 0.08	< 0.07	< 0.05	< 0.1	< 0.08	0.2	0.2	< 0.2	< 0.2	< 0.1	< 0.2	< 0.09
CBOD5 (mg/L) Average Monthly	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 5.0	< 4.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
CBOD5 (mg/L) Weekly Average	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	8.0	6.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	1	2	1	4	2	2	2	4	4	3	3	3
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	1	3	1	5	2	2	3	4	4	4	3	4
BOD5 (mg/L) Raw Sewage Influent Average Monthly	67	76	80	156	127	86	80	62	61	108	54	123
TSS (lbs/day) Average Monthly	0.1	0.1	0.06	< 0.06	< 0.07	0.06	0.09	< 0.3	< 0.2	0.3	0.2	0.1
TSS (lbs/day) Raw Sewage Influent Average Monthly	2	2	1	4	2	2	2	2	2	4	3	3

TSS (lbs/day) Raw Sewage Influent Daily Maximum	2	3	1	7	2	2	3	2	2	5	3	3
TSS (lbs/day) Weekly Average	0.2	0.1	0.07	0.07	0.1	0.09	0.1	0.4	0.3	0.5	0.3	0.2
TSS (mg/L) Average Monthly	5.0	5.0	5.0	< 3.0	< 3.0	4.0	3.0	< 4.0	< 3.0	7.0	4.0	4.0
TSS (mg/L) Raw Sewage Influent Average Monthly	68	101	68	130	116	91	66	36	37	98	60	95
TSS (mg/L) Weekly Average	8.0	6.0	6.0	4.0	4.0	4.0	4.0	7.0	4.0	11.0	6.0	5.0
Fecal Coliform (No./100 ml) Geometric Mean	< 1	< 1	9	< 1	< 1	< 1	< 1	< 1	< 1	< 1	5	< 3
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1	< 1	88.4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	21.1	12.2
Ammonia (lbs/day) Average Monthly	0.2	0.08	0.06	0.07	0.03	0.1	0.3	0.1	0.04	0.1	< 0.01	0.08
Ammonia (lbs/day) Weekly Average	0.3	0.1	0.10	0.10	0.04	0.2	0.4	0.2	0.07	0.1	< 0.01	0.1
Ammonia (mg/L) Average Monthly	9.6	3.6	4.5	3.1	1.7	6.2	9.6	2.1	0.7	3.3	< 0.1	2.8
Ammonia (mg/L) Weekly Average	12.1	5.6	6.4	4.8	2.7	10.9	10.9	2.6	1.4	4.3	< 0.1	4.3

Compliance History, Continued	
Summary of Inspections:	The most recent inspection by the Department of the facility on December 31, 2025 identified no violations.
Other Comments:	There are no open violations in eFACTS for Locust Township, Columbia County.

Existing Effluent Limitations and Monitoring Requirements								
Parameter	**Effluent Limitations**						**Monitoring Requirements**	
	Mass Units (lbs/day) (1)		**Concentrations (mg/L)**				**Minimum (2) Measurement Frequency**	**Required Sample Type**
	Average Monthly	**Weekly Average**	**Minimum**	**Average Monthly**	**Weekly Average**	**Instant. Maximum**		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	5/week	Grab
DO	XXX	XXX	Report Inst Min	XXX	XXX	XXX	5/week	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.5	5/week	Grab
CBOD5	2.1	3.3	XXX	25.0	40.0	50	2/month	Grab
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	Grab
TSS	2.5	3.8	XXX	30.0	45.0	60	2/month	Grab
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	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
Ammonia	Report	Report	XXX	Report	Report	XXX	2/month	Grab

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.01
Latitude 40º 54' 22.44" **Longitude** -76º 24' 53.27"
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)

Comments: The above limitations are applicable and included in the existing permit.

Water Quality-Based Effluent Limitations (WQBELS)

CBOD5, DO, and NH3-N

The WQM7.0 model allows the Department to evaluate point source discharges of dissolved oxygen (DO), carbonaceous BOD ($CBOD_5$), and ammonia nitrogen (NH_3-N) into free-flowing streams and rivers. To accomplish this the model simulates two basic processes: the mixing and degradation of NH_3-N in the stream and the mixing and consumption of DO in the stream due to the degradation of $CBOD_5$ and NH_3-N. WQM7.0 modeling was performed for the discharge to the Unnamed Tributary to Roaring Creek and showed that the secondary treatment limits listed above are adequate to protect the receiving waters. See Attachment B.

TRC

The Department uses a modeling spreadsheet to determine necessary WQBELs for TRC toxicity based on available instream dilution. The attached modeling results (See Attachment C) show that the existing tech-based limit is adequate to protect the receiving stream.

Toxics Management

No further “Reasonable Potential Analysis” was performed to determine additional toxic parameters as candidates for limitations for this 0.01 MGD sewage treatment facility receiving no industrial flows.

Chesapeake Bay Requirements

A portion of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the Water Pollution Control Act, 33 U.S.C. §1313(d). Total Nitrogen and Total Phosphorus cap loads have been established for significant dischargers in Pennsylvania to reduce the total nutrient load to the Bay and meet State of Maryland Water Quality Standards. The Locust Township Slabtown treatment plant is considered an existing Phase 5, insignificant Chesapeake Bay discharger per the Phase III Watershed Implementation Plan (WIP) and thus has not received Cap Loads. Monitoring under a previous permit term found the Total Nitrogen and Total Phosphorus to average <9.6 and 1.3 mg/L, respectively. Because the nutrient load from the discharge has adequately been characterized no further nutrient monitoring will be required at this time.

e. Coli
Annual e. coli monitoring was required in the previous renewal permit and will remain.

Best Professional Judgment (BPJ) Limitations

No additional BPJ limits are needed beyond the water quality and technology-based limits noted above.

Anti-Backsliding

No water quality based or BPJ limits were made less stringent consistent with the anti-backsliding requirements of 40 CFR 122.44(l).

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	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	5/week	Grab
DO	XXX	XXX	Report Inst Min	XXX	XXX	XXX	5/week	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.5	5/week	Grab
CBOD5	2.1	3.3	XXX	25.0	40.0	50	2/month	Grab
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	Grab
TSS	2.5	3.8	XXX	30.0	45.0	60	2/month	Grab
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	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
Ammonia	Report	Report	XXX	Report	Report	XXX	2/month	Grab

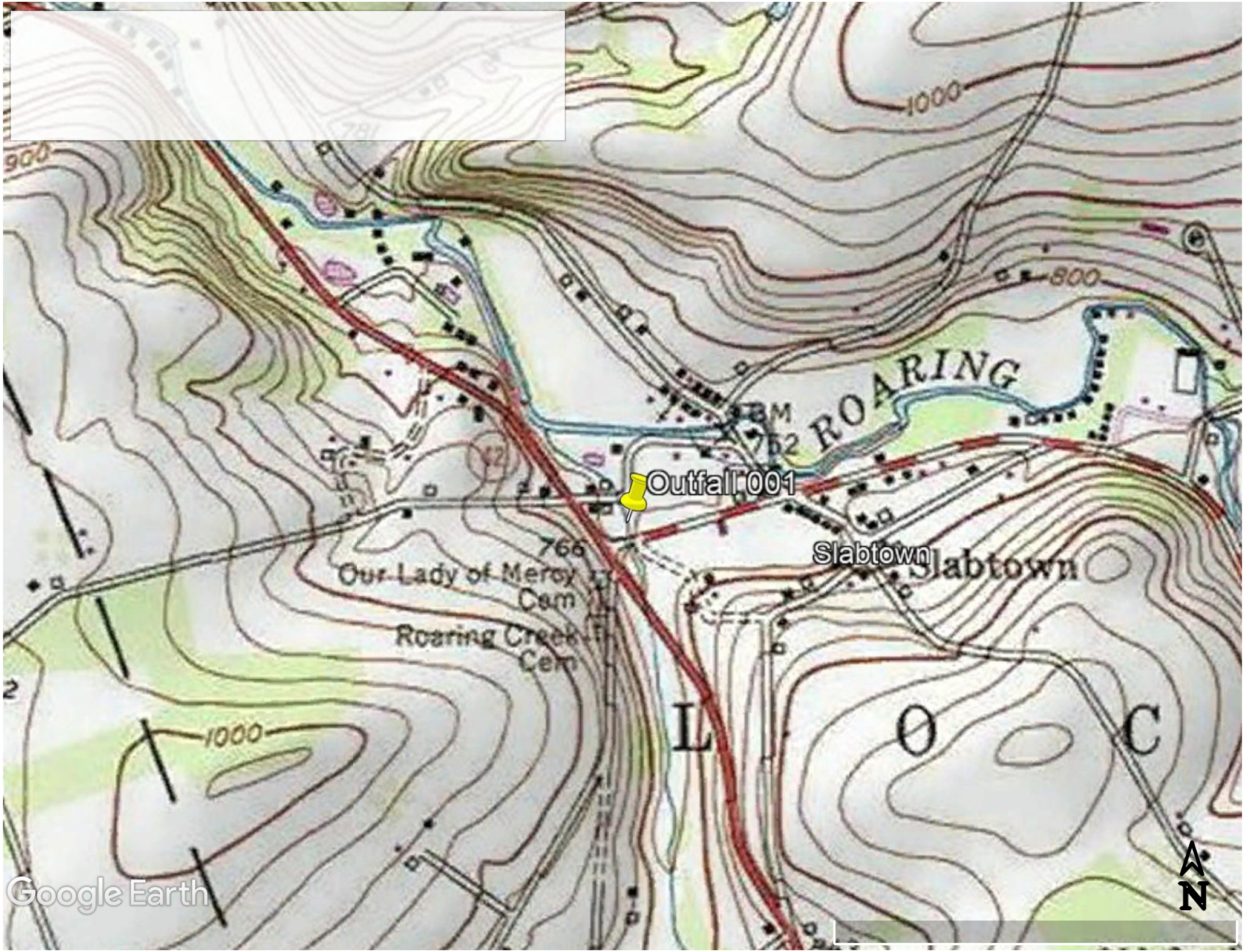
Compliance Sampling Location: Outfall 001

Other Comments: The above limits and monitoring are unchanged from the current permit. Due to previous agreements between the Department and permittee, and because the effluent limitations are consistently met, the existing 5/week monitoring for pH, DO, and TRC will remain at this time.

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☐	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment **C**)
☐	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:

Attachments:

A. Discharge Location Map
B. WQM7.0 Model
C. TRC Model


Outfall 001
ROARING
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Slabtown
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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
05E	27497	Trib 27497 to Roaring Creek	**0.120**	750.00	3.01	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.382	0.00	0.00	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 (ºC)	Disc pH
Locust Twp	PA0113956	0.0100	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

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
05E	27497	Trib 27497 to Roaring Creek	**0.000**	745.00	3.06	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.382	0.00	0.00	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 (ºC)	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
05E	27497	Trib 27497 to Roaring 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 (ºC)	Analysis pH
Q7-10 Flow												
0.120	1.15	0.00	1.15	.0155	0.00790	.512	12.21	23.86	0.19	0.039	20.07	7.00
Q1-10 Flow												
0.120	0.74	0.00	0.74	.0155	0.00790	NA	NA	NA	0.15	0.050	20.10	7.00
Q30-10 Flow												
0.120	1.56	0.00	1.56	.0155	0.00790	NA	NA	NA	0.22	0.033	20.05	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	6		

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
05E	27497	Trib 27497 to Roaring Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
0.120	0.010	20.066	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
12.209	0.512	23.864	0.187
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.31	0.211	0.33	0.704
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.173	14.022	Tsivoglou	6
Reach Travel Time (days)			
0.039			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.004	2.30	0.33	8.22
0.008	2.30	0.33	8.23
0.012	2.30	0.33	8.23
0.016	2.30	0.33	8.23
0.020	2.30	0.33	8.23
0.024	2.29	0.33	8.23
0.027	2.29	0.33	8.23
0.031	2.29	0.32	8.23
0.035	2.29	0.32	8.23
0.039	2.29	0.32	8.23

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
05E	27497	Trib 27497 to Roaring 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
0.120	Locust Twp	16.62	50	16.62	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
0.120	Locust Twp	1.88	25	1.88	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)		
0.12	Locust Twp	25	25	25	25	3	3	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
05E	27497	Trib 27497 to Roaring 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)
0.120	Locust Twp	PA0113956	0.010	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

1.15	= Q stream (cfs)	0.5	= CV Daily
0.01	= 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 = 23.733	1.3.2.iii	WLA cfc = 23.130
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 8.843	5.1d	LTA_cfc = 13.447

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

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)