Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0085006**
Facility Type	**Municipal**	APS ID	**16**
Major / Minor	**Minor**	Authorization ID	**1497165**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Conoy Township**	Facility Name	**Bainbridge STP**
Applicant Address	211 Falmouth Road	Facility Address	2115 River Road
	Bainbridge, PA 17502-9801		Bainbridge, PA 17502
Applicant Contact	Jennifer Rabuck	Facility Contact	Jennifer Rabuck
Applicant Phone	(717) 367-4991	Facility Phone	(717) 367-4991
Client ID	77263	Site ID	239234
Ch 94 Load Status	Existing Hydraulic Overload	Municipality	Conoy Township
Connection Status	No Exceptions Allowed	County	Lancaster
Date Application Received	August 29, 2024	EPA Waived?	Yes
Date Application Accepted	September 18, 2024	If No, Reason	

Purpose of Application: NPDES Renewal.

Summary of Review

Conoy Township has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit. The existing permit was issued on February 25, 2020, and became effective on March 1, 2020, authorizing discharge of treated sewage from the facility into Conoy Creek. The existing permit expiration date was February 28, 2025, and the permit has been administratively extended since that time.

Changes in this renewal: E. Coli monitoring has been added to the permit.

Sludge use and disposal description and location(s): Sludge holding tank with offsite disposal.

Supplemental information for this facility is provided at the end of this fact sheet.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Approve	Deny	Signatures	Date
X		Benjamin R. Lockwood Benjamin R. Lockwood / Environmental Engineering Specialist	June 27, 2025
X		*Daniel W. Martin* Daniel W. Martin, P.E. / Environmental Engineer Manager	July 29, 2025

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	.08
Latitude	40º 5' 6"	Longitude	76º 39' 37"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Conoy Creek (TSF, MF)	Stream Code	8278
NHD Com ID	57464225	RMI	1.13
Drainage Area	17.5 mi^2	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)	2.1	Q_{7-10} Basis	USGS Gage # 01576500
Elevation (ft)	272	Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	TSF, MF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens, Habitat Alterations, Siltation, Siltation		
Source(s) of Impairment	Source Unknown, Habitat Modification – Other than Hydromodification, Habitat Modification – Other than Hydromodification, Agriculture		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Columbia Water Company		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	9.7

Changes Since Last Permit Issuance: A drainage area of 17.5 mi^2 and a Q_{7-10} flow of 2.1 cubic feet per second (cfs) were determined by establishing a correlation to the yield of USGS Gage Station #01576500 on the Conestoga River. The Q_{7-10} and drainage area at the gage are 38.6 cfs and 324 mi^2, respectively. These values are taken from the USGS document "Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania". The Q_{7-10} runoff rate at the gage station was calculated as follows:

Yield = (38.6 cfs)/ 324 mi^2 = 0.12 cfs/mi^2

The drainage area at the discharge point, taken from USGS PA StreamStats = 17.5 mi^2

The Q_{7-10} at the discharge point = 17.5 mi^2 x 0.12 cfs/mi^2 = 2.1 cfs

Other Comments: None

Treatment Facility Summary				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Activated Sludge	Hypochlorite	0.08
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.08	160	Existing Hydraulic Overload	Holding Tank	Other WWTP

Changes Since Last Permit Issuance: None

Other Comments: The treatment process consists of: Comminutor, EQ Tank, 2 Extended Aeration Treatment Units, 2 Final Clarifiers, UV Disinfection System, 2 Sludge Holding Tanks, 4 Reed Beds, Outfall 001 to Conoy Creek.

Compliance History	
Summary of DMRs:	A summary of past DMR effluent data is presented on the next page of this fact sheet.
Summary of Inspections:	6/17/2020: An administrative inspection was conducted. All treatment units were operable and there were no outstanding issues at the time of inspection. 9/16/2020: A routine inspection was conducted. The clarifier effluent appeared clear. The chlorine contact tank had a cloudy tint. The outfall appeared clear and free of solids, foam, debris, etc. Field results were within permitted limits. 10/5/2020: A Notice of Violation (NOV) was issued for fecal coliform and total chlorine residual violations in 2020. 7/15/2021: A routine inspection was conducted. No issues were noted with the treatment process. The outfall appeared clear and free of solids, foam, debris, etc. TRC was initially at the IMAX limit, so dechlor was added. The effluent appeared clear with fine suspended solids. 10/25/2021: A NOV was issued for TSS and fecal coliform violations in 2020 and 2021.

Other Comments: There are currently no open violations associated with the Applicant.

Compliance History

DMR Data for Outfall 001 (from May 1, 2024 to April 30, 2025)

Parameter	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24
Flow (MGD) Average Monthly	0.051	0.052129	0.061	0.058	0.056	0.057	0.060	0.061	0.061	0.056	0.053	0.053
Flow (MGD) Daily Maximum	0.082	0.1174	0.093	0.076	0.075	0.112	0.095	0.120	0.085	0.092	0.067	0.072
pH (S.U.) Instantaneous Minimum	6.9	7.1	7.0	6.5	6.1	6.8	6.7	6.8	7.0	6.7	6.6	6.1
pH (S.U.) Instantaneous Maximum	7.7	7.8	7.7	7.5	7.8	7.8	7.9	7.9	7.9	7.9	7.5	8.0
DO (mg/L) Instantaneous Minimum	7.3	9.1	8.9	9.0	7.4	7.7	6.8	6.2	5.7	6.2	6.1	5.4
CBOD5 (lbs/day) Average Monthly	3	6	5	6	9	2	6	3	3	2	3	< 22
CBOD5 (lbs/day) Weekly Average	3	8	10	8	9	3	7	5	4	3	4	42
CBOD5 (mg/L) Average Monthly	7	13	12	14	18	5	9	4	5	6	8	< 47.0
CBOD5 (mg/L) Weekly Average	9	19	20	21	20	6	9	5	7	6	9	91.9
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	114	215	106	151	116	85	109	69	118	99	150	142
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	178	305	147	160	138	96	110	101	161	103	168	149
BOD5 (mg/L) Raw Sewage Influent Average Monthly	330	471	294	337	237	250	149	124	219	249	403	312
TSS (lbs/day) Average Monthly	142	27	8	9	12	13	16	10	< 2	7	8	151
TSS (lbs/day) Raw Sewage Influent Average Monthly	116	131	98	158	112	72	78	70	128	159	131	173

TSS (lbs/day) Raw Sewage Influent Daily Maximum	130	152	137	190	136	98	100	106	178	161	165	205
TSS (lbs/day) Weekly Average	280	48	15	14	18	14	23	16	< 2	8	9	244
TSS (mg/L) Average Monthly	8	64	18	21	25	34	23	16	< 4	18	21	329
TSS (mg/L) Raw Sewage Influent Average Monthly	269	293	269	345	228	196	110	117	236	397	344	379
TSS (mg/L) Weekly Average	9	116	29	36	38	43	34	17	4	20	22	530
Fecal Coliform (No./100 ml) Geometric Mean	17	38	24	239	44	67	201	119	742	805	792	> 8000
Fecal Coliform (No./100 ml) Instantaneous Maximum	24	79	44	1300	49	90	338	300	2600	2700	4900	> 20000
UV Intensity (mW/cm²) Instantaneous Minimum	0.5	4.0	0.3	0.3	0.0	0.2	0.1	0.0	0.2	0.0	0.6	0.2
Nitrate-Nitrite (lbs/day) Annual Average					26.48							
Nitrate-Nitrite (mg/L) Annual Average					50.80							
Total Nitrogen (lbs/day) Annual Average					27.94							
Total Nitrogen (mg/L) Annual Average					53.60							
Ammonia (mg/L) Average Monthly	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.4	7.8	< 0.1	1.5	39.4
TKN (lbs/day) Annual Average					1.46							
TKN (mg/L) Annual Average					2.80							
Total Phosphorus (lbs/day) Annual Average					3.10							
Total Phosphorus (mg/L) Annual Average					5.94							

Compliance History

Effluent Violations for Outfall 001, from: June 1, 2024 To: April 30, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TSS	04/30/25	Avg Mo	142	lbs/day	20	lbs/day
TSS	03/31/25	Avg Mo	27	lbs/day	20	lbs/day
TSS	03/31/25	Avg Mo	27	lbs/day	20	lbs/day
TSS	04/30/25	Wkly Avg	280	lbs/day	30	lbs/day
TSS	03/31/25	Wkly Avg	48	lbs/day	30	lbs/day
TSS	03/31/25	Wkly Avg	48	lbs/day	30	lbs/day
TSS	03/31/25	Avg Mo	64	mg/L	30	mg/L
TSS	11/30/24	Avg Mo	34	mg/L	30	mg/L
TSS	03/31/25	Avg Mo	64	mg/L	30	mg/L
TSS	03/31/25	Wkly Avg	116	mg/L	45	mg/L
TSS	03/31/25	Wkly Avg	116	mg/L	45	mg/L
Fecal Coliform	08/31/24	Geo Mean	742	No./100 ml	200	No./100 ml
Fecal Coliform	06/30/24	Geo Mean	792	No./100 ml	200	No./100 ml
Fecal Coliform	07/31/24	Geo Mean	805	No./100 ml	200	No./100 ml
Fecal Coliform	06/30/24	IMAX	4900	No./100 ml	1000	No./100 ml
Fecal Coliform	07/31/24	IMAX	2700	No./100 ml	1000	No./100 ml
Fecal Coliform	08/31/24	IMAX	2600	No./100 ml	1000	No./100 ml

Existing Effluent Limitations and Monitoring Requirements

Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	17	27	XXX	25	40	50	2/month	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Suspended Solids	20	30	XXX	30	45	60	2/month	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	8-Hr Composite
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
Ultraviolet light intensity (mW/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Nitrate-Nitrite as N	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Nitrogen	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Kjeldahl Nitrogen	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Phosphorus	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .08
Latitude 40º 5' 6" **Longitude** 76º 39' 37"
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

$CBOD_5$, NH_3-N

Pursuant to 40 CFR § 122.44(d)(1)(i), more stringent requirements should be considered when pollutants are discharged at the levels which have the reasonable potential to cause or contribute to excursions above water quality standards.

WQM 7.0 ver. 1.1b is a water quality model designed to assist DEP in determining appropriate water quality based effluent limits (WQBELs) for carbonaceous biochemical oxygen demand ($CBOD_5$), ammonia (NH_3-N) and dissolved oxygen (D.O.). DEP's Technical Guidance No. 391-2000-007 provides the technical methods contained in WQM 7.0 for determining wasteload allocations and for determining recommended NPDES effluent limits for point source discharges. The model was utilized for this permit renewal. Default stream pH and temperature inputs were used for this model. The flow data used to run the model was acquired from USGS PA StreamStats and is included in the attachment. The model output indicated a $CBOD_5$ average monthly limit of 25 mg/l, an NH_3-N average monthly limit of 25 mg/l, and a D.O. minimum limit of 5.0 mg/l were protective of water quality. The existing NH_3-N and $CBOD_5$ limits are the same as the model limits, which will remain in the renewal.

There are no industrial/commercial users contributing industrial wastewater to the system and Conoy Township does not currently have an EPA-approved pretreatment program. Accordingly, evaluating reasonable potential of toxic pollutants is not necessary as effluent levels of toxic pollutants are expected to be insignificant.

Additional Considerations

Chesapeake Bay Total Maximum Daily Load (TMDL)

DEP developed a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). This strategy can be located in the *Pennsylvania Chesapeake Watershed Implementation Plan* (WIP), dated January 11, 2011. Subsequently, an update to the WIP was published as the Phase 2 WIP. As part of the Phase 2 WIP, a *Phase 2 Watershed Implementation Plan Wastewater Supplement* (Phase 2 Supplement) was developed, providing an update on TMDL implementation for point sources and DEP's current implementation strategy for wastewater. A new update to the WIP was published as the Phase 3 WIP in August 2019. As

part of the Phase 3 WIP, a *Phase 3 Watershed Implementation Plan Wastewater Supplement* (Phase 3 Supplement) was developed, and was most recently revised on July 29, 2022, and is the basis for the development of any Chesapeake Bay related permit parameters. Sewage discharges have been prioritized based on their design flow to the Bay. The highest priority (Phases 1, 2, and 3) dischargers will receive annual Cap Loads based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. These limits may be achieved through a combination of treatment technology, credits, or offsets. For Phase 4 and 5 facilities, Cap Loads are not currently being implemented for renewed or amended permits for facilities that do not increase design flow.

This facility is considered a Phase 5 non-significant discharger with a design flow less than 0.2 MGD but greater than 0.002 MGD. According to DEP's latest-revised Phase 3 Supplement, issuance of permits with monitoring and reporting for TN and TP is recommended for any Phase 5 non-significant sewage facilities (i.e., facilities with average annual design flows on August 29, 2005 less than 0.2 MGD but greater than 0.002 MGD). Furthermore, DEP's SOP No. BPNPSM-PMT-033 states that in general, at a minimum, monitoring for TN and TP should be included in new and reissued permits for sewage discharges with design flows > 2,000 gpd. TN and TP monitoring is included in the existing permit, and will remain in the renewal. Table 6-3 of DEP's Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001) recommends a measurement frequency of 2/month for NH_3-N and phosphorus. DEP's SOP No. BPNPSM-PMT-033 states that a lesser sampling frequency for TN and TP can be used for discharges to waters not impaired for nutrients. As this receiving stream does not have an impairment for nutrients, the existing sampling frequency of 1/year will remain in the permit for TN and TP.

Dissolved Oxygen

A minimum D.O. limit of 5.0 mg/L is a D.O. water quality criterion found in 25 Pa. Code § 93.7(a). This limit is included in the existing NPDES permit based BPJ. It is still recommended to include this limit in the draft permit to ensure that the facility continues to achieve compliance with DEP water quality standards.

Fecal Coliform

PA Code § 92a.47.(a)(4) requires a monthly average limit of 200/100 mL as a geometric mean and an instantaneous maximum limit not greater than 1,000/100 mL from May through September for fecal coliform. PA Code § 92a.47.(a)(5) requires a monthly average limit of 2,000/100 mL as a geometric mean and an instantaneous maximum limit not greater than 10,000/100 mL from October through April for fecal coliform. These limits are consistent with the existing permit.

E. Coli

PA Code § 92a.61 requires IMAX reporting of E. Coli. Per DEP's SOP No. BCW-PMT-033, sewage dischargers with a design flow of >= 0.05 mgd and < 1 mgd will include E. Coli monitoring with a frequency of 1/quarter. This parameter has been added to the renewal permit.

UV Monitoring

DEP's SOP No. BPNPSM-PMT-033 recommends at a minimum, routine monitoring of UV transmittance, dosage, or intensity when the facility is utilizing a UV disinfection system. The monitoring should occur at the same frequency as would be used for TRC. This recommendation was implemented as a part of the proper operation and maintenance requirement specified in Part B of the NPDES permit, requesting permittees to demonstrate the effectiveness of UV disinfection system. This approach has been assigned to other facilities equipped with similar technology. The existing permit has a monitoring parameter for UV intensity, which will remain in the renewal.

Sampling Frequency & Sample Type

The monitoring requirements were established based on BPJ and/or Table 6-3 of DEP's Technical Guidance No. 362-0400-001.

Flow Monitoring

Flow monitoring is recommended by DEP's technical guidance and is also required by 25 PA Code §§ 92a.27 and 92a.61.

Influent BOD_5 and Total Suspended Solids (TSS) Monitoring

As a result of negotiation with US EPA, influent monitoring of TSS and BOD_5 are required for any publicly owned treatment works (POTWs); therefore, influent sampling of BOD_5 and TSS will remain in the permit.

Mass Loading Limitation

All mass loading effluent limitations recommended in the draft permit are concentration-based, calculated using a formula: design flow (MGD) x concentration limit (mg/l) x conversion factor of 8.34.

Anti-Degradation

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

303(d) Listed Streams

The discharge is located on a stream segment that is designated on the 303(d) list as impaired. There is a recreational impairment due to pathogens from an unknown source. There is an aquatic life impairment due to habitat alterations and siltation from habitat modification – other than hydromodification, and siltation from agriculture.

Class A Wild Trout Fisheries

No Class A Wild Trout Fisheries are impacted by this discharge.

Anti-Backsliding

Pursuant to 40 CFR § 122.44(l)(1), all proposed permit requirements addressed in this fact sheet are at least as stringent as the requirements implemented in the existing NPDES permit unless any exceptions are addressed by DEP in this fact sheet.

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	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5	17	27	XXX	25	40	50	2/month	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	8-Hr Composite
TSS	20	30	XXX	30	45	60	2/month	8-Hr Composite
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 Intensity (mW/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Ammonia	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Nitrate-Nitrite	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Nitrogen	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation

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	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
TKN	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Phosphorus	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite

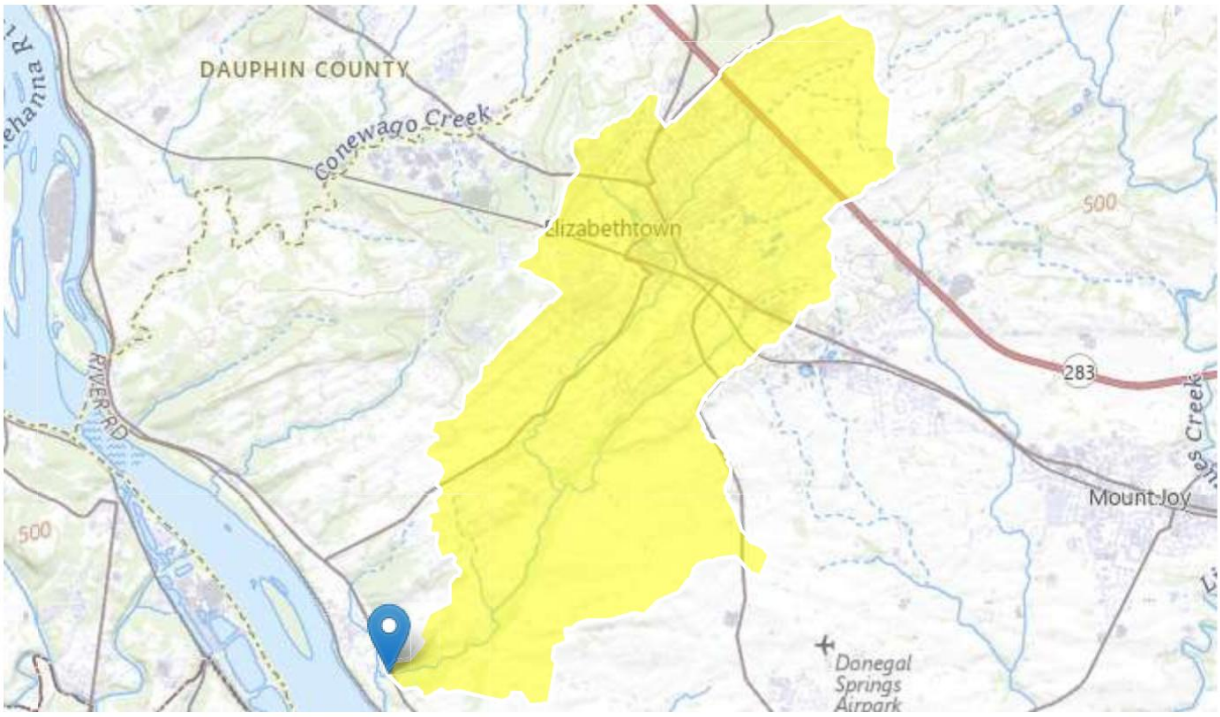
Compliance Sampling Location: Outfall 001

Other Comments: None

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: BCW-PMT-033, BCW-PMT-002
☐	Other:

Conoy Township Bainbridge STP PA0085006 Outfall 001

Region ID: PA
Workspace ID: PA20250626140831079000
Clicked Point (Latitude, Longitude): 40.08497, -76.66015
Time: 2025-06-26 10:09:06 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	2.9208	degrees
DRNAREA	Area that drains to a point on a stream	17.5	square miles
ROCKDEP	Depth to rock	4.7	feet
URBAN	Percentage of basin with urban development	13.9479	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLOPD	Mean Basin Slope degrees	2.9208	degrees	1.7	6.4
DRNAREA	Drainage Area	17.5	square miles	4.78	1150
ROCKDEP	Depth to Rock	4.7	feet	4.13	5.21
URBAN	Percent Urban	13.9479	percent	0	89

Low-Flow Statistics Flow Report [Low Flow Region 1]

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	2.4	ft^3/s	46	46
30 Day 2 Year Low Flow	3.44	ft^3/s	38	38
7 Day 10 Year Low Flow	1.02	ft^3/s	51	51
30 Day 10 Year Low Flow	1.5	ft^3/s	46	46
90 Day 10 Year Low Flow	2.87	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/)

as to the functionality of the software and related material nor shall the fact of release constitute any such warranty. Furthermore, the software is released on condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from its authorized or unauthorized use.

USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.29.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

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
07G	8278	CONOY CREEK	**1.130**	272.00	17.50	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	0.100	0.00	2.10	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
Bainbridge STP	PA0085006	0.0800	0.0800	0.0800	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	5.00	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
07G	8278	CONOY CREEK	**1.130**	272.00	17.50	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	0.100	0.00	2.10	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
Bainbridge STP	PA0085006	0.0800	0.0800	0.0800	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	5.00	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
07G	8278	CONOY 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												
1.130	2.10	0.00	2.10	.1238	0.00352	.588	22.24	37.82	0.17	0.406	20.28	7.00
Q1-10 Flow												
1.130	1.34	0.00	1.34	.1238	0.00352	NA	NA	NA	0.13	0.512	20.42	7.00
Q30-10 Flow												
1.130	2.86	0.00	2.86	.1238	0.00352	NA	NA	NA	0.20	0.345	20.21	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
07G	8278	CONOY 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
1.130	Bainbridge STP	16.18	50	16.18	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
1.130	Bainbridge STP	1.86	25	1.86	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)		
1.13	Bainbridge STP	25	25	25	25	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07G	8278	CONOY CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.130	0.080	20.278	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
22.238	0.588	37.823	0.170
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.28	0.528	1.39	0.715
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.063	5.726	Tsivoglou	5
Reach Travel Time (days)			
0.406			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.041	3.21	1.35	8.02
0.081	3.14	1.31	8.00
0.122	3.07	1.28	7.99
0.162	3.01	1.24	7.98
0.203	2.94	1.20	7.99
0.244	2.88	1.17	7.99
0.284	2.82	1.14	8.01
0.325	2.76	1.10	8.02
0.365	2.70	1.07	8.04
0.406	2.64	1.04	8.06

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07G	8278	CONOY 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)
1.130	Bainbridge STP	PA0085006	0.080	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5