pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0022233**
Facility Type	**Municipal**	APS ID	**276387**
Major / Minor	**Minor**	Authorization ID	**1459166**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Arendtsville Borough Municipal Authority Adams County**	Facility Name	**Arendtsville STP**
Applicant Address	1 Chestnut Street PO Box 508	Facility Address	241 E Main Street
	Arendtsville, PA 17303		Arendtsville, PA 17303
Applicant Contact	Ron Cooper	Facility Contact	Ron Cooper
Applicant Phone	(717) 677-9300	Facility Phone	(717) 677-9300
Client ID	77908	Site ID	250930
Ch 94 Load Status	Not Overloaded	Municipality	Arendtsville Borough
Connection Status	No Limitations	County	Adams
Date Application Received	October 23, 2023	EPA Waived?	Yes
Date Application Accepted	October 23, 2023	If No, Reason	

Purpose of Application: NPDES permit renewal.

Summary of Review

KPI Technology, on behalf of the Arendtsville Municipal Authority (Authority/Permittee), applied to the Pennsylvania Department of Environmental Protection (DEP) for issuance of the NPDES permit. The permit was reissued on May 21, 2019 and became effective on June 1, 2019. The permit expires on May 31, 2024.

The average annual design flow and hydraulic design capacity is 0.14 MGD, and the organic loading capacity is 280 lbs BOD_5/day. The treated effluent is discharged to Conewago Creek. This facility receives 100.0% of its flow from Arendtsville Borough. The 2023 application states that there are no industrial users.

WQM Part II Permit No. 0191402 A-1 amendment was issued on 11/8/2011.

Sludge use and disposal description and location(s): N/A because sludge is hauling by Pecks Septic contractor.

Changes from the previous permit: The E. Coli. monitoring and report requirements will add to the proposed permit. The 2/month monitoring and reporting requirements of Bromide will be removed from the proposed permit.

Based on the review outlined in this fact sheet, it is recommended that the permit be drafted. A public notice of the draft permit will be published in the *Pennsylvania Bulletin* for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	March 15, 2024
X		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	March 22, 2024

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.14
Latitude	39º 55' 24.17"	Longitude	-77º 17' 23.92"
Quad Name	Arendtsville	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Conewago Creek (CWF)	Stream Code	8303
NHD Com ID	57472489	RMI	69.89
Drainage Area	26.5 mi.^{2}	Yield (cfs/mi^2)	0.25
Q_{7-10} Flow (cfs)	6.59	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	635	Slope (ft/ft)	
Watershed No.	7-F	Chapter 93 Class.	CWF
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	
Nearest Downstream Public Water Supply Intake	Wrightsville Water Supply Co., York County		
PWS Waters	Susquehanna	Flow at Intake (cfs)	
PWS RMI	28.51 miles	Distance from Outfall (mi)	Approximate 83.0 miles

Changes Since Last Permit Issuance:

Drainage Area

The discharge is to Conewago Creek at RMI 69.89 miles. A drainage area upstream of the discharge is estimated to be 26.5 mi.^{2}, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow

According to StreamStats, the discharge point on Conewago Creek has a Q_{7-10} of 6.59 cfs and a drainage area of 26.5 mi.^{2}, which results in a Q_{7-10} low flow yield of 0.25 cfs/mi.^{2}. This information is used to obtain a chronic or 30-day (Q_{30-10}), and an acute or 1-day (Q_{1-10}) exposure stream flow for the discharge point as follows (Guidance No. 391-2000-023):

Q_{7-10} = 6.59 cfs
Low Flow Yield = 6.59 cfs / 26.5 mi.^{2} = 0.25 cfs/mi.^{2}
Q_{30-10} = 1.36 * 6.59 cfs = 8.96 cfs
Q_{1-10} = 0.64 * 6.59 cfs = 4.22 cfs

Conewago Creek

25 Pa. Code § 93.9o classifies Conewago Creek as Cold-Water Fishes & Migratory Fishes (CWF & MF) surface water. Based on the 2022 Integrated Report, Conewago Creek, assessment unit IDs 18517 & 13003, is not impaired. A TMDL currently does not exist for this stream segment, therefore, no TMDL has been taken into consideration during this review.

Public Water Supply

The nearest downstream public water supply intake is for Wrightsville Water Supply Co. in York County on Susquehanna River, approximately 83.0 miles downstream of this discharge. Considering distance and dilution, the discharge is not expected to impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: Arendtsville STP				
WQM Permit No.	**Issuance Date**			
0191402 A-1	11/8/2011			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Activated Sludge	Hypochlorite	0.14
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.14	280	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: none

Other Comments:
The WWTP train is as follows:

Grit Removal / Surge Tank (1) ⇒ Aeration Tank (2) ⇒ Clarifier / Settling Tank (2) ⇒ Chlorine Contact Tank (1) ⇒ Post Aeration Tank (2) ⇒ Discharge to Conewago Creek

Chemical used:
Liquid Aluminum Sulfate is used for phosphorus removal at a rate of 2 gpd. Chlorine is used for disinfection at a rate of 5 gpd.

Industrial/Commercial Users:
The permit application indicated there are no commercial or industrial contributors to the treatment plant.

Biosolids:
The total sewage sludge/biosolids production within the facility for the previous year was 53.24 dry tons.

Compliance History	
Summary of DMRs:	A summary of past 12-month DMRs is presented on the pages 5-7.
Summary of Inspections:	**8/07/23:** Mr. Hoy, DEP WQS, conducted a compliance evaluation inspection. There were no violations noted during inspection. The field test results were within permit limits. Recommendations were regular maintenance of the outfall path and placing a NIST thermometer in the sample storage refrigerator and recording temperature. DEP requested that individual aliquots be at least 100 mL for composite samples and completing the beneficial use information for future sewage sludge supplemental reports. **6/29/21:** Mr. Bettinger, DEP WQS, conducted a compliance evaluation inspection. There were no violations noted during inspection. The field test results were within permit limits. Recommendations were regular maintenance of the outfall path.
Other Comments:	There are no violations against the permittee or applicant.

Other Comments:

The table below summarizes the influent/effluent testing results submitted along with the application.

Influent Testing Results

Parameter	Min/Max Value	Average Value
BOD_5 (mg/L)	29.6/345 mg/L	90 mg/L
BOD_5 (lbs/day)	12/241 lbs/day	51 lbs/day
TSS (mg/L)	4/160 mg/L	61 mg/L
TSS (lbs/day)	2/89 lbs/day	34 lbs/day
TN (mg/L)	66 mg/L	66 mg/L
TN (lbs/day)	19 lbs/day	19 lbs/day
TP (mg/L)	7.0 mg/L	7.0 mg/L
TP (lbs/day)	2.0 lbs/day	2.0 lbs/day
NH_3-N (mg/L)	39.0 mg/L	39.0 mg/L
NH_3-N (lbs/day)	11.0 lbs/day	11.0 lbs/day
TDS (mg/L)	354 mg/L	354 mg/L
TDS (lbs/day)	103.0 lbs/day	103.0 lbs/day
TKN	mg/L	mg/L
NO_2-N + NO_3-N	mg/L	mg/L

Effluent Testing Results

Parameter	Min/Max Value	Average Value
pH (minimum)	6.5 S.U.	
pH (maximum)	8.3 S.U.	
D.O (minimum)	5.0 mg/L	7.67 mg/L
TRC	0.014 mg/L	0.24 mg/L
Fecal Coliform	1/2420 No./100mL	31.19 No./100 mL
$CBOD_5$	2.4/3mg/L	2.6 mg/L
TSS	1/5.8 mg/L	3.2 mg/L
NH_3-N	0.1/7.5 mg/L	0.37 mg/L
TN	33.5 mg/L	33.5 mg/L
TP	1.8 mg/L	1.8 mg/L
Temp	66 F	66 F
TKN	0.5 mg/L	0.5 mg/L
NO_2-N + NO_3-N	34.4 mg/L	34.4 mg/L
TDS	478 mg/L	478 mg/L
Chloride	43 mg/L	43 mg/L
Bromide	0.5 mg/L	0.5 mg/L
Sulfate	23 mg/L	23 mg/L
Oil and Grease	5.0 mg/L	5.0 mg/L
Total Copper	0.028 mg/L	0.02 mg/L
Total Lead	0.001 mg/L	0.001 mg/L
Total Zinc	0.022 mg/L	0.022 mg/L

Compliance History

DMR Data for Outfall 001 (from February 1, 2023 to January 31, 2024)

Parameter	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23
Flow (MGD) Average Monthly	0.122	0.077	0.042	0.045	0.049	0.04	0.043	0.043	0.06	0.063	0.085	0.058
Flow (MGD) Daily Maximum	0.281	0.194	0.115	0.095	0.14	0.054	0.102	0.069	0.149	0.214	0.173	0.077
pH (S.U.) Instantaneous Minimum	6.9	7.0	6.9	7.0	7.3	7.0	7.0	6.9	6.9	6.9	6.9	6.9
pH (S.U.) Instantaneous Maximum	7.8	7.6	7.7	7.6	7.6	7.6	7.4	7.4	7.5	7.5	7.6	7.5
DO (mg/L) Instantaneous Minimum	8.2	6.8	6.3	6.1	5.9	5.7	5.7	5.7	6.0	6.1	7.2	6.8
TRC (mg/L) Average Monthly	0.33	0.27	0.25	0.22	0.20	0.22	0.20	0.23	0.238	0.27	0.28	0.23
TRC (mg/L) Instantaneous Maximum	0.57	0.76	0.57	0.32	0.41	0.46	0.31	0.34	0.39	0.49	0.48	0.34
CBOD5 (lbs/day) Average Monthly	< 3.0	< 2.0	< 0.80	< 0.80	< 1.0	< 0.80	< 0.80	< 0.8	< 1.0	< 1.0	< 2.0	< 1.0
CBOD5 (lbs/day) Weekly Average	< 3.0	2.0	1.0	< 1.0	< 2.0	< 0.90	< 0.90	< 0.8	< 2.0	< 1.0	< 2.0	< 1.0
CBOD5 (mg/L) Average Monthly	< 3.0	< 2.0	< 3.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
CBOD5 (mg/L) Weekly Average	3.0	3.0	3.0	< 2.4	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	91.0	36.0	20.0	31.0	45.0	15.0	25	30	45	43	53.0	53.0
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	131.0	51.0	21.0	48.0	69.0	24.0	36	39	65	48	65.0	132.0
BOD5 (mg/L) Raw Sewage Influent Average Monthly	104.0	58.0	68.0	89.0	125.0	48.0	76	89	93.0	101	93.0	125.0
TSS (lbs/day) Average Monthly	2.0	2.0	0.50	0.80	1.0	0.90	0.3	0.4	0.60	1.0	1.0	< 1.0

TSS (lbs/day) Raw Sewage Influent Average Monthly	66.0	21.0	20.0	28.0	33.0	24.0	24	22	36	27	33	44.0
TSS (lbs/day) Raw Sewage Influent Daily Maximum	44.0	29.0	33.0	40.0	43.0	35.0	30	29	45	30	49	77.0
TSS (lbs/day) Weekly Average	2.3	5.9	1.0	1.1	1.9	1.50	0.4	0.7	1.0	1.5	2.2	< 1.0
TSS (mg/L) Average Monthly	2.0	3.0	2.0	2.0	2.0	3.0	1.0	1.0	1.0	2.0	2.0	2.0
TSS (mg/L) Raw Sewage Influent Average Monthly	49.0	37.0	71.0	79.0	93.0	76.0	75	64	73	65	56	94.0
TSS (mg/L) Weekly Average	2.0	6.0	3.0	3.0	4.0	4.0	1.0	2.0	2.0	3.0	3.0	2.0
Fecal Coliform (No./100 ml) Geometric Mean	< 1.0	< 3.0	< 1.0	< 3.0	2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	2.0	34	< 1.0	51.0	5.0	2.0	< 1.0	< 1.0	1.0	< 1.0	1.0	< 1.0
Nitrate-Nitrite (mg/L) Annual Average		13.0										
Nitrate-Nitrite (lbs) Annual Average		12.5										
Total Nitrogen (mg/L) Annual Average		13.59										
Total Nitrogen (lbs) Annual Average		13.0										
Ammonia (lbs/day) Average Monthly	< 0.10	< 0.10	< 0.07	< 0.04	< 0.04	< 0.03	< 0.03	< 0.4	< 0.07	< 0.05	< 0.06	< 0.05
Ammonia (mg/L) Average Monthly	< 0.10	0.17	< 0.23	< 0.10	< 0.10	< 0.10	< 0.11	< 0.11	< 0.13	< 0.13	< 0.10	< 0.10
TKN (mg/L) Annual Average		2.0										
TKN (lbs) Annual Average		< 2.0										
Total Phosphorus (lbs/day) Average Monthly	0.4	0.70	0.2	0.20	0.2	0.50	0.60	0.4	0.3	0.2	0.2	0.2
Total Phosphorus (mg/L) Average Monthly	0.35	0.92	0.64	0.55	0.61	1.38	2.0	1.27	0.54	0.38	0.35	0.21
Total Copper (lbs/day) Average Monthly	0.009	0.01	0.006	0.009	0.007	0.009	0.006	0.006	0.009	0.008	0.008	0.009

Total Copper (lbs/day) Daily Maximum	0.01	0.02	0.007	0.01	0.008	0.009	0.006	0.006	0.01	0.009	0.009	0.01
Total Copper (mg/L) Average Monthly	0.013	0.92	0.023	0.022	0.025	0.028	0.019	0.017	0.013	0.017	0.014	0.021
Total Copper (mg/L) Daily Maximum	0.014	1.30	0.023	0.02	0.025	0.028	0.019	0.018	0.015	0.017	0.016	0.025
Bromide (lbs/day) Average Monthly	< 0.4	< 0.30	< 0.1	< 0.20	< 0.2	< 0.20	< 0.2	< 0.2	< 0.4	< 0.2	< 0.3	< 0.2
Bromide (lbs/day) Daily Maximum	< 0.50	< 0.50	< 0.1	< 0.30	< 0.20	< 0.20	< 0.2	< 0.2	< 0.5	< 0.30	< 0.4	< 0.30
Bromide (mg/L) Average Monthly	< 0.5	< 0.5	0.023	< 0.5	< 0.5	< 0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromide (mg/L) Daily Maximum	< 0.50	< 0.5	0.023	< 0.50	< 0.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.50	< 0.50	< 0.5

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.14
Latitude 39º 55' 24.17" **Longitude** -77º 17' 23.92"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

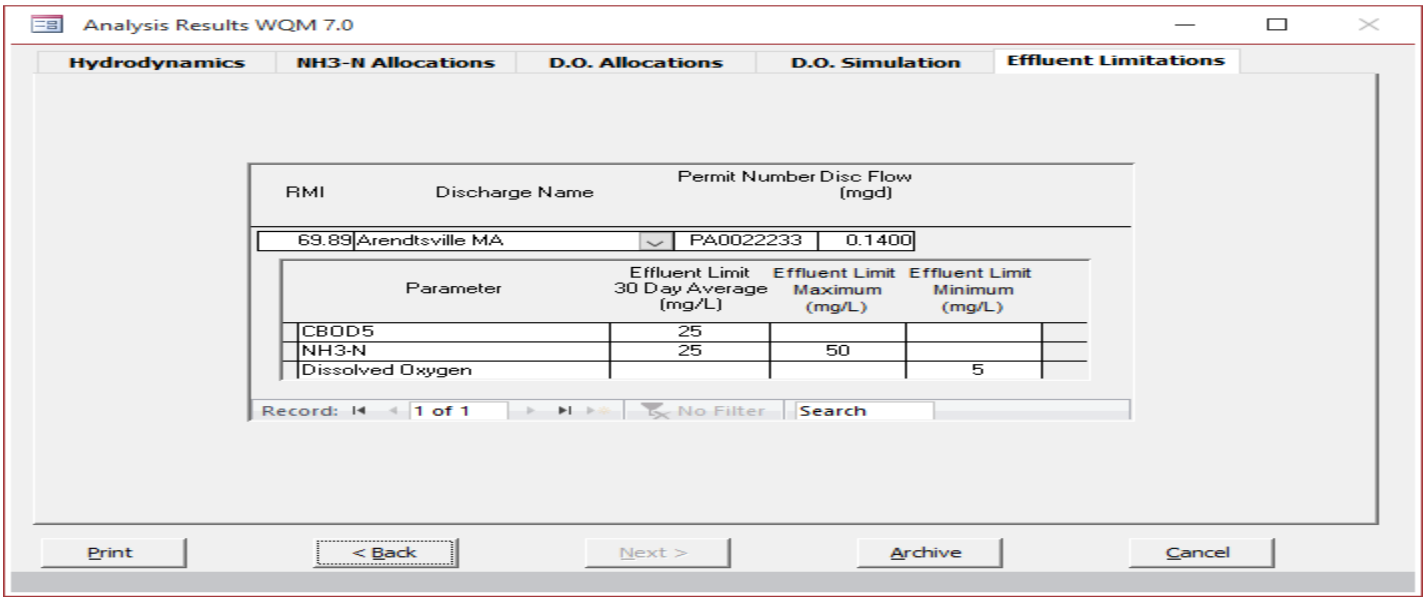
The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

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

Ammonia (NH_3-N):
NH_3N calculations are based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the in-stream NH_3-N criteria used in the attached WQM 7.0 computer model of the stream:

*	Discharge pH	=	7.0	(Default)
*	Discharge Temperature	=	20°C	(Default)
*	Stream pH	=	7.0	(Default)
*	Stream Temperature	=	20ºC	(Default)
*	Background NH_3-N	=	0 mg/L	(Default)



Regarding NH_3-N limits, the attached computer printout of the WQM 7.0 stream model (version 1.1) indicates that a limit of 25.0 mg/L as a monthly average and 50.0 mg/L instantaneous maximum (IMAX) are necessary to protect the aquatic life from toxicity effects at the point of discharge. However, the existing limits of 6.0 mg/L monthly average & 12.0 mg/L IMAX are more stringent and will remain in the proposed permit. Per anti-backsliding policy, the existing winter average monthly limit of 18.0 mg/L & IMAX limit of 36.0 mg/L will remain in place. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Summer average monthly mass limit: 6.0 mg/L x 0.14 MGD x 8.34 = 7.0 lbs/day
Winter average monthly mass limit: 18.0 mg/L x 0.14 MGD x 8.34 = 21.0 lbs/day

Dissolved Oxygen (D.O.):
The D.O. goal is 6.0 mg/L. However, a minimum D.O. of 5.0 mg/L is required per 25 Pa. Code § 93.7. It is recommended that this limit be maintained in the proposed permit to ensure the protection of water quality standards. This approach is consistent with DEP's current Standard Operating Procedure (SOP) No. BCW-PMT-033, version 2.0 revised February 5, 2024, and has been applied to other point source dischargers throughout the state.

pH:
The effluent discharge pH should remain above 6.0 and below 9.0 standard units according to 25 Pa. Code § 95.2(1).

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):
The attached computer printout of the WQM 7.0 stream model (ver. 1.1) indicates that a monthly average limit of 25.0 mg/L, or secondary treatment, is adequate to protect the water quality of the stream. However, the existing permit 20.0 mg/L as AML, 30.0 mg/L as weekly average limit (AWL), & 40.0 mg/L as IMAX are more stringent and will remain in the proposed permit. Recent DMRs and inspection reports show that the facility has typically been achieving concentrations below this limit. Mass limits are calculated as follows:

Summer Average monthly mass limit: 20.0 mg/L x 0.14 MGD x 8.34 = 23.35 (23.0) lbs/day
Summer Average weekly mass limit: 30.0 mg/L x 0.14 MGD x 8.34 = 35.03 (35.0) lbs/day

These values are rounded down to 23.0 lbs/day and 35.0 lbs/day, respectively. Per anti-backsliding policy, the existing winter average monthly limit of 25.0 mg/L, weekly average limit (AWL) of 40.0 mg/L & IMAX limit of 50.0 mg/L will remain in place. Mass limits are calculated as follows:

Winter Average monthly mass limit: 25.0 mg/L x 0.14 MGD x 8.34 = 29.19 (29.0) lbs/day
Winter Average weekly mass limit: 40.0 mg/L x 0.14 MGD x 8.34 = 46.70 (46.5) lbs/day

These values are rounded down to 29.0 lbs/day and 46.5 lbs/day, respectively. The minimum monitoring frequency will remain the same as 1/week.

Total Suspended Solids (TSS):
The existing technology-based limits of 30.0 mg/L average monthly, 45.0 mg/L weekly average, and 60.0 mg/L IMAX will remain in the proposed permit based on the minimum level of effluent quality attainable by secondary treatment based on 25 Pa. Code § 92a.47. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Average monthly mass limit: 30.0 mg/L x 0.14 MGD x 8.34 = 35.03 (35.0) lbs/day
Average weekly mass limit: 45.0 mg/L x 0.14 MGD x 8.34 = 52.54 (52.5) lbs/day

The average monthly and weekly average mass loadings will be rounded down to 35.0 lbs/day and 52.5 lbs/day, respectively.

Fecal Coliform:
The recent coliform guidance in 25 Pa. Code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml.

E. Coli:
As recommended by DEP's SOP No. BCW-PMT-033, version 2.0 revised February 5, 2024, a routine monitoring for E. Coli will be included in the proposed permit under 25 Pa. Code § 92a.61. This requirement applies to all sewage dischargers greater than 0.002 MGD in their new and reissued permits. A monitoring frequency of 1/quarter will be included in the permit to be consistent with the recommendation from this SOP.

Total Residual Chlorine (TRC):

Based on the attached TRC Excel spreadsheet calculator, which uses the equations and calculations from the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (ID No. 391-2000-015), the facility's discharge must meet a monthly average limit of 0.5 mg/L and an instantaneous maximum limit of 1.635 mg/L. However, due to anti-backsliding policy, the previous limits of 0.4 mg/L average monthly and 1.0 mg/L instantaneous maximum will remain in place.

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

6.59	= Q stream (cfs)	0.5	= CV Daily
0.14	= 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 =	9.725	1.3.2.iii	WLA cfc =	9.474
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	3.624	5.1d	LTA_cfc =	5.508

Source	Reference	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)

Raw Sewage Influent Monitoring:

As a result of negotiation with EPA, influent monitoring of TSS and BOD_5 are required for any POTWs; therefore, influent sampling of BOD_5 and TSS will remain in the proposed permit. A 24-hr composite sample type will be required to be consistent with the proposed sampling frequency for TSS and BOD_5 in the effluent.

Total Phosphorus:

The existing permit average monthly TP concentration of 2.0 mg/L, and 4.0 mg/L IMAX will remain in the proposed permit. Mass average monthly of 2.3 lbs/day is also in the proposed permit.

Average monthly mass limit: 2.0 mg/L x 0.14 MGD x 8.34 = 2.34 (2.3) lbs/day

Stormwater:

There is no known stormwater outfall associated with this facility.

Toxics:

The data was analyzed based on the guidelines found in DEP's Water Quality Toxics Management Strategy (Document No. 361-0100-003, version 1.4, revised 5/2023) and DEP's SOP No. BPNPSM-PMT-033. Spreadsheet results are attached to this fact sheet. The Toxics Management Spreadsheet uses the following logic:

a. Establish average monthly and IMAX limits in the draft permit where the maximum reported concentration exceeds 50% of the WQBEL.
b. For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.
c. For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10%-50% of the WQBEL.

Therefore, the results are as follows.

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	Report	Report	Report	Report	Report	mg/L	0.18	AFC	Discharge Conc > 10% WQBEL (no RP)

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Lead	101	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	1.56	mg/L	Discharge Conc ≤ 10% WQBEL

- Total Copper pollutant has no reasonable potential (no-RP) discharge concentration greater than 10% WQBEL, therefore the 2/month monitoring and reporting requirements of this pollutant will remain in the proposed permit. During the next permit renewal cycle, the need for Copper monitoring in the permit will be re-evaluated.

- Bromide is no WQS, therefore, the 2/month monitoring and reporting requirements of this pollutant will remove from the proposed permit.

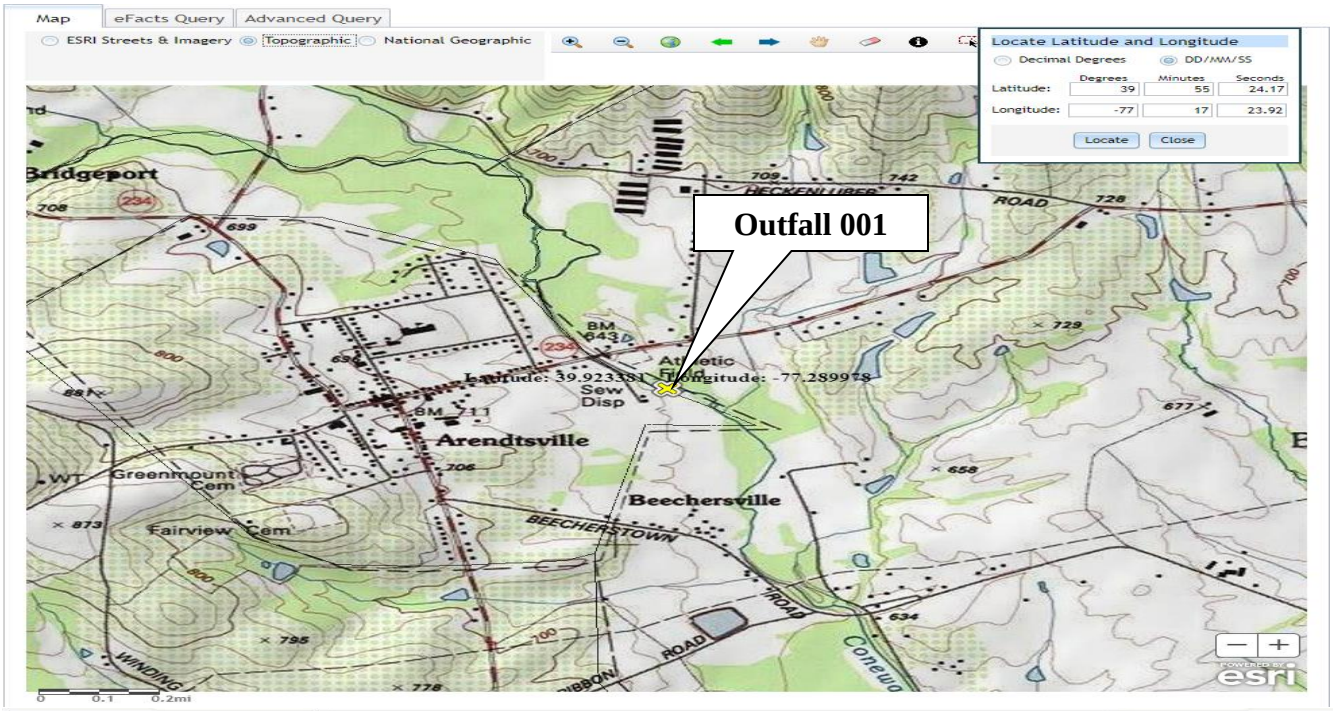
Chesapeake Bay Strategy:
Phase 2 WIP identifies Cassville WWTP as a non-significant Phase 5 facility. DEP's SOP mentioned that for facilities with design flows >0.002 MGD and <0.2 MGD will include monitoring, at a minimum, for Total Nitrogen and Total Phosphorus, with a monitoring frequency specified in DEP's technical guidance. Therefore, 2/year TN species (such as Nitrate-Nitrite as N, Total Kjeldahl Nitrogen, and Total Nitrogen). The yearly calculation "report" for Nitrate-Nitrite, TKN, & TN will remain in the proposed permit.

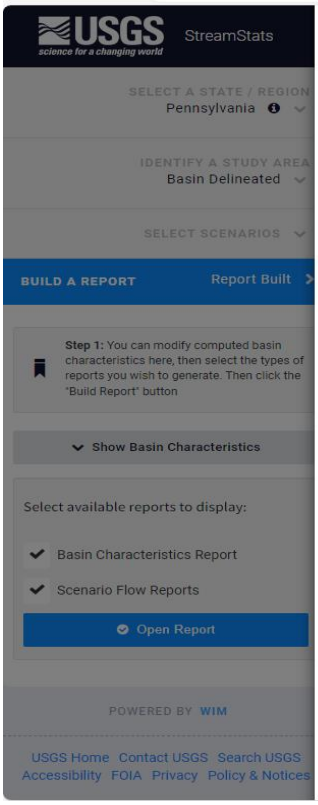
WETT:
Minor facilities and facilities without a formal EPA approved pretreatment program are exempted from WETT.

Anti-Backsliding:
The proposed limits are at least as stringent as are in existing permit; therefore, anti-backsliding is not applicable

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream 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.

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





Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	6.5935	degrees
DRNAREA	Area that drains to a point on a stream	26.5	square miles
ROCKDEP	Depth to rock	5.1	feet
URBAN	Percentage of basin with urban development	0.3632	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [99.9 Percent (26.5 square miles) Low Flow Region 1]

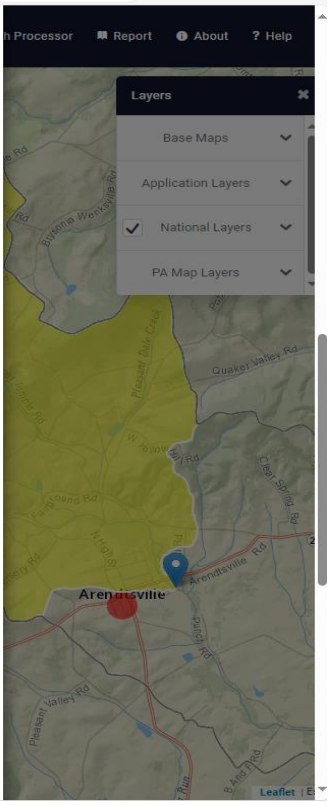
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	26.5	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	6.5935	degrees	1.7	6.4
ROCKDEP	Depth to Rock	5.1	feet	4.13	5.21
URBAN	Percent Urban	0.3632	percent	0	89

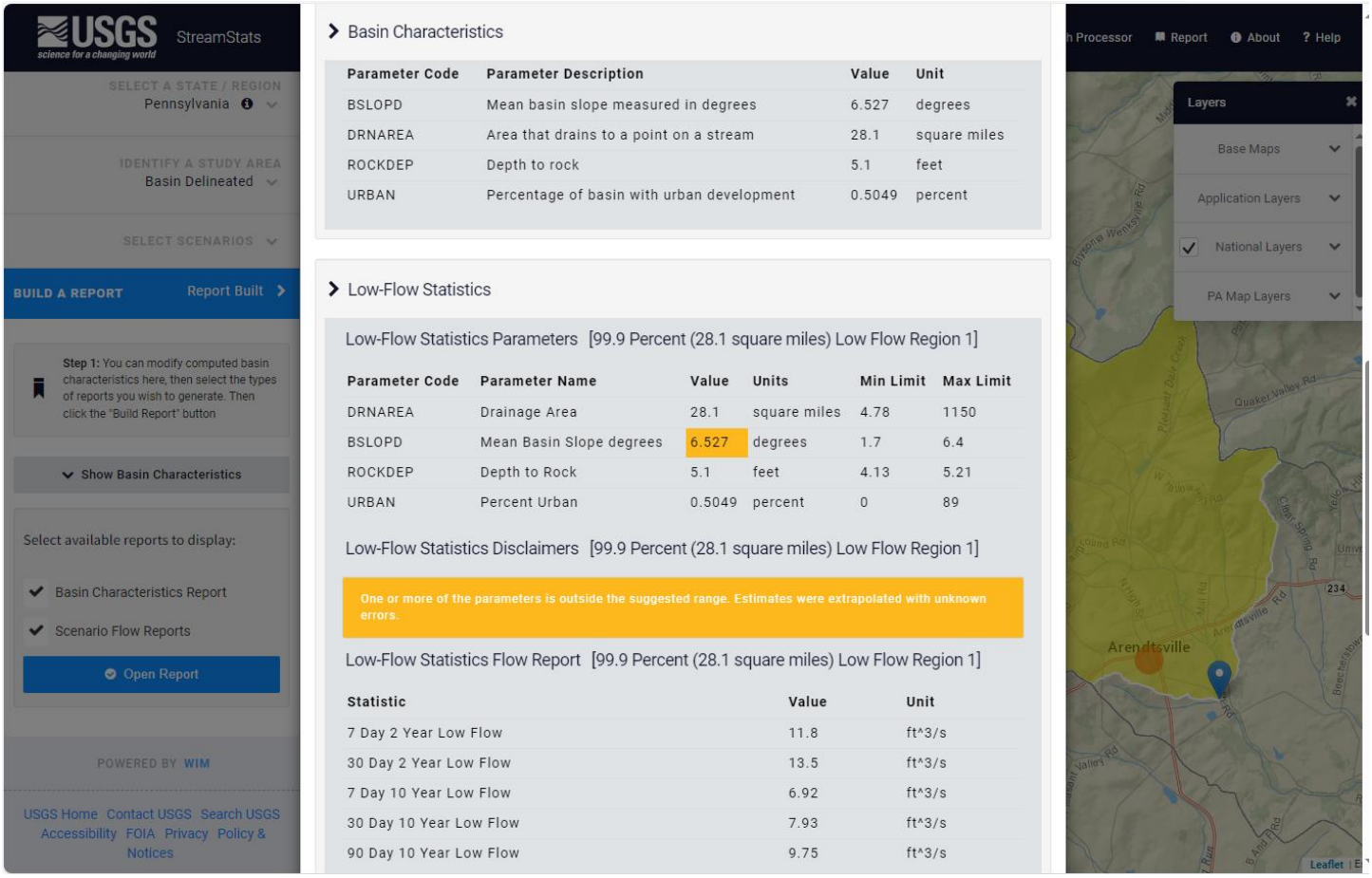
Low-Flow Statistics Disclaimers [99.9 Percent (26.5 square miles) Low Flow Region 1]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Low-Flow Statistics Flow Report [99.9 Percent (26.5 square miles) Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	11.2	ft^3/s
30 Day 2 Year Low Flow	12.8	ft^3/s
7 Day 10 Year Low Flow	6.59	ft^3/s
30 Day 10 Year Low Flow	7.54	ft^3/s
90 Day 10 Year Low Flow	9.24	ft^3/s





WQM 7.0:
The following data were used in the attached computer model (WQM 7.0) of the stream:

*	Discharge pH	=	7.0	(Default)
*	Discharge Temperature	=	20°C	(Default)
*	Stream pH	=	7.0	(Default)
*	Stream Temperature	=	20°C	(Default)
*	Background NH_3-N	=	0 mg/L	(Default)

Node 1: Outfall 001 Conewago Creek (08303)

Elevation:	635 ft (USGS National Map Viewer)
Drainage Area:	26.5 mi^2 (USGS PA StreamStats)
River Mile Index:	69.89 (PA DEP eMapPA)
Low Flow Yield:	0.25 cfs/mi^2
Discharge Flow:	0.14 mgd (NPDES PA0022233 Application)

Node 2: Just after confluence of Conewago Creek with UNT 09151

Elevation:	619 ft (USGS National Map Viewer)
Drainage Area:	28.1 mi^2 (USGS PA StreamStats)
River Mile Index:	69.23 (PA DEP eMapPA)
Low Flow Yield:	0.25 cfs/mi^2
Discharge Flow:	0.00 mgd

Analysis Results WQM 7.0

Hydrodynamics | NH3-N Allocations | D.O. Allocations | D.O. Simulation | Effluent Limitations

RMI	Discharge Name	Permit Number	Disc Flow (mgd)
69.89	Arendtsville MA	PA0022233	0.1400

Parameter	Effluent Limit 30 Day Average (mg/L)	Effluent Limit Maximum (mg/L)	Effluent Limit Minimum (mg/L)
CBOD5	25		
NH3-N	25	50	
Dissolved Oxygen			5

Record: 1 of 1 | No Filter | Search

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rptEffLimits

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07F	8303	CONEWAGO 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)
69.890	Arendtsville MA	PA0022233	0.140	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

Thursday, March 14, 2024 Version 1.1 Page 1 of 1

Page: 1 | No Filter

rpt_WLA

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07F	8303	CONEWAGO 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
69.890	Arendtsville MA	16.76	50	16.76	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
69.890	Arendtsville MA	1.89	25	1.89	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5 Baseline (mg/L)	CBOD5 Multiple (mg/L)	NH3-N Baseline (mg/L)	NH3-N Multiple (mg/L)	Dissolved Oxygen Baseline (mg/L)	Dissolved Oxygen Multiple (mg/L)	Critical Reach	Percent Reduction
69.89	Arendtsville MA	25	25	25	25	5	5	0	0

Thursday, March 14, 2024 Version 1.1 Page 1 of 1

Page: 1 | No Filter

rptDOSim

WQM 7.0 D.O. Simulation

SWP Basin	Stream Code	Stream Name
07 F	8303	CONEWAGO CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
69.890	0.140	20.000	7.000
Reach Width (ft)	Reach Depth (ft)	Reach W/D Ratio	Reach Velocity (fps)
33.556	0.665	49.016	0.298
Reach CBOD5 (mg/L)	Reach Kc (1/days)	Reach NH3-N (mg/L)	Reach Kn (1/days)
2.73	0.405	0.79	0.700
Reach DO (mg/L)	Reach Kr (1/days)	Kr Equation	Reach DO Goal (mg/L)
8.140	12.992	Tsivoglou	8
Reach Travel Time (days)			
0.135			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.014	2.71	0.78	8.24
0.027	2.70	0.78	8.24
0.041	2.68	0.77	8.24
0.054	2.67	0.76	8.24
0.068	2.65	0.75	8.24
0.081	2.64	0.75	8.24
0.095	2.63	0.74	8.24
0.108	2.61	0.73	8.24
0.122	2.60	0.73	8.24
0.135	2.58	0.72	8.24

Thursday, March 14, 2024 Version 1.1 Page 1 of 1

Page: 1 No Filter

rptModelSpecs

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	8		

Thursday, March 14, 2024 Version 1.1 Page 1 of 1

Page: 1 No Filter

rptHydro

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07F	8303	CONEWAGO CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Dilut. 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												
69.890	0.63	0.00	0.63	216.6	0.00459	.665	33.56	49.02	0.30	0.135	20.00	7.00
Q1-10 Flow												
69.890	4.24	0.00	4.24	216.6	0.00459	NA	NA	NA	0.23	0.172	20.00	7.00
Q30-10 Flow												
69.890	9.01	0.00	9.01	216.6	0.00459	NA	NA	NA	0.35	0.115	20.00	7.00

Thursday, March 14, 2024 Version 1.1 Page 1 of 1

Page: 1 No Filter

rptGeneral

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
07F	8303	CONEWAGO CREEK	69.890	630.00	26.50	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	0.250	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

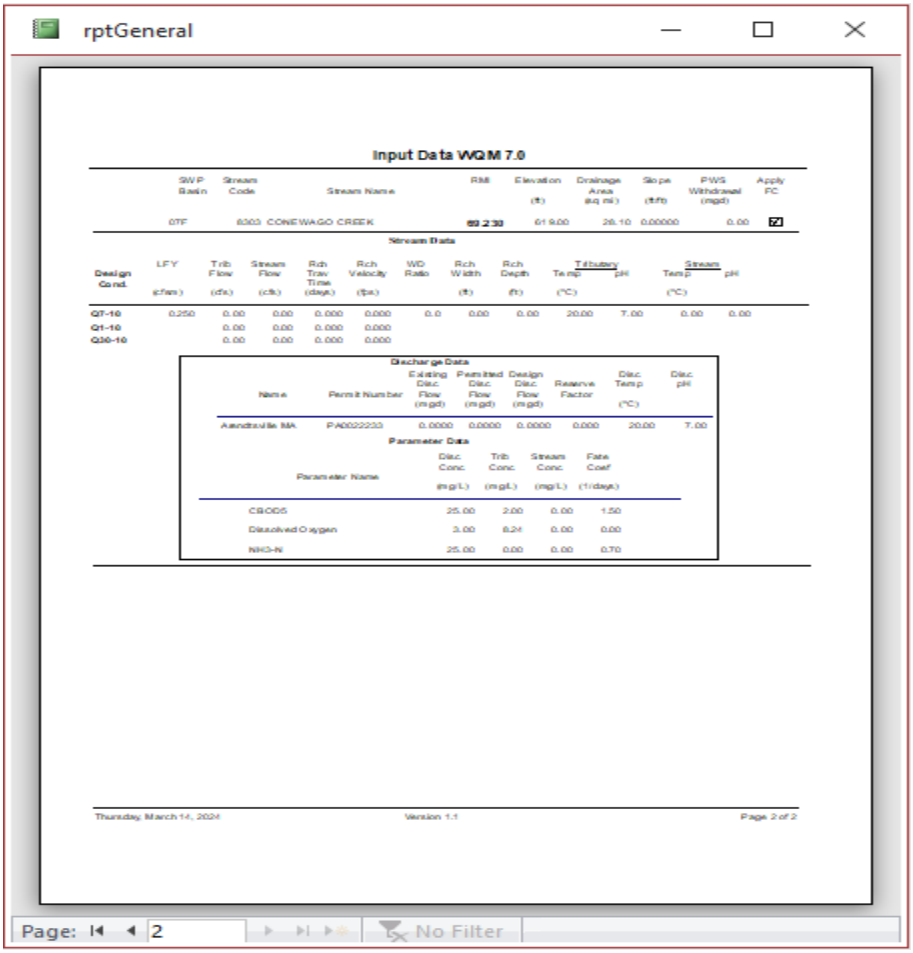
Name	Permit Number	Existing Dilut. Flow (mgd)	Permitted Dilut. Flow (mgd)	Design Dilut. Flow (mgd)	Reserve Factor	Dilut. Temp (°C)	Dilut. pH
Arendtsville MA	PA0022233	0.1400	0.1400	0.1400	0.000	20.00	7.00

Parameter Data

Parameter Name	Dilut. Conc. (mg/L)	Trib Conc. (mg/L)	Stream Conc. (mg/L)	Rate 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

Thursday, March 14, 2024 Version 1.1 Page 1 of 2

Page: 1 No Filter



Toxics Data:
The following input data were used for Toxic Management Spreadsheet (TMS) Analysis:

* Discharge pH = 7.4 (Application) (average (6.5 + 8.3)/2 = 7.4)
* Stream pH = 7.0 (Default)
* Discharge Hardness = 100 mg/L (Default)
* Stream Hardness = 100 mg/L (Default)

Node 1: Outfall 001 Conewago Creek (08303)

Elevation:	635 ft (USGS National Map Viewer)
Drainage Area:	26.5 mi^2 (USGS PA StreamStats)
River Mile Index:	69.89 (PA DEP eMapPA)
Low Flow Yield:	0.25 cfs/mi^2
Discharge Flow:	0.14 MGD (NPDES PA0022233 Application)

Node 2: Just after confluence of Conewago Creek with UNT 09151

Elevation:	619 ft (USGS National Map Viewer)
Drainage Area:	28.1 mi^2 (USGS PA StreamStats)
River Mile Index:	69.23 (PA DEP eMapPA)
Low Flow Yield:	0.25 cfs/mi^2
Discharge Flow:	0.00 MGD

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Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: Arendtsville Boro MA NPDES Permit No.: PA0022233 Outfall No.: 001

Evaluation Type: Custom / Additives Wastewater Description: Conewago Creek

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.14	100	7.4						

Discharge Pollutant	Units	Max Discharge Conc		0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
				Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Total Dissolved Solids (PWS)	mg/L		480									
Chloride (PWS)	mg/L		43									
Bromide	mg/L		0.5									
Sulfate (PWS)	mg/L		23									
Total Copper	mg/L		0.028									
Total Lead	mg/L		0.001									
Total Zinc	mg/L		0.022									

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Arendtsville Boro MA, NPDES Permit No. PA0022233, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: No. Reaches to Model: 1

- (•) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	008303	69.89	635	26.5			Yes
End of Reach 1	008303	69.23	619	28.1			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	69.89	0.25										100	7		
End of Reach 1	69.23	0.25										100	7		

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	69.89														
End of Reach 1	69.23														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Arendtsville Boro MA, NPDES Permit No. PA0022233, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All ○ Inputs ○ Results ○ Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.631 Analysis Hardness (mg/l): 100 Analysis pH: 7.01

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	13.439	14.0	284	Chem Translator of 0.96 applied
Total Lead	0	0		0	64.581	81.6	1,657	Chem Translator of 0.791 applied
Total Zinc	0	0		0	117.180	120	2,431	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 37.709 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.01

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	8.956	9.33	295	Chem Translator of 0.96 applied
Total Lead	0	0		0	2.517	3.18	101	Chem Translator of 0.791 applied
Total Zinc	0	0		0	118.139	120	3,785	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 37.709 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	

Total Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 12.607 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

Pollutants	*Mass Limits* AML (lbs/day)	*Mass Limits* MDL (lbs/day)	*Concentration Limits* AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	Report	Report	Report	Report	Report	mg/L	0.18	AFC	Discharge Conc > 10% WQBEL (no RP)

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Lead	101	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	1.56	mg/L	Discharge Conc ≤ 10% WQBEL

Existing Effluent Limitations and Monitoring Requirements

Outfall 001,

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	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.4	XXX	1.0	1/day	Grab
CBOD5 Nov 1 - Apr 30	29	46.5	XXX	25	40	50	1/week	24-Hr Composite
CBOD5 May 1 - Oct 31	23	35	XXX	20	30	40	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	35	52.5	XXX	30	45	60	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-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
Nitrate-Nitrite	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	2/year	24-Hr Composite
Nitrate-Nitrite (lbs)	Report Annl Avg	XXX	XXX	XXX	XXX	XXX	2/year	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	2/year	Calculation
Total Nitrogen (lbs)	Report Annl Avg	XXX	XXX	XXX	XXX	XXX	2/year	Calculation
Ammonia Nov 1 - Apr 30	21	XXX	XXX	18	XXX	36	1/week	24-Hr Composite

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		
Ammonia May 1 - Oct 31	7.0	XXX	XXX	6.0	XXX	12	1/week	24-Hr Composite
TKN	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	2/year	24-Hr Composite
TKN (lbs)	Report Annl Avg	XXX	XXX	XXX	XXX	XXX	2/year	24-Hr Composite
Total Phosphorus	2.3	XXX	XXX	2.0	XXX	4	1/week	24-Hr Composite
Total Copper	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite
Bromide	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite

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	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
TRC	XXX	XXX	XXX	0.4	XXX	1.0	1/day	Grab
$CBOD_5$ Nov 1 - Apr 30	29.0	46.5	XXX	25.0	40.0	50.0	1/week	24-Hr Composite
$CBOD_5$ May 1 - Oct 31	23.0	35.0	XXX	20.0	30.0	40.0	1/week	24-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	35.0	52.5	XXX	30.0	45.0	60.0	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Nitrate-Nitrite	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	2/year	24-Hr Composite
Nitrate-Nitrite (lbs)	Report Annl Avg	XXX	XXX	XXX	XXX	XXX	2/year	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	2/year	Calculation
Total Nitrogen (lbs)	Report Annl Avg	XXX	XXX	XXX	XXX	XXX	2/year	Calculation

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		
Ammonia Nov 1 - Apr 30	21.0	XXX	XXX	18.0	XXX	36.0	1/week	24-Hr Composite
Ammonia May 1 - Oct 31	7.0	XXX	XXX	6.0	XXX	12.0	1/week	24-Hr Composite
TKN	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	2/year	24-Hr Composite
TKN (lbs)	Report Annl Avg	XXX	XXX	XXX	XXX	XXX	2/year	24-Hr Composite
Total Phosphorus	2.3	XXX	XXX	2.0	XXX	4.0	1/week	24-Hr Composite
Total Copper	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite

Compliance Sampling Location:

Other Comments:

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: BPNPSM-PMT-033
☐	Other: