Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0026646**
Facility Type	**Municipal**	APS ID	**30164**
Major / Minor	**Major**	Authorization ID	**1494576**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Antietam Valley Municipal Authority-Berks County**	Facility Name	**Antietam Valley STP**
Applicant Address	502 Butter Lane Reading, PA 19606-1604	Facility Address	502 Butter Lane Reading, PA 19606-1604
Applicant Contact	Michael Scheuing, Superintendent*	Facility Contact	Michael Scheuing, Superintendent
Applicant Phone	(610) 779-0150 / avma@comcast.net and/or mikeavma@gmail.com	Facility Phone	(610) 779-0150
Client ID	77399	Site ID	253991 (PF # 264743)
Ch 94 Load Status		Municipality	Saint Lawrence Borough
Connection Status		County	Berks
Date Application Received	August 4, 2024	EPA Waived?	No
Date Application Accepted	June 2, 2025	If No, Reason	Major Facility
Purpose of Application	NPDES Renewal for Sewage Treatment Plant		

cc: Mary Peters, Sr. Project Manager, Entech Engineering, mpeters@entecheng.com

Summary of Review

The existing permit was issued January 23, 2020, with an expiration date of January 31, 2025. The permit was administratively extended past its expiration date. The renewal application was submitted August 4, 2024 via DEP's electronic upload system (Reference ID # 250805). Additional Whole Effluent Toxicity test results were requested by DEP and submitted via attachments to emails sent on May 5, 2025, and May 19, 2025.

This Sewage Treatment Plant collects wastewater from Mount Penn Borough, Lower Alsace Township, Exeter Township, and smaller amounts from St. Lawrence Borough and the City of Reading.

Design Flow

The existing permit's limits were based on a design flow of 1.225 MGD. The renewal application did not propose an increase in design flow. The eDMR data from January 1, 2023 through November 30, 2025 reported an average monthly flow of 0.844 MGD (see attached). There were 5 months out of 35 in which the monthly average flow was greater than 1.225 MGD.

The facility's most recent Chapter 94 Municipal Wasteload report spreadsheet is attached. It does not indicate a projected increase in flow. Because they are not proposing an increase in design flow, no new Act 537 Sewage Planning Approval is needed.

Combined Sewer: Not Applicable, separate sewers

Approve	Deny	Signatures	Date
x		*Bonnie Boylan* Bonnie Boylan / Environmental Engineering Specialist	January 22, 2026
x		*Maria D. Bebenek* for Daniel W. Martin, P.E. / Environmental Engineer Manager	February 17, 2026
x		*Maria D. Bebenek* Maria D. Bebenek, P.E. / Environmental Program Manager	February 17, 2026

Summary of Review

Industrial Wastewater

According to their application, there are no industrial users.

Hauled-in Wastes

According to their application, the facility has not received hauled-in wastes in the past 3 years or anticipate accepting hauled-in waste over the next 5 years.

Variances

No variances were requested [40 CFR 122.21(n)].

Sludge use and disposal description and location(s)

Sludge is hauled off-site and disposed at a landfill.

Delaware River Basin Commission (DRBC)

The facility discharges to a waterway within the Delaware River watershed and is thus subject to DRBC requirements. A copy of the draft permit and Fact Sheet will therefore be sent to the DRBC for their review in accordance with State regulations and an interagency agreement. Any comments from DRBC will be considered.

DRBC's online Interactive Map shows the most recent docket for this facility was approved by DRBC September 10, 2025 and expires March 12, 2030: D-1987-045 CP-7.

Unresolved Violations

There are no unresolved violations for this client according to DEP's Compliance History Summary Report.

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.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	1.225
Latitude	40º 19' 50.88" (40.3308)	Longitude	-75º 52' 24.13" (-75.873369)
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Antietam Creek (CWF, MF)	Stream Code	01790
NHD Com ID	25963816	RMI	4.79
Drainage Area	10 sq.mi.	Yield (cfs/mi^2)	0.4
Q_{7-10} Flow (cfs)	4 ** (equivalent of 2.59 MGD)	Q_{7-10} Basis	USGS Stream Stats*
Elevation (ft)	Estimated 300'	Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	CWF, MF
Existing Use	No different existing use	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired for Recreational Use (Assessment ID 15806)		
Cause(s) of Impairment	Pathogens		
Source(s) of Impairment	Source Unknown		
TMDL Status	None	Name	
Secondary Waters:	Antietam Creek empties into Schuylkill River (WWF) at approx. RMI 66.5; Schuylkill River is subject to a TMDL for PCBs		
Background/Ambient Data - Not available		Data Source - no WQNs upstream	
Nearest Downstream Public Water Supply Intake		Pottstown Borough Water Authority	
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	57	Distance from Outfall (mi)	Approx.15, matches last FS 15 miles per appl.

*https://streamstats.usgs.gov/ss/.

**DEP models estimate the 30-day (Q_{30-10}) and acute (Q_{1-10}) stream flows for the discharge point based on the Q7-10 stream flow, as follows:

Q_{30-10} = 1.36 * 4 cfs = 5.4 cfs
Q_{1-10} = 0.64 * 4 cfs = 2.6 cfs

Other Comments:

-Receiving Water = Trout Natural Reproduction (not Class A Wild Trout)

-No upstream or downstream sewage dischargers to include in modeling

-Qs : Qd = 2.1 : 1 which is < 3:1 (If this were a new STP or before approving design flow increases, DEP's Standard Operating Procedure 'Establishing Effluent Limitations for Individual Sewage Permits' recommends considering more stringent limits as per guidance document **386-2000-013**---if the discharge meets the criteria in the guidance.)

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	002	Design Flow (MGD)	0
Latitude	40º 19' 51" (40.330833)	Longitude	-75º 52' 30" (75.875)
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Antietam Creek per application	Stream Code	UNT 01801 to Antietam Creek (CWF, MF), or 01790 Antietam Creek
Watershed No.	3-C	Chapter 93 Class.	CWF, MF
Existing Use	None	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired for Recreational Use (Assessment ID 15806)		
Cause(s) of Impairment	Pathogens		
Source(s) of Impairment	Source Unknown		
TMDL Status	None	Name	

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	003	Design Flow (MGD)	0
Latitude	40º 19' 52" (40.331111)	Longitude	-75º 52' 23" (75.873056)
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Antietam Creek per application	Stream Code	01790
Watershed No.	3-C	Chapter 93 Class.	CWF, MF
Existing Use	None	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired for Recreational Use (Assessment ID 15806)		
Cause(s) of Impairment	Pathogens		
Source(s) of Impairment	Source Unknown		
TMDL Status	None	Name	

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	004	Design Flow (MGD)	0
Latitude	40º 19' 50" (40.330556)	Longitude	-75º 52' 25" (75.87361)
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Antietam Creek per application	Stream Code	UNT 01801 to Antietam Creek (CWF, MF), or 01790 Antietam Creek
Watershed No.	3-C	Chapter 93 Class.	CWF, MF
Existing Use	None	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired for Recreational Use (Assessment ID 15806)		
Cause(s) of Impairment	Pathogens		
Source(s) of Impairment	Source Unknown		
TMDL Status	None	Name	

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	005	Design Flow (MGD)	0
Latitude	40º 19' 51" (40.330833)	Longitude	-75º 52' 31" (75.87528)
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Antietam Creek per application	Stream Code	UNT 01801 to Antietam Creek (CWF, MF), or 01790 Antietam Creek
Watershed No.	3-C	Chapter 93 Class.	CWF, MF
Existing Use	None	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	UNT 01801 also Impaired for Recreational Use (Assessment ID 15806)		
Cause(s) of Impairment	Pathogens		
Source(s) of Impairment	Source Unknown		
TMDL Status	None	Name	

Treatment Facility Summary

Treatment Facility Name: Antietam Valley STP

WQM Permit No.	Issuance Date
667S059 A-4	12/17/2025
667S059 A-3	5/30/2025
667S059 11-1	11/29/2011
667S059 06-1	7/21/2006
667S059 T-2	2/25/1983
667S059 T-1	5/27/1968
667S059	4/30/1968

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia Reduction	Oxidation Ditch	Gas Chlorine (and dechlor)	1.225
a				
a				
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
2.45	2050		Aerobic Digestion	Landfill

Changes Since Last Permit Issuance:

-WQM permit 667S059 Amendment 3 was issued for the conversion of the facility's anaerobic digester to an aerobic digester and the upgrade of the existing aerobic digester as well as new diffusers, blowers, and some new pumps.

-WQM permit 667S059 Amendment 4 was issued for a new vertical influent screen.

Per renewal application:

The existing AVMA WWTP will continue to utilize three different processes, including mix-activated sludge treatment, contact stabilization treatment, and oxidation ditch treatment. Treated effluent from systems 1 and 2 combine and are treated by system 3, which utilizes an oxidation ditch treatment system that provides for nitrification and is followed by chlorination for disinfection.

EXISTING PERMIT LIMITS, Outfall 001:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instant 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
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.21	XXX	0.68	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	255	383	XXX	25.0	40.0	50	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	306	460	XXX	30.0	45.0	60	2/week	24-Hr Composite
Total Dissolved Solids	XXX	Report Daily Max	XXX	1000.0 Daily Max	XXX	XXX	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	77.0	XXX	XXX	7.5	XXX	15	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	26.0	XXX	XXX	2.5	XXX	5	2/week	24-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Copper, Total (mg/L)	0.36	XXX	XXX	0.036	XXX	0.072	1/week	24-Hr Composite
Cyanide, Free (ug/L)	Report	XXX	XXX	Report	XXX	Report	1/week	24-Hr Composite
Lead, Total (ug/L)	Report	XXX	XXX	Report	XXX	Report	1/week	24-Hr Composite
Dibromochloromethane (ug/L)	Report	XXX	XXX	Report	XXX	Report	1/week	24-Hr Composite

Compliance History

Discharge Monitoring Reports (DMR) Data for Outfall 001 (from December 1, 2024 to November 30, 2025)

Parameter	NOV-25	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24
Flow (MGD) Average Monthly	0.634	0.627	0.675	0.685	1.155	1.067	1.345	1.1	0.703	0.758	0.623	0.709
Flow (MGD) Daily Maximum	0.898	1.338	1.544	0.921	5.002	3.052	3.466	2.489	1.991	2.198	0.953	1.791
pH (S.U.) Instantaneous Minimum	6.9	6.7	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9
pH (S.U.) Instantaneous Maximum	7.2	7.3	7.2	7.2	7.3	7.8	7.4	7.4	7.4	7.3	7.3	7.3
DO (mg/L) Instantaneous Minimum	5.9	5.3	5.1	5.3	5.2	5.4	5.3	5.8	5.6	6.0	5.8	6.0
TRC (mg/L) Average Monthly	0.05	0.04	0.08	0.08	0.07	0.06	0.10	0.06	0.10	0.12	0.08	0.07
TRC (mg/L) Instantaneous Maximum	0.15	0.13	0.33	0.21	0.30	2.00	0.35	0.20	0.31	0.36	0.39	0.28
CBOD5 (lbs/day) Average Monthly	< 12	< 10	< 11	< 11.0	36	18	< 26	< 28	< 11	< 17	< 13	< 15
CBOD5 (lbs/day) Weekly Average	16	< 12	< 11	< 12.0	117	22	36	66	< 11	26	< 15	< 23
CBOD5 (mg/L) Average Monthly	< 2.2	< 2.0	< 2.1	< 2.0	2.3	< 2.1	< 2.6	< 2.7	< 2.0	< 2.7	2.4	< 2.6
CBOD5 (mg/L) Weekly Average	2.6	< 2.1	< 2.2	< 2.0	3.1	< 2.3	3.2	5.0	< 2.1	4.6	0.14	< 4.1
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	833	788	805	615	624	564	760	884	900	1005	1039	1110
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	971	1000	1240	779	755	751	1235	1266	1007	1378	1264	2155
BOD5 (mg/L) Raw Sewage Influent Average Monthly	159.1	155	153.7	111.8	81.1	64.9	89.3	102.1	170	163.7	197	202

TSS (lbs/day) Average Monthly	< 21	< 21	< 21	< 23.0	56	< 35	< 44	41	< 21	< 26	< 21	< 23
TSS (lbs/day) Raw Sewage Influent Average Monthly	332	333	328	499	387	278	285	400	270	456	469	539
TSS (lbs/day) Raw Sewage Influent Daily Maximum	424	654	632	937	722	463	355	875	416	833	1016	1239
TSS (lbs/day) Weekly Average	< 25	< 24	< 22	< 25.0	161	< 43	< 58	< 63	< 23	< 35	< 29	< 29
TSS (mg/L) Average Monthly	< 4.0	< 4.0	< 4.0	< 4.0	4.2	< 4.0	< 4.4	< 4.1	< 4.0	< 4.0	< 4.0	< 4.0
TSS (mg/L) Raw Sewage Influent Average Monthly	62.6	65.3	62.8	90	47.5	31.5	33	42	50.4	75	91.7	96.9
TSS (mg/L) Weekly Average	< 4.0	< 5.0	< 4.0	< 5.0	4.5	< 4.0	< 5.2	< 4.6	< 4.0	< 4.0	< 4.0	< 4.0
Total Dissolved Solids (lbs/day) Daily Maximum			3180			2529			2123			2135
Total Dissolved Solids (mg/L) Daily Maximum			360.0			420.0			406.0			409.0
Fecal Coliform (No./100 ml) Geometric Mean	10	4.0	6	5.0	23	< 24	< 100	< 5	< 2	< 2.0	< 2	< 6.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	240	136.0	28	14.0	7200	665	< 20000	45	44	5	13	41
Total Nitrogen (lbs/day) Average Monthly	116	105	110	103	128	101	105	96	112	109	109	105
Total Nitrogen (mg/L) Average Monthly	21.4	20.4	20.8	18.7	12.96	11.8	11.52	11.57	0.21	18.08	20.71	18.88
Ammonia (lbs/day) Average Monthly	< 0.6	< 0.5	< 0.6	< 0.7	17.0	< 3.0	< 7.0	< 14.0	< 1.0	< 3.0	< 0.5	< 0.6
Ammonia (mg/L) Average Monthly	< 0.1	< 0.11	< 0.11	< 0.12	0.7	< 0.24	< 0.54	< 1.05	< 0.27	< 0.39	< 0.1	< 0.1
Total Phosphorus (lbs/day) Average Monthly	16	14	16	13.0	19	14	17	19	15	14	10	11

Total Phosphorus (mg/L) Average Monthly	3.01	2.72	3.08	2.42	1.68	1.62	1.85	2.31	2.87	2.35	1.93	1.99
Total Copper (lbs/day) Average Monthly	< 0.03	0.03	0.04	0.04	0.07	0.03	0.03	< 0.03	0.02	0.03	0.03	0.04
Total Copper (mg/L) Average Monthly	< 0.006	0.007	0.007	0.008	0.005	0.004	0.004	< 0.004	0.004	0.005	0.006	0.007
Free Cyanide (lbs/day) Average Monthly	< 0.03	< 0.03	< 30	< 0.03	0.007	< 4.0	< 0.07	< 0.05	< 0.03	< 0.04	< 0.03	< 0.03
Free Cyanide (ug/L) Average Monthly	< 5	< 5	< 5	< 0.005	5	< 5.0	< 5	< 5	< 5	< 7	< 7	< 5
Free Cyanide (ug/L) Instantaneous Maximum	< 5	< 5	< 5	< 0.005	5	5.0	< 5	< 5	< 6	9	12	< 5
Total Lead (lbs/day) Average Monthly	< 0.006	< 0.005	< 5	< 0.005	0.01	< 8	< 0.009	< 0.009	< 0.005	< 0.006	< 0.005	< 0.006
Total Lead (ug/L) Average Monthly	< 1	< 1	< 1	< 0.001	1	< 1.0	< 1	< 1	< 1	1	< 1	< 1
Total Lead (ug/L) Instantaneous Maximum	< 1	< 1	< 1	< 0.001	1	< 1.0	< 1	< 1	< 1	1	< 1	< 1
Dibromochloro-methane (lbs/day) Average Monthly	< 0.003	< 0.003	< 3	< 3	0.007	< 4.0	< 0.005	< 0.05	< 0.03	< 0.03	< 0.02	< 0.03
Dibromochloro-methane (ug/L) Average Monthly	< 0.5	< 5	< 0.5	< 0.5	0.5	< 0.5	< 0.5	< 5	< 5	< 5	< 5	< 5
Dibromochloro-methane (ug/L) Instantaneous Maximum	< 0.5	< 5	< 0.5	< 0.5	0.5	0.5	< 0.5	< 7	< 5	< 5	< 5	< 5

Compliance History

Effluent Violations for Outfall 001, from: January 1, 2025 To: November 30, 2025

Parameter	Date	Statistical Base Code (SBC)	DMR Value	Units	Limit Value	Units
TRC	06/30/25	IMAX	2.00	mg/L	0.68	mg/L
Fecal Coliform	07/31/25	IMAX	7200	No./100 ml	1000	No./100 ml
Fecal Coliform	05/31/25	IMAX	< 20000	No./100 ml	1000	No./100 ml
Fecal Coliform	07/31/25	IMAX	7200	No./100 ml	1000	No./100 ml

Summary of Inspections:

July 10, 2023 – Violation – discharge of sewage from the collection system at Butter Lane Pump Station (PS) due to extreme weather conditions. Damage from rain event included controls for backup pump station at Butter Lane PS, chlorine scales, chlorine alarm system. Also ordered to record change of operator-in-charge using DEP website.

July 1, 2021 – No violations – acquiring a standby power source is recommended. Submit Sewage Sludge/Biosolids supplemental form in eDMR system.

March 1, 2021 – No violations – Experienced high flows due to snowmelt and storm events. Submit a non-compliance report with the February eDMR for partial bypass of treatment units during high flow mode/storm mode.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 1.225
Latitude 40º 19' 50.88" **Longitude** -75º 52' 24.13"
Wastewater Description: Sewage Effluent

Permit limits can be Technology Based Effluent Limitations or Water Quality Based Effluent Limitations. Both are discussed in this Fact Sheet, in separate sections. Existing permit limits can also be carried forward such as to comply with anti-backsliding requirements and federal regulations.

Technology-Based Effluent Limitations (TBELs)

The following technology-based limitations apply, subject to water quality analysis and Best Professional Judgement (BPJ) where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation	DRBC*
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)	
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)	
$CBOD_5$ or BOD_5	85% Removal	Minimum		92a.47(a)(3)	18 CFR Part 410** ¶ 3.10.4.A & ¶ 3.10.6.D.
Total Suspended Solids (TSS)	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)	18 CFR Part 410** ¶ 3.10.4.D.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)	18 CFR Part 410** ¶ 4.30.4
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 (TRC)	0.5	Average Monthly	-	92a.48(b)(2)	
Ammonia as N	20	Average Monthly			18 CFR Part 410** ¶ 4.30.5.D
Total Dissolved Solids (TDS)	1000***	Minimum monitoring frequency of Quarterly			DRBC docket or 18 CFR Part 410** ¶ 3.10.4.D.2.

*Pa Code § 92a.12. Treatment requirements:
(b) When interstate or international agencies under an interstate compact or international agreement establish applicable effluent limitations or standards for dischargers of this Commonwealth to surface waters that are more stringent than those required by this title, the more stringent standards and limitations apply.

**Administrative Manual-Part III Water Quality Regulations 18 CFR Part 410

***Or a concentration established by the DRBC which is compatible with designated water uses and stream quality objectives and recognizes the need for reserve capacity to serve future dischargers (i.e. a limit based on a TDS Determination submitted to DRBC proving that the discharge will not cause the TDS in the receiving water to exceed the lesser of 500 mg/l or 133% of background. The DRBC docket for this facility does not include such a TDS variance).

The above TBELs for **$CBOD_5$, TSS**, **pH, Fecal Coliform, and TDS** are included as limits in the draft renewal permit and are the same limits as in the existing permit. The mass loading limits for CBOD5 and TSS are also the same in the draft renewal permit as in the existing permit.

The requirement for a minimum of 85% removal for **$CBOD_5$ or BOD_5** is satisfied by DEP's narrative condition in Part A of NPDES permits, following the limits tables.

The existing permit and the draft renewal permit include more stringent limits for **Ammonia** and **TRC** than the TBELs shown in the preceding TBEL table; these permit limits were based on WQBELs and are discussed in the WQBEL section of the Fact Sheet.

Best Professional Judgment (BPJ) Limitations, a type of TBEL

None

Water Quality-Based Effluent Limitations (WQBELs)

Total Maximum Daily Loads (TMDLs):

There are no TMDLs for Antietam Creek.

WQBELs other than TMDLs:

DEP uses a model known as **WQM 7.0** to determine appropriate limits for CBOD5, Ammonia (NH3-N), and Dissolved Oxygen (DO). DEP's 'Implementation Guidance for Section 93.7 Ammonia Criteria', document #386-2000-022, provides the methods and calculations contained in the WQM 7.0 model for conducting wasteload allocation and for determining recommended NPDES effluent limits for point source discharges. For more explanation of the WQM 7.0 model, see 'Technical Reference Guide WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen', document #386-2000-016. Because there are no other nearby sewage treatment plants on Antietam Creek, no other discharges were included in the model simulation.

The source of the River Mile Indices (RMI's) and elevations that were used in the WM 7.0 model (and TMS model discussed below) was DEP's eMapPA while the source of the Drainage Areas and stream design low-flows (Q7-10, the lowest consecutive 7 days of stream flow over a 10-year period) was the USGS PA Stream Stats online tool (see attached). Low Flow Yield (LFY) is calculated as stream low-flow Q7-10 divided by Drainage Area.

The receiving stream has been classified as 'Trout Natural Reproduction'. Because this is an existing facility who is not increasing their design flow, the WQM model was not re-run for Dissolved Oxygen (DO) levels of 8 mg/l for the protection of early life stages of salmonids, consistent with DEP's Standard Operating Procedure (SOP) 'Establishing Effluent Limitations for Individual Sewage Permits'.

DEP's uses a **TRC model** (Excel spreadsheet) to determine WQBELs for TRC: the model utilizes the equations and calculations provided in DEP's 'Implementation Guidance Total Residual Chlorine (TRC) Regulation' for TRC, document #386-2000-011.

The WQM 7.0 and TRC model results indicated that the existing permit limits for **CBOD5, TSS, DO, Ammonia, and TRC** are protective of water quality. The existing permit limits for these parameters are being carried forward in the draft renewal permit in accordance with anti-backsliding provisions. The facility has been meeting these existing permit limits according to a review of their DMR data from January 1, 2023, through November 30, 2025.

Note: the WQM model defaulted to the TBELs for CBOD5 and TSS, meaning no more stringent WQBELs are necessary to protect the receiving water.

Note: Because Ammonia is less toxic in cold water, DEP typically allows less stringent Ammonia limits during cold-weather months. The existing permit included Ammonia limits during cold months that applied a seasonal multiplier of 3 to the

average monthly limit for warm months, consistent with the DEP's SOP 'Establishing Effluent Limitations for Individual Sewage permits'. The same was allowed for the draft renewal permit.

DEP uses a model called the **Toxics Management Spreadsheet** (TMS) for toxic pollutants. It is a macro-enabled Excel version of DEP's former PENTOX model. It evaluates the reasonable potential for discharges to cause in-stream exceedances of water quality criteria and recommends WQBELs as permit limits, as needed, or monitoring requirements to better evaluate 'reasonable potential' to cause an in-stream exceedance of a water quality criteria for some parameters. For more explanation of the TMS / PENTOX model, see Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, document #386-2000-015.

The TMS is coded to recommend limits in the draft permit when the discharge concentration equals or exceeds 50% of the calculated WQBEL. The TMS is coded to recommend a monitoring requirement in the draft permit when the discharge concentration is between 25% and 50% of the WQBEL in the case of non-conservative pollutants or between 10% and 50% of the WQBEL in the case of conservative pollutants.

Some default values were used in the models in the absence of reliable site-specific data including:

Stream Temperature = 20^{o}C
Stream pH = 7 s.u.
Background CBOD5 in stream = 2 mg/l
Background Ammonia in stream = 0 mg/l
Background DO in stream = 8.24 mg/l
Background stream concentrations for toxic parameters = 0 ug/l
Stream chlorine demand = 0.3
Discharge chlorine demand = 0
Discharge Temperature = 25^{o}C
Discharge pH = 7 s.u.
Coefficient of Variability in data = 0.5

In addition the WQM 7.0 and TMS models estimated the stream width, depth, and velocity.

When there are less than 10 data points, the *maximum* effluent concentrations of the available data (such as from the permit application and from DMRs) are used by DEP as the discharge concentration input value in the TMS, with the exception of discharge Hardness for which the average effluent concentration is typically used. When there are more than 10 discrete data points (i.e. not statistically manipulated data), DEP may use a statistical spreadsheet known as **ToxStats** to derive the discharge concentration to use in the TMS model. DEP is in the process of replacing the previously used TOXCONC statistical spreadsheet with ToxStats, after testing and validation. For this draft permit, the permit writer used Excel functions to find the 90th percentiles and median values, consistent with DEP's SOP 'Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits', from discrete sample results reported on the facility's Daily Effluent Supplemental forms submitted in the eDMR system: a) the median value of effluent concentrations when there are undetected concentrations or b) the 90th percentile of effluent concentrations when there are detected concentrations..

There were more than 10 data points available for Total Copper, Total Lead, Free Cyanide, Dibromochloromethane, and TDS. The statistical analysis for Total Copper and Free Cyanide are attached. However, it was not necessary to find the 90th percentile or median values from discrete samples for the other 3 parameters (which is labor-intensive):

TDS--- the maximum concentration from the application (3 samples) was 695 mg/l ; the maximum concentration from 3 years of DMRs was 505 mg/l. Neither of these discharge concentrations caused the model to recommend limits or a monitoring requirement.

Total Lead -- the maximum concentration from the application (3 samples) was <1 ug/l ; the maximum concentration from 3 years of DMRs was 1 ug/ll. Neither of these discharge concentrations caused the model to recommend limits or a monitoring requirement.

Dibromochloromethane--- the maximum concentration from the application (3 samples) was <0.5 ug/l ; the maximum concentration from 3 years of DMRs was <9 ug/ll. However, a more stringent reporting level began to be used in 2025: 23 out of 23 discrete samples from the Daily Effluent Supplemental Forms in the eDMR system between July1, 2025 and

November 30, 2025 were <0.5 ug/l. The discharge concentration of <0.5 ug/l did not cause the model to recommend limits or a monitoring requirement.

	Maximum concentration in application (3 data points)	90th percentile discrete data (mostly detects)	Median of discrete data (mostly under reporting level)	# of data points used in statistical calculation
T. Copper **(mg/l)**	0.007	0.007		49
Free Cyanide **(ug/l)**	<1.0		<5	48

The TMS input values and results are attached. The results are also shown here:

☑ *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 Aluminum	Report	Report	Report	Report	Report	µg/L	1,495	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	mg/L	0.061	CFC	Discharge Conc > 10% WQBEL (no RP)
Free Cyanide	Report	Report	Report	Report	Report	µg/L	12.4	THH	Discharge Conc > 25% WQBEL (no RP)

Therefore, the existing permit limits for **Total Copper** have been dropped in the draft renewal permit; the existing permit's monitoring requirements for **Total Lead and Dibromochloromethane** have been dropped in the draft renewal permit; and monitoring has been required for **Total Aluminum, Total Copper**, and **Free Cyanide** as recommended by the TMS.

The model inputs and results are attached.

Dropping the Total Copper limit from the permit does not violate anti-backsliding provisions:

> The draft permit issued in 2019 had proposed monitoring for Total Copper "given the limited data set provided" instead of establishing limits [source: 2019 Fact sheet]. EPA commented on the draft, recommending WQBELs be imposed in the final permit for **Total Copper** which they were. However, that recommendation was made based on limited monitoring data. Five years' worth of monitoring is now available for Total Copper. Using DEP procedures and models, the monitoring data do not indicate a reasonable potential exists for the discharge to cause an exceedance of water quality criteria in the receiving stream.
>
> DEP's SOP 'Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits' provides that existing WQBELs for toxic parameters can be relaxed or eliminated if no Reasonable Potential is demonstrated and if one of the anti-backsliding exceptions apply. One of the exceptions is new information that was not available at the time the limit was previously imposed, for example monitoring data. [Clean Water Act § 402(o)(2)(B)(i)]. Additionally, there is no TMDL for Antietam Creek nor has it been assessed as impaired for Total Copper nor is it a designated High Quality or Exceptional Value water. The designated uses of the receiving water, Cold Water Fishes and Migratory Fish, will be maintained. The elimination of the Total Copper permit limits will not result in a violation of a water quality standard applicable to the receiving water or the downstream water. Therefore, the existing permit limits for **Total Copper** have been dropped in the draft renewal permit but a monitoring requirement has been included.

Anti-Backsliding

The existing permit limits for Total Copper were eliminated as already discussed and justified. No other limits in the draft renewal permit are less stringent than in the existing permit.

Mass Load vs. Concentration Limits

Consistent with DEP's Technical Guidance for the Development and Specification of Effluent Limitations, document #386-0400-001, and DEP's SOP 'Establishing Effluent Limitations for Individual Sewage Permits', average monthly mass loading limits have been established for $CBOD_5$, TSS, and Ammonia (NH_3), and average weekly mass loading limits have additionally been established for $CBOD_5$ and TSS.

Sample Types and Monitoring Frequencies

Sample types and monitoring frequencies are consistent with DEP's Technical Guidance for the Development and Specification of Effluent Limitations, document #386-0400-001, and/or carried forward from the previous permit when deemed appropriate. When monitoring is for the purpose of collecting data for future reasonable potential determinations rather than for verifying compliance with permit limits, less frequent monitoring can be proposed.

Flow Monitoring

The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii).

Influent BOD & TSS Monitoring

The existing influent monitoring reporting requirement for BOD_5 and TSS will be maintained in the renewal permit, consistent with the permits of other municipal wastewater treatment facilities.

E. Coli Monitoring

Consistent with DEP's SOP 'Establishing Effluent Limitations for Individual Sewage Permits' and due to the regulatory change in the State Water Quality Standards, PA Code Chapter 93, E. Coli monitoring has been included. The statutory basis for this requirement is provided at PA Code § 92a.61. The sampling frequency of once per month is consistent with DEP's SOP 'Establishing Effluent Limitations for Individual Sewage Permits'.

Total Nitrogen (TN) and Total Phosphorus (TP) Monitoring

In an effort to understand nutrient loading on PA streams, sewage dischargers with design flows greater than 2000 gpd are being required to monitor for TN and TP in new and reissued permits. The statutory basis for this requirement is provided at PA Code § 92a.61. Because Antietam Creek has not been identified as nutrient-impaired water, monitoring has been required on weekly basis rather than more frequently.

TN and TP monthly monitoring were included in the existing permit. The Discharge Monitoring Reports (DMR) data from January 1, 2023 through November 30, 2025 indicate an average TN concentration in the effluent of 17.7 mg/l and an average TN load of 118 lbs/day. The DMR data from January 1, 2023 through November 30, 2025 indicate an average TP concentration in the effluent of 2.4 mg/l and an average TP load of 16 lbs/day.

Per- and Polyfluoroalkyl Substances (PFAS) Monitoring

Given the concern over PFAS in waterways, DEP has initiated a policy to identify PFAS in discharges using 4 indicator parameters: Perfluorooctanoic acid (PFOA), Perfluorooctane sulfonic acid (PFOS), Perfluorobutane sulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA). A discharge monitoring requirement for these 4 indicator parameters is now routinely included in NPDES permits for Major Sewage facilities, with a footnote allowing the monitoring to be discontinued if 4 consecutive monitoring periods indicate non-detect results at or below specified sufficiently sensitive Quantitation Limits (QLs).

The renewal application indicated that there were detects of PFOA, PFOS, and PFBS in 3 out of 3 effluent samples. For HFPO-DA, there were no detected concentrations in 3 out of 3 effluent samples. Due to the detections of PFAS indicator

parameters, quarterly monitoring for all 4 PFAS indicator parameters has been required in the draft renewal permit, consistent with DEP's SOP 'Establishing Effluent Limitations for Individual Sewage Permits'.

The permit application's effluent sampling results for outfall 001 were as follows:

Pollutant	Units	Maximum Concentration	# of Detects out of # samples	EPA Method Used
PFOA	ng/l	9.90	3 / 3	537 Isotope Dilution, M.J. Reider
PFOS	ng/l	3.80	3 / 3	537 Isotope Dilution, M.J. Reider
PFBS	ng/l	5.20	2 / 3	537 Isotope Dilution, M.J. Reider
HFPO-DA	ng/l	<1.90	0 / 3	537 Isotope Dilution, M.J. Reider

Pollutant	Units	Maximum Concentration	# of Detects out of # samples	EPA Method Used*
PFOA	ng/l	6.57 Qualifier: high TDS 5.98 without Qualifiers	3 / 3	1633, Suburban Labs
PFOS	ng/l	5.66 Qualifier: high TDS 5.58 without Qualifiers	3 / 3	1633, Suburban Labs
PFBS	ng/l	<3.54 Qualifier: high TDS 2.73 without Qualifiers	1 / 3	1633, Suburban Labs
HFPO-DA	ng/l	< 4.0 Qualifier: high TDS <1.9 without Qualifiers	0 / 3	1633, Suburban Labs

The draft renewal permit also has language in Part B.I.D. relevant to PFAS, shown below. While the facility does not accept industrial wastewater currently, the permittee should be aware, such as for planning purposes, that this language is now included in NPDES permits for Major Sewage facilities.

> *Each POTW without an approved Pretreatment Program shall, within six (6) months of the permit effective date, develop a list of Industrial Users (IUs) in industry categories expected or suspected of per- and polyfluoroalkyl substance (PFAS) discharges to the POTW and submit the list to EPA at* EPA_R3_Pretreatment@epa.gov *and to DEP at* RA-EPNPDES_PERMITS@pa.gov*.. These industry categories shall include airports; centralized waste treatment; electroplating; electric and electronic components; fire training; landfills; leather tanning & finishing; metal finishing; organic chemicals, plastics & synthetic fibers (OCPSF); paint formulating; plastics molding & forming; pulp, paper & paperboard; textile mills; sites known or suspected of PFAS contamination; and any other sources expected or suspected of PFAS discharges. The list must contain the names, addresses, NAICS codes, and industry categories (as listed above) of any IUs identified.*

Total Dissolved Solids

The facility's DMR data for TDS from January 1, 2023 through November 30, 2025 are attached. Their renewal application indicated an average concentration of 445 mg/l and an average load of 2959 lbs/day based on 8 samples.

TDS data needs to be collected and documented given that future TDS variance requests on stream segments pursuant to Title 25 Pa Code § 95.10 would require DEP to analyze multiple dischargers' TDS loads.

Antidegradation Requirements

All effluent limitations and monitoring requirements 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 or Exceptional Value waters are impacted by this discharge.

303(d) Listed Streams – Impaired Waters

Section 303(d) of the federal Clean Water Act requires states to provide a list of impaired waters to EPA and to establish a Total Maximum Daily Load (TMDL) for all pollutants identified as preventing attainment of water quality standards. The receiving water, Antietam Creek, has been assessed as impaired for Recreational Uses due to pathogens. No TMDL has been developed. This permit imposes Fecal Coliform limits as a control on pathogens so that the discharge will not contribute to the impairment. The permittee has been meeting their Fecal Coliform limits.

Class A Trout Fisheries

The receiving water (and downstream waters) are not considered Class A Trout Waters.

Trout Natural Reproduction Waters

The receiving water is considered Trout Natural Reproduction Waters. As discussed in the WQBEL section of the Fact Sheet, a model simulation was not run for salmonid early life stages with a higher stream Dissolved Oxygen concentration because the facility is an existing discharger.

Whole Effluent Toxicity (WET)

The existing permit required (1) quarterly WET testing be conducted for the first year; and (2) if four consecutive quarterly WET tests had passing results, the WET testing frequency could be reduced to annually. The requirement for quarterly sampling was explained thus in the Fact Sheet associated with the existing permit:

> *WET testing for this renewal was conducted by QC laboratories (Eurofins QC). Per the email from Maria Schumack [DEP Bureau of Clean Water] on October 26, 2017, it is assumed that all tests performed by Eurofins QC should be considered invalid. Quarterly sampling for the first year of the permit term and annual sampling will be resumed in the second year provided they pass all 4 quarterly tests.*

The first four tests were conducted quarterly with passing results and allowed for the facility to reduce their testing frequency to annual. However, the facility neglected to conduct WET testing after 2020. For the renewal application, they were required to conduct more recent WET tests in order to assess Reasonable Potential based on 4 WET test results. Because EPA would be reviewing the draft permit, EPA was consulted by DEP to ensure their agreement. See the attached emails.

For Outfall 001: ☐ **Acute** ☒ **Chronic** WET Testing was completed:

☒ For the permit renewal application (4 tests).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☐ Other:

The dilution series used for the tests was: 100%, 66%, 32%, 16% and 8%. The Target Instream Waste Concentration (TIWC) used for analysis of the results: 32%.

Summary of Four Most Recent Test Results

TST Data Analysis

(See the attached DEP WET Analysis Spreadsheets, prepared by the analyzing labs and submitted to DEP).

Test Date	***Ceriodaphnia* Results (Pass/Fail)**		***Pimephales* Results (Pass/Fail)**	
	Survival	**Reproduction**	**Survival**	**Growth**
4/29/2025 (re-test)	-	-	Pass	Pass
3/24/2025 & 3/25/2025	Pass	Pass	Fail	Fail
12/10/2024	Pass	Pass	Pass	Pass
8/27/2024	Pass	Pass	Pass	Pass
12/14/2020 & 12/15/2020	Pass	Pass	Pass	Pass

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☐ **YES** ☒ **NO**

Evaluation of Test Type, IWC and Dilution Series for Renewed Permit

Acute Partial Mix Factor (PMFa): **1** Chronic Partial Mix Factor (PMFc): **1** (PMFs from TMS model results)

1. **Determine IWC – Acute (IWCa)**:

   $(Q_d \times 1.547) / ((Q_{7\text{-}10} \times PMFa) + (Q_d \times 1.547))$

   [(1.225 MGD x 1.547) / ((4 cfs x 1) + (1.225 MGD x 1.547))] x 100 = **IWCa% = 32%**

   Is IWCa < 1%? ☐ **YES** ☒ **NO (YES - Acute Tests Required OR NO - Chronic Tests Required)**

   Type of Test for Permit Renewal: **Chronic**

2. **Determine Target IWCc (If Chronic Tests Required)**

   $(Q_d \times 1.547) / (Q_{7\text{-}10} \times PMFc) + (Q_d \times 1.547)$

   [(1.225 MGD x 1.547) / ((4 cfs x **1**) + (1.225 MGD x 1.547))] x 100 = **TIWCc% = 32%**

3. **Determine Dilution Series**

   (NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).

   Dilution Series = 100%, 66%, 32%, 16%, and 8%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

Will WET limits be established in the permit? ☐ YES ☒ NO

Stormwater

The application represented that there were four stormwater-only outfalls discharging to Antietam Creek, identified as 002, 003, 004, and 005:

Outfall No.	Latitude	Longitude
002	40° 19' 51"	75° 52' 30"
003	40° 19' 52"	75° 52' 23"
004	40° 19' 50"	75° 52' 25"
005	40° 19' 51"	75° 52' 31"

The area drained for each outfall was not provided in the application (or in the existing permit). DEP's application does not ask for descriptions of the areas drained.

See the attached map of the stormwater outfall locations.

As with the existing NPDES permit, no monitoring requirement is included in the permit for the stormwater outfalls but Best Management Practices as well as a Preparedness, Prevention, and Contingency Plan are required in Part C of the draft renewal permit. Routine inspections once per year are also required in Part C.

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 as needed and BPJ. Instantaneous Maximum (IMAX) limits are generally 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)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instant. 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	0.21	XXX	0.68	1/day	Grab
CBOD5	255	383	XXX	25.0	40.0	50	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	306	460	XXX	30.0	45.0	60	2/week	24-Hr Composite
Total Dissolved Solids	XXX	Report Daily Max	XXX	XXX	1000.0 Daily Max	XXX	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10,000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
E. Coli (No./100 mL)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Nitrate-Nitrite*	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Kjeldahl*	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Nitrogen*	Report	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Ammonia Nov 1 - Apr 30	77.0	XXX	XXX	7.5	XXX	15	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	26.0	XXX	XXX	2.5	XXX	5	2/week	24-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Aluminum	Report	XXX	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite
Total Copper	Report	XXX	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite
Cyanide, Free (ug/L)	Report	XXX	XXX	Report	XXX	Report	1/week	Grab
Perfluorooctanoic acid (PFOA) (ng/L)**	XXX	XXX	XXX	XXX	XXX	Report **	1/quarter	Grab
Perfluorooctanesulfonic acid (PFOS) (ng/L)**	XXX	XXX	XXX	XXX	XXX	Report **	1/quarter	Grab
Perfluorobutanesulfonic acid (PFBS) (ng/L)**	XXX	XXX	XXX	XXX	XXX	Report **	1/quarter	Grab
Hexafluoropropylene oxide dimer acid (HFPO-DA) (ng/L)**	XXX	XXX	XXX	XXX	XXX	Report **	1/quarter	Grab

*Total Nitrogen is the sum of Total Kjeldahl Nitrogen (TKN) plus Nitrite-Nitrate as N (NO2+NO3-N), where TKN and NO2+NO3-N are measured in the same sample.

** The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive quarters indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees must enter a No Discharge Indicator (NODI) Code of “GG” on DMRs.

Compliance Sampling Location: at outfall 001

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: New and Reissuance Sewage Individual NPDES Permit Applications, Version 2.0, Revised 2/3/2022
☒	SOP: Establishing Effluent Limitations for Individual Sewage Permits, Version 2.0, Revised 2/5/2024
☒	SOP: Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers, Version 1.7, Revised 12/18/2025

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PADEP Chapter 94 Spreadsheet
Sewage Treatment Plants

Reporting Year: 2024

Facility Name: Antietam Valley Municipal Authority WWTP | **Permit No.:** PA0026646 | **Persons/EDU:** 2.57

Existing Hydraulic Design Capacity:	2.45	MGD		**Existing Organic Design Capacity:**	2,050	lbs BOD5/day
Upgrade Planned in Next 5 Years?	NO	**Year:**		**Upgrade Planned in Next 5 Years?**	NO	**Year:**
Future Hydraulic Design Capacity:		MGD		**Future Organic Design Capacity:**		lbs BOD5/day

Monthly Average Flows for Past Five Years (MGD)

Month	2020	2021	2022	2023	2024
January	0.936	0.807	0.668	0.939	1.577
February	0.9	0.993	0.885	0.68	0.897
March	0.904	1.117	0.734	0.734	1.371
April	1.054	0.813	1.239	0.698	1.358
May	0.874	0.637	0.961	0.643	0.776
June	0.661	0.616	0.68	0.588	0.667
July	0.725	0.683	0.667	0.975	0.835
August	0.85	0.704	0.601	0.666	0.923
September	0.634	1.124	0.612	0.746	0.611
October	0.652	0.662	0.905	0.632	0.554
November	0.728	0.616	0.624	0.648	0.573
December	0.986	0.537	0.918	1.357	0.709
Annual Avg	0.825	0.776	0.791	0.776	0.904
Max 3-Mo Avg	0.953	0.974	0.978	0.879	1.282
Max : Avg Ratio	1.16	1.26	1.24	1.13	1.42
Existing EDUs	3,689.0	3,693.0	3,693.0	3,693.0	3,694.0
Flow/EDU (GPD)	223.6	210.1	214.2	210.1	244.7
Flow/Capita (GPD)	87.0	81.8	83.3	81.8	95.2
Exist. Overload?	**NO**	**NO**	**NO**	**NO**	**NO**

Monthly Average BOD5 Loads for Past Five Years (lbs/day)

Month	2020	2021	2022	2023	2024
January	1,624	1,777	1,407	895	668
February	1,599	1,956	1,172	1,216	886
March	**2,119**	1,489	1,039	905	840
April	**2,207**	1,545	1,603	736	725
May	1,457	1,325	1,076	783	800
June	1,366	982	1,442	890	759
July	1,426	958	1,123	764	694
August	1,495	854	1,133	650	679
September	1,559	1,075	1,364	713	852
October	1,216	991	1,284	726	901
November	1,563	1,022	**2,075**	964	848
December	1,727	1,052	1,237	881	1,110
Annual Avg	1,613	1,252	1,330	844	814
Max Mo Avg	2,207	1,956	2,075	1,216	1,110
Max : Avg Ratio	1.37	1.56	1.56	1.44	1.36
Existing EDUs	3,689	3,693	3,693	3,693	3,694
Load/EDU	0.437	0.339	0.360	0.228	0.220
Load/Capita	0.170	0.132	0.140	0.089	0.086
Exist. Overload?	**YES**	**NO**	**YES**	**NO**	**NO**

Projected Flows for Next Five Years (MGD)

	2025	2026	2027	2028	2029
New EDUs	10.0	1.0	1.0	1.0	1.0
New EDU Flow	0.0022	0.0002	0.0002	0.0002	0.0002
Proj. Annual Avg	0.817	0.8172	0.8174	0.8176	0.8178
Proj. Max 3-Mo Avg	1.013	1.013	1.013	1.013	1.014
Proj. Overload?	**NO**	**NO**	**NO**	**NO**	**NO**

Projected BOD5 Loads for Next Five Years (lbs/day)

	2025	2026	2027	2028	2029
New EDUs	10	1	1	1	1
New EDU Load	3.170	0.317	0.317	0.317	0.317
Proj. Annual Avg	1,174	1,174	1,174	1,175	1,175
Proj. Max Avg	1,713	1,713	1,714	1,714	1,715
Proj. Overload?	**NO**	**NO**	**NO**	**NO**	**NO**

Discharge Monitoring Report data:

PA0026646	1/1/2023	1/31/2023	1	001	Final Effluent	Flow	MGD	0.939	Monitor a	Average Mon	1.99	Monitor a	Daily Maximum
PA0026646	2/1/2023	2/28/2023	1	001	Final Effluent	Flow	MGD	0.68	Monitor a	Average Mon	0.788	Monitor a	Daily Maximum
PA0026646	3/1/2023	3/31/2023	1	001	Final Effluent	Flow	MGD	0.734	Monitor a	Average Mon	1.376	Monitor a	Daily Maximum
PA0026646	4/1/2023	4/30/2023	1	001	Final Effluent	Flow	MGD	0.698	Monitor a	Average Mon	3.119	Monitor a	Daily Maximum
PA0026646	5/1/2023	5/31/2023	4	001	Final Effluent	Flow	MGD	0.643	Monitor a	Average Mon	1.536	Monitor a	Daily Maximum
PA0026646	6/1/2023	6/30/2023	1	001	Final Effluent	Flow	MGD	0.588	Monitor a	Average Mon	0.668	Monitor a	Daily Maximum
PA0026646	7/1/2023	7/31/2023	1	001	Final Effluent	Flow	MGD	0.975	Monitor a	Average Mon	4.875	Monitor a	Daily Maximum
PA0026646	8/1/2023	8/31/2023	1	001	Final Effluent	Flow	MGD	0.666	Monitor a	Average Mon	1.24	Monitor a	Daily Maximum
PA0026646	9/1/2023	9/30/2023	1	001	Final Effluent	Flow	MGD	0.746	Monitor a	Average Mon	1.92	Monitor a	Daily Maximum
PA0026646	10/1/2023	10/31/2023	1	001	Final Effluent	Flow	MGD	0.632	Monitor a	Average Mon	1.101	Monitor a	Daily Maximum
PA0026646	11/1/2023	11/30/2023	1	001	Final Effluent	Flow	MGD	0.648	Monitor a	Average Mon	1.572	Monitor a	Daily Maximum
PA0026646	12/1/2023	12/31/2023	1	001	Final Effluent	Flow	MGD	1.357	Monitor a	Average Mon	4.122	Monitor a	Daily Maximum
PA0026646	1/1/2024	1/31/2024	1	001	Final Effluent	Flow	MGD	1.577	Monitor a	Average Mon	5.186	Monitor a	Daily Maximum
PA0026646	2/1/2024	2/29/2024	1	001	Final Effluent	Flow	MGD	0.897	Monitor a	Average Mon	1.136	Monitor a	Daily Maximum
PA0026646	3/1/2024	3/31/2024	1	001	Final Effluent	Flow	MGD	1.371	Monitor a	Average Mon	3.052	Monitor a	Daily Maximum
PA0026646	4/1/2024	4/30/2024	1	001	Final Effluent	Flow	MGD	1.358	Monitor a	Average Mon	5.394	Monitor a	Daily Maximum
PA0026646	5/1/2024	5/31/2024	1	001	Final Effluent	Flow	MGD	0.776	Monitor a	Average Mon	1.133	Monitor a	Daily Maximum
PA0026646	6/1/2024	6/30/2024	1	001	Final Effluent	Flow	MGD	0.667	Monitor a	Average Mon	1.045	Monitor a	Daily Maximum
PA0026646	7/1/2024	7/31/2024	1	001	Final Effluent	Flow	MGD	0.835	Monitor a	Average Mon	2.105	Monitor a	Daily Maximum
PA0026646	8/1/2024	8/31/2024	1	001	Final Effluent	Flow	MGD	0.923	Monitor a	Average Mon	2.962	Monitor a	Daily Maximum
PA0026646	9/1/2024	9/30/2024	1	001	Final Effluent	Flow	MGD	0.611	Monitor a	Average Mon	0.755	Monitor a	Daily Maximum
PA0026646	10/1/2024	10/31/2024	1	001	Final Effluent	Flow	MGD	0.554	Monitor a	Average Mon	0.626	Monitor a	Daily Maximum
PA0026646	11/1/2024	11/30/2024	1	001	Final Effluent	Flow	MGD	0.573	Monitor a	Average Mon	0.945	Monitor a	Daily Maximum
PA0026646	12/1/2024	12/31/2024	1	001	Final Effluent	Flow	MGD	0.709	Monitor a	Average Mon	1.791	Monitor a	Daily Maximum
PA0026646	1/1/2025	1/31/2025	1	001	Final Effluent	Flow	MGD	0.623	Monitor a	Average Mon	0.953	Monitor a	Daily Maximum
PA0026646	2/1/2025	2/28/2025	1	001	Final Effluent	Flow	MGD	0.758	Monitor a	Average Mon	2.198	Monitor a	Daily Maximum
PA0026646	3/1/2025	3/31/2025	1	001	Final Effluent	Flow	MGD	0.703	Monitor a	Average Mon	1.991	Monitor a	Daily Maximum
PA0026646	4/1/2025	4/30/2025	1	001	Final Effluent	Flow	MGD	1.1	Monitor a	Average Mon	2.489	Monitor a	Daily Maximum
PA0026646	5/1/2025	5/31/2025	1	001	Final Effluent	Flow	MGD	1.345	Monitor a	Average Mon	3.466	Monitor a	Daily Maximum
PA0026646	6/1/2025	6/30/2025	1	001	Final Effluent	Flow	MGD	1.067	Monitor a	Average Mon	3.052	Monitor a	Daily Maximum
PA0026646	7/1/2025	7/31/2025	1	001	Final Effluent	Flow	MGD	1.155	Monitor a	Average Mon	5.002	Monitor a	Daily Maximum
PA0026646	8/1/2025	8/31/2025	1	001	Final Effluent	Flow	MGD	0.685	Monitor a	Average Mon	0.921	Monitor a	Daily Maximum
PA0026646	9/1/2025	9/30/2025	1	001	Final Effluent	Flow	MGD	0.675	Monitor a	Average Mon	1.544	Monitor a	Daily Maximum
PA0026646	10/1/2025	10/31/2025	1	001	Final Effluent	Flow	MGD	0.627	Monitor a	Average Mon	1.338	Monitor a	Daily Maximum
PA0026646	11/1/2025	11/30/2025	1	001	Final Effluent	Flow	MGD	0.634	Monitor a	Average Mon	0.898	Monitor a	Daily Maximum
								0.844	Average				
								0.709	Median		1.572	Median	
								1.352	90th Percentile		5.394	Maximum	

PERMIT	MONITORIN(	MONITORING	MR_VERSIC	OUTFALL	MONITORING_LOC	PARAMETER	LOAD_UNITS	LOAD_2_V	LOAD_2	LOAD_2_SBC	CONC_UN	CONC_2_\	CONC_2_I	CONC_2_SBC	SAMPLE_F	SAMPLE_TYPE
PA0026646	1/1/2023	3/31/2023	1	001	Final Effluent	Total Dissolved Solids	lbs/day	2225	Monitor	Daily Maximum	mg/L	380	1000	Daily Maximum	1/quarter	24-Hr Composite
PA0026646	4/1/2023	6/30/2023	1	001	Final Effluent	Total Dissolved Solids	lbs/day	2290	Monitor	Daily Maximum	mg/L	480	1000	Daily Maximum	1/quarter	24-Hr Composite
PA0026646	7/1/2023	9/30/2023	1	001	Final Effluent	Total Dissolved Solids	lbs/day	2665	Monitor	Daily Maximum	mg/L	394	1000	Daily Maximum	1/quarter	24-Hr Composite
PA0026646	10/1/2023	12/31/2023	1	001	Final Effluent	Total Dissolved Solids	lbs/day	2627	Monitor	Daily Maximum	mg/L	493	1000	Daily Maximum	1/quarter	24-Hr Composite
PA0026646	1/1/2024	3/31/2024	1	001	Final Effluent	Total Dissolved Solids	lbs/day	3395	Monitor	Daily Maximum	mg/L	358	1000	Daily Maximum	1/quarter	24-Hr Composite
PA0026646	4/1/2024	6/30/2024	1	001	Final Effluent	Total Dissolved Solids	lbs/day	2258	Monitor	Daily Maximum	mg/L	414	1000	Daily Maximum	1/quarter	24-Hr Composite
PA0026646	7/1/2024	9/30/2024	1	001	Final Effluent	Total Dissolved Solids	lbs/day	2637	Monitor	Daily Maximum	mg/L	505	1000	Daily Maximum	1/quarter	24-Hr Composite
PA0026646	10/1/2024	12/31/2024	1	001	Final Effluent	Total Dissolved Solids	lbs/day	2135	Monitor	Daily Maximum	mg/L	409	1000	Daily Maximum	1/quarter	24-Hr Composite
PA0026646	1/1/2025	3/31/2025	1	001	Final Effluent	Total Dissolved Solids	lbs/day	2123	Monitor	Daily Maximum	mg/L	406	1000	Daily Maximum	1/quarter	24-Hr Composite
PA0026646	4/1/2025	6/30/2025	1	001	Final Effluent	Total Dissolved Solids	lbs/day	2529	Monitor	Daily Maximum	mg/L	420	1000	Daily Maximum	1/quarter	24-Hr Composite
PA0026646	7/1/2025	9/30/2025	1	001	Final Effluent	Total Dissolved Solids	lbs/day	3180	Monitor	Daily Maximum	mg/L	360	1000	Daily Maximum	1/quarter	24-Hr Composite
PA0026646	10/1/2025	12/31/2025	1	001	Final Effluent	Total Dissolved Solids	lbs/day	2180	Monitor	Daily Maximum	mg/L	450	1000	Daily Maximum	1/quarter	24-Hr Composite
								2520	AVG of D.Max			422	AVG of D.Max			
								3395	D.Max			505	D.Max			

StreamStats Output Report - Antietam Valley STP 001					
State/Region ID	PA				
Latitude	40.33084				
Longitude	-75.87317				
Time	1/13/2026	2:56:24 PM			
Basin Characteristics					
Parameter Code	Parameter Description	Value	Unit		
BSLOPD	Mean basin slope measured in deg	7.7057	degrees		
DRNAREA	Area that drains to a point on a stre	9.99	square miles		
ROCKDEP	Depth to rock	5.11	feet		
URBAN	Percentage of basin with urban dev	10.9575	percent		
Low-Flow Statistics Paran	100.0 Percent Low Flow Region 1				
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLOPD	Mean Basin Slope degrees	7.7057	degrees	1.7	6.4
DRNAREA	Drainage Area	9.99	square mi	4.78	1150
ROCKDEP	Depth to Rock	5.11	feet	4.13	5.21
URBAN	Percent Urban	10.9575	percent	0	89
Low-Flow Statistics Flow I	100.0 Percent Low Flow Region 1				
Statistic	Value	Unit			
7 Day 2 Year Low Flow	6.3	ft^3/s			
30 Day 2 Year Low Flow	6.97	ft^3/s			
7 Day 10 Year Low Flow	3.96	ft^3/s			
30 Day 10 Year Low Flow	4.4	ft^3/s			
90 Day 10 Year Low Flow	5	ft^3/s			
USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satis					
USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Survey (USGS). Alth					
USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and d					
Application Version: 4.30.0					

Low Flow Yield = Q7-10 / Drainage Area = 3.96 cfs/ 9.99 sq.mi. = 0.4 cfs/sq.mi.

Stream Stats just before confluence of Antietam Creek and UNT 01799, downstream of outfall 001:

StreamStats Output Report- at confluence of Antietam Crk and UNT 01799					
State/Region ID	PA				
Latitude	40.31815				
Longitude	-75.86251				
Time	1/13/2026	3:26:33 PM			
Basin Characteristics					
Parameter Code	Parameter Description	Value	Unit		
BSLOPD	Mean basin slope measured in degrees	7.7432	degrees		
DRNAREA	Area that drains to a point on a stream	11.8	square miles		
ROCKDEP	Depth to rock	5.15	feet		
URBAN	Percentage of basin with urban developm	19.4944	percent		
Low-Flow Statistics Param	100.0 Percent Low Flow Region 1				
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLOPD	Mean Basin Slope degrees	7.7432	degrees	1.7	6.4
DRNAREA	Drainage Area	11.8	square mil	4.78	1150
ROCKDEP	Depth to Rock	5.15	feet	4.13	5.21
URBAN	Percent Urban	19.4944	percent	0	89
Low-Flow Statistics Flow R	100.0 Percent Low Flow Region 1				
Statistic	Value	Unit			
7 Day 2 Year Low Flow	8.99	ft^3/s			
30 Day 2 Year Low Flow	9.87	ft^3/s			
7 Day 10 Year Low Flow	5.96	ft^3/s			
30 Day 10 Year Low Flow	6.53	ft^3/s			
90 Day 10 Year Low Flow	7.28	ft^3/s			
USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality s					
USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Survey (USGS). Although the so					
USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply					
Application Version: 4.30.0					
SSHydro Services Version: 1.0.0					
SSDelineate Services Version: 1.0.0					
NSS Services Version: 2.2.1					
GageStats Services Version: 1.2.1					
Pourpoint Services Version: 1.2.0					
Batch Processor Services Version: 1.6.0					

Low Flow Yield = Q7-10 / Drainage Area = 5.96 cfs/ 11.8 sq.mi. = 0.505 cfs/sq.mi.

Input Data WQM 7.0

General Data

General | Stream | Discharge and Parameters

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	LFY (cfsm)	Slope (ft/ft)	PWS With (mgd)	Apply FC
1790	4.790	300	10	0.4	0	0	☑
1790	3.570	255	11.8	0.505	0	0	☑

Add Record

Delete Record

Input Data WQM 7.0

Stream Data

General | Stream | Discharge and Parameters

Design Condition ◉ Q7-10 ○ Q1-10 ○ Q30-10

RMI	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
4.790	0.00	0.00	0.000	0.00	0	0.00	0.00	20.00	7.00	0.000	0.00
3.570	0.00	0.00	0.000	0.00	0	0.00	0.00	20.00	7.00	0.000	0.00

Input Data WQM 7.0

Discharge and Parameter Data

General | Stream | Discharge and Parameters

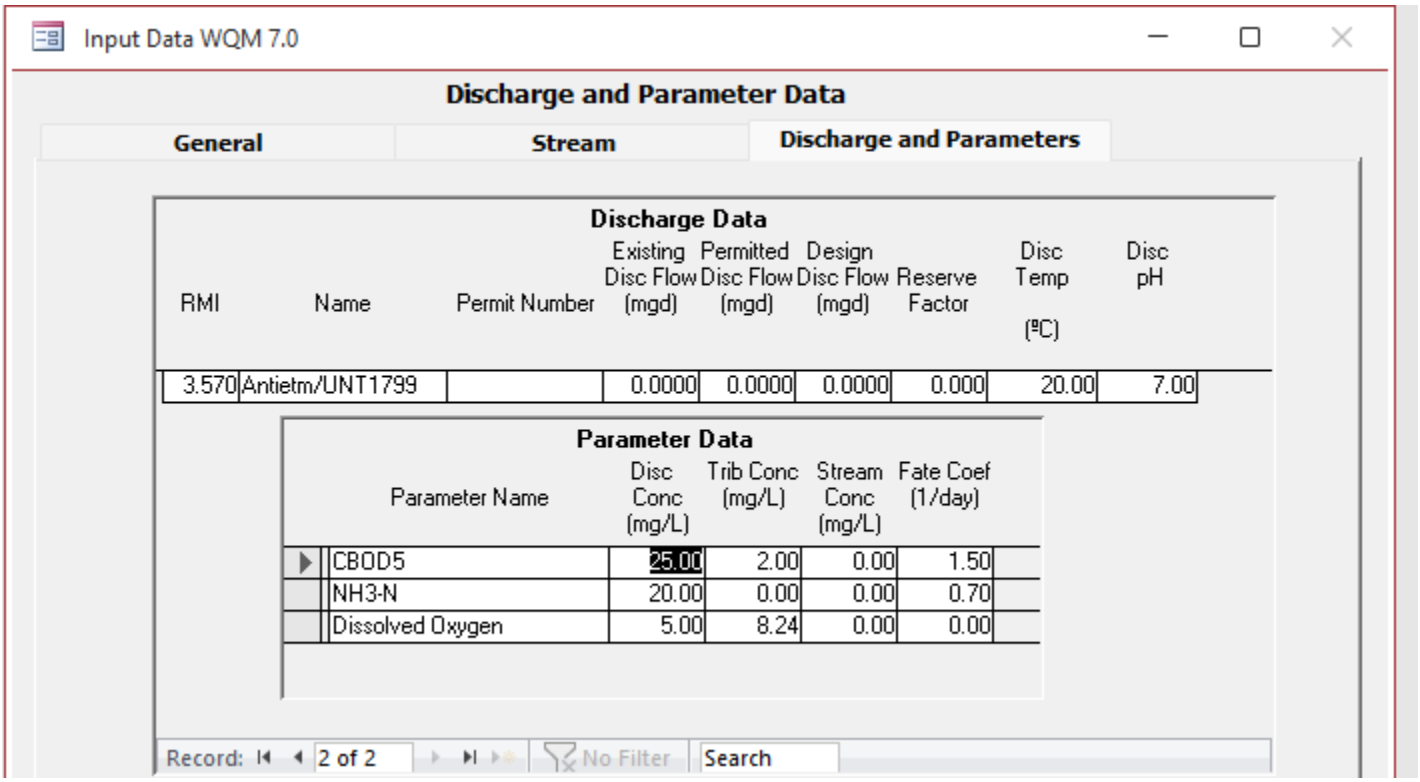
Discharge Data

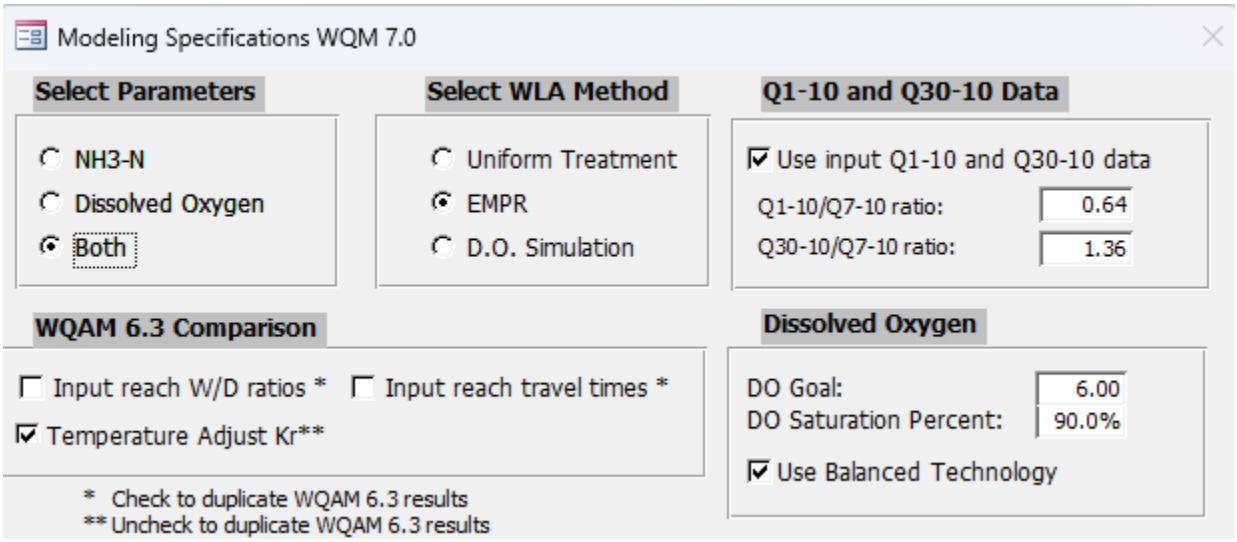
RMI	Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
4.790	Antietam Valley	PA0026646	0.0000	1.2250	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/day)
CBOD5	25.00	2.00	0.00	1.50
NH3-N	2.50	0.00	0.00	0.70
Dissolved Oxygen	5.00	8.24	0.00	0.00

Record: 1 of 2 | No Filter | Search


Input Data WQM 7.0
Discharge and Parameter Data
General
Stream
Discharge and Parameters
Discharge Data
RMI
Name
Permit Number
Existing Disc Flow (mgd)
Permitted Disc Flow (mgd)
Design Disc Flow (mgd)
Reserve Factor
Disc Temp (ºC)
Disc pH
3.570
Antietm/UNT1799
0.0000
0.0000
0.0000
0.000
20.00
7.00
Parameter Data
Parameter Name
Disc Conc (mg/L)
Trib Conc (mg/L)
Stream Conc (mg/L)
Fate Coef (1/day)
CBOD5
25.00
2.00
0.00
1.50
NH3-N
20.00
0.00
0.00
0.70
Dissolved Oxygen
5.00
8.24
0.00
0.00
Record: 2 of 2
No Filter
Search


Modeling Specifications WQM 7.0
Select Parameters
NH3-N
Dissolved Oxygen
Both
Select WLA Method
Uniform Treatment
EMPR
D.O. Simulation
Q1-10 and Q30-10 Data
Use input Q1-10 and Q30-10 data
Q1-10/Q7-10 ratio:
0.64
Q30-10/Q7-10 ratio:
1.36
WQAM 6.3 Comparison
Input reach W/D ratios *
Input reach travel times *
Temperature Adjust Kr**
Dissolved Oxygen
DO Goal:
6.00
DO Saturation Percent:
90.0%
Use Balanced Technology
* Check to duplicate WQAM 6.3 results
** Uncheck to duplicate WQAM 6.3 results

Analysis Results WQM 7.0

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

Design Condition: (•) Q7-10 ( ) Q1-10 ( ) Q30-10

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
4.790	4.00	0.00	4.00	1.8951	0.00699	.652	25.73	39.48	0.352	0.212	21.61	7.00

Analysis Results WQM 7.0

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

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
4.790	1.225	21.607	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WD Ratio**	**Reach Velocity (fps)**
25.730	0.652	39.476	0.352
Reach C-BOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
9.39	1.249	0.80	0.792
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.200	24.240	Tsivoglou	6

Reach Travel Time (days): 0.212

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.021	9.13	0.79	7.52
0.042	8.87	0.78	7.73
0.064	8.62	0.76	7.86
0.085	8.38	0.75	7.94
0.106	8.15	0.74	8.00
0.127	7.92	0.73	8.00
0.148	7.69	0.71	8.00
0.170	7.48	0.70	8.00
0.191	7.27	0.69	8.00
0.212	7.06	0.68	8.00

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)
4.79	Antietam Valley	PA0026646	0.0000

Parameter	Effluent Limit 30 Day Average (mg/L)	Effluent Limit Maximum (mg/L)	Effluent Limit Minimum (mg/L)
CBOD5	25		
NH3-N	2.5	5	
Dissolved Oxygen			5

Record: 1 of 1 | No Filter | Search

	A	B	C	D	E	F	G
1	**TRC EVALUATION**						
2	**Input appropriate values in A3:A9 and D3:D9**						
3	4	= Q stream (cfs)		0.5	= CV Daily		
4	1.225	= Q discharge (MGD)		0.5	= CV Hourly		
5	30	= no. samples		1	= AFC_Partial Mix Factor		
6	0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor		
7	0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)		
8	0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)		
9	0	= % Factor of Safety (FOS)			=Decay Coefficient (K)		
10	Source	Reference	AFC Calculations		Reference	CFC Calculations	
11	TRC	1.3.2.iii	WLA afc =	0.692	1.3.2.iii	WLA cfc =	0.667
12	PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
13	PENTOXSD TRG	5.1b	LTA_afc=	0.258	5.1d	LTA_cfc =	0.388
14							
15	Source		Effluent Limit Calculations				
16	PENTOXSD TRG	5.1f	AML MULT =	1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.318	AFC		
18			INST MAX LIMIT (mg/l) =	1.038			
19							
20							
21							
22	WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...					
23		...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)					
24	LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)					
25	LTA_afc	wla_afc*LTAMULT_afc					
26							
27	WLA_cfc	(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...					
28		...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)					
29	LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)					
30	LTA_cfc	wla_cfc*LTAMULT_cfc					
31							
32	AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))					
33	AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)					
34	INST MAX LIMIT	1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)					
35							
36							
37							
38							
39							
40	(0.011/EXP(-K*CFC_tc/1440))+(((CFC_Yc*Qs*0.011)/(1.547*Qd)....						
41	....*EXP(-K*CFC_tc/1440)))+Xd+(CFC_Yc*Qs*Xs/1.547*Qd))*(1-FOS/100)						
42							

Statistical Analysis of Daily Effluent Supplemental DMR data, discrete samples, for TMS inputs:

		Total Copper (mg/l)		Free Cyanide (mg/l)
Jan-25		0.006	<	0.005
		0.005	<	0.005
		0.006	<	0.005
		0.005		0.012
		0.006	<	0.005
Feb-25		0.006		0.009
		0.004		0.007
		0.003		0.007
		0.005	<	0.005
Mar-25		0.006	<	0.005
		0.004		0.06
		0.003	<	0.005
		0.004	<	0.005
Apr-25		0.004	<	0.005
	<	0.002	<	0.005
	<	0.002	<	0.005
		0.004	<	0.005
		0.006	<	0.005
May-25		0.005	<	0.005
		0.003	<	0.005
		0.003	<	0.005
		0.004	<	0.005
Jun-25		0.002	<	0.005
		0.005	<	0.005
		0.005		
		0.005		0.06
Jul-25		0.005	<	0.005
		0.005	<	0.005
		0.004	<	0.005
		0.006	<	0.005
		0.006	<	0.005
Aug-25		0.006	<	0.005
		0.007	<	0.005
		0.009	<	0.005
		0.008	<	0.005
Sep-25		0.008	<	0.005
		0.006	<	0.005
		0.007	<	0.005
		0.007	<	0.005
		0.007	<	0.005
Oct-25		0.007	<	0.005
		0.008	<	0.005
		0.006	<	0.005
		0.007	<	0.005
		0.007	<	0.005
Nov-25	<	0.002	<	0.005
		0.006	<	0.005
		0.007	<	0.005
		0.008	<	0.005
90th percentile		0.007	<	0.007
Median		0.006	<	0.005

Antietam Valley Municipal Authority
NPDES Permit Renewal Sampling - Effluent
Pollutant Group 2

POLLUTANT GROUP 2 PARAMETERS	Sample Date: 5/30/2024 Daily Flow: 0.659			QL Used	Sample Date: 6/6/2024 Daily Flow: 0.823			QL Used	Sample Date: 6/13/2024 Daily Flow: 0.616			QL Used	CONCENTRATION / MASS PRESENT				No. Analyses	No. "Non-Detect" Results	Average QL Used	Method Used
													Maximum		Average					
		Conc	Mass (lbs/day)			Conc	Mass (lbs/day)			Conc	Mass (lbs/day)		Conc	Mass (lbs/day)	Conc	Mass (lbs/day)				
Aluminum, Total (µg/L)		120.00	0.6595	20.00		230.00	1.5787	20.00		220.00	1.1302	20.00	230.00	1.579	190.00	1.123	3	0	20.0	EPA 200.8 Rev 5.4
Antimony, Total (µg/L)	<	0.30	0.0016	3.00		0.40	0.0027	3.00	<	0.30	0.0015	3.00	0.40	0.003	0.33	0.002	3	2	3.0	EPA 200.8 Rev 5.4
Arsenic, Total (µg/L)	<	1.00	0.0055	1.00	<	1.00	0.0069	1.00	<	1.00	0.0051	1.00	1.00	0.007	1.00	0.006	3	3	1.0	EPA 200.8 Rev 5.4
Barium, Total (µg/L)		59.00	0.3243	5.00		55.00	0.3775	5.00		76.00	0.3904	5.00	76.00	0.390	63.33	0.364	3	0	5.0	EPA 200.8 Rev 5.4
Beryllium, Total (µg/L)	<	1.00	0.0055	1.00	<	1.00	0.0069	1.00	<	1.00	0.0051	1.00	1.00	0.007	1.00	0.006	3	3	1.0	EPA 200.8 Rev 5.4
Boron, Total (µg/L)		200.00	1.0992	200.00	<	200.00	1.3728	200.00	<	200.00	1.0275	200.00	200.00	1.373	200.00	1.166	3	2	200.0	EPA 200.7 Rev 4.4
Cadmium, Total (µg/L)	<	0.20	0.0011	1.00	<	0.20	0.0014	1.00	<	0.20	0.0010	1.00	0.20	0.001	0.20	0.001	3	3	1.0	EPA 200.8 Rev 5.4
Chromium, Total (µg/L)	<	1.00	0.0055	1.00	<	1.00	0.0069	1.00	<	1.00	0.0051	1.00	1.00	0.007	1.00	0.006	3	3	1.0	EPA 200.8 Rev 5.4
Chromium, Hexavalent (µg/L)	<	0.25	0.0014	0.25	<	0.10	0.0007	0.10	<	0.25	0.0013	0.25	0.25	0.001	0.20	0.001	3	3	0.2	EPA 218.6 Rev 3.3
Cobalt, Total (µg/L)		0.40	0.0022	5.00		0.40	0.0027	5.00		0.40	0.0021	5.00	0.40	0.003	0.40	0.002	3	0	5.0	EPA 200.8 Rev 5.4
Copper, Total (µg/L)		6.000	0.033	1.000		7.000	0.048	1.000		7.000	0.036	1.000	7.00	0.048	6.67	0.039	3	0	1.0	EPA 200.8 Rev 5.4
Cyanide, Free (µg/L)	<	1.00	0.0055	1.00	<	1.00	0.0069	1.00	<	1.00	0.0051	1.00	1.00	0.007	1.00	0.006	3	3	1.0	Kelada-01 Rev 1.2
Cyanide, Total (µg/L)	<	6.00	0.0330	10.00	<	6.00	0.0412	10.00	<	6.00	0.0308	10.00	6.00	0.041	6.00	0.035	3	3	10.0	Kelada-01 Rev 1.2
Iron, Total (µg/L)		30.00	0.1649	20.00		20.00	0.1373	20.00	<	20.00	0.1027	20.00	30.00	0.165	23.33	0.135	3	1	20.0	EPA 200.7 Rev 4.4
Iron, Dissolved (µg/L)		20.00	0.1099	20.00	<	20.00	0.1373	20.00	<	20.00	0.1027	20.00	20.00	0.137	20.00	0.117	3	2	20.0	EPA 200.7 Rev 4.4
Lead, Total (µg/L)	<	1.000	0.005	1.000	<	1.000	0.007	1.000	<	1.000	0.005	1.000	1.00	0.007	1.000	0.006	3	3	1.0	EPA 200.8 Rev 5.4
Manganese, Total (µg/L)		9.00	0.0495	1.00		10.00	0.0686	1.00		10.00	0.0514	1.00	10.00	0.069	9.67	0.056	3	0	1.0	EPA 200.8 Rev 5.4
Mercury, Total (µg/L)	<	0.20	0.0011	0.20	<	0.20	0.0014	0.20	<	0.20	0.0010	0.20	0.20	0.001	0.20	0.001	3	3	0.2	EPA 245.1 Rev 3.0
Nickel, Total (µg/L)		3.00	0.0165	1.00		3.10	0.0213	1.00		2.90	0.0149	1.00	3.10	0.021	3.00	0.018	3	0	1.0	EPA 200.8 Rev 5.4
Phenols, Total (µg/L)		30.00	0.1649	2.00		178.00	1.2218	2.00		1080.00	5.5484	20.00	1080.00	5.548	429.33	2.312	3	0	8.0	EPA 625.1
Selenium, Total (µg/L)		1.00	0.0055	1.00		1.00	0.0069	1.00		1.00	0.0051	1.00	1.00	0.007	1.00	0.006	3	0	1.0	EPA 200.8 Rev 5.4
Silver, Total (µg/L)	<	0.40	0.0022	1.00	<	0.40	0.0027	1.00	<	0.40	0.0021	1.00	0.40	0.003	0.40	0.002	3	3	1.0	EPA 200.8 Rev 5.4
Thallium, Total (µg/L)	<	0.30	0.0016	3.00	<	0.30	0.0021	3.00	<	0.30	0.0015	3.00	0.30	0.002	0.30	0.002	3	3	3.0	EPA 200.8 Rev 5.4
Zinc, Total (µg/L)		37.000	0.203	5.000		30.000	0.206	5.000		35.000	0.180	5.000	37.00	0.206	34.00	0.196	3	0	5.0	EPA 200.8 Rev 5.4
Molybdenum (µg/L)		5.00	0.0275	3.00		6.00	0.0412	3.00		6.00	0.0308	3.00	6.00	0.041	5.67	0.033	3	0	3.0	EPA 200.8 Rev 5.4

Mass Loading = Concentration (µg/L) * (1 mg / 1000 µg) * 8.34 * Flow (MGD)

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2025

Discharge Information

Instructions | Discharge | Stream

Facility: **Antietam Valley** NPDES Permit No.: **PA0026646** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **domeestic ww**

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
1.225	295	7						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		695									
	Chloride (PWS)	mg/L		325									
	Bromide	mg/L		0.15									
	Sulfate (PWS)	mg/L		38.9									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		230									
	Total Antimony	µg/L		0.4									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		76									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		200									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L	<	1									
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L		0.4									
	Total Copper	mg/L		0.007									
	Free Cyanide	µg/L	<	5									
	Total Cyanide	µg/L	<	6									
	Dissolved Iron	µg/L		20									
	Total Iron	µg/L		30									
	Total Lead	µg/L		1									
	Total Manganese	µg/L		10									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		3.1									
	Total Phenols (Phenolics) (PWS)	µg/L		1080									
	Total Selenium	µg/L		1									
	Total Silver	µg/L	<	0.4									
	Total Thallium	µg/L	<	0.3									
	Total Zinc	mg/L		0.037									
	Total Molybdenum	µg/L		6									
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	2									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L	<	0.5									

Group 3	Carbon Tetrachloride	µg/L	<	0.5									
	Chlorobenzene	µg/L	<	0.5									
	Chlorodibromomethane	µg/L	<	0.5									
	Chloroethane	µg/L	<	0.5									
	2-Chloroethyl Vinyl Ether	µg/L	<	5									
	Chloroform	µg/L	<	0.5									
	Dichlorobromomethane	µg/L	<	0.5									
	1,1-Dichloroethane	µg/L	<	0.5									
	1,2-Dichloroethane	µg/L	<	0.5									
	1,1-Dichloroethylene	µg/L	<	0.5									
	1,2-Dichloropropane	µg/L	<	0.5									
	1,3-Dichloropropylene	µg/L	<	0.5									
	1,4-Dioxane	µg/L	<	5									
	Ethylbenzene	µg/L	<	0.5									
	Methyl Bromide	µg/L	<	0.5									
	Methyl Chloride	µg/L	<	0.5									
	Methylene Chloride	µg/L	<	0.5									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5									
	Tetrachloroethylene	µg/L	<	0.5									
	Toluene	µg/L		1									
	1,2-trans-Dichloroethylene	µg/L	<	0.5									
	1,1,1-Trichloroethane	µg/L	<	0.5									
	1,1,2-Trichloroethane	µg/L	<	0.5									
	Trichloroethylene	µg/L	<	0.5									
	Vinyl Chloride	µg/L	<	0.5									
Group 4	2-Chlorophenol	µg/L	<	5									
	2,4-Dichlorophenol	µg/L	<	5									
	2,4-Dimethylphenol	µg/L	<	5									
	4,6-Dinitro-o-Cresol	µg/L	<	10									
	2,4-Dinitrophenol	µg/L	<	10									
	2-Nitrophenol	µg/L	<	10									
	4-Nitrophenol	µg/L	<	5									
	p-Chloro-m-Cresol	µg/L	<	5									
	Pentachlorophenol	µg/L	<	10									
	Phenol	µg/L		91.1									
	2,4,6-Trichlorophenol	µg/L	<	5									
Group 5	Acenaphthene	µg/L	<	2.5									
	Acenaphthylene	µg/L	<	2.5									
	Anthracene	µg/L	<	2.5									
	Benzidine	µg/L	<	50									
	Benzo(a)Anthracene	µg/L	<	2.5									
	Benzo(a)Pyrene	µg/L	<	2.5									
	3,4-Benzofluoranthene	µg/L	<	2.5									
	Benzo(ghi)Perylene	µg/L	<	2.5									
	Benzo(k)Fluoranthene	µg/L	<	2.5									
	Bis(2-Chloroethoxy)Methane	µg/L	<	5									
	Bis(2-Chloroethyl)Ether	µg/L	<	5									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	5									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	5									
	4-Bromophenyl Phenyl Ether	µg/L	<	5									
	Butyl Benzyl Phthalate	µg/L	<	5									
	2-Chloronaphthalene	µg/L	<	5									
	4-Chlorophenyl Phenyl Ether	µg/L	<	5									
	Chrysene	µg/L	<	2.5									
	Dibenzo(a,h)Anthrancene	µg/L	<	2.5									
	1,2-Dichlorobenzene	µg/L	<	0.5									
	1,3-Dichlorobenzene	µg/L	<	0.5									
	1,4-Dichlorobenzene	µg/L	<	0.5									
	3,3-Dichlorobenzidine	µg/L	<	5									
	Diethyl Phthalate	µg/L	<	5									
	Dimethyl Phthalate	µg/L	<	2.5									
	Di-n-Butyl Phthalate	µg/L		5.3									
	2,4-Dinitrotoluene	µg/L	<	5									

	2,6-Dinitrotoluene	µg/L	<	5									
	Di-n-Octyl Phthalate	µg/L	<	5									
	1,2-Diphenylhydrazine	µg/L	<	5									
	Fluoranthene	µg/L	<	2.5									
	Fluorene	µg/L	<	2.5									
	Hexachlorobenzene	µg/L	<	5									
	Hexachlorobutadiene	µg/L	<	0.5									
	Hexachlorocyclopentadiene	µg/L	<	5									
	Hexachloroethane	µg/L	<	2.5									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	2.5									
	Isophorone	µg/L	<	5									
	Naphthalene	µg/L	<	0.5									
	Nitrobenzene	µg/L	<	5									
	n-Nitrosodimethylamine	µg/L	<	5									
	n-Nitrosodi-n-Propylamine	µg/L	<	5									
	n-Nitrosodiphenylamine	µg/L	<	5									
	Phenanthrene	µg/L	<	2.5									
	Pyrene	µg/L	<	2.5									
	1,2,4-Trichlorobenzene	µg/L	<	0.5									
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

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Toxics Management Spreadsheet
Version 1.4, May 2025

Stream / Surface Water Information

Antietam Valley, NPDES Permit No. PA0026646, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Antietam Creek**

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	001790	4.7	300	10			Yes
End of Reach 1	001790	3.57	255	11.8			Yes

$Q_{7\text{-}10}$

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	4.7	0.4	4									211	7		
End of Reach 1	3.57	0.505	5.96												

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	4.7														
End of Reach 1	3.57														

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Toxics Management Spreadsheet
Version 1.4, May 2025

Model Results

Antietam Valley, NPDES Permit No. PA0026646, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 9.005 PMF: 1 Analysis Hardness (mg/l): 238 Analysis pH: 7.00

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 Aluminum	0	0		0	750	750	2,333	
Total Antimony	0	0		0	1,100	1,100	3,422	
Total Arsenic	0	0		0	340	340	1,058	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	65,325	
Total Boron	0	0		0	8,100	8,100	25,197	
Total Cadmium	0	0		0	4.675	5.15	16.0	Chem Translator of 0.908 applied
Total Chromium (III)	0	0		0	1159.087	3,668	11,410	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	50.7	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	296	
Total Copper	0	0		0	30.422	31.7	98.6	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	68.4	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	163.650	246	766	Chem Translator of 0.665 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	5.12	Chem Translator of 0.85 applied
Total Nickel	0	0		0	975.110	977	3,039	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	14.294	16.8	52.3	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	202	
Total Zinc	0	0		0	244.306	250	777	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	9.33	

Acrylonitrile	0	0		0	650	650	2,022	
Benzene	0	0		0	640	640	1,991	
Bromoform	0	0		0	1,800	1,800	5,599	
Carbon Tetrachloride	0	0		0	2,800	2,800	8,710	
Chlorobenzene	0	0		0	1,200	1,200	3,733	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	55,993	
Chloroform	0	0		0	1,900	1,900	5,910	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	46,661	
1,1-Dichloroethylene	0	0		0	7,500	7,500	23,331	
1,2-Dichloropropane	0	0		0	11,000	11,000	34,218	
1,3-Dichloropropylene	0	0		0	310	310	964	
Ethylbenzene	0	0		0	2,900	2,900	9,021	
Methyl Bromide	0	0		0	550	550	1,711	
Methyl Chloride	0	0		0	28,000	28,000	87,101	
Methylene Chloride	0	0		0	12,000	12,000	37,329	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	3,111	
Tetrachloroethylene	0	0		0	700	700	2,178	
Toluene	0	0		0	1,700	1,700	5,288	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	21,153	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	9,332	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	10,576	
Trichloroethylene	0	0		0	2,300	2,300	7,155	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	1,742	
2,4-Dichlorophenol	0	0		0	1,700	1,700	5,288	
2,4-Dimethylphenol	0	0		0	660	660	2,053	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	249	
2,4-Dinitrophenol	0	0		0	660	660	2,053	
2-Nitrophenol	0	0		0	8,000	8,000	24,886	
4-Nitrophenol	0	0		0	2,300	2,300	7,155	
p-Chloro-m-Cresol	0	0		0	160	160	498	
Pentachlorophenol	0	0		0	8.723	8.72	27.1	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	1,431	
Acenaphthene	0	0		0	83	83.0	258	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	933	
Benzo(a)Anthracene	0	0		0	0.5	0.5	1.56	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	93,322	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	13,998	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	840	
Butyl Benzyl Phthalate	0	0		0	140	140	436	

2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	2,551	
1,3-Dichlorobenzene	0	0		0	350	350	1,089	
1,4-Dichlorobenzene	0	0		0	730	730	2,271	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	12,443	
Dimethyl Phthalate	0	0		0	2,500	2,500	7,777	
Di-n-Butyl Phthalate	0	0		0	110	110	342	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	4,977	
2,6-Dinitrotoluene	0	0		0	990	990	3,080	
1,2-Diphenylhydrazine	0	0		0	15	15.0	46.7	
Fluoranthene	0	0		0	200	200	622	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	31.1	
Hexachlorocyclopentadiene	0	0		0	5	5.0	15.6	
Hexachloroethane	0	0		0	60	60.0	187	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	31,107	
Naphthalene	0	0		0	140	140	436	
Nitrobenzene	0	0		0	4,000	4,000	12,443	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	52,882	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	933	
Phenanthrene	0	0		0	5	5.0	15.6	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	404	

☑ ***CFC*** CCT (min): 9.005 PMF: 1 Analysis Hardness (mg/l): 238 Analysis pH: 7.00

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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	684	
Total Arsenic	0	0		0	150	150	467	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	12,754	
Total Boron	0	0		0	1,600	1,600	4,977	
Total Cadmium	0	0		0	0.449	0.51	1.6	Chem Translator of 0.873 applied
Total Chromium (III)	0	0		0	150.773	175	545	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	32.3	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	59.1	
Total Copper	0	0		0	18.789	19.6	60.9	Chem Translator of 0.96 applied

Free Cyanide	0	0		0	5.2	5.2	16.2	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	4,666	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	6.377	9.59	29.8	Chem Translator of 0.665 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	2.82	Chem Translator of 0.85 applied
Total Nickel	0	0		0	108.305	109	338	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	15.5	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	40.4	
Total Zinc	0	0		0	246.304	250	777	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	9.33	
Acrylonitrile	0	0		0	130	130	404	
Benzene	0	0		0	130	130	404	
Bromoform	0	0		0	370	370	1,151	
Carbon Tetrachloride	0	0		0	560	560	1,742	
Chlorobenzene	0	0		0	240	240	747	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	10,888	
Chloroform	0	0		0	390	390	1,213	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	9,643	
1,1-Dichloroethylene	0	0		0	1,500	1,500	4,666	
1,2-Dichloropropane	0	0		0	2,200	2,200	6,844	
1,3-Dichloropropylene	0	0		0	61	61.0	190	
Ethylbenzene	0	0		0	580	580	1,804	
Methyl Bromide	0	0		0	110	110	342	
Methyl Chloride	0	0		0	5,500	5,500	17,109	
Methylene Chloride	0	0		0	2,400	2,400	7,466	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	653	
Tetrachloroethylene	0	0		0	140	140	436	
Toluene	0	0		0	330	330	1,027	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	4,355	
1,1,1-Trichloroethane	0	0		0	610	610	1,898	
1,1,2-Trichloroethane	0	0		0	680	680	2,115	
Trichloroethylene	0	0		0	450	450	1,400	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	342	
2,4-Dichlorophenol	0	0		0	340	340	1,058	
2,4-Dimethylphenol	0	0		0	130	130	404	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	49.8	
2,4-Dinitrophenol	0	0		0	130	130	404	
2-Nitrophenol	0	0		0	1,600	1,600	4,977	
4-Nitrophenol	0	0		0	470	470	1,462	

p-Chloro-m-Cresol	0	0		0	500	500	1,555	
Pentachlorophenol	0	0		0	6.693	6.69	20.8	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	283	
Acenaphthene	0	0		0	17	17.0	52.9	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	184	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.31	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	18,664	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	2,831	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	168	
Butyl Benzyl Phthalate	0	0		0	35	35.0	109	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	498	
1,3-Dichlorobenzene	0	0		0	69	69.0	215	
1,4-Dichlorobenzene	0	0		0	150	150	467	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	2,489	
Dimethyl Phthalate	0	0		0	500	500	1,555	
Di-n-Butyl Phthalate	0	0		0	21	21.0	65.3	
2,4-Dinitrotoluene	0	0		0	320	320	995	
2,6-Dinitrotoluene	0	0		0	200	200	622	
1,2-Diphenylhydrazine	0	0		0	3	3.0	9.33	
Fluoranthene	0	0		0	40	40.0	124	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	6.22	
Hexachlorocyclopentadiene	0	0		0	1	1.0	3.11	
Hexachloroethane	0	0		0	12	12.0	37.3	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	6,533	
Naphthalene	0	0		0	43	43.0	134	
Nitrobenzene	0	0		0	810	810	2,520	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	10,576	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	184	
Phenanthrene	0	0		0	1	1.0	3.11	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	80.9	

☑ ***THH*** CCT (min): 9.005 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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	17.4	
Total Arsenic	0	0		0	10	10.0	31.1	
Total Barium	0	0		0	2,400	2,400	7,466	
Total Boron	0	0		0	3,100	3,100	9,643	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	4	4.0	12.4	
Dissolved Iron	0	0		0	300	300	933	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	3,111	
Total Mercury	0	0		0	0.050	0.05	0.16	
Total Nickel	0	0		0	610	610	1,898	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.75	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	9.33	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	311	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	17.7	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	103	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	212	

Methyl Bromide	0	0		0	100	100.0	311	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	177	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	311	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	31,107	
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	30	30.0	93.3	
2,4-Dichlorophenol	0	0		0	10	10.0	31.1	
2,4-Dimethylphenol	0	0		0	100	100.0	311	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	6.22	
2,4-Dinitrophenol	0	0		0	10	10.0	31.1	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	12,443	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	218	
Anthracene	0	0		0	300	300	933	
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	622	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.31	
2-Chloronaphthalene	0	0		0	800	800	2,489	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	3,111	
1,3-Dichlorobenzene	0	0		0	7	7.0	21.8	
1,4-Dichlorobenzene	0	0		0	300	300	933	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	1,866	
Dimethyl Phthalate	0	0		0	2,000	2,000	6,221	
Di-n-Butyl Phthalate	0	0		0	20	20.0	62.2	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	

2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	62.2	
Fluorene	0	0		0	50	50.0	156	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	12.4	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	106	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	31.1	
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	62.2	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.22	

☑ ***CRL*** CCT (min): 6.211 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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	

Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	0.85	
Benzene	0	0		0	0.58	0.58	8.22	
Bromoform	0	0		0	7	7.0	99.2	
Carbon Tetrachloride	0	0		0	0.4	0.4	5.67	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	11.3	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	13.5	
1,2-Dichloroethane	0	0		0	9.9	9.9	140	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	12.8	
1,3-Dichloropropylene	0	0		0	0.27	0.27	3.83	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	283	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	2.83	
Tetrachloroethylene	0	0		0	10	10.0	142	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	7.79	
Trichloroethylene	0	0		0	0.6	0.6	8.5	
Vinyl Chloride	0	0		0	0.02	0.02	0.28	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	0.43	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	21.3	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.0001	0.0001	0.001	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.014	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.001	

3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.014	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.14	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.43	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	4.53	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	1.7	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.001	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.71	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.71	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.71	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.43	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.001	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.14	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	1.42	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.014	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.01	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.071	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	46.8	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

☑ ***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 Aluminum	Report	Report	Report	Report	Report	µg/L	1,495	AFC	Discharge Conc > 10% WQBEL (no RP)

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	Report	Report	Report	Report	Report	µg/L	1,495	AFC	Discharge Conc > 10% WQBEL (no RP)

Total Copper	Report	Report	Report	Report	Report	mg/L	0.061	CFC	Discharge Conc > 10% WQBEL (no RP)
Free Cyanide	Report	Report	Report	Report	Report	µg/L	12.4	THH	Discharge Conc > 25% 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 Antimony	17.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	7,466	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	4,977	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	1.6	µg/L	Discharge Conc < TQL
Total Chromium (III)	545	µg/L	Discharge Conc < TQL
Hexavalent Chromium	32.3	µg/L	Discharge Conc < TQL
Total Cobalt	59.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	933	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	4,666	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	29.8	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	3,111	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.16	µg/L	Discharge Conc < TQL
Total Nickel	338	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	15.5	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	33.5	µg/L	Discharge Conc < TQL
Total Thallium	0.75	µg/L	Discharge Conc < TQL
Total Zinc	0.5	mg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	5.98	µg/L	Discharge Conc < TQL
Acrylonitrile	0.85	µg/L	Discharge Conc < TQL
Benzene	8.22	µg/L	Discharge Conc < TQL
Bromoform	99.2	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	5.67	µg/L	Discharge Conc < TQL
Chlorobenzene	311	µg/L	Discharge Conc < TQL
Chlorodibromomethane	11.3	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	10,888	µg/L	Discharge Conc < TQL
Chloroform	17.7	µg/L	Discharge Conc < TQL

Dichlorobromomethane	13.5	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	140	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	103	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	12.8	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	3.83	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	212	µg/L	Discharge Conc < TQL
Methyl Bromide	311	µg/L	Discharge Conc < TQL
Methyl Chloride	17,109	µg/L	Discharge Conc < TQL
Methylene Chloride	283	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	2.83	µg/L	Discharge Conc < TQL
Tetrachloroethylene	142	µg/L	Discharge Conc < TQL
Toluene	177	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-trans-Dichloroethylene	311	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	1,898	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	7.79	µg/L	Discharge Conc < TQL
Trichloroethylene	8.5	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.28	µg/L	Discharge Conc < TQL
2-Chlorophenol	93.3	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	31.1	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	311	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	6.22	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	31.1	µg/L	Discharge Conc < TQL
2-Nitrophenol	4,977	µg/L	Discharge Conc < TQL
4-Nitrophenol	1,462	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	319	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.43	µg/L	Discharge Conc < TQL
Phenol	12,443	µg/L	Discharge Conc ≤ 25% WQBEL
2,4,6-Trichlorophenol	21.3	µg/L	Discharge Conc < TQL
Acenaphthene	52.9	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	933	µg/L	Discharge Conc < TQL
Benzidine	0.001	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.014	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.001	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.014	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.14	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.43	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	622	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	4.53	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	168	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.31	µg/L	Discharge Conc < TQL

2-Chloronaphthalene	2,489	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	1.7	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.001	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	498	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	21.8	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	467	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.71	µg/L	Discharge Conc < TQL
Diethyl Phthalate	1,866	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	1,555	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	62.2	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dinitrotoluene	0.71	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.71	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.43	µg/L	Discharge Conc < TQL
Fluoranthene	62.2	µg/L	Discharge Conc < TQL
Fluorene	156	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.001	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.14	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	3.11	µg/L	Discharge Conc < TQL
Hexachloroethane	1.42	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.014	µg/L	Discharge Conc < TQL
Isophorone	106	µg/L	Discharge Conc < TQL
Naphthalene	134	µg/L	Discharge Conc < TQL
Nitrobenzene	31.1	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.01	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.071	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	46.8	µg/L	Discharge Conc < TQL
Phenanthrene	3.11	µg/L	Discharge Conc < TQL
Pyrene	62.2	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.22	µg/L	Discharge Conc < TQL

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.32
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Antietam Valley

Permit No.:

Test Completion Date: 8/27/2024

Replicate No.	Control	TIWC
1	1	1
2	1	0.9
3	0.9	1
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.975	0.975
Std Dev.	0.050	0.050
# Replicates	4	4

T-Test Result: 14.8898
Deg. of Freedom: 5
Critical T Value: 0.7267
Pass or Fail: PASS

Test Completion Date: 3/25/2025

Replicate No.	Control	TIWC
1	1	0.9
2	0.9	0.9
3	1	0.4
4	1	0.2
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.975	0.600
Std Dev.	0.050	0.356
# Replicates	4	4

T-Test Result: 0.0011
Deg. of Freedom: 3
Critical T Value: 0.7649
Pass or Fail: FAIL

Test Completion Date: 4/29/2025

Replicate No.	Control	TIWC
1	0.8	1
2	0.9	0.9
3	1	1
4	0.7	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.850	0.975
Std Dev.	0.129	0.050
# Replicates	4	4

T-Test Result: 9.9031
Deg. of Freedom: 5
Critical T Value: 0.7267
Pass or Fail: PASS

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result:
Deg. of Freedom:
Critical T Value:
Pass or Fail:

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.32
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Antietam Valley

Permit No.:

Test Completion Date: 8/27/2024

Replicate No.	Control	TIWC
1	0.276	0.229
2	0.308	0.245
3	0.246	0.265
4	0.266	0.27
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.274	0.252
Std Dev.	0.026	0.019
# Replicates	4	4

T-Test Result	3.4415
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	PASS

Test Completion Date: 3/25/2025

Replicate No.	Control	TIWC
1	0.297	0.265
2	0.339	0.342
3	0.297	0.09
4	0.293	0.224
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.307	0.230
Std Dev.	0.022	0.106
# Replicates	4	4

T-Test Result	0.0070
Deg. of Freedom	3
Critical T Value	0.7649
Pass or Fail	FAIL

Test Completion Date: 4/29/2025

Replicate No.	Control	TIWC
1	0.449	0.542
2	0.483	0.472
3	0.432	0.507
4	0.371	0.452
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.434	0.493
Std Dev.	0.047	0.040
# Replicates	4	4

T-Test Result	6.3359
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	PASS

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.32
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Connellsville Municipal Authority

Permit No.:

Replicate No.	Test Completion Date 8/27/2024 Control	TIWC	Test Completion Date 3/24/2025 Control	TIWC
1	1	1	1	1
2	1	1	1	1
3	1	1	1	1
4	0	1	1	1
5	1	1	1	1
6	1	1	1	1
7	1	1	1	1
8	0	0	1	1
9	1	1	1	1
10	1	1	1	1
11				
12				
13				
14				
15				
Mean	0.800	0.900	1.000	1.000
Std Dev.	0.422	0.316	0.000	0.000
# Replicates	10	10	10	10
T-Test Result				
Deg. of Freedom				
Critical T Value				
Pass or Fail	PASS		PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.32
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Connellsville Municipal Authority

Permit No.:

Replicate No.	Test Completion Date 8/27/2024 Control	TIWC	Test Completion Date 3/24/2025 Control	TIWC
1	24	24	43	28
2	21	6	36	38
3	23	21	35	40
4	19	20	36	34
5	22	24	37	23
6	24	22	35	18
7	15	30	36	16
8	13	3	31	37
9	21	19	38	36
10	27	27	37	36
11				
12				
13				
14				
15				
Mean	20.900	19.600	36.400	30.600
Std Dev.	4.254	8.631	2.989	8.758
# Replicates	10	10	10	10
T-Test Result	1.3489		1.1543	
Deg. of Freedom	13		12	
Critical T Value	0.8702		0.8726	
Pass or Fail	PASS		PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.32
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Antietam Valley

Permit No.: PA0026646

Test Completion Date: 12/10/2024

Replicate No.	Control	TIWC
1	10	10
2	10	10
3	10	10
4	10	9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	10.000	9.750
Std Dev.	0.000	0.500
# Replicates	4	4

T-Test Result	7.6643
Deg. of Freedom	3
Critical T Value	0.7649
Pass or Fail	PASS

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.32
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Antietam Valley

Permit No.: PA0026646

Test Completion Date: 12/10/2024

Replicate No.	Control	TIWC
1	0.323	0.341
2	0.316	0.318
3	0.366	0.355
4	0.33	0.276
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.334	0.323
Std Dev.	0.022	0.035
# Replicates	4	4

T-Test Result: 3.7630
Deg. of Freedom: 4
Critical T Value: 0.7407
Pass or Fail: PASS

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.32
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Antietam Valley

Permit No.: PA0026646

Test Completion Date: 12/10/2024

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail: **PASS**

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.32
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Antietam Valley

Permit No.: PA0026646

Test Completion Date: 12/10/2024

Replicate No.	Control	TIWC
1	48	42
2	38	44
3	38	41
4	41	37
5	38	40
6	44	42
7	37	36
8	39	43
9	39	43
10	38	37
11		
12		
13		
14		
15		
Mean	40.000	40.500
Std Dev.	3.464	2.877
# Replicates	10	10

T-Test Result	8.5653
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	PASS

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

Test Completion Date:

Replicate No.	Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean		
Std Dev.		
# Replicates		

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.32
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Antietam Valley

Permit No.: PA0026646

Replicate No.	Test Completion Date: 12/15/2020 Control	TIWC
1	10	10
2	10	10
3	10	10
4	10	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	10.000	10.000
Std Dev.	0.000	0.000
# Replicates	4	4

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail: PASS

Replicate No.	Test Completion Date: Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.32
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Antietam Valley

Permit No.: PA0026646

Replicate No.	Test Completion Date: 12/15/2020 Control	TIWC
1	0.332	0.409
2	0.427	0.389
3	0.365	0.448
4	0.398	0.463
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.381	0.427
Std Dev.	0.041	0.034
# Replicates	4	4

T-Test Result: 6.1667
Deg. of Freedom: 5
Critical T Value: 0.7267
Pass or Fail: PASS

Replicate No.	Test Completion Date: Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.32
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Antietam Valley

Permit No.: PA0026646

Replicate No.	Test Completion Date: 12/14/2020 Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Replicate No.	Test Completion Date: Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail		

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.32
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Antietam Valley

Permit No.: PA0026646

Replicate No.	Test Completion Date: 12/14/2020 Control	TIWC
1	36	42
2	40	37
3	34	42
4	44	26
5	24	18
6	20	34
7	30	29
8	30	28
9	31	38
10	16	28
11		
12		
13		
14		
15		
Mean	30.500	32.200
Std Dev.	8.683	7.729
# Replicates	10	10
T-Test Result	2.9178	
Deg. of Freedom	17	
Critical T Value	0.8633	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: Control	TIWC
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.000	0.000
Std Dev.		
# Replicates		
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail		

Hales, Dana <Hales.Dana@epa.gov>
To Boylan, Bonnie; Moncavage, Carissa; Sanchez Gonzalez, Natalie
You replied to this message on 5/30/2025 1:39 PM.

Reply | Reply All | Forward | ...
Fri 5/30/2025 1:19 PM

ATTENTION: *This email message is from an external sender. Do not open links or attachments from unknown senders. To report suspicious email, use the Report Phishing button in Outlook.*

Hi Bonnie,

I'm so sorry, thank for bugging me. I was supposed to finish my response to you this week, and I just got sidetracked. I do appreciate you reaching out with the question. Natalie and I spoke about this last week and think that while a 4th WET test (from July 2025) would be ideal, I'm not sure it's necessary here. I think the fact sheet could acknowledge what occurred and explain why PADEP is accepting the available WET tests, with some reassurance in the fact sheet that with the reissued permit the testing frequency would be corrected.

One thing that would be useful in the fact sheet is to also explain why quarterly testing was required in the last permit. Quarterly testing can be required for a few reasons, but if it's because there was RP for WET and a WET limit was imposed in the permit, the fact sheet of course would need to address any removal of that limit in this draft permit.

With regards to the "consecutive" testing comment: 40 CFR 122.21(j)(5)(iv)(A) requires, as one option, that permit applications contain a minimum of four quarterly tests for a year (from the year preceding the permit application), so the regulation doesn't say consecutive quarters but four quarterly tests for a year I think implies consecutive.

Thanks,
Dana

Dana Hales
U.S. Environmental Protection Agency
Water Division, Clean Water Branch
Permits Section
Four Penn Center (Mail Code 3WD41)
1600 John F Kennedy Blvd
Philadelphia, PA 19103-2852

From: Boylan, Bonnie <bboylan@pa.gov>
Sent: Friday, May 30, 2025 12:50 PM
To: Moncavage, Carissa <Moncavage.Carissa@epa.gov>; Sanchez Gonzalez, Natalie <sanchez-gonzalez.natalie@epa.gov>; Hales, Dana <Hales.Dana@epa.gov>
Subject: FW: Major POTW with WET testing requirement

I've received no responses to below email. I was hoping to avoid a situation where I sent a draft permit to you with 4 WET test results and you objected to the dates or frequency of the WET tests. At this time, I have results of the POTW's "most recent" WET tests: 1st Qrtr 2020, 2nd Qrtr 2020, 3rd Qrtr 2020, 4th Qrtr 2020, then a break where no tests conducted followed by 3rd Qrtr 2024, 4th Qrtr 2024, 1st Qrtr 2025 . They are passing, indicating no Reasonable Potential for toxicity . Would EPA find these tests acceptable or would EPA ask for another quarterly WET test in 2025 for determining RP?

From: Boylan, Bonnie
Sent: Tuesday, May 20, 2025 11:55 AM
To: Moncavage, Carissa (she/her/hers) <moncavage.carissa@epa.gov>; sanchez-gonzalez.natalie@epa.gov; Hales, Dana <Hales.Dana@epa.gov>
Subject: Major POTW with WET testing requirement

Hello. Can I get your input, please? You will eventually be reviewing the draft renewal permit and Fact Sheet for this facility, a major POTW. Their permit includes a condition that they must conduct WET tests quarterly until they have 4 passing quarterly tests after which the testing frequency can be reduced to annually. They conducted 4 consecutive quarterly WET tests in 2020 which were passing and would have allowed reduced frequency to annual testing, but then they neglected to conduct any WET tests subsequent to December 2020. DEP's application instructions say to attach the four most recent WET test results. Their 2024 renewal application included the four 2020 WET test results.

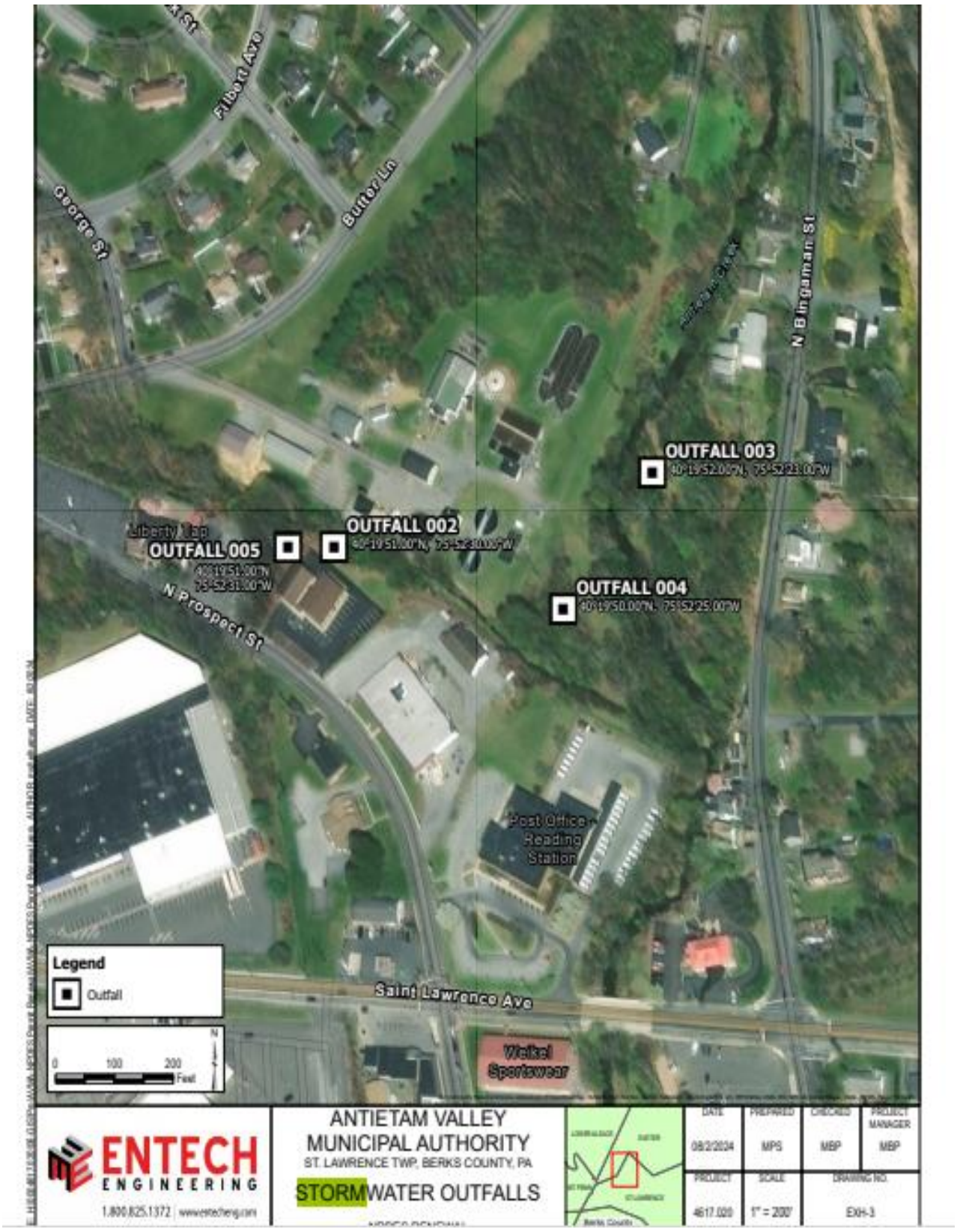
The permit does not say '4 consecutive quarters' nor do the federal regulations specify 'consecutive'.

They cannot go back in time and get annual WET tests for 2021, 2022, 2023, and 2024. So should I require 4 consecutive quarterly tests so that I have 4 recent WET test results to base the renewal on? Or can I use the 4 th Qtr 2020 quarterly test result and the three WET tests they conducted in 3rd Qrtr 2024, 4th Qrtr 2024, and 1st Qrtr 2025 after I sent them an application incomplete letter?

If you say we should require 4 consecutive quarterly tests and not use the 2020 test results, can they conduct their next WET test in July 2025 as they have proposed instead of the 2nd Qrtr of 2025 (April, May, June)?

Thank you.

Bonnie J. Boylan | Permits Section
Department of Environmental Protection | Clean Water Program
Southcentral Region
909 Elmerton Avenue | Harrisburg, PA 17110


Filbert Ave
Butter Ln
George St
N Bingaman St
OUTFALL 003
40°19'52.00"N, 75°52'23.00"W
OUTFALL 002
40°19'51.00"N, 75°52'30.00"W
OUTFALL 005
40°19'51.00"N
75°52'31.00"W
OUTFALL 004
40°19'50.00"N, 75°52'25.00"W
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ANTIETAM VALLEY
MUNICIPAL AUTHORITY
ST. LAWRENCE TWP, BERKS COUNTY, PA
STORMWATER OUTFALLS
DATE
08/2/2024
PREPARED
MPS
CHECKED
MBP
PROJECT MANAGER
MBP
PROJECT
4617.020
SCALE
1" = 200'
DRAWING NO.
EXH-3