pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0026603**
Facility Type	**Municipal**	APS ID	**1084764**
Major / Minor	**Major**	Authorization ID	**1433163**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Borough of Ambler**	Facility Name	**Borough of Ambler WWTP**
Applicant Address	131 Rosemary Avenue	Facility Address	South Main & Church Streets
	Ambler, PA 19002-4476		Ambler, PA 19002
Applicant Contact	Mary Aversa	Facility Contact	Jarrett Evans
Applicant Phone	(215) 646-1000X106	Facility Phone	(215) 628-9457
Client ID	28586	Site ID	485078
Ch 94 Load Status	Not Overloaded	Municipality	Ambler Borough
Connection Status	No Limitations	County	Montgomery
Date Application Received	March 20, 2023	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility, Pretreatment
Purpose of Application	NPDES permit amendment and renewal.		

Summary of Review

The Pa Department of Environmental Protection (PADEP/Department) received an NPDES permit renewal application from Environmental Engineering & Management Associates, Inc. (consultant) on March 20, 2023 on behalf of Borough of Ambler (permittee) for Permittee's WWTP (facility). This is a major sewage facility with a design flow of 6.5 MGD that discharges into Wissahickon Creek (TSF, MF) in state watershed 3-F. The current permit expired on September 30, 2023. The terms and conditions of the current permit is automatically extended since the renewal application was received at least 180 days prior to expiration date. Renewal NPDES permit application under Clean Water Program are not covered by PADEP's PDG per 021-2100-001. This fact sheet is developed in accordance with 40 CFR §124.56.

Changes to existing permit: Added: Total Antimony, total Zinc, E. Coli, UVT, TP. More stringent: Free Cyanide, Total Thallium, Total Aluminum. Removed: Sulfate, Chloride, Bromide, 1,4-Dioxane, TRC from Part A to Part C.

Sludge use and disposal description and location(s): Waste sludge is aerobically digested, dewatered, and hauled-off by a licensed hauler for disposal at an approved landfill or facility.

Public Participation

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

Approve	Deny	Signatures	Date
√		Reza H. Chowdhury, E.I.T. / Project Manager	December 8, 2023
X		Pravin Patel Pravin C. Patel, P.E. / Environmental Engineer Manager	12/08/2023

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	6.5 and 7.7
Latitude	40º 8' 39.47"	Longitude	-75º 13' 13.08"
Quad Name	Ambler	Quad Code	1744
Wastewater Description:	Sewage Effluent		
Receiving Waters	Wissahickon Creek (TSF, MF)	Stream Code	00844
NHD Com ID	25960286	RMI	12.76
Drainage Area	26 mi^2	Yield (cfs/mi^2)	0.15
Q_{7-10} Flow (cfs)	**3.9**	Q_{7-10} Basis	See below
Elevation (ft)	157.22	Slope (ft/ft)	
Watershed No.	3-F	Chapter 93 Class.	TSF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	FLOW REGIME MODIFICATION, NUTRIENTS, PATHOGENS, SILTATION		
Source(s) of Impairment	MUNICIPAL POINT SOURCE DISCHARGES, SOURCE UNKNOWN		
TMDL Status	Final	Name	Wissahickon TMDL

Background/Ambient Data		Data Source
pH (SU)	8.0	WQN0193, median July-Sep 2002-2018
Temperature (°C)	22.1	WQN0193, median July-Sep 2002-2018
Hardness (mg/L)	205	WQN0193, median July-Sep 2002-2018
Other:		

Nearest Downstream Public Water Supply Intake	PWD Queen Lane		
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	12.72	Distance from Outfall (mi)	13.17

Changes Since Last Permit Issuance: Act 537 Plan is approved on June 30, 2022 that authorized the diversion of 1.2 MGD flow from Upper Dublin (UD) Township WWTP to the Ambler WWTP. The Part II WQM permit was amended on October 2022 authorizing upgrade of the UV system. A pump station will be installed at Upper Dublin WWTP property that will pump the sewage to Ambler WWTP via a new force main. Consequently, Ambler WWTP's influent pump station and the WWTP will need to be expanded to accommodate the additional flow.

Streamflow:

The nearest USGS StreamGage (gage number 01473900) data was analyzed to determine the low flow statistics at the discharge point. USGS's web based watershed delineation tool StreamStats (accessible at https://streamstats.usgs.gov/ss/, accessed on August 2, 2023) was utilized to determine the drainage area at discharge point. The StreamStats report shows the drainage area at the discharge point is 26 mi^2. Data from the streamgage shows Q_{7-10}, Q_{1-10}, and Q_{30-10} to be 6.1 cfs, 5.2 cfs, and 7.6 cfs, respectively for the reporting year 1963-2008. The drainage area at this streamgage was found to be 40.8 mi^2. These values were obtained from the latest USGS streamflow report (1).

Q_{7-10} runoff rate (low flow yield): 6.1 cfs/40.8 mi^2 or 0.15 cfs/mi^2
Q_{7-10} at Outfall 001: 26 * 0.15 or 3.9 cfs
Q_{30-10}:Q_{7-10}: 7.6/6.1 or 1.25
Q_{1-10}:Q_{7-10}: 5.2/6.1 or 0.85

(1) Stuckey, M.H., Roland, M.A., 2011, Selected streamflow statistics for streamgage locations in and near Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2011-1070, PP 10, PP 23.

Stormwater Outfalls:
The permit application lists six stormwater-only outfalls of which one outfall (002) represents the remaining (003 through 007). The current permit has monitoring requirements for Outfall 002 which will be carried over. In addition to that, applicable benchmark values will be added in Part C of the permit.

Outfall Number	Latitude			Longitude			Receiving Waters		
	Deg	Min	Sec	Deg	Min	Sec	Body of Water Name	Ch. 93 Class	Design Flow (MGD)
002	40	08	42	75	13	14	Wissahickon Creek	TSW	30,000
003	40	08	40	75	13	13	Wissahickon Creek	TSW	8,000
004	40	08	39	75	13	12	Wissahickon Creek	TSW	7,000
005	40	08	38	75	13	11	Wissahickon Creek	TSW	9,000
006	40	08	37	75	13	10	Wissahickon Creek	TSW	5,000
007	40	08	35	75	13	07	Wissahickon Creek	TSW	4,000

PWS Intake:
The nearest downstream public water supply is PWD's Queen Lane intake on Schuylkill River at RMI 12.72. Its approximately 13.17 miles downstream of Outfall 001. Discharge from this facility is expected not to impact the PWS intake.

Wastewater Characteristics:
The 90th percentile pH of 7.8 was calculated from daily DMR during dry months July through September for the year 2021-2022. The application data indicated an average Total Hardness of 210 mg/l out of 15 samples and average temperature of 61^{0}F (16.1^{0}C) out of 368 samples.

Background data:
The nearest WQN station is 0193 on Wissahickon Creek. The median temperature is 22.1^{0}C, median pH is 8 S.U., and median hardness is 205 mg/l. The median was calculated for dry months (July-September) for the years 2002-2018 from the WQN station.

Wissahickon Creek Total Maximum Daily Load (TMDL):
Per the previous permit's fact sheet "The main stem of the Wissahickon Creek and several tributaries were listed under Section 303(d) of the Clean Water Act as impaired due to excessive nutrients. The Environmental Protection Agency (EPA) developed a Total Maximum Daily Load (TMDL) for the Wissahickon Creek in October 2003 to address the nutrient impairment in the main stem and tributaries. The TMDL resulted in Wasteload Allocations (WLAs) for five municipal treatment plants, including the Borough of Ambler. The input values for CBOD5, NH3-N, and Dissolved Oxygen (DO) were based on existing limits, except for a higher DO of 7 mg/l instead of 5 mg/l. The WLAs summarized in Tables 4-3 and 4-4 of the report are based on protecting the Chapter 93 minimum and average DO standards for Wissahickon Creek. For the parameter Ortho PO4-P, the limit of 4.68 mg/l required no reductions from Ambler's current discharge levels, determined through monitoring, to maintain the DO standard. As discussed in Appendix D, Section IV of the report, although the focus of the TMDL is on the protection of aquatic life through attainment of the DO standard, the need to address impacts such as nuisance algal growth requires additional consideration. As recommended under Option 4, a technology-based limit for Total Phosphorus of 2 mg/l, per Chapter 96.5 (c), was included in the permit issued on 11/7/2005 and applied year around. The permit issued on 11/7/2005 was appealed by permittee and, as a result of negotiations, the parties agreed to a Stipulation of Settlement in an effort to settle the appeal and permit amendment was

issued on 4/25/2008. The terms of the settlement are as follow: (1) Effective December 2008, the phosphorus limit was replaced with an Ortho-Phosphorus as P limit of 4.0 mg/l, applicable seasonally from November through March. (2) Effective April 2009, the phosphorus limit was replaced with an Ortho-Phosphorus as P limit of 1.0 mg/l, applicable seasonally from April through October. The Department agreed to the revisions in anticipation of a revised TMDL that could result in more stringent limits in the future. The subsequent renewal was issued by the DEP on June 15, 2011 with the tier Ortho-Phosphorus limit. USEPA still working with all dischargers/stakeholder to amend Wissahickon TMDL and there is no set schedule when that will be finalized. Therefore, in this renewal appeal settlement requirements are carried over until the TMDL will be finalized. The permit will be amended in the future as a result of the final decision on TMDL." The acceptance of UD flow and expansion of the treatment plant requires a revisit of the TMDL. Since the receiving stream is impaired for nutrients, Total Phosphorus limit of 2.0 mg/l year-round is applicable, per Pa Code 25 § 96.5(c) at the expanded plant. As Ortho Phosphate is a fraction of Total Phosphorus, the seasonal limit during winter season is removed and only the summer season's limit of 1.0 mg/l will be applied. The inclusion of Upper Dublin flow to Ambler WWTP won't change the concentration-based limits for other TMDL parameters whereas mass-based limits might increase a little. This may be considered as transfer of loads between two facilities with WLA and is consistent with the TMDL assumptions.

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. The receiving streams are designated as Trout Stocking (TSF) and Migratory Fishes (MF.) No High-Quality watershed is impacted by this discharge. No Exceptional-value watershed is impacted by this discharge.

Class A Wild Trout Fisheries:
No Class A Wild Trout Fisheries are impacted by this discharge. A downstream segment of Wissahickon Creek between RMI 11.72 and 8.72 is designated as trout stocked stream. The existing permit has a minimum DO limit of 7.0 mg/l to protect the stocked trout. This requirement will be carried over during this renewal.

Treatment Facility Summary

Treatment Facility Name: Ambler Borough STP

WQM Permit No.	Issuance Date
4675406 A	10/3/2022

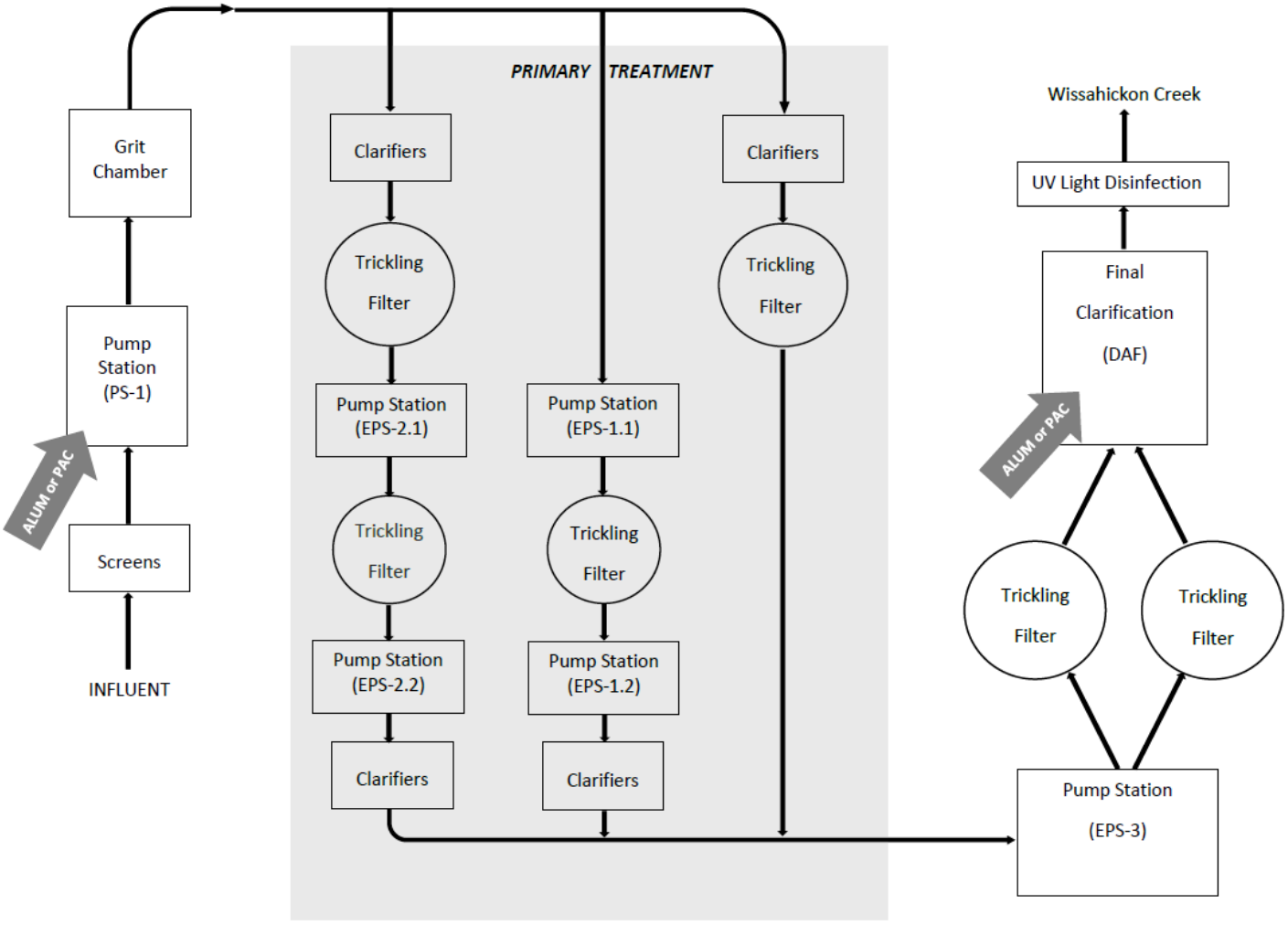
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with TN reduction	Trickling Filter with settling	Ultraviolet	6.5 and 7.7

Hydraulic Capacity (MGD)	Organic Capacity (lbs./day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
8.0	10800	Not Overloaded	Anaerobic digestion	Landfill

Changes Since Last Permit Issuance: UV system has been upgraded to treat the diverted flow from Upper Dublin Township WWTP.

Treatment Plant Description

Borough of Ambler WWTP (permittee) owns and operates the Ambler WWTP (facility), located in Upper Dublin Township, Montgomery County. The facility is a major POTW with a design flow of 6.5 MGD, hydraulic design capacity of 8.0 MGD, and organic loading capacity of 10,800 lbs./day. The facility discharged treated effluent and stormwater from the WWTP area into Wissahickon Creek. The application indicated the following treatment units: fine screens, grit removal, primary clarification, plastic media trickling filters, secondary clarification, attached growth nitrification, enhanced final clarification using dissolved air floatation, UV disinfection, and cascade aeration. The following page will provide a process flow diagram.



Waste sludge is aerobically digested, dewatered, and hauled-off by a licensed hauler for disposal at an approved landfill or facility. The permittee is presently converting the anaerobic digesters to aerobic digesters.

The facility uses the following wastewater treatment chemicals:

Chemical Name	Purpose	Maximum Usage Rate	Units
DelPAC 2000	Phosphorus Removal	470	Gallons/Day
Masterguard 1140	Odor Control	3.2	Gallons/Day
Mastercat 4244	Settling Aid	4.5	Gallons/Day
38% Sodium Bisulfate	Back-Up Disinfection	6	Gallons/Day
Sodium Hypochlorite	Back-Up Disinfection	17	Gallons/Day
Mastercat 4292	Dewatering Sludge	17	Gallons/Day

The facility secured Act 537 planning approval to accept flows from Upper Dublin Township WWTP in amount of 1.2 MGD which will increase the Average Annual Design Flow to 7.7 MGD. The effluent limitations for this renewal will be developed at both 6.5 MGD and 7.7 MGD and the permittee will be provided with a schedule to complete the construction as authorized under the latest WQM permit amendment.

The facility receives wastewater from the following tributary municipalities:

TRIBUTARY INFORMATION				
		Type of Sewer System		
Municipalities Served	Flow Contribution (%)	Separate (%)	Combined (%)	Population
Ambler Borough	16.75%	100	N/A	12,900
Lower Gwynedd Township	30.52%	100	N/A	23,500
BCWSA (Upper Dublin Township)	40.65%	100	N/A	31,300
Whitemarsh Township	9.09%	100	N/A	7,000
Whitpain Township	2.99%	100	N/A	2,300
TOTAL AFTER BCWSA DIVERSION				77,000

The facility is implementing an approved pretreatment program administered by EPA. Most recent approval of local limits by EPA is 2023.

The following table summarizes the contributing industrial/commercial facilities:

Facility	Categorical	Title	SIU	Flow (GPD)
Spring House Innovation Park	No		Yes	23,324
Janssen R&D, LLC	Yes	Research, Testing, and Development	Yes	78,847
Entegris, Inc. dba Isosciences	No		Yes	1,200

Discharge, Receiving Waters and Water Supply Information

Outfall No. 002 Design Flow (MGD) 0
Latitude 40º 8' 42" Longitude -75º 13' 14"
Quad Name Ambler Quad Code 1744
Wastewater Description: Stormwater

Receiving Waters Wissahickon Creek (TSF, MF) Stream Code 00844

Discharge, Receiving Waters and Water Supply Information

Outfall No. 003 Design Flow (MGD) 0
Latitude 40º 8' 40" Longitude -75º 13' 13"
Quad Name Ambler Quad Code 1744
Wastewater Description: Stormwater

Receiving Waters Wissahickon Creek (TSF, MF) Stream Code 00844

Discharge, Receiving Waters and Water Supply Information

Outfall No. 004 Design Flow (MGD) 0
Latitude 40º 8' 39" Longitude -75º 13' 12"
Quad Name Ambler Quad Code 1744
Wastewater Description: Stormwater

Receiving Waters Wissahickon Creek (TSF, MF) Stream Code 00844

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	005	Design Flow (MGD)	0
Latitude	40º 8' 38"	Longitude	-75º 13' 11"
Quad Name	Ambler	Quad Code	1744
Wastewater Description:	Stormwater		
Receiving Waters	Wissahickon Creek (TSF, MF)	Stream Code	00844

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	006	Design Flow (MGD)	0
Latitude	40º 8' 37"	Longitude	-75º 13' 10"
Quad Name	Ambler	Quad Code	1744
Wastewater Description:	Stormwater		
Receiving Waters	Wissahickon Creek (TSF, MF)	Stream Code	00844

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	007	Design Flow (MGD)	0
Latitude	40º 8' 35"	Longitude	-75º 13' 7"
Quad Name	Ambler	Quad Code	1744
Wastewater Description:	Stormwater		
Receiving Waters	Wissahickon Creek (TSF, MF)	Stream Code	00844

Comment: Outfall 002 is representative of the remaining stormwater outfalls. The represented outfalls will be acknowledged in the permit, but the monitoring requirements will be applied only to the representative outfall 002. In addition, benchmark values for applicable pollutants will be added in the Par C Stormwater section of the permit.

Compliance History

DMR Data for Outfall 001 (from July 1, 2022 to June 30, 2023)

Parameter	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22
Flow (MGD) Average Monthly	3.66	4.50	4.04	4.46	4.43	5.96	5.83	4.19	4.04	3.01	2.73	3.10
Flow (MGD) Daily Maximum	7.48	8.90	10.40	5.96	5.42	10.04	10.22	6.29	7.90	5.90	3.20	4.16
pH (S.U.) Instantaneous Minimum	7.0	7.2	7.4	7.4	7.4	7.6	6.7	6.7	7.1	6.9	7.3	7.3
pH (S.U.) IMAX	7.7	7.7	7.8	7.7	7.8	7.8	7.9	7.5	7.8	8.0	7.8	7.7
DO (mg/L) Instantaneous Minimum	8.3	9.1	9.1	10.4	10.1	10.4	10.0	9.0	9.1	8.3	8.1	7.9
TRC (mg/L) Average Monthly	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
TRC (mg/L) IMAX	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
CBOD5 (lbs/day) Average Monthly	< 98	< 141	182	185	< 147	226	< 229	< 141	< 168	< 78	< 57	< 56
CBOD5 (lbs/day) Weekly Average	< 155	< 356	189	260	158	411	296	196	< 368	106	< 67	< 65
CBOD5 (mg/L) Average Monthly	< 3	< 4	5	5	< 4	4	< 4	< 4	< 4	< 3	< 2.0	< 2
CBOD5 (mg/L) Weekly Average	< 3	< 6	5	7	4	6	5	5	< 7	4	< 3	< 3
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	5094	5552	5124	5382	7169	7833	7916	9969	7189	6576	6045	5555
BOD5 (mg/L) Raw Sewage Influent Average Monthly	174	158	157	144	194	162	168	285	223	262	265	221
TSS (lbs/day) Average Monthly	265	374	439	486	393	586	588	279	< 514	< 201	138	187
TSS (lbs/day) Raw Sewage Influent Average Monthly	5890	5531	5471	4761	6039	6024	6467	5841	5078	5796	5886	5274
TSS (lbs/day) Weekly Average	478	1001	518	607	430	1151	881	403	1391	312	211	220
TSS (mg/L) Average Monthly	8	9	12	13	11	11	11	8	< 13	< 8	6	7

TSS (mg/L) Raw Sewage Influent Average Monthly	201	156	169	127	165	123	138	170	159	232	258	210
TSS (mg/L) Weekly Average	10	16	15	15	12	16	14	10	27	12	10	8
Total Dissolved Solids (mg/L) Average Quarterly	532.0			545.0			425.0			654.0		
Fecal Coliform (No./100 ml) Geometric Mean	< 7	< 13	< 6	11	< 10	< 11	< 16	< 9	< 63	82	< 12	< 5
Fecal Coliform (No./100 ml) IMAX	56	44	330	82	55	60	250	290	459	550	723	46
Nitrate-Nitrite (lbs/day) Average Monthly	< 625	< 791	< 626	< 673	< 716	< 739	728	755	603	< 478	< 509	< 459
Nitrate-Nitrite (mg/L) Average Monthly	< 23.3	< 20.2	< 21.3	< 18.6	< 20.3	< 18.5	20.11	26.63	20.55	< 17.50	< 21.00	< 18.8
Total Nitrogen (lbs/day) Average Monthly	< 658	< 831	< 666	< 732	< 766	< 797	777	810	656	< 510	< 533	< 478
Total Nitrogen (mg/L) Average Monthly	< 24.54	< 21.21	< 22.69	< 20.23	< 21.72	< 19.95	21.47	28.56	22.35	< 18.66	< 21.99	< 19.59
Ammonia (lbs/day) Average Monthly	< 3	< 3	< 2	< 1	< 2	< 9	14	9	36	34	< 2	< 1
Ammonia (mg/L) Average Monthly	< 0.09	< 0.07	< 0.05	< 0.03	< 0.05	< 0.15	0.25	0.25	0.78	1.29	< 0.07	< 0.05
Orthophosphate (lbs/day) Average Monthly	21.2	30.5	28.0	57.0	63.7	77.3	65.8	43.6	22.9	18.3	15.2	13.3
Orthophosphate (mg/L) Average Monthly	0.69	0.8	0.89	1.58	1.696	1.56	1.41	1.22	0.68	0.739	0.65	0.52
Total Aluminum (lbs/day) Average Monthly	30.99	43.76	40.75	46.78	34.30	43.11	43.31	33.02				
Total Aluminum (lbs/day) Daily Maximum	72.86	104.65	56.30	69.48	61.49	89.41	105.37	55.61				
Total Aluminum (mg/L) Average Monthly	0.99	1.10	1.36	1.29	0.92	0.82	0.89	0.94	1.19	0.89	0.85	0.88
Total Aluminum (mg/L) Daily Maximum	1.35	1.41	1.74	1.82	1.68	1.10	1.51	1.75	2.89	1.45	1.49	1.16

Total Copper (mg/L) Average Monthly	0.022	0.018	0.032	0.030	0.025	0.034	0.029	0.022	0.015	0.011	0.015	0.015
Total Copper (mg/L) Daily Maximum	0.022	0.018	0.032	0.030	0.025	0.034	0.029	0.022	0.015	0.011	0.015	0.015
Sulfate (mg/L) Average Monthly	43.7	39.3	39.1	37.8	38.8	35.8	37.8	40.4	39.3	43.2	54.5	45.5
Sulfate (mg/L) Daily Maximum	43.7	39.3	39.1	37.8	38.8	35.8	37.8	40.4	39.3	43.2	54.5	45.5
1,4-Dioxane (mg/L) Average Quarterly	< 5.0			< 5.0			< 5.0			< 5.0		
Chloride (mg/L) Average Monthly	212	175	189	154	178	177	174	206	211	216	224	228
Chloride (mg/L) Daily Maximum	212	175	189	154	178	177	174	206	211	216	224	228
Bromide (mg/L) Average Monthly	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Bromide (mg/L) Daily Maximum	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Total Hardness (mg/L) Average Monthly	206	207	201	190	193	203	213	228	208	200	239	227
Total Hardness (mg/L) Daily Maximum	206	207	201	190	193	203	213	228	208	200	239	227
Chronic WET - Ceriodaphnia Survival (TUc) Daily Maximum							1.0					
Chronic WET - Ceriodaphnia Reproduction (TUc) Daily Maximum							1.0					
Chronic WET - Pimephales Survival (TUc) Daily Maximum							1.0					
Chronic WET - Pimephales Growth (TUc) Daily Maximum							1.0					

DMR Data for Outfall 002 (from July 1, 2022 to June 30, 2023)

Parameter	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22
pH (S.U.) Daily Maximum							7.6					

CBOD5 (mg/L) Daily Maximum							3.2					
COD (mg/L) Daily Maximum							< 25					
TSS (mg/L) Daily Maximum							6					
Oil and Grease (mg/L) Daily Maximum							< 5					
Fecal Coliform (No./100 ml) Daily Maximum							1100					
TKN (mg/L) Daily Maximum							< 0.50					
Total Phosphorus (mg/L) Daily Maximum							0.09					
Dissolved Iron (mg/L) Daily Maximum							0.05					

Summary of inspection:

03/20/2023: ADMIN review was conducted on the facility. Violation noted including the discharge of partially treated sewage in the phase of foam/solids from the T-9 digester due to the overheated blower.

10/27/2022: CEI conducted. No violation noted. Facility was operating good and the final effluent was clear.

04/08/2022: INCDT inspection conducted in response to a bypass/overtopping of primary trickling filter ET 4, secondary trickling filter ET 5, and secondary clarifier ET 13. The effluent flow was 14 MGD. The amount of overflow was clear secondary effluent that flowed onto the pavement and grass of approximate amount of 20,000 gallons.

10/15/2021: CEI conducted. No violation noted. The plant was operating well, and effluent was clear.

02/16/2021: INCDT inspection conducted in response to SSO. Violation noted for the SSO on 02/15/2021. The SSO was caused by a blockage of rags. The blockage was jetted.

09/03/2020: CEI conducted. No violation noted.

06/26/2020: RTPT conducted. No violation noted.

09/24/2019: CEI conducted. No violation noted. Recommended to remove chemical totes from close proximity of storm drains.

04/10/2018: RTPT conducted. No violation noted. The facility reported foaming of the creek upstream of the STP during morning hours which will be investigated.

Existing Limits

For Outfall 001:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	7.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.1	XXX	0.3	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	1084	1626	XXX	20	30 Wkly Avg	40	1/day	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	542	813	XXX	10	15 Wkly Avg	20	1/day	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Suspended Solids	1626	2439	XXX	30	45 Wkly Avg	60	1/day	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000.0 Avg Qrtly	XXX	2500	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml)*	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	Grab
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	244	XXX	XXX	4.5	XXX	9	1/day	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	81	XXX	XXX	1.5	XXX	3	1/day	24-Hr Composite
Orthophosphate as P Nov 1 - Mar 31	216.8	XXX	XXX	4.0	XXX	8	3/week	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Orthophosphate as P Apr 1 - Oct 31	54.2	XXX	XXX	1.0	XXX	2	3/week	24-Hr Composite
Copper, Total	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Sulfate, Total	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Aluminum, Total	94.32	188.65	XXX	1.74	3.48	4.2	1/Week	24 Hour Comp
1,4-Dioxane	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Chloride	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Bromide	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Hardness, Total (as CaCO3)	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Toxicity, Chronic - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	Report Daily Max	XXX	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	Report Daily Max	XXX	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Pimephales Survival (TUc)	XXX	XXX	XXX	Report Daily Max	XXX	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Pimephales Growth (TUc)	XXX	XXX	XXX	Report Daily Max	XXX	XXX	See Permit	24-Hr Composite

For Outfalls 002 through 007:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Kjeldahl Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Iron, Dissolved	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 6.5
Latitude 40º 8' 39.47" **Longitude** -75º 13' 13.08"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Fecal Coliform	200 / 100 ml	Geo Mean	-	DRBC
Fecal Coliform	1,000 / 100 ml	10% rule	-	DRBC
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)
Total Dissolved Solids	1,000	Average Monthly		DRBC

Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, if possible. The regulation at 40 CFR 122.45(b) requires that effluent limitations for POTWs be calculated based on the design flow of the facility. The mass-based limits are expressed in pounds per day and are calculated as follows:

Mass based limit (lb/day) = concentration limit (mg/L) × design flow (mgd) × 8.34

Model input data

The following data will be used for modeling, as needed:

- Discharge pH 7.8 (90^{th} percentile, July-Sep 2021-22, daily eDMR data)
- Discharge Temperature 16.1°C (Application data)
- Discharge Hardness 210 mg/l (Application data)
- Stream pH 8.0 (WQN#193, median Jul-Sep 2002-2018)
- Stream Temperature 22.1°C (WQN#193, median Jul-Sep 2002-2018)
- Stream Hardness 205 mg/l (WQN#193, median Jul-Sep 2002-2018)

The following three nodes were used in modeling:

Node 1: At the outfall 001 on Wissahickon Creek (00844)
Elevation: 157.22 ft (National Map-Advanced Viewer, 08/02/2023)
Drainage Area: 26.0 mi^2 (StreamStat Version 3.0, 08/02/2023)
River Mile Index: 12.76 (PA DEP eMapPA)
Low Flow Yield: 0.15 cfs/mi^2
Q_{7-10}: 3.9 cfs
Discharge Flow: 6.5/7.7 MGD

Node 2: At confluence with Sandy Run (00859)

Elevation:	148.18 ft (National Map-Advanced Viewer, 08/02/2023)
Drainage Area:	40.1 mi^2 (StreamStat Version 3.0, 08/02/2023)
River Mile Index:	11.46 (PA DEP eMapPA)
Low Flow Yield:	0.15 cfs/mi^2
Discharge Flow:	0.0 MGD

WQM 7.0 Model

WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate effluent limits for $CBOD_5$, NH_3-N and DO. The model simulates two basic processes. In the NH_3-N module, the model simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria. In the D.O. module, the model simulates the mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and NH_3N and compares calculated instream D.O. concentrations to D.O. water quality criteria. The model was utilized for this permit renewal by using Q_{7-10} and current background water quality levels of the stream.

NH_3-N

WQM 7.0 suggested NH_3-N limit of 1.5 mg/l as monthly average and 3.0 mg/l as IMAX limit during summer to protect water quality standards at both 6.5 MGD and 7.7 MGD. These values are the same as existing permitted limits and aligns with TMDL requirements. The current limits for summer and winter season will be carried over for both flows. The mass-based limits at 6.5 MGD will remain the same. The mass limits at flow 7.7 MGD is calculated as: summer season AML of 96 lbs./day and winter season AML of 289 lbs./day.

CBOD5

WQM 7.0 suggests CBOD5 limit of 7.3 mg/l at both flows which is more stringent than current permit and TMDL limit of 10 mg/l. A review of the last 12 months DMR data indicated that the facility can meet the more stringent limits 100% of the time. As such, a schedule isn't needed. The more stringent limits will be in effect from the effective date of the permit.

DO

WQM 7.0 suggests minimum DO of 7.0 mg/l which is the model input and same as existing limit. Existing limit will be carried over.

General Discussion on Toxics Management Spreadsheet (TMS)

Based on the available data, PADEP utilizes Toxics Management Spreadsheet (TMS) to (1) evaluate reasonable potential for toxic pollutants to cause or contribute to an excursion above the water quality standards and (2) develop WQBELs for those such toxic pollutants (i.e., 40 CFR § 122.44(d)(1)(i)). It is noteworthy that some of these pollutants that may be reported as "non-detect", but still exceeded the criteria, were determined to be candidates for modeling because the method detection levels used to analyze those pollutants were higher than target QLs and/or the most stringent Chapter 93 criteria. The model then recommended the appropriate action for the Pollutants of Concerns based on the following logic as stated in PADEP's SOP titled *"Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers (DEP SOP No.: BCW-PMT-037, Revised May 20, 2021)"*:

1. In general, establish limits in the draft permit where the effluent concentration determined in B.1 or B.2 equals or exceeds 50% of the WQBEL (i.e., RP is demonstrated). Use the average monthly, maximum daily and instantaneous maximum (IMAX) limits for the permit as recommended by the TMS (or, if appropriate, use a multiplier of 2 times the average monthly limit for the maximum daily limit and 2.5 times the average monthly limit for IMAX).

2. For non-conservative pollutants, in general, establish monitoring requirements where the effluent concentration determined in B.1 or B.2 is between 25% - 50% of the WQBEL.

3. For conservative pollutants, in general, establish monitoring requirements where the effluent concentration determined in B.1 or B.2 is between 10% - 50% of the WQBEL.

NOTE 4 – If the effluent concentration determined in B.1 or B.2 is "non-detect" at or below the target quantitation limit (TQL) for the pollutant as specified in the TMS and permit application, the pollutant may be eliminated as a candidate for WQBELs or monitoring requirements unless 1) a more sensitive analytical method is available for the pollutant under 40

CFR Part 136 where the quantitation limit for the method is less than the applicable water quality criterion and 2) a detection at the more sensitive method may lead to a determination that an effluent limitation is necessary, considering available dilution at design conditions.

NOTE 5 – If the effluent concentration determined in B.1 or B.2 is a detection below the TQL but above or equal to the applicable water quality criterion, WQBELs or monitoring may be established for the pollutant.

4. Application managers may, on a site- and pollutant-specific basis, deviate from these guidelines where there is specific rationale that is documented in the fact sheet.

Major sewage facilities are required to sample for pollutants group 1-5, at a minimum, and 6 and/or 7, if applicable. TMDL parameters, as applicable, are also required to be sampled if they aren't covered in any pollutant groups or by Part A of the permit. Pollutants groups 2-7 are modeled through TMS. The facility is required to provide at least three sample results of the effluent from outfall(s) discharging processed wastewater. The permittee submitted at least three sample results of all pollutants in groups 1-5. Maximum sample results of a given pollutant is the input of the model if the sample size is less than 10. For pollutants with sample size ≥ 10, PADEP utilizes TOXCONC to calculate Average Monthly Effluent Concentration (AMEC) and Coefficient of Variation (CoV) to refine the model input. The statistical methodologies used in this spreadsheet are taken from EPA's *TSD for Water Quality-based Toxics Control, Appendix E* and are consistent with PADEP's technical guidance 391-2000-024. The pollutants are modeled through TMS and output from the TMS is provided below:

At 6.5 MGD:

☑ ***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 Antimony	Report	Report	Report	Report	Report	µg/L	7.77	THH	Discharge Conc > 10% WQBEL (no RP)
Free Cyanide	0.3	0.44	5.55	8.14	13.9	µg/L	5.55	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Thallium	0.018	0.028	0.33	0.52	0.83	µg/L	0.33	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	244	AFC	Discharge Conc > 10% WQBEL (no RP)
Ambler Aluminum	83.3	83.3	1,538	1,538	1,538	µg/L	1,538	AFC	Discharge Conc ≥ 50% WQBEL (RP)

At 7.7 MGD:

☑ ***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 Antimony	Report	Report	Report	Report	Report	µg/L	7.43	THH	Discharge Conc > 10% WQBEL (no RP)
Free Cyanide	0.34	0.5	5.31	7.78	13.3	µg/L	5.31	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Thallium	0.02	0.032	0.32	0.5	0.8	µg/L	0.32	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	233	AFC	Discharge Conc > 10% WQBEL (no RP)
Ambler Aluminum	98.7	98.7	1,538	1,538	1,538	µg/L	1,538	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Ambler Copper	Report	Report	Report	Report	Report	µg/L	127	CFC	Discharge Conc > 25% WQBEL (no RP)

Each of the parameters are discussed below:

Total Antimony:
TMS model suggests monitoring requirements for Total Antimony at both 6.5 MGD and 7.7 MGD flow, from a model input value of <3 ug/l. The model input value was calculated from monthly data collected between October 2018 to July 2023. All data points were less than 3 ug/l, therefore, TOXCONC couldn't calculate AMEC and daily CoV for it. Default daily CoV of 0.5 was used in the modeling. A quarterly monitoring will be added.

Free Cyanide:
A Reasonable Potential (RP) was demonstrated for Free Cyanide at both flows. The model input value was 23.3 ug/l as AMEC and 3.63 as daily CoV based on monthly data collected between October 2018 to July 2023. The model suggested 5.55 ug/l as Average Monthly Limit (AML), 8.14 ug/l Maximum Daily Limit (MDL) and 13.9 ug/l as Instantaneous Maximum (IMAX) at 6.5 MGD. The limits at 7.7 MGD are 5.31 ug/l as AML, 7.78 ug/l as MDL, and 13.3 ug/l as IMAX. Since the facility will have to ultimately meet the more stringent limits at higher flow, it is recommended that monitoring will be placed in the permit until the construction is completed, numeric limits will be in effect thereafter.

Total Thallium:
A Reasonable Potential (RP) was demonstrated for Total Thallium at both flows. The model input value was <3.0 ug/l which was the maximum of three sample results submitted with the application. The model suggested 0.33 ug/l as AML, 0.52 ug/l MDL and 0.83 ug/l as IMAX at 6.5 MGD. The limits at 7.7 MGD are 0.32 ug/l as AML, 0.5 ug/l as MDL, and 0.8 ug/l as IMAX. Since the facility will have to ultimately meet the more stringent limits at higher flow, it is recommended that monitoring will be placed in the permit until the construction is completed, numeric limits will be in effect thereafter.

Total Zinc:
TMS model suggests monitoring requirements for Total Zinc at both flows, from a model input value of 45.2 ug/l as AMEC and 0.714 as Daily CoV from a data set for the years October 2018 to July 2023. A quarterly monitoring will be added.

Total Aluminum:
The permittee conducted a Water Effects Ratio (WER) study for Total Aluminum in the fall of 2010 and submitted the final report on January 10, 2011. The PADEP, in consultation with US EPA, approved the WER of 2.05. The criteria were revised based on the SSCS. An AMEC of 1213 ug/l and daily CoV of 0.23 was calculated from 2021 July through 2023 June (100 data points). The TMS model suggests AML, MDL, and IMAX of 1.538 mg/l at both flows. The calculated mass-based AML and MDL is 83.3 lbs./day at 6.5 MGD and 98.7 lbs./day at 7.7 MGD. The current permit has AML of 1.74 mg/l, MDL of 3.48 mg/l, and IMAX of 4.2 mg/l, and mass-based AML of 94.32 lbs./day and weekly average of 188.65 lbs./day. A review of the last 12 months eDMR data indicated that the facility will be meeting more stringent limits 100% of the time, therefore, more stringent limits at current flow will be effective from effective date of the permit. The model shows new limits didn't change with the increase in flow. Since the existing limits are based on a SSCS which is at least 10 years old and the facility is expecting additional flows from Upper Dublin, the permittee will be required to conduct new SSCS and submit the results based on the following schedule:

1. Submit a proposed Work Plan to DEP within 12 months of the permit effective date.

2. Begin the SSCS within 3 months of completion of construction and accepting new flow given that the Work Plan is approved by DEP.

3. Submit quarterly progress reports throughout the term of the SSCS.

4. Submit a completed SSCS Report within 3 months of SSCS completion along with the NPDES permit amendment application to incorporate the findings of the study.

The model was again utilized to determine the WQBEL without the benefit of previous SSCS since the assumptions of previous SSCS aren't valid after the facility accepts the flow from UD. The model suggests more stringent limits:

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	48.2	48.2	750	750	750	µg/L	750	AFC	Discharge Conc ≥ 50% WQBEL (RP)

These limits will be effective with a compliance period, where interim limit will be existing limit.

Total Copper:
TMS model suggests monitoring for Total Copper at 7.7 MGD and no monitoring at 6.5 MGD based on a previous group dissolved WER study that generated a 5.7 criteria modifier applicable to both CCC and CMC. The input for the TMS model was AMEC of 33.1 ug/l and daily CoV of 0.335 which were calculated from the samples collected between October 2018 and July 2023. The existing monitoring will be carried over. The current permit gave the permittee an option to

conduct either a WER or BLM study during the permit term, which the permittee did and submitted the final WER report on December 9, 2022. However, as per agreement with EPA, the existing facilities with WER based copper limit in the current permit will be continued for this renewal with the condition to submit SSCS using BLM at the next renewal. Therefore, copper monitoring which is WER based limits are carried over in this renewal. Even though permittee has conducted SSCS using WER study and submitted the results with this renewal as per permit condition, the permittee is asked to conduct a BLM study during the upcoming permit's permit term for the following reasons: 1. The permittee is approved to accept 1.2 MGD flow from Upper Dublin which will change the quantity and quality of the wastewater that was considered during previous WER/SSCS, 2. The current approved SSCS was more than 10 years old and the characteristics of the receiving stream as well as influent might be changed, and (3) BLM is now considered as an approved method for SSCS for copper and DEP is working towards the BLM based copper criteria. The permittee shall conduct the SSCS and submit the results based on the following schedule:

1. Submit a proposed Work Plan to DEP within 12 months of the permit effective date.

2. Begin the BLM SSCS within 3 months of completion of construction and accepting new flow or beginning of 4th year from permit effective date, whichever occurs first, given that the Work Plan is approved by DEP.

3. Submit quarterly progress reports throughout the term of the BLM SSCS.

4. Submit a completed SSCS Report with the next NPDES permit renewal application.

Since the acceptance of UD flow and expansion of treatment plant is uncertain in terms of timeframe, but the facility must do another SSCS for copper within this permit term, it is decided to continue existing monitoring for the entire permit term with above requirements.

TDS, Sulfate, Chloride, Bromide, 1,4-Dioxane:
Historically PADEP utilized the following logics to determine limits/monitoring requirements for these special monitoring parameters:

- Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs./day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.

- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.

PADEP has determined that they have sufficient data over the past 7 years of implementing the special monitoring logic for these parameters and it is no longer needed. The recently approved DRBC Docket D-1975-016 CP-6 requires an average quarterly TDS limit of 1,000 mg/l which is the current limit and will be continued in this NPDES permit for consistency purpose. The monitoring requirements for Sulfate, Chloride, and Bromide will be removed from the permit. This is consistent with Anti-backsliding Prohibition exception as stated in CWA Section 402(o)(2)(i) and 40 CFR § 122.44.(l)(2)(i)(B)(1).

Nitrate-Nitrite-Nitrogen:
Ambler has a WLA of approximately 30 mg/l for NO3-NO2-N. A review of last 12 months data indicated that the facility is discharging an average of <20.3 mg/l with a maximum of 26.63 mg/l, both of the values are below WLA and hence continuation of monitoring is considered to be consistent with TMDL WLA assumptions. Until the TMDL Alternative isn't finalized or the facility continues discharging below WLA, monitoring may be continued.

Ortho-P:
As stated in page 4 of this report, due to the proposed acceptance of UD flow, the current summer limit of 1.0 mg/l will be continued whereas the winter limit of 4.0 mg/l will be removed from the permit after the facility expands.

Total Phosphorus:
As stated in page 4 of this report, a year-round limit of 2.0 mg/l will be applied for the expanded flow.

Fecal Coliform:
The recent coliform guidance in 25 Pa. code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml. Delaware River Basin Commission's (DRBC's) Water Quality Regulations at Section 4.30.4.A requires that during winter season from October through April, the instantaneous maximum concentration of fecal coliform organisms shall not be greater than 1,000 per 100 milliliters in more than 10 percent of the samples tested. Therefore, the summer limit is governed by DEP's regulation while winter limit is governed by DRBC's regulation. These are existing requirements and will be carried over in this renewal.

E. Coli:
Pa Code 25 § 92a. 61 requires monitoring of E. Coli. DEP's SOP titled "Establishing Effluent Limitations for Individual Sewage Permits (BCW-PMT-033, revised March 24, 2021) recommends monthly E. Coli monitoring for major sewage dischargers. This requirement will be applied from this permit term.

pH:
The TBEL for pH is above 6.0 and below 9.0 S.U. (40 CFR §133.102(c) and Pa Code 25 §§ 95.2(1), 92a.47) which are existing limits and will be carried over.

Total Suspended Solids (TSS):
There is no water quality criterion for TSS. The existing limits of 30 mg/L average monthly, 45 mg/l average weekly, and 60 mg/L instantaneous maximum will remain in the permit based on the minimum level of effluent quality attainable by secondary treatment, 25 Pa. Code § 92a.47 and 40CFR 133.102(b). The mass based average monthly and weekly average limits at 6.5 MGD flow are calculated to be 1,626 lbs./day and 2,439 lbs./day respectively, which are the same as were in existing permit and will be carried over. At 7.7 MGD, the mass-based average monthly and weekly average loadings will be 1,926 lbs./day and 2,890 lbs./day, respectively.

UV Disinfection:
PADEP's SOP BCW-PMT-033 recommends UV parameter monitoring where UV is used as a method of disinfection, with the same frequency as would be if Chlorine is used for disinfection. The facility can monitor and report UV Transmittance in %. Daily minimum UV Transmittance will be applied in this renewal.

Total Residual Chlorine (TRC):
The facility stores chlorine as back-up disinfectant and often uses it to disinfect incoming flows as part of their High Flow Management Plan (HFMP). The current permit has AML of 0.1 mg/l and IMAX of 0.3 mg/l in Part A of the permit. The limits will be removed from Part A of the permit and a special condition will be included in the Part C of the permit that will require the permittee to report daily TRC whenever chlorine is utilized for disinfection or other reason. The existing limits will be carried over in Part C.

Total Nitrogen:
PADEP's SOP BCW-PMT-033 recommends monitoring for Total Nitrogen for facilities with design flow more than 2000-GPD, which is also supported by Pa Code 25 Ch. 92a.61. Current monitoring requirement will be continued.

Total Hardness:
Existing Total Hardness monitoring will be continued to evaluate toxicity of Total Copper and/or other hardness-based pollutants.

Monitoring Frequency and Sample Types:
Otherwise specified above, the monitoring frequency and sample type of compliance monitoring for existing parameters are recommended by DEP's SOP and Permit Writers Manual and/or on a case-by-case basis using best professional judgment (BPJ).

Flow and Influent BOD_5 and TSS Monitoring Requirement:
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii). Influent BOD_5 and TSS monitoring requirements are established in the permit per the requirements set in Pa Code 25 Chapter 94.

Anti-Backsliding
Anti-backsliding prohibition is justified in sections where an exception is justified for the affected pollutant(s). For remaining pollutants, this prohibition isn't applicable since the proposed limits are at least as stringent as were in current permit.

Development of Effluent Limitations

Outfall No. 002 **Design Flow (MGD)** 0
Latitude 40º 8' 42.00" **Longitude** -75º 13' 14.00"
Wastewater Description: Stormwater

As stated in page 3 of this report, the facility has multiple stormwater only outfalls, of which Outfall 002 is representative. Existing monitoring requirements will be carried over for this outfall, in addition to any benchmark as appropriate.

Whole Effluent Toxicity (WET)

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: **Annual testing**

The dilution series used for the tests was: 100%, 83%, 65%, 33%, and 18%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 65.

Summary of Four Most Recent Test Results

(NOTE – Enter results into one table, depending on which data analysis method was used).

TST Data Analysis

(NOTE – In lieu of recording information below, the application manager may attach the DEP WET Analysis Spreadsheet).

	***Ceriodaphnia* Results (Pass/Fail)**		***Pimephales* Results (Pass/Fail)**	
Test Date	**Survival**	**Reproduction**	**Survival**	**Growth**
7/19/2022	Pass	Pass	Pass	Pass
8/26/2021	Pass	Pass	Pass	Pass
8/11/2020	Pass	Pass	Pass	Pass
9/24/2019	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**

Comments: TIWC used were 65%

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

Acute Partial Mix Factor (PMFa): **1** Chronic Partial Mix Factor (PMFc): **1**

1. a. Determine IWC – Acute (IWCa): **at 6.5 MGD**

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

[(6.5 MGD x 1.547) / ((3.9 cfs x 1) + (6.5 MGD x 1.547))] x 100 = **72%**

Is IWCa < 1%? ☐ **YES** ☒ **NO** Chronic Tests required.

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

b. Determine IWC – Acute (IWCa): **at 7.7 MGD**

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

[(7.7 MGD x 1.547) / ((3.9 cfs x 1) + (7.7 MGD x 1.547))] x 100 = **75%**

Is IWCa < 1%? ☐ **YES** ☒ **NO** Chronic tests required.

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

Determine Target IWCc (If Chronic Tests Required): at 6.5 MGD

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

[(6.5 MGD x 1.547) / ((3.9 cfs x 1) + (6.5 MGD x 1.547))] x 100 = **72%**

b. Determine Target IWCc (If Chronic Tests Required): at 7.7 MGD

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

[(7.7 MGD x 1.547) / ((3.9 cfs x 1) + (7.7 MGD x 1.547))] x 100 = **75%**

3. Determine Dilution Series

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

Dilution Series for 6.5 MGD = 100%, 86%, 72%, 36%, and 18%.
Dilution Series for 7.7 MGD = 100%, 88%, 75%, 38%, and 19%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

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

No WET limits are required. Annual monitoring with TIWC % for pass or fail.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001: The permittee is authorized to discharge during the period from **Permit Effective Date** through **Completion of Construction**.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	791.5	1187.2	XXX	14.6	21.9	29.2	1/day	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	395.7	593.6	XXX	7.3	10.95	14.6	1/day	24-Hr Composite
Total Suspended Solids	1626	2439	XXX	30.0	45.0	60	1/day	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	244	XXX	XXX	4.5	XXX	9	1/day	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	81	XXX	XXX	1.5	XXX	3	1/day	24-Hr Composite
Orthophosphate Nov 1 - Mar 31	216.84	XXX	XXX	4.0	XXX	8	3/week	24-Hr Composite
Orthophosphate Apr 1 - Oct 31	54.2	XXX	XXX	1.0	XXX	2	3/week	24-Hr Composite
Aluminum, Total	83.3	83.3	XXX	1.538	1.538	1.538	1/week	24-Hr Composite
Cyanide, Free (ug/L)	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Thallium, Total (ug/L)	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): At Outfall 001
Other Comments: None

Outfall 001: The permittee is authorized to discharge during the period from **Completion of Construction** through **Permit Expiration Date**.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	937.6	1406.4	XXX	14.6	21.9	29.2	1/day	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	468.8	703.2	XXX	7.3	10.95	14.6	1/day	24-Hr Composite
Total Suspended Solids	1926.5	2889.8	XXX	30.0	45.0	60	1/day	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	289	XXX	XXX	4.5	XXX	9	1/day	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	96.3	XXX	XXX	1.5	XXX	3	1/day	24-Hr Composite
Orthophosphate Apr 1 - Oct 31	64.22	XXX	XXX	1.0	XXX	2	3/week	24-Hr Composite
Total Phosphorus	128.44	XXX	XXX	2.0 Avg Mo	XXX	XXX	3/week	24-Hr Composite
Cyanide, Free (ug/L)	XXX	XXX	XXX	5.31 Avg Qrtly	XXX	13.3	1/quarter	24-Hr Composite
Thallium, Total (ug/L)	XXX	XXX	XXX	0.32 Avg Qrtly	XXX	0.8	1/quarter	24-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): At Outfall 001
Other Comments: None

Outfall 001: The permittee is authorized to discharge during the period from **Completion of construction** through **End of interim period 2 (completion and approval of study)**.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Aluminum, Total	98.7	98.7	XXX	1.538	1.538	1.538	1/week	24-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): At Outfall 001
Other Comments: None

Outfall 001: The permittee is authorized to discharge during the period from **End of interim period 2 (completion and approval of study)** through **Permit Expiration Date**.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Aluminum, Total	48.2	48.2	XXX	0.75	0.75	0.75	1/week	24-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): At Outfall 001
Other Comments: None

Outfall 001: The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Instantaneous Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	7.0	XXX	XXX	XXX	1/day	Grab
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000.0 Avg Qrtly	XXX	2500	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml)*	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/day	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Antimony, Total (ug/L)	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Zinc, Total	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Copper, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Hardness, Total (as CaCO3)	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Toxicity, Chronic - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Instantaneous Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Toxicity, Chronic - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Pimephales Survival (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Pimephales Growth (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite

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

at Outfall 001

Other Comments: None

Proposed Effluent Limitations and Monitoring Requirements

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

Outfall 002, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
CBOD5	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
COD	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
TKN	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Dissolved Iron	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab

Compliance Sampling Location: At Outfall 002

Other Comments: Outfall 002 is representative of stormwater outfalls 003, 004, 005, 006, and 007

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

StreamStats at Outfall 001

PA0026603 at Outfall 001

Region ID: PA
Workspace ID: PA20230802143130733000
Clicked Point (Latitude, Longitude): 40.14429, -75.22017
Time: 2023-08-02 10:31:53 -0400

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	1.935	degrees
DRNAREA	Area that drains to a point on a stream	26	square miles
ROCKDEP	Depth to rock	4.2	feet
URBAN	Percentage of basin with urban development	46.6625	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	26	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	1.935	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.2	feet	4.13	5.21
URBAN	Percent Urban	46.6625	percent	0	89

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

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	2.17	ft^3/s	46	46
30 Day 2 Year Low Flow	3.63	ft^3/s	38	38
7 Day 10 Year Low Flow	0.835	ft^3/s	51	51

8/2/23, 10:33 AM StreamStats

Statistic	Value	Unit	SE	ASEp
30 Day 10 Year Low Flow	1.43	ft^3/s	46	46
90 Day 10 Year Low Flow	3.46	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Survey (USGS). Although the software has been subjected to rigorous review, the USGS reserves the right to update the software as needed pursuant to further analysis and review. No warranty, expressed or implied, is made by the USGS or the U.S. Government as to the functionality of the software and related material nor shall the fact of release constitute any such warranty. Furthermore, the software is released on condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from its authorized or unauthorized use.

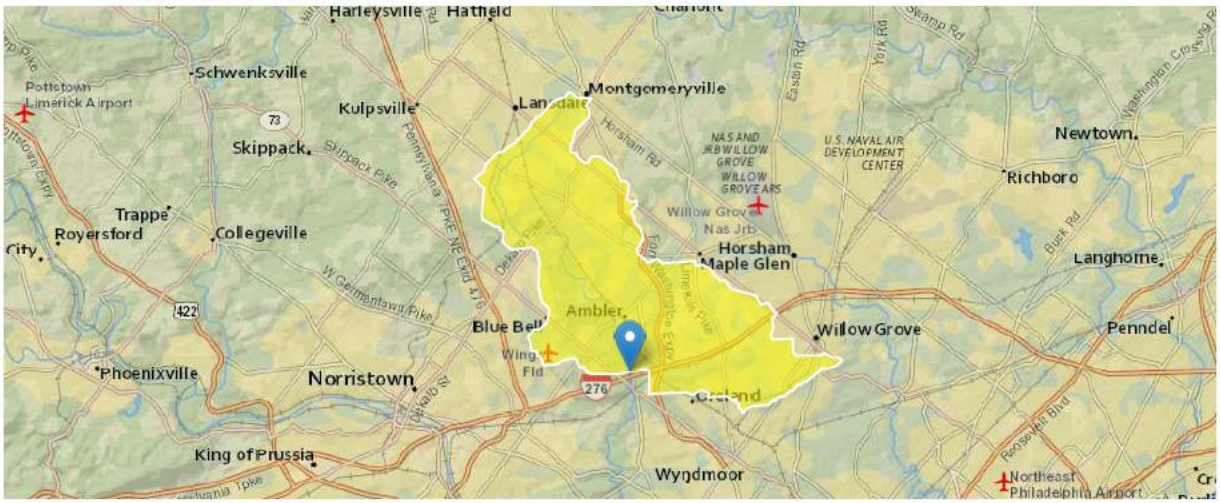
USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.16.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats at Node 2

Streamstats at Node 2

Region ID: PA
Workspace ID: PA20230802143431659000
Clicked Point (Latitude, Longitude): 40.12931, -75.21998
Time: 2023-08-02 10:34:59 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	2.2254	degrees
DRNAREA	Area that drains to a point on a stream	40.1	square miles
ROCKDEP	Depth to rock	4.4	feet
URBAN	Percentage of basin with urban development	53.8857	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	40.1	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	2.2254	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.4	feet	4.13	5.21
URBAN	Percent Urban	53.8857	percent	0	89

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

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	5.39	ft^3/s	46	46

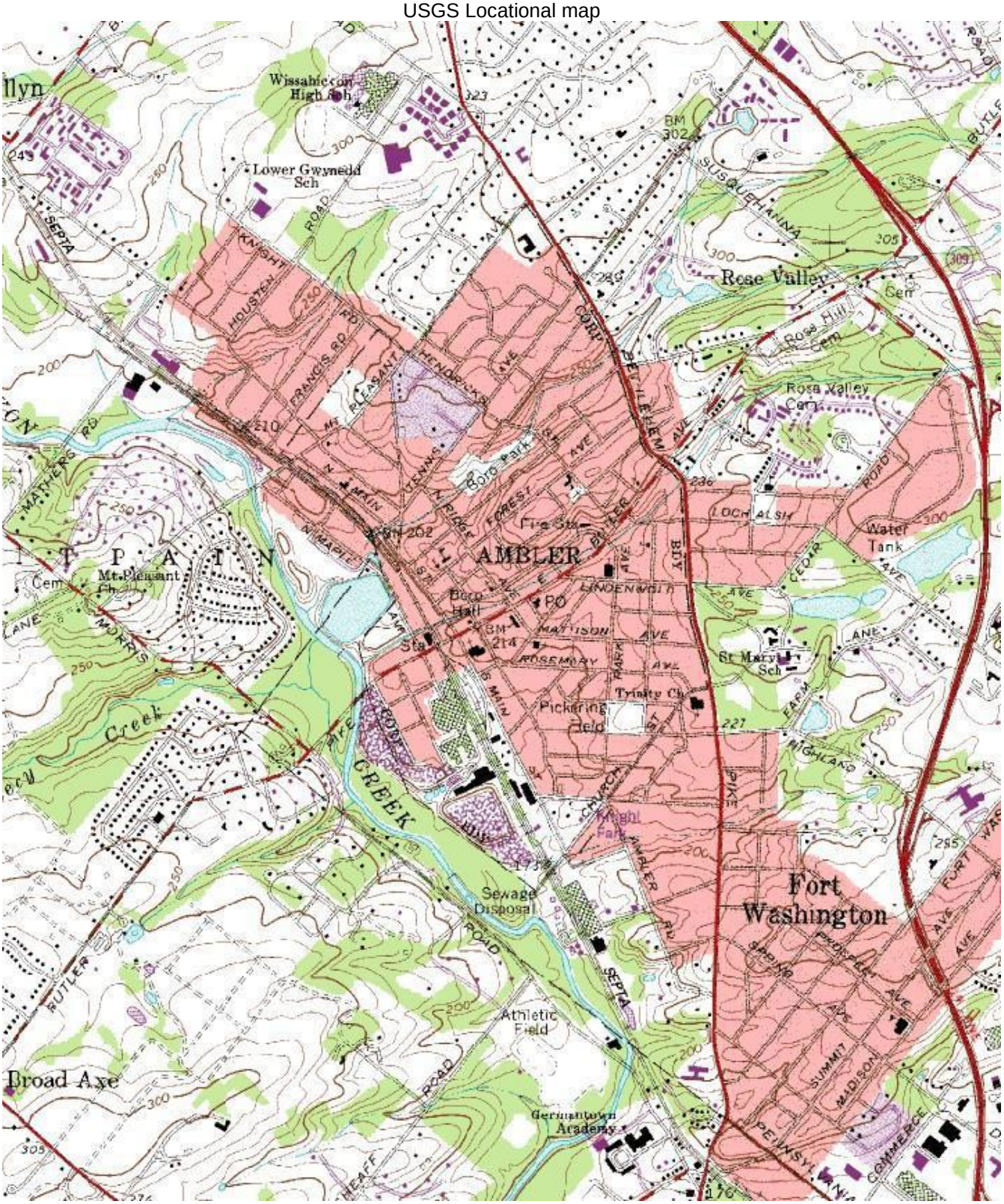
Statistic	Value	Unit	SE	ASEp
30 Day 2 Year Low Flow	8.46	ft^3/s	38	38
7 Day 10 Year Low Flow	2.38	ft^3/s	51	51
30 Day 10 Year Low Flow	3.78	ft^3/s	46	46
90 Day 10 Year Low Flow	8.14	ft^3/s	41	41

Low-Flow Statistics Citations

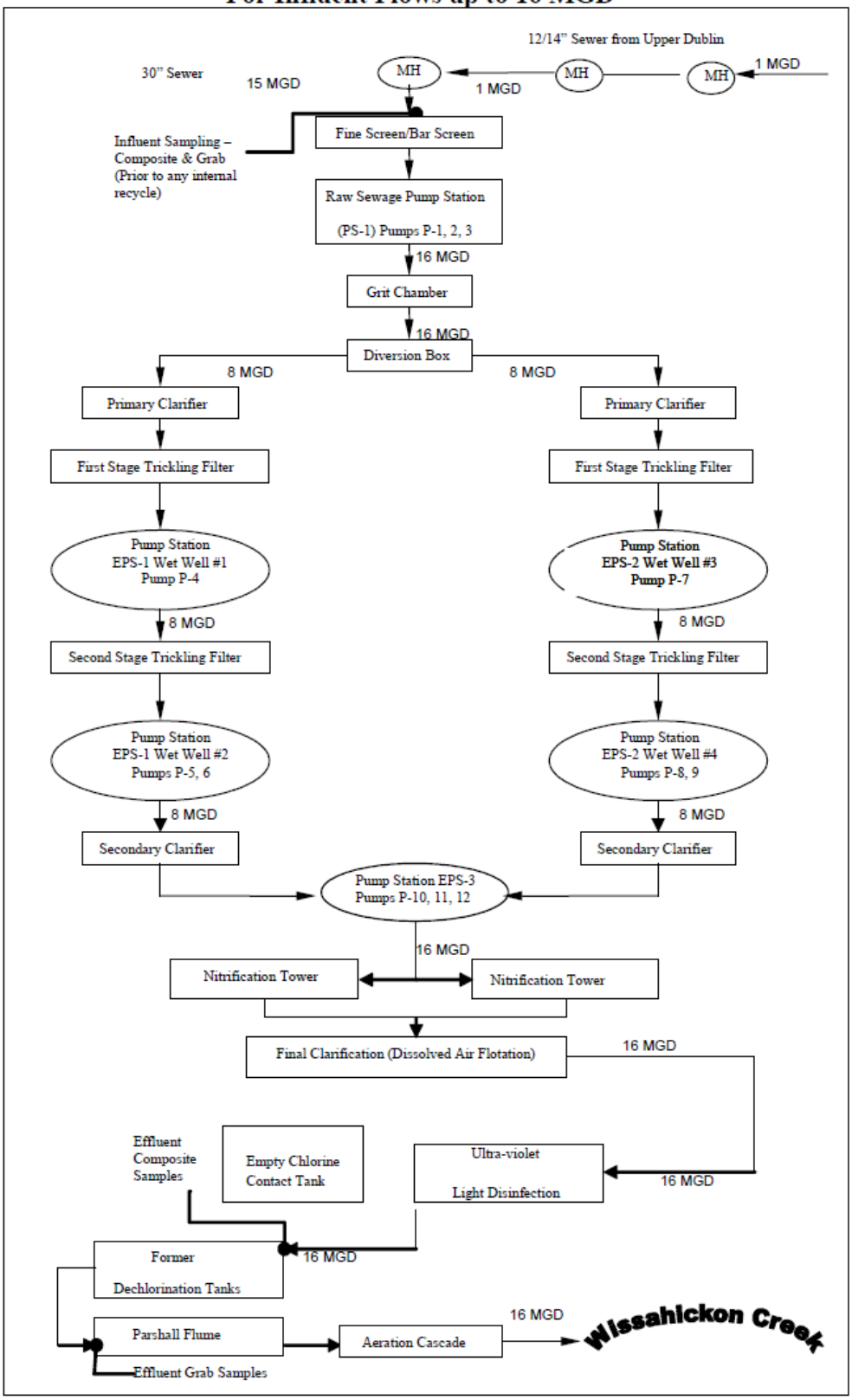
Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.16.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

USGS Locational map



Ambler WWTP Forward Flow Schematic
For Influent Flows up to 16 MGD



Act 537 Approval for diversion of Upper Dublin WWTP flow

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SSENT VIA ELECTRONIC MAIL ONLY

June 30, 2022

Mr. Terry Fedorchak
Interim Manager
Upper Dublin Township
370 Commerce Drive
Fort Washington, PA 19034

Re: Act 537 Plan Update
Upper Dublin Township Wastewater Treatment
Plant Decommissioning & Diversion
APS ID 28750 AUTH ID 1401464
Upper Dublin Township
Montgomery County

Dear Mr. Fedorchak:

The Department of Environmental Protection ("DEP") has reviewed the proposed Act 537 Plan Update, dated July 2019, and last revised June 2022, prepared by Carroll Engineering Corporation. and entitled *Plan Amendment No. 3 ("Plan")*.

The proposal consists of the decommissioning of the Bucks County Water and Sewer Authority's Upper Dublin Township Wastewater Treatment Plant ("UDT WWTP") and the construction of a pump station in its place to divert the sewage flows to Ambler Borough's Wastewater Treatment Plant ("Ambler WWTP"). The submission is consistent with the planning requirements in Chapter 71 of DEP's regulations.

The plan is approved and provides for the following:

1. The decommissioning of the UDT WWTP and the construction of a new pump station on the same property that will divert sewage flows to the Ambler WWTP.

2. A new force main will be constructed that runs from the new pump station directly to the Ambler WWTP. The route of the force main is illustrated in Figure 3 of the Plan. All other existing sewer infrastructure will remain unmodified.

3. The pump station will be constructed to accommodate the anticipated 10-year average sewage flow projection of 1.28 million gallons per day ("MGD"). The pump station will be designed to allow for future modifications for ultimate flow projections.

4. Ambler Borough's influent pump station and WWTP will be expanded. A 100 horse-power submersible pump will be installed in the existing influent pump station's wet

Southeast Regional Office
2 East Main Street | Norristown, PA 19401-4915 | 484.250.5970 | Fax 484.250.5971 | www.dep.pa.gov

well. The Ambler WWTP's annual average sewage capacity will increase from 6.5 MGD to 7.7 MGD.

While the 10-year average sewage flow for Upper Dublin Township is 1.28 MGD, Bucks County Water and Sewer Authority has the right to request an increase in sewage flow at the Ambler WWTP per the *Joint Inter-Municipal Cooperation Agreement* dated December 16, 1959, and amended on February 15, 1978, and August 17, 2021.

5. Upper Dublin Township will submit a Component 3M, Sewage Facilities Planning Module for Minor Act 537 Update Revision, for the Craig-Y-Nos area to DEP by the agreed upon date of December 31, 2022.

Please note that if any of the sewer facilities need to be expanded or upgraded in the future, DEP must be contacted to determine the level of sewage facilities planning required. DEP cannot issue Water Quality Management ("Part 2") permits without the required planning in place. Contact with the Department regarding planning requirements should be initiated well in advance of submitting a Part 2 permit(s).

This approval is specifically made contingent upon the applicant acquiring all necessary property rights by easement or otherwise, providing for the satisfactory construction, operation, maintenance, and replacement of all sewerage structures associated with the approved discharge in, along, or across private property, with full rights of ingress, egress and regress.

The approved project will require Part 2 permits. Issuance of a Part 2 permit will be based upon a technical evaluation of the permit application and supporting documentation. Starting construction prior to obtaining a permit is a violation of the Clean Streams Law. In addition, Ambler Borough must secure an NPDES permit from the Department for its increased discharge capacity.

Any person aggrieved by this action may appeal the action to the Environmental Hearing Board ("Board"), pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. § 7514, and the Administrative Agency Law, 2 Pa.C.S. Chapter 5A. The Board's address is:

Environmental Hearing Board
Rachel Carson State Office Building, Second Floor
400 Market Street
P.O. Box 8457
Harrisburg, PA 17105-8457

TDD users may contact the Environmental Hearing Board through the Pennsylvania Relay Service, 800-654-5984.

Appeals must be filed with the Board within 30 days of receipt of notice of this action unless the appropriate statute provides a different time. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

A Notice of Appeal form and the Board's rules of practice and procedure may be obtained online at http://ehb.courtapps.com or by contacting the Secretary to the Board at 717-787-3483. The Notice of Appeal form and the Board's rules are also available in braille and on audiotape from the Secretary to the Board.

IMPORTANT LEGAL RIGHTS ARE AT STAKE. YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD AT 717-787-3483 FOR MORE INFORMATION. YOU DO NOT NEED A LAWYER TO FILE A NOTICE OF APPEAL WITH THE BOARD.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST BE FILED WITH AND RECEIVED BY THE BOARD WITHIN 30 DAYS OF RECEIPT OF NOTICE OF THIS ACTION.

If you have any questions or concerns, please contact Stefanie Rittenhouse-Loughery at SteRittenh@pa.gov or at 484.250.5186.

Sincerely,

Thomas L. Magge

Thomas Magge
Regional Manager
Clean Water

cc: Montgomery County Health Department
Montgomery County Planning Commission
Montgomery County Conservation District
BCWSA
Ambler Borough
Lower Gwynedd Township
Whitemarsh Township
Whitemarsh Township Authority
Whitpain Township
Carroll Engineering Corporation
EEMA, Inc.
Planning Section
Re 30

WQM 7.0 at 6.5 MGD

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03F	844	WISSAHICKON CREEK	**12.760**	157.22	26.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.150	0.00	0.00	0.000	0.000	0.0	0.00	0.00	22.10	8.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Ambler WWTP	PA0026603	6.5000	6.5000	6.5000	0.000	16.00	7.80

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	10.00	2.00	0.00	1.50
Dissolved Oxygen	7.00	8.24	0.00	0.00
NH3-N	1.50	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03F	844	WISSAHICKON CREEK	**11.460**	148.18	40.10	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.150	0.00	0.00	0.000	0.000	0.0	0.00	0.00	22.10	8.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
03F	844	WISSAHICKON CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
12.760	3.90	0.00	3.90	10.0555	0.00132	.761	45.64	59.99	0.40	0.198	17.70	7.85
Q1-10 Flow												
12.760	3.32	0.00	3.32	10.0555	0.00132	NA	NA	NA	0.39	0.202	17.51	7.84
Q30-10 Flow												
12.760	4.88	0.00	4.88	10.0555	0.00132	NA	NA	NA	0.42	0.190	17.99	7.86

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.85	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.25	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	7		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
03F	844	WISSAHICKON CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
12.760	Ambler WWTP	6.43	3	6.43	3	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
12.760	Ambler WWTP	1.08	1.5	1.08	1.5	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
12.76	Ambler WWTP	7.3	7.3	1.5	1.5	7	7	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
03F	844	WISSAHICKON CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
12.760	6.500	17.705	7.847
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
45.642	0.761	59.989	0.402
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
5.82	0.980	1.08	0.587
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.347	3.420	Tsivoglou	7
Reach Travel Time (days)			
0.198			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.020	5.72	1.07	7.29
0.040	5.62	1.06	7.24
0.059	5.52	1.04	7.20
0.079	5.43	1.03	7.16
0.099	5.33	1.02	7.13
0.119	5.24	1.01	7.11
0.138	5.15	1.00	7.08
0.158	5.06	0.99	7.07
0.178	4.97	0.97	7.05
0.198	4.89	0.96	7.04

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
03F	844	WISSAHICKON CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
12.760	Ambler WWTP	PA0026603	6.500	CBOD5	7.3		
				NH3-N	1.5	3	
				Dissolved Oxygen			7

WQM 7.0 at 7.7 MGD (Effluent Limits)

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
03F	844	WISSAHICKON CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
12.760	Ambler WWTP	PA0026603	7.700	CBOD5	7.3		
				NH3-N	1.5	3	
				Dissolved Oxygen			7

TMS at 6.5 MGD

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: Borough of Ambler WWTP NPDES Permit No.: PA0026603 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Treated Sewage

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
6.5	210	7.8						

					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											
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		1213			0.23						
	Total Antimony	µg/L	<	3									
	Total Arsenic	µg/L		1.07									
	Total Barium	µg/L		44.7									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L	<	200									
	Total Cadmium	µg/L	<	0.1									
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L		0.2									
	Total Copper	µg/L		33.1			0.335						
	Free Cyanide	µg/L		23.3			3.63						
	Total Cyanide	µg/L	<	4.2									
	Dissolved Iron	µg/L		26.7									
	Total Iron	µg/L		60									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		2									
	Total Mercury	µg/L	<	0.11									
	Total Nickel	µg/L		2.2									
	Total Phenols (Phenolics) (PWS)	µg/L	<	2.4									
	Total Selenium	µg/L	<	1.13									
	Total Silver	µg/L	<	0.86									
	Total Thallium	µg/L	<	3									
	Total Zinc	µg/L		45.2			0.714						
	Total Molybdenum	µg/L	<	3.7									
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	2									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L	<	0.5									
	Carbon Tetrachloride	µg/L	<	0.5									

Group 3	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	<	0.5									
	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	<	10									
	2,4-Dichlorophenol	µg/L	<	10									
	2,4-Dimethylphenol	µg/L	<	10									
	4,6-Dinitro-o-Cresol	µg/L	<	10									
	2,4-Dinitrophenol	µg/L	<	10									
	2-Nitrophenol	µg/L	<	10									
	4-Nitrophenol	µg/L	<	10									
	p-Chloro-m-Cresol	µg/L	<	10									
	Pentachlorophenol	µg/L	<	10									
	Phenol	µg/L	<	10									
	2,4,6-Trichlorophenol	µg/L	<	10									
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	<	5									
	Di-n-Butyl Phthalate	µg/L	<	5									
	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	<	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											
	Ambler Aluminum	µg/L		1213			0.23						
	Ambler Copper	µg/L		33.1			0.335						

Stream / Surface Water Information

Borough of Ambler WWTP, NPDES Permit No. PA0026603, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name:

No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	000844	12.76	157.22	26			Yes
End of Reach 1	000844	11.46	148.18	40.1			Yes

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

Location	RMI	LFY (cfs/mi²)*	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	12.76	0.15										205	8		
End of Reach 1	11.46	0.15										205	8		

Q_h

Location	RMI	LFY (cfs/mi²)	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	12.76														
End of Reach 1	11.46														

Model Results

Borough of Ambler WWTP, NPDES Permit No. PA0026603, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | (•) All ( ) Inputs ( ) Results ( ) Limits

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 9.259 PMF: 1 Analysis Hardness (mg/l): 208.6 Analysis pH: 7.85

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	750	750	1,041	
Total Antimony	0	0		0	1,100	1,100	1,527	
Total Arsenic	0	0		0	340	340	472	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	29,145	
Total Boron	0	0		0	8,100	8,100	11,242	
Total Cadmium	0	0		0	4.114	4.5	6.25	Chem Translator of 0.913 applied
Hexavalent Chromium	0	0		0	16	16.3	22.6	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	132	
Total Copper	0	0		0	26.868	28.0	38.8	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	30.5	
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	142.362	208	289	Chem Translator of 0.684 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.29	Chem Translator of 0.85 applied
Total Nickel	0	0		0	872.186	874	1,213	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	11.393	13.4	18.6	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	90.2	
Total Zinc	0	0		0	218.482	223	310	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	4.16	
Acrylonitrile	0	0		0	650	650	902	
Benzene	0	0		0	640	640	888	
Bromoform	0	0		0	1,800	1,800	2,498	
Carbon Tetrachloride	0	0		0	2,800	2,800	3,886	
Chlorobenzene	0	0		0	1,200	1,200	1,665	

Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	24,981	
Chloroform	0	0		0	1,900	1,900	2,637	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	20,818	
1,1-Dichloroethylene	0	0		0	7,500	7,500	10,409	
1,2-Dichloropropane	0	0		0	11,000	11,000	15,266	
1,3-Dichloropropylene	0	0		0	310	310	430	
Ethylbenzene	0	0		0	2,900	2,900	4,025	
Methyl Bromide	0	0		0	550	550	763	
Methyl Chloride	0	0		0	28,000	28,000	38,860	
Methylene Chloride	0	0		0	12,000	12,000	16,654	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,388	
Tetrachloroethylene	0	0		0	700	700	971	
Toluene	0	0		0	1,700	1,700	2,359	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	9,437	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	4,164	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	4,719	
Trichloroethylene	0	0		0	2,300	2,300	3,192	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	777	
2,4-Dichlorophenol	0	0		0	1,700	1,700	2,359	
2,4-Dimethylphenol	0	0		0	660	660	916	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	111	
2,4-Dinitrophenol	0	0		0	660	660	916	
2-Nitrophenol	0	0		0	8,000	8,000	11,103	
4-Nitrophenol	0	0		0	2,300	2,300	3,192	
p-Chloro-m-Cresol	0	0		0	160	160	222	
Pentachlorophenol	0	0		0	20.440	20.4	28.4	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	638	
Acenaphthene	0	0		0	83	83.0	115	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	416	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.69	
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	41,635	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	6,245	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	375	
Butyl Benzyl Phthalate	0	0		0	140	140	194	
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	1,138	
1,3-Dichlorobenzene	0	0		0	350	350	486	

1,4-Dichlorobenzene	0	0		0	730	730	1,013	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	5,551	
Dimethyl Phthalate	0	0		0	2,500	2,500	3,470	
Di-n-Butyl Phthalate	0	0		0	110	110	153	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	2,221	
2,6-Dinitrotoluene	0	0		0	990	990	1,374	
1,2-Diphenylhydrazine	0	0		0	15	15.0	20.8	
Fluoranthene	0	0		0	200	200	278	
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	13.9	
Hexachlorocyclopentadiene	0	0		0	5	5.0	6.94	
Hexachloroethane	0	0		0	60	60.0	83.3	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	13,878	
Naphthalene	0	0		0	140	140	194	
Nitrobenzene	0	0		0	4,000	4,000	5,551	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	23,593	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	416	
Phenanthrene	0	0		0	5	5.0	6.94	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	180	
Ambler Aluminum	0	0		0	1537.5	1,538	2,134	
Ambler Copper	0	0		0	153.16	153	213	

☑ *CFC* CCT (min): 9.259 PMF: 1 Analysis Hardness (mg/l): 208.6 Analysis pH: 7.85

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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	305	
Total Arsenic	0	0		0	150	150	208	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	5,690	
Total Boron	0	0		0	1,600	1,600	2,221	
Total Cadmium	0	0		0	0.410	0.47	0.65	Chem Translator of 0.878 applied
Hexavalent Chromium	0	0		0	10	10.4	14.4	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	26.4	
Total Copper	0	0		0	16.787	17.5	24.3	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	7.22	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	2,082	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	5.548	8.11	11.3	Chem Translator of 0.684 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.26	Chem Translator of 0.85 applied
Total Nickel	0	0		0	96.873	97.2	135	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	6.92	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	18.0	
Total Zinc	0	0		0	220.269	223	310	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	4.16	
Acrylonitrile	0	0		0	130	130	180	
Benzene	0	0		0	130	130	180	
Bromoform	0	0		0	370	370	514	
Carbon Tetrachloride	0	0		0	560	560	777	
Chlorobenzene	0	0		0	240	240	333	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	4,857	
Chloroform	0	0		0	390	390	541	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	4,302	
1,1-Dichloroethylene	0	0		0	1,500	1,500	2,082	
1,2-Dichloropropane	0	0		0	2,200	2,200	3,053	
1,3-Dichloropropylene	0	0		0	61	61.0	84.7	
Ethylbenzene	0	0		0	580	580	805	
Methyl Bromide	0	0		0	110	110	153	
Methyl Chloride	0	0		0	5,500	5,500	7,633	
Methylene Chloride	0	0		0	2,400	2,400	3,331	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	291	
Tetrachloroethylene	0	0		0	140	140	194	
Toluene	0	0		0	330	330	458	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	1,943	
1,1,1-Trichloroethane	0	0		0	610	610	847	
1,1,2-Trichloroethane	0	0		0	680	680	944	
Trichloroethylene	0	0		0	450	450	625	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	153	
2,4-Dichlorophenol	0	0		0	340	340	472	
2,4-Dimethylphenol	0	0		0	130	130	180	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	22.2	
2,4-Dinitrophenol	0	0		0	130	130	180	
2-Nitrophenol	0	0		0	1,600	1,600	2,221	
4-Nitrophenol	0	0		0	470	470	652	
p-Chloro-m-Cresol	0	0		0	500	500	694	
Pentachlorophenol	0	0		0	15.682	15.7	21.8	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	126	
Acenaphthene	0	0		0	17	17.0	23.6	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	81.9	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.14	

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	8,327	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	1,263	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	74.9	
Butyl Benzyl Phthalate	0	0		0	35	35.0	48.6	
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	222	
1,3-Dichlorobenzene	0	0		0	69	69.0	95.8	
1,4-Dichlorobenzene	0	0		0	150	150	208	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	1,110	
Dimethyl Phthalate	0	0		0	500	500	694	
Di-n-Butyl Phthalate	0	0		0	21	21.0	29.1	
2,4-Dinitrotoluene	0	0		0	320	320	444	
2,6-Dinitrotoluene	0	0		0	200	200	278	
1,2-Diphenylhydrazine	0	0		0	3	3.0	4.16	
Fluoranthene	0	0		0	40	40.0	55.5	
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	2.78	
Hexachlorocyclopentadiene	0	0		0	1	1.0	1.39	
Hexachloroethane	0	0		0	12	12.0	16.7	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	2,914	
Naphthalene	0	0		0	43	43.0	59.7	
Nitrobenzene	0	0		0	810	810	1,124	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	4,719	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	81.9	
Phenanthrene	0	0		0	1	1.0	1.39	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	36.1	
Ambler Aluminum	0	0		0	N/A	N/A	N/A	
Ambler Copper	0	0		0	95.7	95.7	133	

☑ ***THH*** CCT (min): 9.259 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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	7.77	

Total Arsenic	0	0		0	10	10.0	13.9	
Total Barium	0	0		0	2,400	2,400	3,331	
Total Boron	0	0		0	3,100	3,100	4,302	
Total Cadmium	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	5.55	
Dissolved Iron	0	0		0	300	300	416	
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	1,388	
Total Mercury	0	0		0	0.050	0.05	0.069	
Total Nickel	0	0		0	610	610	847	
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	0.33	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	4.16	
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	139	
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	7.91	
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	45.8	
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	94.4	
Methyl Bromide	0	0		0	100	100.0	139	
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	79.1	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	139	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	13,878	
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	41.6	

2,4-Dichlorophenol	0	0		0	10	10.0	13.9	
2,4-Dimethylphenol	0	0		0	100	100.0	139	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	2.78	
2,4-Dinitrophenol	0	0		0	10	10.0	13.9	
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	5,551	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	97.1	
Anthracene	0	0		0	300	300	416	
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	278	
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	0.14	
2-Chloronaphthalene	0	0		0	800	800	1,110	
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	1,388	
1,3-Dichlorobenzene	0	0		0	7	7.0	9.71	
1,4-Dichlorobenzene	0	0		0	300	300	416	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	833	
Dimethyl Phthalate	0	0		0	2,000	2,000	2,776	
Di-n-Butyl Phthalate	0	0		0	20	20.0	27.8	
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	27.8	
Fluorene	0	0		0	50	50.0	69.4	
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	5.55	
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	47.2	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	13.9	
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	27.8	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.097	
Ambler Aluminum	0	0		0	N/A	N/A	N/A	
Ambler Copper	0	0		0	N/A	N/A	N/A	

☑ *CRL* CCT (min): 32.745 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 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	
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	0.21	
Benzene	0	0		0	0.58	0.58	1.99	
Bromoform	0	0		0	7	7.0	24.0	
Carbon Tetrachloride	0	0		0	0.4	0.4	1.37	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	2.74	
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	3.26	
1,2-Dichloroethane	0	0		0	9.9	9.9	33.9	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	3.08	

1,3-Dichloropropylene	0	0		0	0.27	0.27	0.93	
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	68.6	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	0.69	
Tetrachloroethylene	0	0		0	10	10.0	34.3	
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	1.89	
Trichloroethylene	0	0		0	0.6	0.6	2.06	
Vinyl Chloride	0	0		0	0.02	0.02	0.069	
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	0.1	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	5.14	
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	0.0003	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.003	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0003	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.003	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.034	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.1	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	1.1	
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	0.41	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.0003	
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	0.17	
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	0.17	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.17	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.1	
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	0.0003	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.034	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.34	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.003	
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	0.002	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.017	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	11.3	
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	
Ambler Aluminum	0	0		0	N/A	N/A	N/A	
Ambler Copper	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	40.7	40.7	750	750	750	µg/L	750	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Antimony	Report	Report	Report	Report	Report	µg/L	7.77	THH	Discharge Conc > 10% WQBEL (no RP)
Total Copper	1.32	1.59	24.3	29.3	29.3	µg/L	24.3	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Free Cyanide	0.3	0.44	5.55	8.14	13.9	µg/L	5.55	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Thallium	0.018	0.028	0.33	0.52	0.83	µg/L	0.33	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	244	AFC	Discharge Conc > 10% WQBEL (no RP)
Ambler Aluminum	83.3	83.3	1,538	1,538	1,538	µg/L	1,538	AFC	Discharge Conc ≥ 50% WQBEL (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 Arsenic	13.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	3,331	µg/L	Discharge Conc ≤ 10% WQBEL

Total Beryllium	N/A	N/A	No WQS
Total Boron	N/A	N/A	Discharge Conc < TQL
Total Cadmium	N/A	N/A	Discharge Conc < TQL
Hexavalent Chromium	N/A	N/A	Discharge Conc < TQL
Total Cobalt	26.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	416	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	2,082	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	11.3	µg/L	Discharge Conc < TQL
Total Manganese	1,388	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.069	µg/L	Discharge Conc < TQL
Total Nickel	135	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	6.92	µg/L	Discharge Conc < TQL
Total Silver	13.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.0	µg/L	Discharge Conc < TQL
Acrylonitrile	0.21	µg/L	Discharge Conc < TQL
Benzene	1.99	µg/L	Discharge Conc < TQL
Bromoform	24.0	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	1.37	µg/L	Discharge Conc < TQL
Chlorobenzene	139	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	2.74	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	4,857	µg/L	Discharge Conc < TQL
Chloroform	7.91	µg/L	Discharge Conc < TQL
Dichlorobromomethane	3.26	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	33.9	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	45.8	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	3.08	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	0.93	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	94.4	µg/L	Discharge Conc < TQL
Methyl Bromide	139	µg/L	Discharge Conc < TQL
Methyl Chloride	7,633	µg/L	Discharge Conc < TQL
Methylene Chloride	68.6	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	0.69	µg/L	Discharge Conc < TQL
Tetrachloroethylene	34.3	µg/L	Discharge Conc < TQL
Toluene	79.1	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	139	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	847	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	1.89	µg/L	Discharge Conc < TQL
Trichloroethylene	2.06	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.069	µg/L	Discharge Conc < TQL
2-Chlorophenol	41.6	µg/L	Discharge Conc < TQL

Model Results 12/8/2023

2,4-Dichlorophenol	13.9	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	139	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	2.78	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	13.9	µg/L	Discharge Conc < TQL
2-Nitrophenol	2,221	µg/L	Discharge Conc < TQL
4-Nitrophenol	652	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	160	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.1	µg/L	Discharge Conc < TQL
Phenol	5,551	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	5.14	µg/L	Discharge Conc < TQL
Acenaphthene	23.6	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	416	µg/L	Discharge Conc < TQL
Benzidine	0.0003	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.003	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.0003	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.003	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.034	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.1	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	278	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	1.1	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	74.9	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.14	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	1,110	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.41	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.0003	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	222	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	9.71	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	208	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.17	µg/L	Discharge Conc < TQL
Diethyl Phthalate	833	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	694	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	27.8	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.17	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.17	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.1	µg/L	Discharge Conc < TQL
Fluoranthene	27.8	µg/L	Discharge Conc < TQL
Fluorene	69.4	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0003	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.034	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	1.39	µg/L	Discharge Conc < TQL
Hexachloroethane	0.34	µg/L	Discharge Conc < TQL

Model Results 12/8/2023

Indeno(1,2,3-cd)Pyrene	0.003	µg/L	Discharge Conc < TQL
Isophorone	47.2	µg/L	Discharge Conc < TQL
Naphthalene	59.7	µg/L	Discharge Conc < TQL
Nitrobenzene	13.9	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.002	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.017	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	11.3	µg/L	Discharge Conc < TQL
Phenanthrene	1.39	µg/L	Discharge Conc < TQL
Pyrene	27.8	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.097	µg/L	Discharge Conc < TQL
Ambler Copper	133	µg/L	Discharge Conc ≤ 25% WQBEL

TMS at 7.7 MGD (Recommended WQBELs and Monitoring Requirements)

☑ ***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	48.2	48.2	750	750	750	µg/L	750	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Antimony	Report	Report	Report	Report	Report	µg/L	7.43	THH	Discharge Conc > 10% WQBEL (no RP)
Total Copper	1.49	1.8	23.2	28.0	28.0	µg/L	23.2	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Free Cyanide	0.34	0.5	5.31	7.78	13.3	µg/L	5.31	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Thallium	0.02	0.032	0.32	0.5	0.8	µg/L	0.32	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	233	AFC	Discharge Conc > 10% WQBEL (no RP)
Ambler Aluminum	98.7	98.7	1,538	1,538	1,538	µg/L	1,538	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Ambler Copper	Report	Report	Report	Report	Report	µg/L	127	CFC	Discharge Conc > 25% WQBEL (no RP)

Whole Effluent Toxicity Test (WETT) at 6.5 MGD

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.65
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Ambler Borough STP

Permit No.: PA0026603

Test Completion Date: 7/19/2022

Replicate No.	Control	TIWC
1	10	10
2	9	10
3	9	10
4	10	8
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	9.500	9.500
Std Dev.	0.577	1.000
# Replicates	4	4

T-Test Result	4.0232
Deg. of Freedom	4
Critical T Value	0.7407
Pass or Fail	**PASS**

Test Completion Date: 8/26/2021

Replicate No.	Control	TIWC
1	8	10
2	10	10
3	9	10
4	9	9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	9.000	9.750
Std Dev.	0.816	0.500
# Replicates	4	4

T-Test Result	6.9446
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

Test Completion Date: 8/11/2020

Replicate No.	Control	TIWC
1	10	10
2	10	9
3	10	10
4	10	10
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: 9/24/2019

Replicate No.	Control	TIWC
1	8	9
2	10	10
3	10	9
4	10	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	9.500	9.500
Std Dev.	1.000	0.577
# Replicates	4	4

T-Test Result	4.4397
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.65
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Ambler Borough STP

Permit No.: PA0026603

Replicate No.	Test Completion Date: 7/19/2022 Control	TIWC
1	0.939	0.961
2	0.756	0.962
3	0.729	0.978
4	0.782	0.848
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.802	0.937
Std Dev.	0.094	0.060
# Replicates	4	4
T-Test Result	7.2529	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	**PASS**	

Replicate No.	Test Completion Date: 8/26/2021 Control	TIWC
1	0.778	1.123
2	0.919	1.181
3	1.075	1.029
4	1.12	0.839
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.973	1.043
Std Dev.	0.156	0.150
# Replicates	4	4
T-Test Result	3.2975	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	**PASS**	

Replicate No.	Test Completion Date: 8/11/2020 Control	TIWC
1	0.416	0.44
2	0.409	0.375
3	0.404	0.412
4	0.475	0.435
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.426	0.416
Std Dev.	0.033	0.030
# Replicates	4	4
T-Test Result	4.9715	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	**PASS**	

Replicate No.	Test Completion Date: 9/24/2019 Control	TIWC
1	0.291	0.299
2	0.387	0.352
3	0.369	0.33
4	0.331	0.416
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.345	0.349
Std Dev.	0.043	0.050
# Replicates	4	4
T-Test Result	3.0832	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	**PASS**	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.65
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Ambler Borough STP

Permit No.: PA0026603

Test Completion Date: 6/13/2022

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	0
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	0.900
Std Dev.	0.000	0.316
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Test Completion Date: 8/24/2021

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: 8/11/2020

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

Test Completion Date: 9/23/2019

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	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.65
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Ambler Borough STP

Permit No.: PA0026603

Test Completion Date: 6/13/2022

Replicate No.	Control	TIWC
1	34	16
2	10	32
3	4	0
4	18	26
5	34	21
6	25	29
7	30	22
8	28	25
9	19	30
10	27	29
11		
12		
13		
14		
15		
Mean	22.900	23.000
Std Dev.	10.038	9.416
# Replicates	10	10

T-Test Result	1.5279
Deg. of Freedom	16
Critical T Value	0.8647
Pass or Fail	**PASS**

Test Completion Date: 8/24/2021

Replicate No.	Control	TIWC
1	24	28
2	29	36
3	31	31
4	33	36
5	29	29
6	29	26
7	30	27
8	29	31
9	16	35
10	30	31
11		
12		
13		
14		
15		
Mean	28.000	31.000
Std Dev.	4.784	3.651
# Replicates	10	10

T-Test Result	6.1770
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	**PASS**

Test Completion Date: 8/11/2020

Replicate No.	Control	TIWC
1	28	30
2	40	32
3	29	26
4	22	37
5	33	0
6	18	26
7	29	38
8	38	36
9	24	29
10	26	30
11		
12		
13		
14		
15		
Mean	28.700	28.400
Std Dev.	6.848	10.855
# Replicates	10	10

T-Test Result	1.8104
Deg. of Freedom	14
Critical T Value	0.8681
Pass or Fail	**PASS**

Test Completion Date: 9/23/2019

Replicate No.	Control	TIWC
1	40	42
2	39	37
3	37	37
4	22	22
5	34	38
6	40	32
7	37	43
8	29	31
9	36	40
10	19	19
11		
12		
13		
14		
15		
Mean	33.300	34.100
Std Dev.	7.514	8.144
# Replicates	10	10

T-Test Result	2.9137
Deg. of Freedom	16
Critical T Value	0.8647
Pass or Fail	**PASS**

WET Summary and Evaluation

Facility Name	Ambler Borough STP
Permit No.	PA0026603
Design Flow (MGD)	6.5
Q_{7-10} Flow (cfs)	3.9
PMF_a	1
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	7/19/22	8/26/21	8/11/20	9/24/19
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	7/19/22	8/26/21	8/11/20	9/24/19
Pimephales	Growth	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	6/13/22	8/24/21	8/11/20	9/23/19
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	6/13/22	8/24/21	8/11/20	9/23/19
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**
TIWC	**72** % Effluent
Dilution Series	**18, 36, 72, 86, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	

WETT at 7.7 MGD

WET Summary and Evaluation

Facility Name	Ambler Borough STP
Permit No.	PA0026603
Design Flow (MGD)	7.7
Q_{7-10} Flow (cfs)	3.9
PMF_a	1
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	7/19/22	8/26/21	8/11/20	9/24/19
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	7/19/22	8/26/21	8/11/20	9/24/19
Pimephales	Growth	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	6/13/22	8/24/21	8/11/20	9/23/19
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	6/13/22	8/24/21	8/11/20	9/23/19
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**
TIWC	**75** % Effluent
Dilution Series	**19, 38, 75, 88, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	

TOXCONC for other metals (Evaluation sheet)

Reviewer/Permit Engineer: Reza H Chowdhury

Facility: Ambler WWTP
NPDES #: PA0026603
Outfall No: 001
n (Samples/Month): 4

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Antimony (mg/L)	Delta-Lognormal	#DIV/0!	#DIV/0!
Free Cyanide (mg/L)	Delta-Lognormal	3.6355569	0.0232849
Zinc (mg/L)	Lognormal	0.7140885	0.0452787
Copper (mg/L)	Lognormal	0.3358621	0.0331275

TOXCONC for Aluminum (Evaluation sheet)

Reviewer/Permit Engineer: Reza H Chowdhury

Facility: Ambler WWTP
NPDES #: PA0026603
Outfall No: 001
n (Samples/Month): 4

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Aluminum (mg/L)	Lognormal	0.2289225	1.2132448