pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0086304**
Facility Type	**Municipal**	APS ID	**309993**
Major / Minor	**Minor**	Authorization ID	**1324286**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Earl Township Sewer Authority Lancaster County**	Facility Name	**Earl Township STP**
Applicant Address	517 N Railroad Avenue	Facility Address	250 Horning Road
	New Holland, PA 17557-9758		New Holland, PA 17557
Applicant Contact	Noah Zimmerman	Facility Contact	Noah Zimmerman
Applicant Phone	(717) 224-1436	Facility Phone	(717) 224-1436
Client ID	44652	Site ID	239148
Ch 94 Load Status	Existing Hydraulic and Organic Overload	Municipality	Earl Township
Connection Status	Dept. Imposed Connection Prohibitions	County	Lancaster
Date Application Received	August 18, 2020	EPA Waived?	No
Date Application Accepted	September 9, 2020	If No, Reason	DEP Discretion

Purpose of Application: NPDES renewal permit.

Summary of Review

Becker Engineering, LLC, on behalf of Earl Township Sewer Authority, has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on February 23, 2016 and became effective on March 1, 2016. The permit expired on February 28, 2021. The permit was administratively extended since then.

The facility has an average annual design flow of 0.650 MGD and a hydraulic design capacity of 0.774 MGD. The organic design capacity is 2,800 lbs/day.

In order of percent contribution, this facility serves the areas of Earl Township (63%), and East Earl Township (37%). WQM No. 3694404 was originally issued on 8/25/1994, WQM No. 3694404 A-1 was issued on 2/23/2016, among other things to replace an existing ultraviolet (UV) disinfection system with a new UV system, and 3694404 amendment was issued on 6/30/2021 to construct septage receiving station at Earl Township Sewer Authority to receive hauled-in waste at the WWTP.

Sludge use and disposal description and location(s): N/A due to the sludge is hauled away by Sam S. Ringler Trucking.

Changes from the previous permit:

- Unit of Fecal Coliform changed from CFU/100 ml to No./100 ml.
- The E. Coli. monitoring and report requirements will add to the permit.
- The average monthly $CBOD_5$ limit in the proposed permit was changed from 25.0 mg/L to 19.0 mg/L (weekly average & IMAX limits changed to 30.0 mg/L & 38.0 mg/L).
- Section C, item # II-Schedule of Compliance was removed from the proposed permit.

Based on the review outline in this fact sheet, it is recommended that the permit be drafted and published in the Pennsylvania Bulletin for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	October 29, 2021
X		Maria D. Bebenek for Daniel W. Martin Daniel W. Martin, P.E. / Environmental Engineer Manager	November 23, 2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.65
Latitude	40º 4' 38.47"	Longitude	-76º 5' 37.77"
Quad Name	New Holland	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Mill Creek (WWF, MF)	Stream Code	07597
NHD Com ID	57463017	RMI	22.27 miles
Drainage Area	12.7 mi.^{2}	Yield (cfs/mi^2)	0.13
Q_{7-10} Flow (cfs)	1.63	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	393	Slope (ft/ft)	
Watershed No.	7-J	Chapter 93 Class.	WWF, MF
Existing Use	TSF	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Nutrient, Siltation, Pathogens		
Source(s) of Impairment	Agriculture, Unknown source		
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Chester Water Authority, Fulton Township		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	1.8 miles	Distance from Outfall (mi)	Approximate 53 miles

Changes Since Last Permit Issuance:

Drainage Area
The discharge is to Mill Creek at RMI 22.27 miles. A drainage area upstream of the discharge is estimated to be 12.7 mi.^{2}, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow
According to USGS StreamStats available at https://streamstats.usgs.gov/ss/ , the discharge point has a Q_{7-10} of 1.63 cfs and a drainage area of 12.7 mi.^{2}, which results in a Q_{7-10} low flow yield of 0.13 cfs/mi.^{2}. This information is used to obtain a chronic or 30-day (Q_{30-10}), and an acute or 1-day (Q_{1-10}) exposure stream flow for the discharge point as follows (Guidance No. 391-2000-023):

Q_{7-10} = 1.63 cfs
Low Flow Yield = 1.63 cfs / 12.7 mi.^{2} ≈ 0.13 cfs/mi.^{2}
Q_{30-10} = 1.36 * 1.63 cfs ≈ 2.22 cfs
Q_{1-10} = 0.64 * 1.63 cfs ≈ 1.04 cfs

The resulting dilution ratio (under Q_{7-10} conditions) is: Q_{stream} / $Q_{discharge}$ = 1.63 cfs / [0.650 MGD * (1.55 cfs/MGD)] = 1.62:1

Mill Creek
25 Pa. Code § 93.9o classifies Mill Creek as Warm-Water & Migratory Fishes (WWF & MF) surface water. Based on the 2020 Integrated Report, Mill Creek, assessment unit IDs 9674, 15957, 18676, is impaired due to agriculture unknown source – nutrients siltation pathogens. ATMDL currently does not exist for this stream segment, therefore, no TMDL has been taken into consideration during this review.

Public Water Supply
The nearest downstream public water supply intake is for Chester Water Authority in Fulton Township on the Susquehanna River, approximately 53 miles downstream of this discharge. Considering distance and dilution, the discharge is not expected to impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: Earl Township STP				
WQM Permit No.	**Issuance Date**			
3694404	8/25/1994			
3694404 A-1	2/23/2016			
3694404 A-2	6/30/2021			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Sequencing Batch Reactor	Ultraviolet	0.65
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.774	2,800	Not Overloaded		

Changes Since Last Permit Issuance: yes, the WQM Part II No. 3694404 A-2 amended to construct a septage receiving station which consists of a receiving chamber and holding tank.

The WWTP train is:

Fine Bar Screen (1) ⇒ Sequencing Batch Reactors (2) ⇒ Post-Equalization Basin (1) ⇒ Disk Filters (2) ⇒ Ultraviolet System (1) ⇒ Discharge

The system incorporates the chemical addition of alum (for phosphorus removal). Two sludge holding tanks are on-site.

Compliance History	
Summary of DMRs:	The DMRs reported from September 1, 2020 to August 31, 2021 is summarized in the Table below (Pages # 5, 6, & 7).
Summary of Inspections:	1/27/2021: Tracy Tomtishen, DEP WQS, conducted a Chesapeake Bay Cap Load compliance evaluation inspection. There were no violations noted during the inspection. Annual Total Nitrogen & Total Phosphorus net mass load were below permitted cap loads. 1/8/2020: Tracy Tomtishen, DEP WQS, conducted a Chesapeake Bay Cap Load compliance evaluation inspection. There were no violations noted during the inspection. The recommendations were to provide notification via email to Tracy Tomtishen once revisions have been submitted, and revisions addressed in this inspection report should be submitted to the Department within 30 days of receiving report. Monthly eDMR submission, supplemental reports, and Annual Chesapeake Bay spreadsheet were reviewed. 6/12/2019: Tracy Tomtishen, DEP WQS, conducted a compliance evaluation inspection. There were no violations noted during the inspection. Field test results were within permit limits. The recommendations were to capture acid cleaning wastewater created during UV bulb cleaning in order to prevent it from entering STP effluent stream, minimizing return flow to influent wet well during composite sample collection, and post new DEP 24-hour emergency response number 1-800-541-2050. 11/28/2017: Kevin Buss, DEP WQS, conducted a compliance evaluation inspection. There were no violations noted during the inspection. Existing units were online and functioning normally. Records were well maintained.
Other Comments:	There are currently no open violations associated to the permittee or the facility.

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

Influent Testing Results			*Effluent Testing Results*		
Parameter	**Min/Max Value**	**Average Value**	**Parameter**	**Min/Max Value**	**Average Value**
BOD_5 (mg/L)	223/280 mg/L	253.67 mg/L	pH (minimum)	7.64 S.U.	
BOD_5 (lbs/day)	578/708 lbs/day	650.62 lbs/day	pH (maximum)	8.11 S.U.	
TSS (mg/L)	256/308 mg/L	286 mg/L	D.O (minimum)	7.26 mg/L	8.35 mg/L
TSS (lbs/day)	647/796 lbs/day	734.75 lbs/day	TRC	NA mg/L	NA mg/L
TN (mg/L)	52.0/62.0 mg/L	56.6 mg/L	Fecal Coliform	<1/<1 No./100mL	<1 No./100 mL
TN (lbs/day)	134.7/147.8 lbs/day	142.2 lbs/day	$CBOD_5$	<3.0/3 mg/L	<3.0 mg/L
TP (mg/L)	5.6/10.0 mg/L	7.8 mg/L	TSS	3.0/7.0 mg/L	5.33 mg/L
TP (lbs/day)	14.2/24.9 lbs/day	19.7 lbs/day	NH_3-N	<0.1/0.1 mg/L	<0.1 mg/L
NH_3-N (mg/L)	33.0/37.0 mg/L	35.7 mg/L	TN	1.31/2.04 mg/L	1.62 mg/L
NH_3-N (lbs/day)	82.3/96.5 lbs/day	90.8 lbs/day	TP	0.31/0.45 mg/L	0.38 mg/L
TDS (mg/L)	854/994 mg/L	924 mg/L	Temp	58.5/68.5 F	63.3 F
TDS (lbs/day)	2384/2567 lbs/day	2489 lbs/day	TKN	0.98/1.2 mg/L	1.09 mg/L
TKN	54/58 mg/L	53.67 mg/L	NO_2-N + NO_3-N	0.33/0.84 mg/L	0.53 mg/L
NO_2-N + NO_3-N	3.77/3.99 mg/L	3.85 mg/L	TDS	822/892 mg/L	862 mg/L
			Chloride	250/250 mg/L	250 mg/L
			Bromide	< 0.2/<0.5 mg/L	< 0.4 mg/L
			Sulfate	110/110 mg/L	110 mg/L
			Oil and Grease	< 5/7 mg/L	< 5.7 mg/L
			Total Copper	0.012/0.019 mg/L	0.016 mg/L
			Total Lead	< 0.001 mg/L	< 0.001 mg/L
			Total Zinc	0.135/0.155 mg/L	0.147 mg/L

Compliance History

DMR Data for Outfall 001 (from September 1, 2020 to August 31, 2021)

Parameter	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20
Flow (MGD) Average Monthly	0.3211	0.3002	0.307	0.299	0.3138	0.3302	0.3099	0.3098	0.3168	0.2924	0.3056	0.2905
Flow (MGD) Daily Maximum	0.4544	0.3459	0.3422	0.3359	0.3648	0.4551	0.354	0.361	0.4304	0.3329	0.3474	0.3846
pH (S.U.) Instantaneous Minimum	7.84	7.71	7.78	7.77	7.67	7.52	7.65	7.67	7.66	7.76	7.83	7.89
pH (S.U.) Instantaneous Maximum	8.07	8.06	7.98	8.06	7.94	7.94	7.95	8.04	8.06	8.78	8.33	8.44
DO (mg/L) Instantaneous Minimum	7.26	7.38	7.53	8.08	8.73	9.6	10.11	9.57	8.33	8.04	7.38	6.71
CBOD5 (lbs/day) Average Monthly	< 6	< 6	< 6	< 6	< 6	< 6	< 7	< 8	< 8	< 7	< 8	< 7
CBOD5 (lbs/day) Weekly Average	< 7	< 6	< 6	< 6	< 6	< 7	< 7	11	8	< 8	< 8	< 8
CBOD5 (mg/L) Average Monthly	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
CBOD5 (mg/L) Weekly Average	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 3.0	4.0	3.0	< 3.0	< 3.0	3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	655	618	686	769	718	785	684	700	615	567	593	606
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	679	666	843	861	864	860	695	811	701	717	646	713
BOD5 (mg/L) Raw Sewage Influent Average Monthly	236	236	255	291	271	280	259	260	233	221	225	233
TSS (lbs/day) Average Monthly	22	18	7	12	13	11	8	4	14	9	9	11
TSS (lbs/day) Raw Sewage Influent Average Monthly	1027	902	945	906	874	868	930	708	560	766	787	751
TSS (lbs/day) Raw Sewage Influent Daily Maximum	1248	956	1212	1465	931	1067	1315	884	807	844	921	820
TSS (lbs/day) Weekly Average	38	42	12	20	25	28	16	5	22	12	13	23

TSS (mg/L) Average Monthly	9.0	7.0	3.0	5.0	5.0	4.0	3.0	2.0	6.0	4.0	4.0	5.0
TSS (mg/L) Raw Sewage Influent Average Monthly	368	344	351	340	330	309	346	260	212	301	299	288
TSS (mg/L) Weekly Average	14.0	17.0	5.0	8.0	10.0	10.0	6.0	2.0	9.0	5.0	5.0	10.0
Fecal Coliform (No./100 ml) Geometric Mean	< 1	< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	> 5	< 1	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	1	< 1	5	< 1	3	2	< 1	< 1	1	> 2420	2	< 1
Nitrate-Nitrite (mg/L) Average Monthly	0.69	0.67	0.62	0.64	0.75	0.7	0.84	0.76	0.73	0.53	0.56	0.74
Nitrate-Nitrite (lbs) Total Monthly	55	50	47	47	57	55	59	60	59	40	45	55
Total Nitrogen (mg/L) Average Monthly	1.62	1.78	1.65	2.34	2.4	2.1	2.34	< 1.47	1.64	1.43	1.44	1.63
Total Nitrogen (lbs) Effluent Net Total Monthly	129	130	122	172	181	166	166	< 116	134	108	118	120
Total Nitrogen (lbs) Total Monthly	129	130	122	172	181	166	166	< 116	1.34	108	118	120
Total Nitrogen (lbs) Effluent Net Total Annual												< 1774
Total Nitrogen (lbs) Total Annual												< 1774
Ammonia (lbs/day) Average Monthly	< 0.1	< 0.2	< 0.2	< 0.4	1	2	2	< 0.8	< 0.3	< 0.3	< 0.3	< 0.2
Ammonia (mg/L) Average Monthly	< 0.3	< 0.1	< 0.1	< 0.2	0.4	0.7	0.8	< 0.3	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (lbs) Total Monthly	< 8	< 7	< 7	< 12	31	58	57	< 23	< 10	< 8	< 8	< 7
Ammonia (lbs) Total Annual												< 128
TKN (mg/L) Average Monthly	0.93	1.1	1.02	1.7	1.7	1.4	1.5	< 0.71	0.92	0.89	0.88	0.88
TKN (lbs) Total Monthly	74	81	75	125	124	110	107	< 56	75	68	72	66
Total Phosphorus (lbs/day) Average Monthly	3	4	2	1	0.8	1	1	0.8	0.9	2	2	2

Total Phosphorus (mg/L) Average Monthly	1.3	1.5	0.6	0.4	0.3	0.4	0.5	0.3	0.3	0.7	0.7	0.7
Total Phosphorus (lbs) Effluent Net Total Monthly	103	115	45	32	24	31	37	24	27	52	60	48
Total Phosphorus (lbs) Total Monthly	103	115	45	32	24	31	37	24	27	52	60	48
Total Phosphorus (lbs) Effluent Net Total Annual												541
Total Phosphorus (lbs) Total Annual												513
UV Dosage ($mWsec/cm^2$) Instantaneous Minimum	34.15	40.17	35.68	38.1	39.04	31.54	36.67	36.71	36.64	58.34	56.81	36.27
UV Dosage ($mWsec/cm^2$) Average Monthly	64.44	69.43	68.94	75.34	73.21	66.84	114.09	67.77	66.38	78.58	68.9	76.28

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.65
Latitude 40º 4' 38.60" **Longitude** -76º 5' 56.50"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

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

Water Quality-Based Limitations

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

*	Discharge pH	=	7.0	(Default)
*	Discharge Temperature	=	25°C	(Default)
*	Stream pH	=	7.0	(Default)
*	Stream Temperature	=	20ºC	(Default)
*	Background NH_3-N	=	0 mg/L	(Default)

Regarding NH_3-N limits, the attached computer printout of the WQM 7.0 stream model (version 1.1) indicates that a limit of 5.52 mg/L as a monthly average and 11.04 mg/L IMAX are necessary to protect the aquatic life from toxicity effects at the point of discharge. However, the existing limits of 3.5 mg/L monthly average & 7.0 mg/L IMAX are more stringent and will remain in the proposed permit. Per anti-backsliding policy, the existing winter average monthly limit of 10.5 mg/L & IMAX limit of 21.0 mg/L will remain in place. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Summer average monthly mass limit: 3.5 mg/L x 0.65 MGD x 8.34 = 18.97 (19.0) lbs/day
Winter average monthly mass limit: 10.5 mg/L x 0.650 MGD x 8.34 = 56.9 (57.0) lbs/day

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):
The attached computer printout of the WQM 7.0 stream model (ver. 1.1) indicates that a monthly average limit of 19.03 mg/l, or secondary treatment, is adequate to protect the water quality of the stream. The 19.0 mg/L as AML, 30.0 mg/L as weekly average limit (AWL), & 38.0 mg/L as IMAX are more stringent and will be in the proposed permit. Recent DMRs and inspection reports show that the facility has typically been achieving concentrations below this limit. Mass limits are calculated as follows:

Average monthly mass limit: 19.0 mg/L x 0.65 MGD x 8.34 = 102.9 (103.0) lbs/day
Average weekly mass limit: 30.0 mg/L x 0.65 MGD x 8.34 = 162.6 (163.0) lbs/day

Dissolved Oxygen (D.O.):
A minimum D.O. of 5.0 mg/L is required per 25 Pa. Code § 93.7. This is consistent with current Department criteria.

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

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.

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

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

Average monthly mass limit: 30.0 mg/L x 0.65 MGD x 8.34 = 162.6 (163.0) lbs/day
Average weekly mass limit: 45.0 mg/L x 0.65 MGD x 8.34 = 243.95 (244.0) lbs/day

Total Phosphorus:
Previous permit had average monthly concentration monitoring requirement 2.0 mg/l and instantaneous maximum limit of 4.0 mg/l. Accordingly, existing TP limits will remain in the proposed permit. See the EPA guidance, Nutrient Criteria Technical Guidance Manual – Rivers and Streams, 07/2000 EPA-822-B-00-002, for more information about nutrient impacts on streams. Mass limits are calculated as follows:

Average monthly mass limit: 2.0 mg/L x 0.65 MGD x 8.34 = 10.8 (11.0) lbs/day

Toxics:
DEP utilizes a Toxics Management Spreadsheet (last modified on March 2021 ver. 1.3) to facilitate calculations necessary for completing a reasonable potential analysis and determining WQBELs for toxic pollutants. The effluent testing information renewal application (pages # 5 & 6 or page 4 of this Factsheet) & Toxics Management Spreadsheet indicates that there are no toxic pollutants of concern.

UV:
The UV system monitor and report daily calculation of the UV light dosage ($mWsec/cm^2$) will remain in the proposed permit.

Chesapeake Bay Strategy:
In the Phase 3 WIP Wastewater Supplement revised on September 13, 2021, Table 5 of this document shows that Earl Township Authority has been allocated 7,306 lbs/year of TN and 974 lbs/year of TP. This approach is consistent with the Chesapeake Bay TMDL based on the actual performance data previously evaluated by the Department. Since the permittee is easily capable of achieving compliance with these loads, the Department determines that no "compliance schedule" for the requirements associated with the Chesapeake Bay Strategy is necessary. Accordingly, the Chesapeake Bay nutrient existing limitations and monitoring requirements will remain in the proposed permit.

Stormwater:
There is no known stormwater outfall associated with this facility.

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

303d LISTED STREAMS:
According to eMapPA, Mill Creek is impaired at the discharge point for nutrients and siltation due to agriculture, and for pathogens due to an unknown source. A TMDL has not yet been written for these impairments.

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

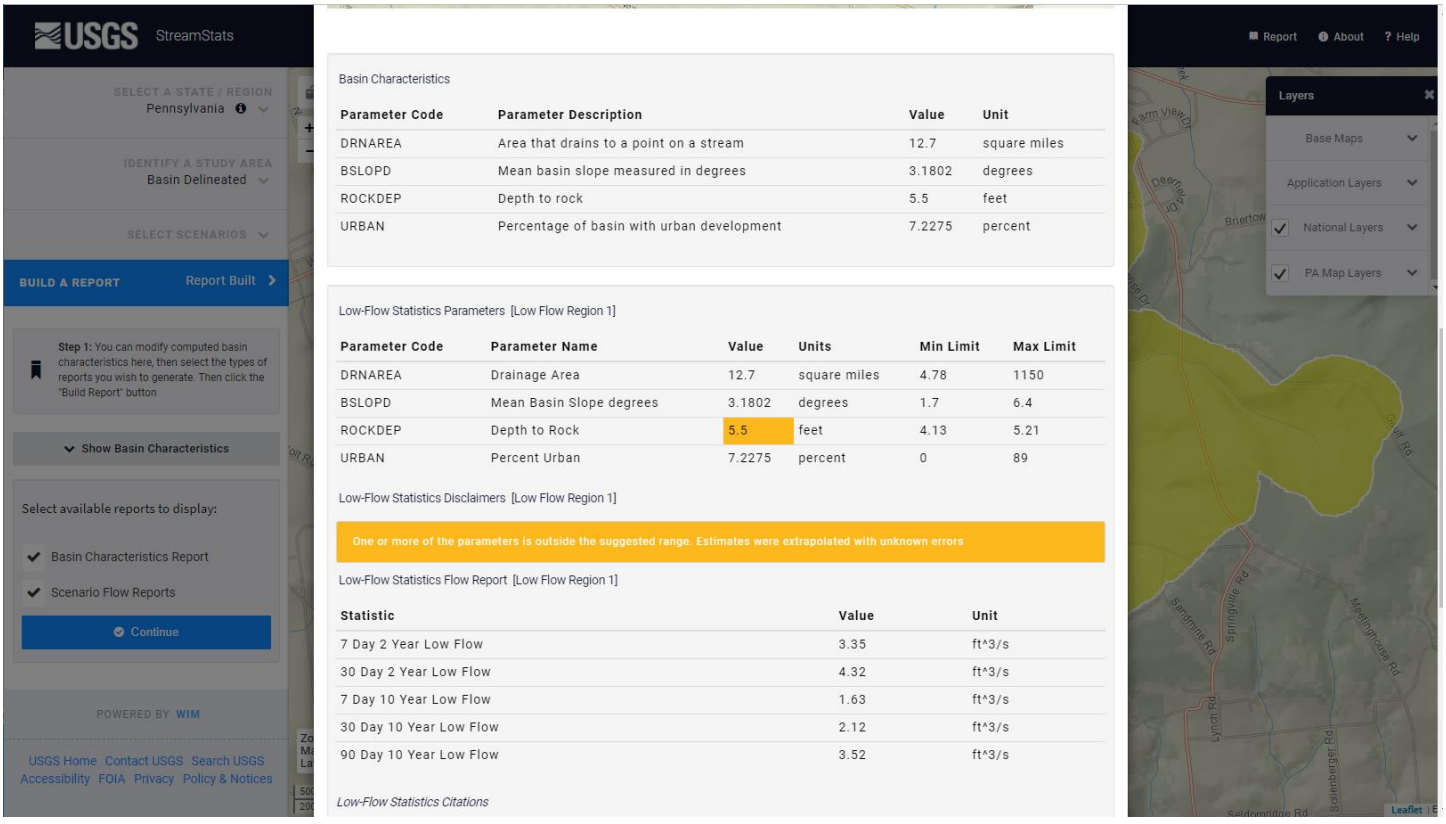
<u>WQM 7.0 Data</u>:

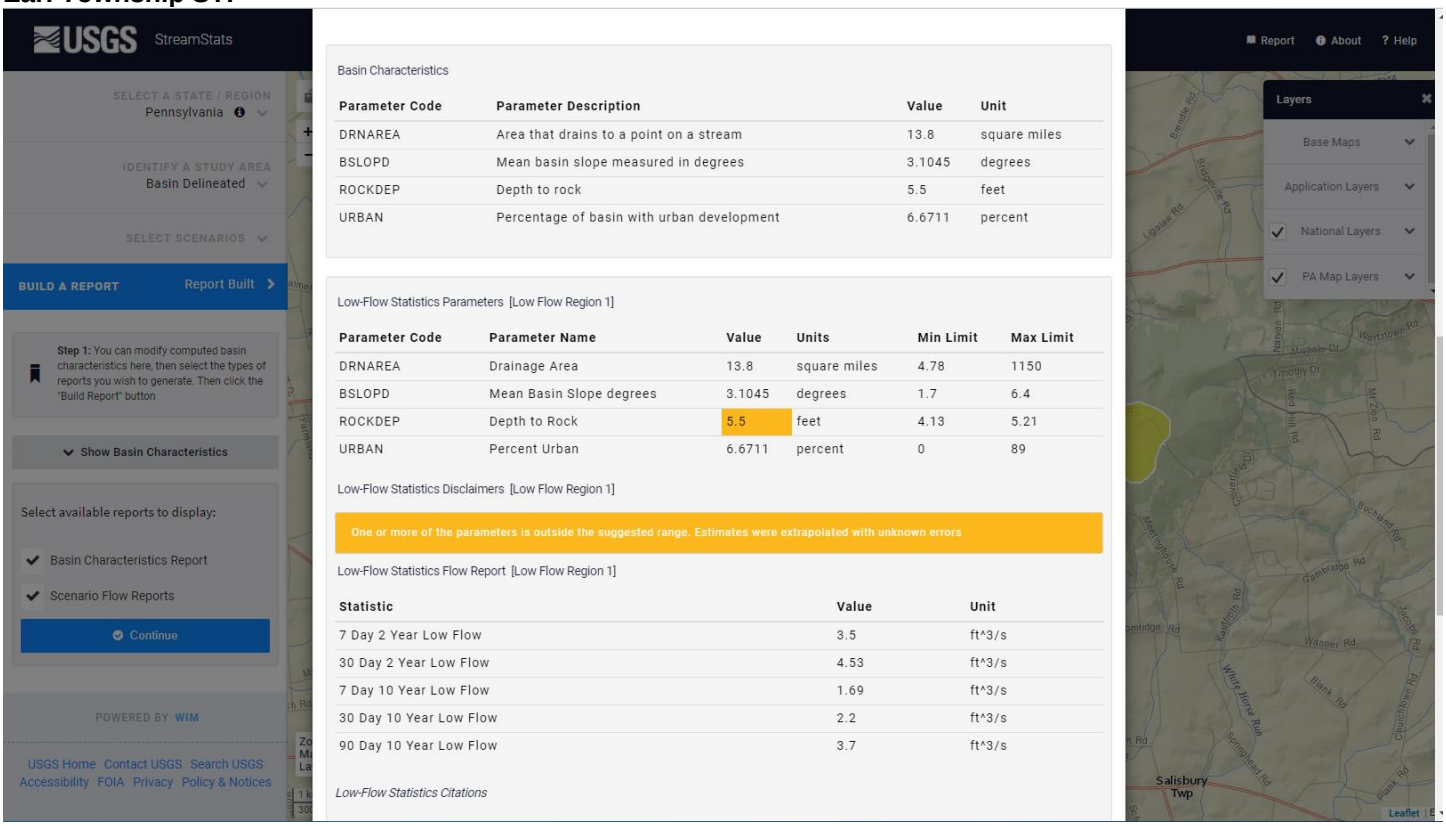
Node 1: Earl Township Sewer Authority Outfall 001 (07597)

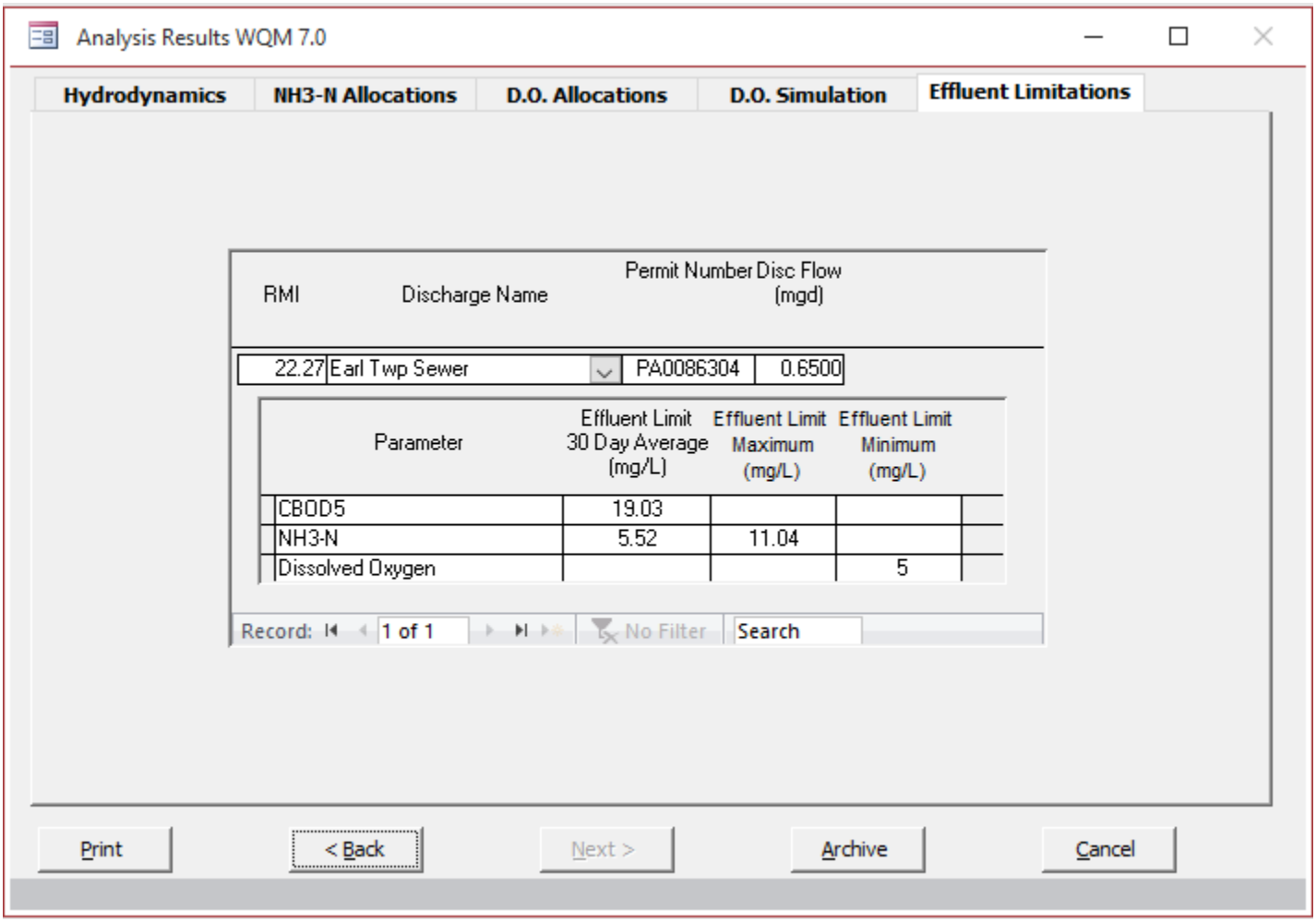
Elevation:	393 ft (USGS National Map Viewer)
Drainage Area:	12.7 mi.^{2} (USGS PA StreamStats)
River Mile Index:	22.27 (PA DEP eMapPA)
Low Yield:	0.13 cfs/mi.^{2}
Discharge Flow:	0.650 MGD

Node 2: Just before confluence with UNT 07619

Elevation:	374 ft (USGS National Map Viewer)
Drainage Area:	13.8 mi.^{2} (USGS PA StreamStats)
River Mile Index:	21.14 (PA DEP eMapPA)
Low Yield:	0.13 cfs/mi.^{2}
Discharge Flow:	0.000 MGD




USGS StreamStats
SELECT A STATE / REGION
Pennsylvania
IDENTIFY A STUDY AREA
Basin Delineated
SELECT SCENARIOS
BUILD A REPORT
Report Built
Step 1: You can modify computed basin characteristics here, then select the types of reports you wish to generate. Then click the "Build Report" button
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Continue
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
DRNAREA | Area that drains to a point on a stream | 13.8 | square miles
BSLOPD | Mean basin slope measured in degrees | 3.1045 | degrees
ROCKDEP | Depth to rock | 5.5 | feet
URBAN | Percentage of basin with urban development | 6.6711 | percent
Low-Flow Statistics Parameters [Low Flow Region 1]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
DRNAREA | Drainage Area | 13.8 | square miles | 4.78 | 1150
BSLOPD | Mean Basin Slope degrees | 3.1045 | degrees | 1.7 | 6.4
ROCKDEP | Depth to Rock | 5.5 | feet | 4.13 | 5.21
URBAN | Percent Urban | 6.6711 | percent | 0 | 89
Low-Flow Statistics Disclaimers [Low Flow Region 1]
One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors
Low-Flow Statistics Flow Report [Low Flow Region 1]
Statistic | Value | Unit
7 Day 2 Year Low Flow | 3.5 | ft^3/s
30 Day 2 Year Low Flow | 4.53 | ft^3/s
7 Day 10 Year Low Flow | 1.69 | ft^3/s
30 Day 10 Year Low Flow | 2.2 | ft^3/s
90 Day 10 Year Low Flow | 3.7 | ft^3/s
Low-Flow Statistics Citations
Report
About
Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
Salisbury Twp
Leaflet


Analysis Results WQM 7.0
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
Discharge Name
Permit Number
Disc Flow (mgd)
22.27
Earl Twp Sewer
PA0086304
0.6500
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
19.03
NH3-N
5.52
11.04
Dissolved Oxygen
5
Record: 1 of 1
No Filter
Search
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Archive
Cancel

rptEffLimits

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07J	7597	MILL CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Eff. Limit 30-day Ave. (mg/L)	Eff. Limit Maximum (mg/L)	Eff. Limit Minimum (mg/L)
22.270	Earl Twp Sewer	PA0086304	0.650	CBOD5	19.03		
				NH3-N	5.52	11.04	
				Dissolved Oxygen			5

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rpt_WLA

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07J	7597	MILL 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
22.270	Earl Twp Sewer	13.69	28.08	13.69	28.08	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
22.270	Earl Twp Sewer	1.71	5.52	1.71	5.52	0	0

Dissolved Oxygen Allocations

		CBOD5		NH3-N		Dissolved Oxygen			
RMI	Discharge Name	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Critical Reach	Percent Reduction
22.27	Earl Twp Sewer	19.03	19.03	5.52	5.52	5	5	0	0

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rptDOSim

WQM 7.0 D.O. Simulation

SWP Basin	Stream Code	Stream Name
07J	7697	MILL CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
22.270	0.650	21.893	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
22.308	0.596	37.459	0.200
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
8.45	0.540	2.09	0.810
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.015	6.328	Tsivoglou	6
Reach Travel Time (days)			
0.345			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.035	8.15	2.03	6.74
0.069	7.87	1.98	6.54
0.104	7.60	1.92	6.40
0.138	7.33	1.87	6.31
0.173	7.08	1.82	6.25
0.207	6.83	1.77	6.22
0.242	6.59	1.72	6.22
0.276	6.36	1.67	6.23
0.311	6.14	1.62	6.26
0.345	5.93	1.58	6.29

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rptModelSpecs

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

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rptHydro

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07J	7597	MILL 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												
22.270	1.65	0.00	1.65	1.0055	0.00318	.596	22.31	37.46	0.20	0.345	21.89	7.00
Q1-10 Flow												
22.270	1.06	0.00	1.06	1.0055	0.00318	NA	NA	NA	0.17	0.398	22.44	7.00
Q30-10 Flow												
22.270	2.25	0.00	2.25	1.0055	0.00318	NA	NA	NA	0.22	0.308	21.55	7.00

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rptGeneral

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07J	7597	MILL CREEK	22.270	393.00	12.70	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	0.130	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Earl Twp Sewer	PA0086304	0.6500	0.6500	0.6500	0.000	25.00	7.00

Parameter Data

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

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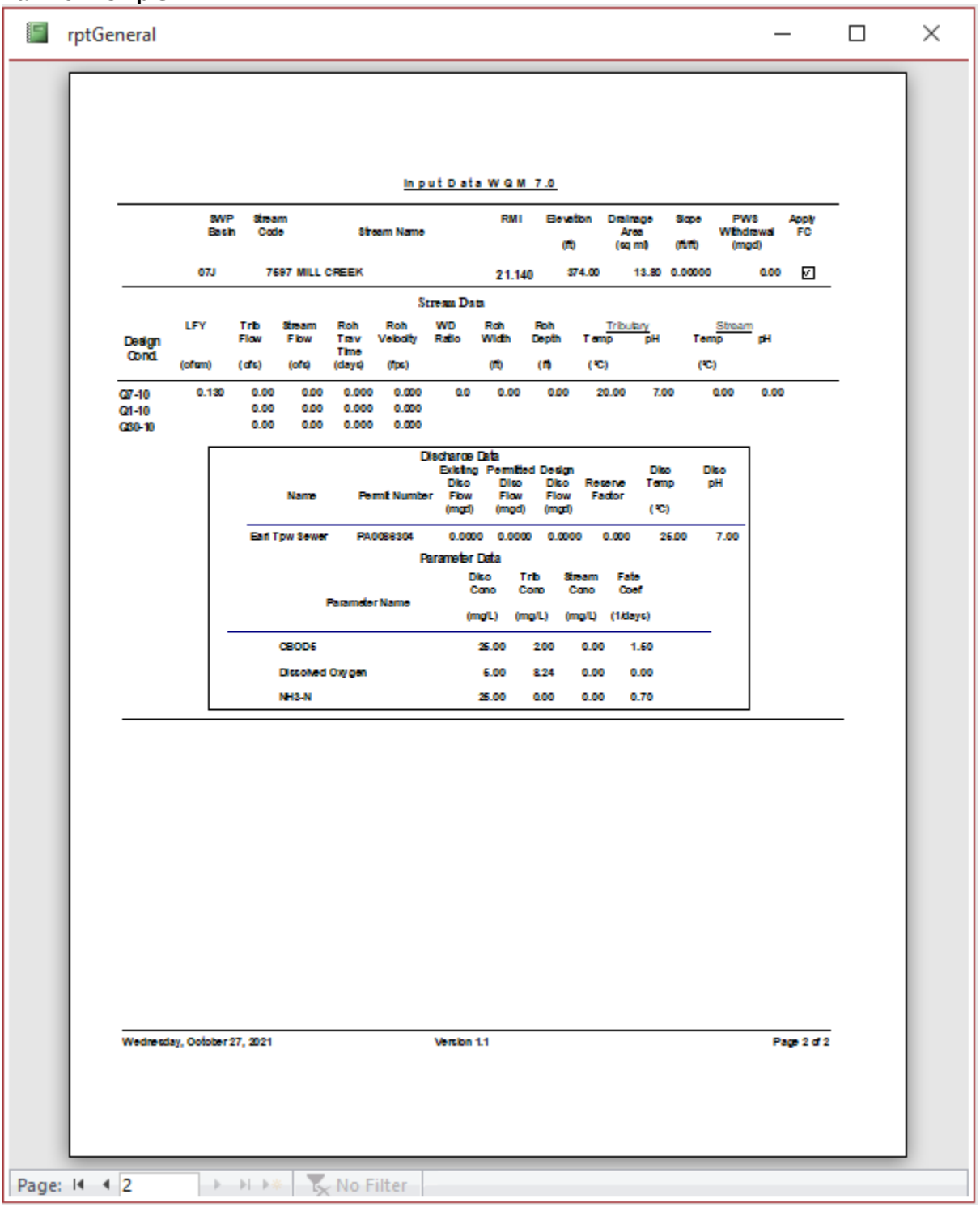

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07J	7697	MILL CREEK	21.140	374.00	13.80	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	0.130	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Earl Tpw Sewer	PA0086304	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	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

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Instructions | Discharge | Stream

Facility: **Earl Township Sewer Authority** NPDES Permit No.: **PA0086304** Outfall No.: **001**

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

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.65	100	8.11						

					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	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		892									
	Chloride (PWS)	mg/L		250									
	Bromide	mg/L	<	0.5									
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L		0.019									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L	<	0.001									
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L		0.155									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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

	2,6-Dinitrotoluene	µg/L	<											
	Di-n-Octyl Phthalate	µg/L	<											
	1,2-Diphenylhydrazine	µg/L	<											
	Fluoranthene	µg/L	<											
	Fluorene	µg/L	<											
	Hexachlorobenzene	µg/L	<											
	Hexachlorobutadiene	µg/L	<											
	Hexachlorocyclopentadiene	µg/L	<											
	Hexachloroethane	µg/L	<											
	Indeno(1,2,3-cd)Pyrene	µg/L	<											
	Isophorone	µg/L	<											
	Naphthalene	µg/L	<											
	Nitrobenzene	µg/L	<											
	n-Nitrosodimethylamine	µg/L	<											
	n-Nitrosodi-n-Propylamine	µg/L	<											
	n-Nitrosodiphenylamine	µg/L	<											
	Phenanthrene	µg/L	<											
	Pyrene	µg/L	<											
	1,2,4-Trichlorobenzene	µg/L	<											
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												

Stream / Surface Water Information

Earl Township Sewer Authority, NPDES Permit No. PA0086304, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Mill Creek**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	007597	22.27	393	12.7			Yes
End of Reach 1	007597	21.14	374	13.8			Yes

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

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	22.27	0.13										100	7		
End of Reach 1	21.14	0.13													

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	22.27														
End of Reach 1	21.14														

Model Results

Earl Township Sewer Authority, NPDES Permit No. PA0086304, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 10.158 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.19

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	13.439	14.0	37.0	Chem Translator of 0.96 applied
Total Lead	0	0		0	64.581	81.6	216	Chem Translator of 0.791 applied
Total Zinc	0	0		0	117.180	120	317	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 10.158 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.19

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	8.956	9.33	24.6	Chem Translator of 0.96 applied
Total Lead	0	0		0	2.517	3.18	8.41	Chem Translator of 0.791 applied
Total Zinc	0	0		0	118.139	120	317	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 10.158 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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

☑ *CRL* CCT (min): 7.996 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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

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

No. Samples/Month: 4

Pollutants	*Mass Limits*		*Concentration Limits*				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Total Copper	23.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	N/A	N/A	Discharge Conc < TQL
Total Zinc	203	µg/L	Discharge Conc ≤ 10% WQBEL

Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Dosage (mWsec/cm^2)	XXX	XXX	Report	Report	XXX	XXX	1/day	Calculation
$CBOD_5$	136	217 Wkly Avg	XXX	25	40	50	1/week	24-Hr Composite
TSS	163	244 Wkly Avg	XXX	30	45	60	1/week	24-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	Report	XXX	XXX	1/week	Grab
Ammonia May 1 - Oct 31	19	XXX	XXX	3.5	XXX	7	2/week	24-Hr Composite
Ammonia Nov 1 - Apr 30	57	XXX	XXX	10.5	XXX	21	2/week	24-Hr Composite
Total Phosphorus	11	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite

Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	Report	7,306	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	974	XXX	XXX	XXX	XXX	1/month	Calculation

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, 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	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Dosage (mWsec/cm²)	XXX	XXX	Report	Report	XXX	XXX	1/day	Calculation
$CBOD_5$	103.0	163.0 Wkly Avg	XXX	19.0	30.0	38.0	1/week	24-Hr Composite
TSS	163.0	244.0 Wkly Avg	XXX	30.0	45.0	60.0	1/week	24-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	Report	XXX	XXX	1/week	Grab
Ammonia May 1 - Oct 31	19.0	XXX	XXX	3.5	XXX	7.0	2/week	24-Hr Composite
Ammonia Nov 1 - Apr 30	57.0	XXX	XXX	10.5	XXX	21.0	2/week	24-Hr Composite
Total Phosphorus	11.0	XXX	XXX	2.0	XXX	4.0	2/week	24-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements

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

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	Report	7,306	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	974	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location:

Other Comments:

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☒	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☒	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 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, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 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, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other: