Pennsylvania Department of Environmental Protection

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0057819**
Facility Type	**Municipal**	APS ID	**1125349**
Major / Minor	**Major**	Authorization ID	**1505785**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**New Hanover Township Authority**	Facility Name	**New Hanover Township WWTP**
Applicant Address	2990 Fagleysville Road	Facility Address	2990 Fagleysville Road
	Gilbertsville, PA 19525-9747		Gilbertsville, PA 19525-9747
Applicant Contact	Thomas Miskiewicz	Facility Contact	Kirt Michaels
Applicant Phone	(610) 754-6432	Facility Phone	(610) 323-1008
Client ID	227996	Site ID	446201
Ch 94 Load Status	Not Overloaded	Municipality	New Hanover Township
Connection Status		County	Montgomery
Date Application Received	October 24, 2024	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility

Purpose of Application: NPDES permit renewal.

Summary of Review

The Pa Department of Environmental Protection (PADEP/Department) received an NPDES permit renewal application from Carroll Engineering Corp (consultant) on October 24, 2024, on behalf of New Hanover Township Authority (permittee) for Permittee's New Hanover Township WWTP (facility). This is a major sewage facility with a design flow of 1.925 MGD that discharges into Swamp Creek (TSF, MF) in state watershed 3-E. The current permit will expire on April 30, 2025. 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 Copper, Total Aluminum, Total Boron, E. Coli, PFOA, PFOS, HFPO-DA, and PFBS.

Sludge use and disposal description and location(s): Aerobically digested and dewatered sludge send to landfill.

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 6, 2024
X		Pravin Patel Pravin C. Patel, P.E. / Environmental Engineer Manager	12/9/2024

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	1.925
Latitude	40º 16' 45.04"	Longitude	-75º 32' 50.32"
Quad Name	Sassamansville	Quad Code	1641
Wastewater Description:	Sewage Effluent		
Receiving Waters	Swamp Creek (TSF, MF)	Stream Code	01309
NHD Com ID	25994272	RMI	4.85
Drainage Area	39.7 mi^2	Yield (cfs/mi^2)	0.06
Q_{7-10} Flow (cfs)	2.39	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	220.08	Slope (ft/ft)	
Watershed No.	3-E	Chapter 93 Class.	TSF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.0	Default
Temperature (°C)	20	Default
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake	Aqua PA main in Lower Merion Township, Montgomery County		
PWS Waters	Perkiomen Creek	Flow at Intake (cfs)	
PWS RMI	0.9	Distance from Outfall (mi)	~18 miles

Changes Since Last Permit Issuance: None

Streamflow:
The USGS's web based watershed delineation tool StreamStats (accessible at https://streamstats.usgs.gov/ss/, accessed on December 3, 2024) was utilized to determine the drainage area at discharge point. The drainage area at Outfall 001 was found to be 39.7 mi^2. Q_{7-10} at Outfall 001 is 2.39 cfs that resulted in a yield of 0.06 cfs/mi^2. Default Q_{1-10}:Q_{30-10} of 0.64 and default Q_{30-10}:Q_{7-10} of 1.36 (per 391-2000-007) will be used for modeling.

PWS Intake:
The nearest PWS intake is Aqua PA main system in Lower Merion township, Montgomery County, approximately 18 miles downstream of the outfall 001.

Wastewater Characteristics:
90th percentile pH from daily eDMR for the period of November 1, 2023 through October 31, 2024 is 7.68, default discharge temperature of 25°C, and average hardness of 279 mg/l (from application) will be used for modeling.

Background data:
Default pH of 7.0, default temperature of 20°C, and default hardness of 100 mg/l will be used for modeling, as appropriate.

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 stream is designated as Trout Stocking (TSF) and Migratory Fishes (MF.)

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

Stormwater Outfalls:
The permit application lists four stormwater-only outfalls of which one outfall (005) represents the remaining (002 through 004). The current permit has monitoring requirements for Outfall 005 which will be carried over. In addition to that, applicable benchmark values will be added in Part C of the permit.

OUTFALL NO.	LATITUDE			LONGITUDE			RECEIVING WATERS		
	Deg.	Min.	Sec.	Deg.	Min.	Sec.	Name	Ch. 93 Class.	Drainage Area (ft^2)
002	40	16	49	75	33	10	Swamp Creek	TSF,MF	
003	40	16	51	75	33	03	Swamp Creek	TSF,MF	
004	40	16	50	75	32	59	Swamp Creek	TSF,MF	
005	40	16	48	75	33	00	Swamp Creek	TSF,MF	

Discharge, Receiving Waters and Water Supply Information

Outfall No.	005	Design Flow (MGD)	0
Latitude	40º 16' 48"	Longitude	-75º 33' 0"
Quad Name	Sassamansville	Quad Code	1641
Wastewater Description:	Stormwater		
Receiving Waters	Swamp Creek (TSF, MF)	Stream Code	01309
NHD Com ID	25994272	RMI	

Treatment Facility Summary

Treatment Facility Name: New Hanover Township Authority WWTP

WQM Permit No.	Issuance Date
4699426 A-2	4/6/2022
4699426 A-1	9/25/2006

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Oxidation Ditch	Ultraviolet	1.925

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
3.08	3,370	Not Overloaded	Aerobic Digestion	Landfill

Changes Since Last Permit Issuance: Post aeration tanks are put on to use as needed due to fungal growth that resulted in WETT failures in previous permit.

Treatment Plant Description

New Hanover Township Authority (permittee) owns and operates a wastewater treatment plant named New Hanover Township WWTP (facility) located in New Hanover Township, Montgomery County. The facility is a Major Sewage Treatment Facility (MASF) with a design flow of 1.925 MGD, hydraulic design capacity of 3.08 MGD, and organic design capacity of 3,370 lbs. BOD5/day. The facility discharges treated effluent in Swamp Creek which has a Ch. 93 designation of TSF, MF, through Outfall 001.

The treatment train consists of an influent mechanical bar screen, grit removal system, four (4) Kruger oxidation ditches, four (4) clarifiers, UV disinfection system, post-aeration tank, post aeration blower building, effluent flow meter, a drop structure to increase DO, and Outfall structure.

The collected and settled biosolids are treated through two (2) aerobic digesters, two (2) sludge holding tanks, sludge pumping station, sludge thickening building, and sludge dewatering building. Sludge is wasted to an aerated digestion tank and held prior to being hauled as liquid sludge or dewatered and hauled as thickened sludge to an off-site location for disposal. A belt filter press is utilized at the facility every 9 to 10 days. The sludge cake is disposed of in a roll-off container and hauled by Jesse Barro as a subcontractor to Solid Waste Services, Inc.

The facility uses the following wastewater treatment chemicals:

Chemical Name	Purpose	Maximum Usage Rate	Units
Aluminum Sulfate	Phosphorous removal	50	Gal/day
Polymer	Coagulate solids	7-11.75	Gal/day
Lime	Stabilize sludge	1	Lbs/day
Soda Ash	pH adjustment	As needed, approx. 21,600	Lbs/year

The facility serves only New Hanover Township with 100% separate sewer system. There are no categorical or significant industrial users in the facility's service area.

Compliance History

DMR Data for Outfall 001 (from November 1, 2023 to October 31, 2024)

Parameter	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23
Flow (MGD) Average Monthly	0.474	0.466	0.58	0.505	0.509	0.551	0.793	0.938	0.699	1.025	0.971	0.593
Flow (MGD) Daily Maximum	0.565	0.652	1.438	0.632	0.732	0.736	2.876	2.275	1.042	2.339	2.184	1.304
pH (S.U.) IMIN	6.26	7.24	7.12	6.96	6.96	7.11	6.92	6.86	6.83	6.78	6.86	7.2
pH (S.U.) IMAX	8.7	7.89	7.68	7.68	7.73	7.79	7.74	7.7	7.79	7.66	7.94	8.02
DO (mg/L) IMIN	7.08	6.78	7.45	6.64	7.33	7.51	8.01	7.96	6.48	8.47	7.58	7.38
DO (mg/L) Average Monthly	8.31	7.92	7.86	7.78	8	8.45	9.04	9.3	9.31	9.52	8.90	8.76
CBOD5 (lbs/day) Average Monthly	< 10	< 10	15	11	20	19	20	31	21	24	37	17
CBOD5 (lbs/day) Weekly Average	14	15	20	13	23	51	51	45	35	36	88	29
CBOD5 (mg/L) Average Monthly	< 2	< 3	3	3	5	5	3	5	4	3	4	3
CBOD5 (mg/L) Raw Sewage Influent Average Monthly	222	194	189	216	209	183	176	141.1	167	131.4	< 113.3	198.2
CBOD5 (mg/L) Weekly Average	3	5	4	3	6	5	3	7	6	5	9	4
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	1265	823	869	1032	1270	856	1201	774	1168	1047	< 792	1344
BOD5 (mg/L) Raw Sewage Influent Average Monthly	309	260	196	229	288	205	177	133.8	191	143.8	< 123.3	235.8
TSS (lbs/day) Average Monthly	< 14	< 13	< 18	< 18	< 18	< 19	< 39	42	< 31	< 32	< 41	< 24
TSS (lbs/day) Weekly Average	< 19	< 18	< 20	< 21	20	< 66	< 66	87	46	< 62	85	< 44
TSS (mg/L) Average Monthly	< 3	< 4	< 4	< 4	< 4	< 5	< 7	7	< 5	< 4	< 5	< 4
TSS (mg/L) Raw Sewage Influent Average Monthly	111	69	70.2	99	133	89	106	88	68	82	76	153.8
TSS (mg/L) Weekly Average	< 4	5	< 4	< 4	4	6	11	10	8	4	8	< 4

Total Dissolved Solids (mg/L) Average Monthly	1098.0	1096.0	1009.0	1082.0	1067.0	960.0	866.0	620.0	892.0	674.0	548.0	924.0
Total Dissolved Solids (mg/L) Daily Maximum	1130.0	1150.0	1310.0	1100.0	1210.0	1020.0	1030.0	836.0	939.0	934.0	833.0	1030.0
Fecal Coliform (No./100 ml) Geometric Mean	9	14	23	20	15	16	5	4	5	< 2	4	5
Fecal Coliform (No./100 ml) IMAX	16	25	31	53	29	21	28	9	20	2	8	12
UV Transmittance (%) Daily Minimum	70	68	65	70	70	67	63	58	69	67	63	65
Total Nitrogen (lbs/day) Average Monthly	125	99	122	150	126	111	170	94	99	115	93	139
Total Nitrogen (mg/L) Average Monthly	30.4	31.2	27.5	33.3	28.3	26.7	26.5	16.1	16.15	15.08	13.41	23
Total Nitrogen (mg/L) Daily Maximum	32.9	34.3	31.5	35	35	27.6	31.1	22.8	24.8	19.9	20.7	26
Ammonia (lbs/day) Average Monthly	< 0.3	< 0.3	< 0.4	< 0.4	< 0.4	< 0.3	< 0.5	< 0.5	< 0.5	< 1	< 1	< 0.5
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.2	< 0.1
Total Phosphorus (lbs/day) Average Monthly	1	2	1	2	2	2	7	5	5	4	2	3
Total Phosphorus (mg/L) Average Monthly	0.4	0.5	0.3	0.5	0.3	0.6	1.1	0.8	0.9	0.6	0.3	0.4
Sulfate (mg/L) Average Monthly	144	143	149	146	128	142	89.5	49.5	98.6	62.4	52.5	136
Chloride (mg/L) Average Monthly	356	386	378	410	339	358	218	206	254	300	127	368
Bromide (mg/L) Average Monthly	< 1	< 0.20	< 0.2	< 0.2	< 0.2	0.29	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chronic WET - Ceriodaphnia Survival (TUc) Daily Maximum		2.3			GG			GG			GG	
Chronic WET - Ceriodaphnia Reproduction (TUc) Daily Maximum		2.3			GG			GG			GG	

Chronic WET - Pimephales Survival (TUc) Daily Maximum		2.3			GG			GG			GG	
Chronic WET - Pimephales Growth (TUc) Daily Maximum		2.3			GG			GG			GG	

DMR Data for Outfall 005 (from November 1, 2023 to October 31, 2024)

Parameter	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23
pH (S.U.) Daily Maximum											6.75	
CBOD5 (mg/L) Daily Maximum											4.7	
COD (mg/L) Daily Maximum											26.5	
TSS (mg/L) Daily Maximum											8.5	
Oil and Grease (mg/L) Daily Maximum											< 4.9	
Fecal Coliform (CFU/100 ml) Daily Maximum											9300	
TKN (mg/L) Daily Maximum											0.96	
Total Phosphorus (mg/L) Daily Maximum											0.35	
Dissolved Iron (mg/L) Daily Maximum											0.024	

Compliance History

Effluent Violations for Outfall 001, from: December 1, 2023 To: October 31, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Total Phosphorus	04/30/24	Avg Mo	1.1	mg/L	.9	mg/L

Summary of Inspections:
10/10/2024: CEI conducted. No violation noted. Some odor was detected in the splitter box.

3/5/2024: RTPT was conducted in a response of SSO that lifted lids at manholes #51 and #52 in the collection system. The overflow was considered as an unpermitted discharge of sewage. Several remedial actions were planned to eliminate the re-occurrence.

10/16/2023: CEI conducted. No violation noted.

4/20/2023: FUI conducted to observe the forcemain replacement project and rental bypass line. The remedial actions served to correct the cited unpermitted discharge violations.

4/18/2023: INCDT inspection conducted to observe the progress of the replacement project.

4/12/2023: RTPT inspection conducted. At the time of the inspection the force main gravity side replacement project was nearly completed. New pipe has been installed from the STP influent main up to the force main gravity side transition point. The temporary force main bypass temporary pipe seemed to be operating well with no leaks observed. The STP was operating normally at the time of the inspection.

3/31/2023: RTPT inspection conducted on sewage collection system. The force main leading to the STP leaked for a second time in a month on 3/4/2023. An NOV for the SSO was issued on 3/7/2023. During the time of inspection the temporary force main bypass temporary pipe seemed to be operating well with no leaks observed. No issued were observed at the St. Victoria Drive detention basin.

3/10/2023: RTPT inspection conducted on sewage collection system. At the time of inspection the force main bypass temporary pipe was installed from the force main access point at the top of the hill above break down to the manhole in front of the STP. The bypass seemed to be operating properly without any leaks.

3/6/2023: RTPT conducted in response to SSO. On 3/4/2023, the DEP was notified of a force main leak. This was the second break at that location within a month. Approximately 500 GPM of sewage ran into a storm drain leading to a nearby detention basin. approximately 200-300 GPM of sewage passed through the basin and entered a tributary of swamp creek. Due to a significant storm event that occurred within the past 12 hrs. the level of the tributary and Creek were elevated and no dead fish or other obvious negative stream impact was observed. On 2/7/2023, a similar leak occurred. That incident was attributed to corrosive H2S gasses released during the transition from the full pipe pumped side of the main to the gravity side of the line. The authority was panning to excavate and assess the line to determine necessary permanent repairs or replacement. On 3/4/2023, Authority Chairman stated that the excavation was scheduled to take place in a month, but due to this second break the Board would meet immediately and attempt to expedite the repair of the line. At the time of the inspection, the force main had been temporarily repaired and sewage was once again flowing through the force main.

2/10/2023: RTPT conducted in response to a force main break and possible SSO. The break of the line occurred at 3003 Samantha Way, Gilbertsville, PA 19525. A pump and haul was actively being done at the reported pump station. The line had been fully excavated and the crews were attempting to assess the rest of the line to determine the best way to repair it.

10/17/2022: CEI conducted. No violation noted. The facility determined that a failed WETT was due to fungal growth in the effluent post aeration tank. The WQM permit was amended that authorized to use the tank on as needed basis.

Existing Limits

The following limits were applied at Outfall 001 for the period May 1, 2020 through April 30, 2025:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	Report	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	241	361	XXX	15	23	30	1/week	24-Hr Composite
CBOD5 May 1 - Oct 31	160	241	XXX	10	15	20	1/week	24-Hr Composite
CBOD5 Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	160	241	XXX	10	15	20	1/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1200.0	2400.0 Daily Max	3000	1/week	24-Hr Composite
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	1000*	1/week	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered
Total Nitrogen	Report	XXX	XXX	Report	XXX	Report	1/week	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	48	XXX	XXX	3.0	XXX	6	1/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	24	XXX	XXX	1.5	XXX	3	1/week	24-Hr Composite
Total Phosphorus	14	XXX	XXX	0.9	XXX	1.8	1/week	24-Hr Composite
Sulfate, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Chloride	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Bromide	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Toxicity, Chronic - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	Report	XXX	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	Report	XXX	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Pimephales Survival (TUc)	XXX	XXX	XXX	2.3	XXX	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Pimephales Growth (TUc)	XXX	XXX	XXX	2.3	XXX	XXX	See Permit	24-Hr Composite

The following limits were applied at Outfall 005 for the period May 1, 2020 through April 30, 2025:

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 (CFU/100 ml)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Kjeldahl Nitrogen (Total Load, lbs)	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)** 1.925
Latitude 40º 16' 45.00" **Longitude** -75º 32' 50.00"
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)

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 7.68 (90th percentile, Nov'23-Oct'24, daily eDMR data)
- Discharge Temperature 25°C (Default)
- Discharge Hardness 279 mg/l (Application data)
- Stream pH 7.0 (Default)
- Stream Temperature 20.0°C (Default)
- Stream Hardness 100 mg/l (Default)

The following two nodes were used in modeling:

Node 1: At the outfall 001 on Swamp Creek (01309)
Elevation: 220.08 ft (National Map-Advanced Viewer, 12/03/2024)
Drainage Area: 39.7 mi^2 (StreamStat Version 3.0, 12/03/2024)
River Mile Index: 4.85 (PA DEP eMapPA)
Low Flow Yield: 0.06 cfs/mi^2
Q_{7-10}: 2.39 cfs
Discharge Flow: 1.925 MGD

Node 2: At confluence with UNT 01317 with Swamp Creek
Elevation: 214.06 ft (National Map-Advanced Viewer, 12/5/2024)
Drainage Area: 42.5 mi^2 (StreamStat Version 3.0, 12/5/2024)
River Mile Index: 4.82 (PA DEP eMapPA)
Low Flow Yield: 0.06 cfs/mi^2

Discharge Flow: 0.0 MGD

WQM 7.0 Model

WQM 7.0 version 1.11 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. The limits are the same as existing permit and will be carried over. The mass-based limits are also the same and will be carried over.

CBOD5

WQM 7.0 suggests CBOD5 limit of 10.0 mg/l as AML during summer season which is the same as existing limit. Existing AML, MDL, and IMAX for both summer and winter seasons will be carried over, along with their respective mass limits.

DO

WQM 7.0 suggests minimum DO of 5.0 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:

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	Report	Report	Report	Report	Report	µg/L	865	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Boron	Report	Report	Report	Report	Report	µg/L	2,880	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	30.3	CFC	Discharge Conc > 10% WQBEL (no RP)

Each of the parameters are discussed below:

Total Copper:
The TMS model suggested a monitoring for Total Copper based on a model input of 4 ug/l, which is the maximum of 3 sample results. A monthly monitoring will be added in this permit.

Total Aluminum:
TMS model suggests monitoring requirements for Total Aluminum from a model input value of 133 ug/l. A monthly monitoring will be added.

Total Boron:
TMS model suggests monitoring requirements for Total Boron from a model input value of 361 ug/l. A monthly monitoring will be added.

Total Phosphorus:
The permittee has a limit set for Total Phosphorus (TP) which will be retained in this permit renewal. The limit was based on concerns of excessive nutrients in the down-stream Perkiomen Creek. While neither Swamp Creek or the down-stream section of Perkiomen Creek are listed as impaired, the TP limit will remain.

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.

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):
Current limits will be carried over.

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 current permit has UV Transmittance in % reporting requirement which will be carried over in this renewal.

PFOA, PFOS, HFPO-DA and PFBS:
The sample results for these pollutants show that all were detected. When sample results show detected values, per SOP BCW-PMT-03 (revised February 5, 2024), a quarterly monitoring will be added with the following footnote:

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

TDS, Sulfate, Chloride, Bromide:
The current permit has a TDS limit of 1,200 mg/l which was required by DRBC Docket D-1999-040 CP-4 (expired October 31, 2020). The updated Docket D-1999-040 CP-5 (will expire on April 30, 2025). The Docket provided option to monitor Specific Conductance in lieu of TDS. Existing TDS limit will be continued as a DRBC parameter. PADEP has determined that they have sufficient data over the past 7 years of implementing the special monitoring logic for Sulfate, Chloride, and Bromide and it is no longer needed. 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).

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.	005	**Design Flow (MGD)**	0
Latitude	40º 16' 48.00"	**Longitude**	-75º 33' 0.00"
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 ___, ☐ **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**

The dilution series used for the tests was: 100%, 72%, 43%, 22%, and 11%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 43.

Summary of Four Most Recent Test Results

TST Data Analysis

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

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
09/17/2024	Pass	Pass	Pass	Pass
9/5/2023	Pass	Pass	Pass	Pass
11/8/2022	Pass	Pass	Pass	Pass
7/27/2021	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: Current permit has WETT limits which will be removed from this permit term since an RP wasn't demonstrated. This backsliding complies with the Anti-backsliding prohibition exception as stated in CWA Section 402(o)(2)(i) and 40 CFR § 122.44.(l)(2)(i)(B)(1).

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

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

1. Determine IWC – Acute (IWCa):

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

[(1.925 MGD x 1.547) / ((2.39 cfs x 1) + (1.925 MGD x 1.547))] x 100 = **55%**

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

If the discharge is to the tidal portion of the Delaware River, indicate how the type of test was determined:

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

2a. Determine Target IWCa (If Acute Tests Required)

TIWCa = IWCa / 0.3 = **%**

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

(Q_d x 1.547) / (Q_{7-10} x PMFc) + (Q_d x 1.547)

[(1.925 MGD x 1.547) / ((2.39 cfs x 1) + (1.925 MGD x 1.547))] x 100 = **55%**

3. Determine Dilution Series

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

Dilution Series = 100%, 78%, 55%, 28%, and 14%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

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

If WET limits will be established, identify the species and the limit values for the permit (TU).

If WET limits will not be established, but reasonable potential was determined, indicate the rationale for not establishing WET limits:

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	Report	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	241	361	XXX	15	23 Wkly Avg	30	1/week	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	160	241	XXX	10	15 Wkly Avg	20	1/week	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	160	241	XXX	10	15 Wkly Avg	20	1/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1200.0	2400.0	3000	1/week	24-Hr Composite
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	1000*	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered
Total Nitrogen	Report	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	48	XXX	XXX	3.0	XXX	6	1/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	24	XXX	XXX	1.5	XXX	3	1/week	24-Hr Composite
Total Phosphorus	14	XXX	XXX	0.9	XXX	1.8	1/week	24-Hr Composite
Aluminum, Total	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Boron, Total	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Copper, Total	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
PFOA (ug/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
PFOS (ug/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
PFBS (ug/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
HFPO-DA (ug/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
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

*Not to exceed 1,000 /100 ml as an instantaneous maximum from May 1 through September 30. Not to exceed 1,000 /100 ml in greater than 10 percent of samples tested from October 1 through April 30.

Compliance Sampling Location: 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 005, Effective Period: Permit Effective Date through Permit Expiration Date.

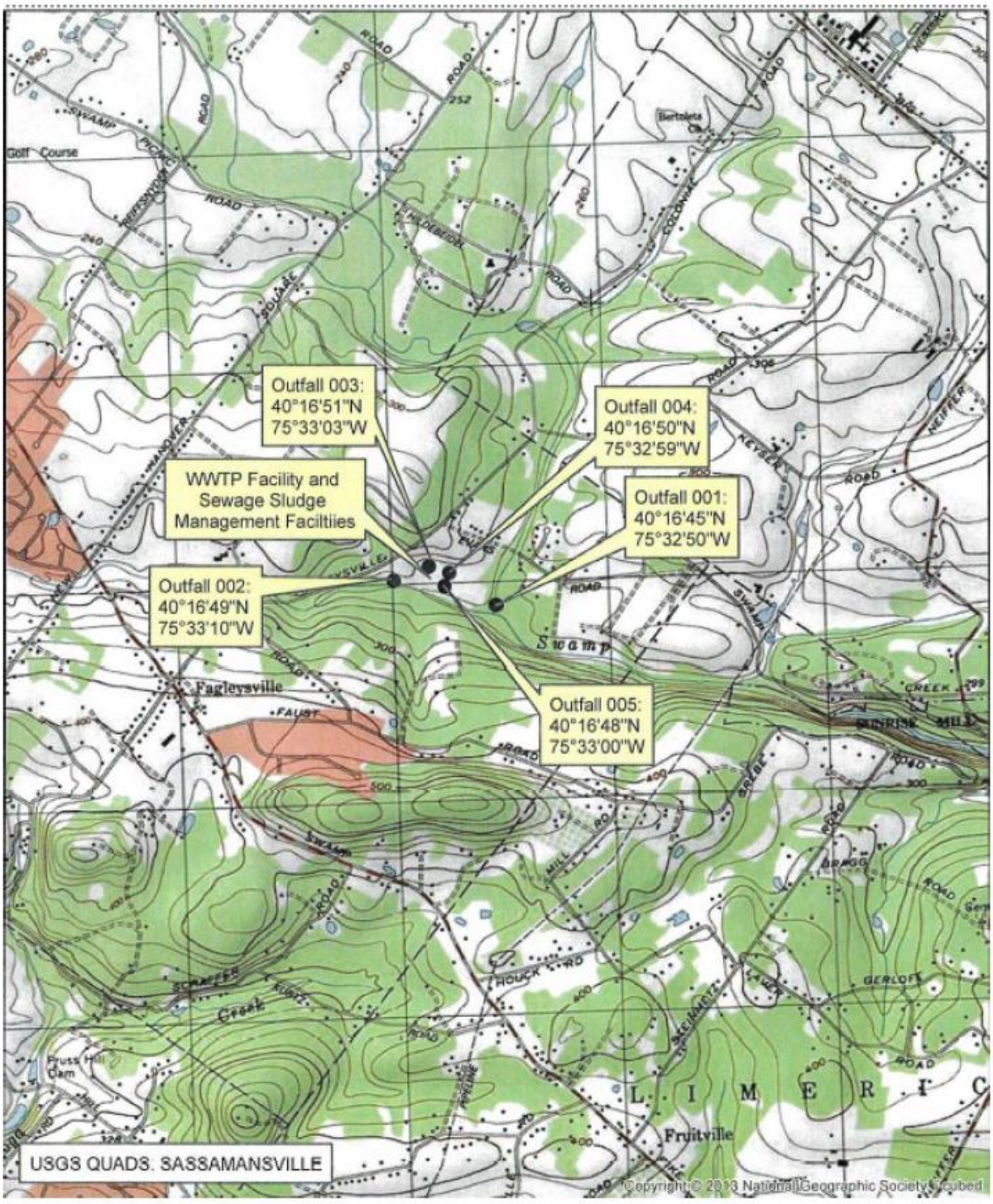
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/year	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 005

Other Comments: Outfall 005 is representative of Outfall 002, 003, and 004

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:

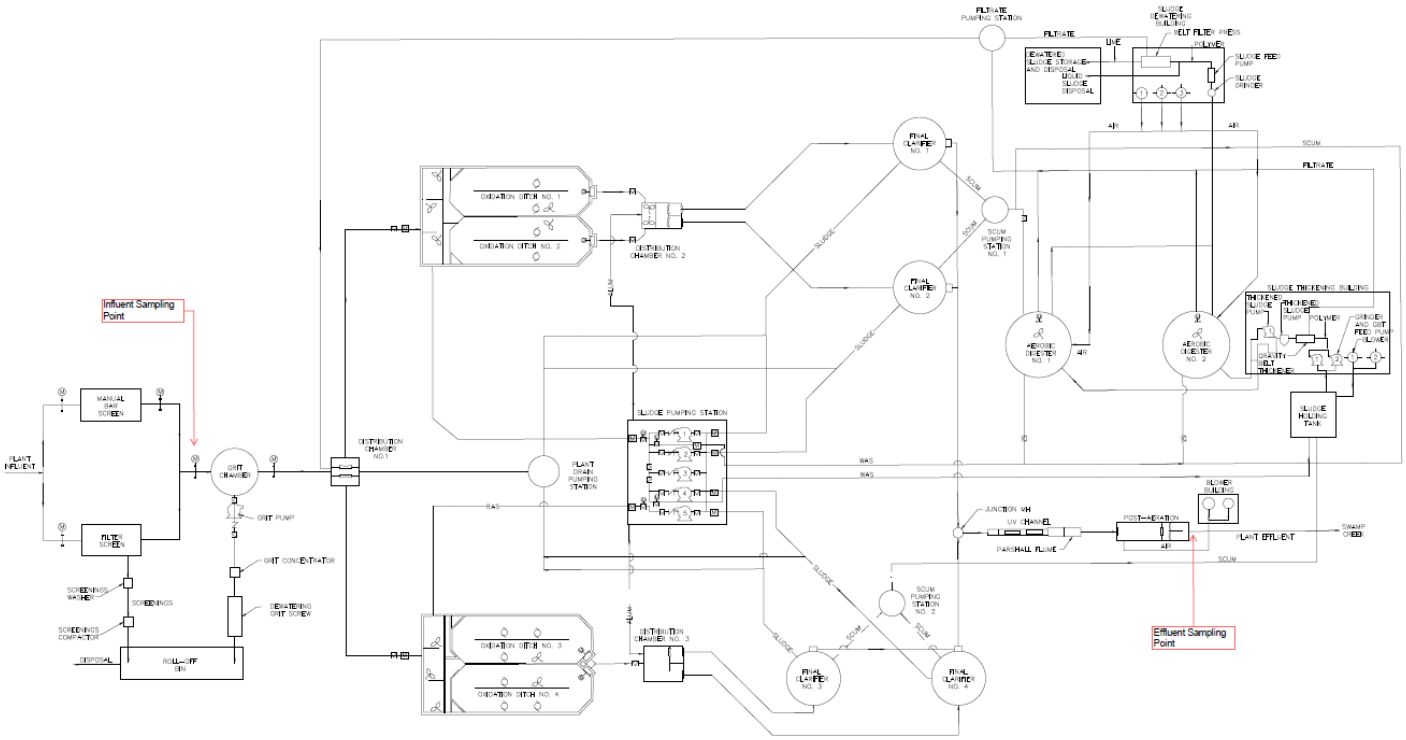
Locational map



Scale
1"=2000'

New Hanover Township Authority
NPDES Permit Renewal

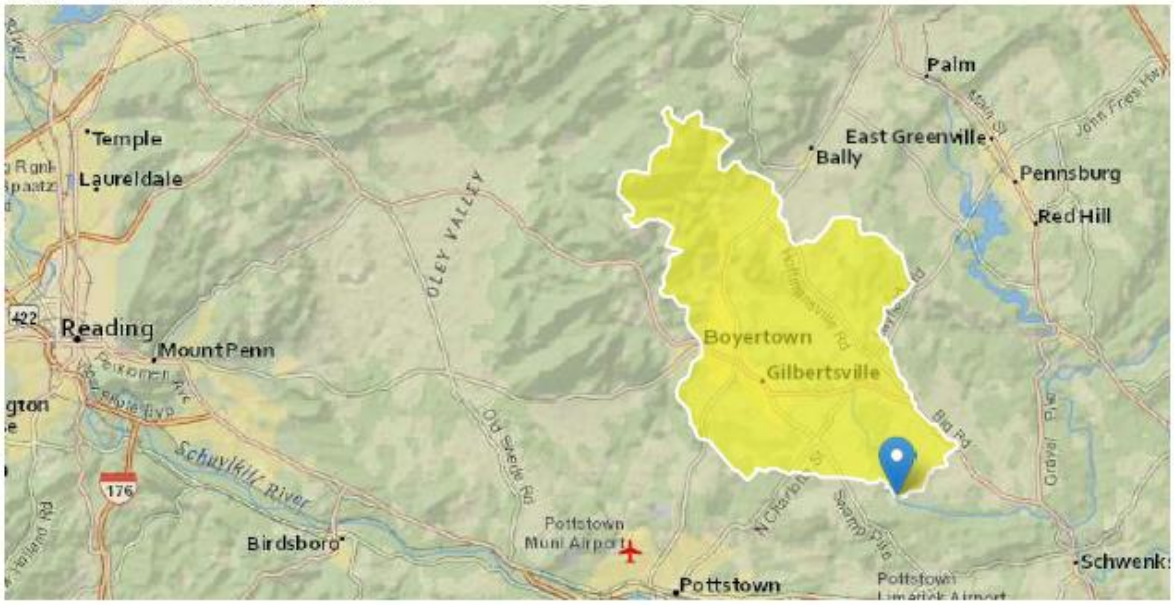
Process flow diagram



Streamstats at Outfall 001

PA0057819 at Outfall 001

Region ID: PA
Workspace ID: PA20241203155121622000
Clicked Point (Latitude, Longitude): 40.27930, -75.54731
Time: 2024-12-03 10:51:47 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	3.5889	degrees
DRNAREA	Area that drains to a point on a stream	39.7	square miles
ROCKDEP	Depth to rock	4.5	feet
URBAN	Percentage of basin with urban development	8.6596	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	39.7	square miles	4.78	1150

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLOPD	Mean Basin Slope degrees	3.5889	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.5	feet	4.13	5.21
URBAN	Percent Urban	8.6596	percent	0	89

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

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	5.36	ft^3/s	46	46
30 Day 2 Year Low Flow	7.5	ft^3/s	38	38
7 Day 10 Year Low Flow	2.39	ft^3/s	51	51
30 Day 10 Year Low Flow	3.42	ft^3/s	46	46
90 Day 10 Year Low Flow	6.03	ft^3/s	41	41

Low-Flow Statistics Citations

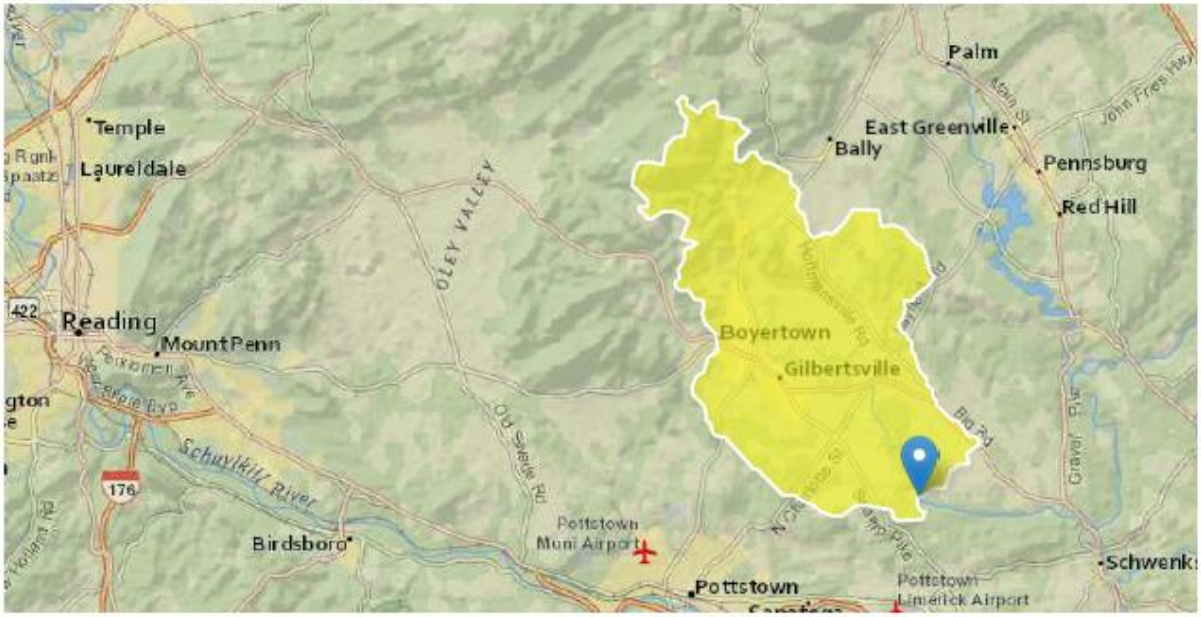
Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.24.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Streamstats at node 2

PA0057819 at node 2

Region ID: PA
Workspace ID: PA20241203155620929000
Clicked Point (Latitude, Longitude): 40.27871, -75.54706
Time: 2024-12-03 10:56:44 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	3.5851	degrees
DRNAREA	Area that drains to a point on a stream	42.5	square miles
ROCKDEP	Depth to rock	4.5	feet
URBAN	Percentage of basin with urban development	8.4219	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	42.5	square miles	4.78	1150

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLOPD	Mean Basin Slope degrees	3.5851	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.5	feet	4.13	5.21
URBAN	Percent Urban	8.4219	percent	0	89

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

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	5.71	ft^3/s	46	46
30 Day 2 Year Low Flow	7.99	ft^3/s	38	38
7 Day 10 Year Low Flow	2.55	ft^3/s	51	51
30 Day 10 Year Low Flow	3.64	ft^3/s	46	46
90 Day 10 Year Low Flow	6.43	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: 4.24.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

WQM 7.0

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
03E	1309	SWAMP CREEK	**4.850**	220.08	39.70	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	0.060	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
New Hanover STP	PA0057819	1.9250	1.9250	1.9250	0.000	25.00	7.68

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	5.00	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
03E	1309	SWAMP CREEK	**4.820**	214.06	42.50	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.060	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
		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
03E	1309	SWAMP 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												
4.850	2.38	0.00	2.38	2.978	0.03801	.794	23.85	30.05	0.28	0.006	22.78	7.25
Q1-10 Flow												
4.850	1.52	0.00	1.52	2.978	0.03801	NA	NA	NA	0.26	0.007	23.31	7.32
Q30-10 Flow												
4.850	3.24	0.00	3.24	2.978	0.03801	NA	NA	NA	0.31	0.006	22.39	7.21

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
03E	1309	SWAMP 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
4.850	New Hanover ST	9	3	9	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
4.850	New Hanover ST	1.47	1.5	1.47	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)		
4.85	New Hanover STP	10	10	1.5	1.5	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
03E	1309	SWAMP CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
4.850	1.925	22.778	7.251
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
23.848	0.794	30.053	0.283
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
6.44	1.292	0.83	0.867
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.441	109.243	Tsivoglou	5
Reach Travel Time (days)			
0.006			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.001	6.44	0.83	6.58
0.001	6.43	0.83	6.72
0.002	6.43	0.83	6.84
0.003	6.42	0.83	6.96
0.003	6.41	0.83	7.07
0.004	6.41	0.83	7.17
0.005	6.40	0.83	7.26
0.005	6.40	0.83	7.35
0.006	6.39	0.83	7.43
0.006	6.38	0.83	7.51

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
03E	1309	SWAMP 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)
4.850	New Hanover STP	PA0057819	1.925	CBOD5	10		
				NH3-N	1.5	3	
				Dissolved Oxygen			5

TMS

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: New Hanover Township WWTP NPDES Permit No.: PA0057819 Outfall No.: 001

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

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
1.925	279	7.68						

					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		133									
	Total Antimony	µg/L		0.6									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		72									
	Total Beryllium	µg/L	<	0.4									
	Total Boron	µg/L		361									
	Total Cadmium	µg/L	<	0.1									
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L		0.23									
	Total Cobalt	µg/L	<	1									
	Total Copper	µg/L		4									
	Free Cyanide	µg/L	<	0.5									
	Total Cyanide	µg/L		70									
	Dissolved Iron	µg/L	<	10									
	Total Iron	µg/L	<	14									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		4									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L	<	1									
	Total Phenols (Phenolics) (PWS)	µg/L		5.18									
	Total Selenium	µg/L	<	2									
	Total Silver	µg/L	<	0.2									
	Total Thallium	µg/L	<	0.4									
	Total Zinc	µg/L		20									
	Total Molybdenum	µg/L		5									
	Acrolein	µg/L	<	1									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	0.5									
	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	<	1									
	2-Chloroethyl Vinyl Ether	µg/L	<	0.5									
	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	<	0.1									
	Ethylbenzene	µg/L	<	0.5									
	Methyl Bromide	µg/L	<	1									
	Methyl Chloride	µg/L	<	0.5									
	Methylene Chloride	µg/L	<	0.7									
	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	<	0.18									
	2,4-Dichlorophenol	µg/L	<	0.22									
	2,4-Dimethylphenol	µg/L	<	0.37									
	4,6-Dinitro-o-Cresol	µg/L	<	1.18									
	2,4-Dinitrophenol	µg/L	<	1.18									
	2-Nitrophenol	µg/L	<	0.22									
	4-Nitrophenol	µg/L	<	1.39									
	p-Chloro-m-Cresol	µg/L	<	0.25									
	Pentachlorophenol	µg/L	<	0.49									
	Phenol	µg/L	<	5.18									
	2,4,6-Trichlorophenol	µg/L	<	0.22									
Group 5	Acenaphthene	µg/L	<	0.344									
	Acenaphthylene	µg/L	<	0.342									
	Anthracene	µg/L	<	0.32									
	Benzidine	µg/L	<	0.598									
	Benzo(a)Anthracene	µg/L	<	0.265									
	Benzo(a)Pyrene	µg/L	<	0.244									
	3,4-Benzofluoranthene	µg/L	<	0.265									
	Benzo(ghi)Perylene	µg/L	<	0.403									
	Benzo(k)Fluoranthene	µg/L	<	0.328									
	Bis(2-Chloroethoxy)Methane	µg/L	<	1.55									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.264									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.264									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	1.55									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.387									
	Butyl Benzyl Phthalate	µg/L	<	1.02									
	2-Chloronaphthalene	µg/L	<	0.345									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.334									
	Chrysene	µg/L	<	0.5									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.65									
	1,2-Dichlorobenzene	µg/L	<	0.191									
	1,3-Dichlorobenzene	µg/L	<	0.418									
	1,4-Dichlorobenzene	µg/L	<	0.457									
	3,3-Dichlorobenzidine	µg/L	<	0.73									
	Diethyl Phthalate	µg/L	<	0.833									
	Dimethyl Phthalate	µg/L	<	0.501									
	Di-n-Butyl Phthalate	µg/L		7.07									
	2,4-Dinitrotoluene	µg/L	<	0.455									
	2,6-Dinitrotoluene	µg/L	<	0.439									
	Di-n-Octyl Phthalate	µg/L	<	0.36									

	1,2-Diphenylhydrazine	µg/L	<	0.516									
	Fluoranthene	µg/L	<	0.614									
	Fluorene	µg/L	<	0.304									
	Hexachlorobenzene	µg/L	<	0.409									
	Hexachlorobutadiene	µg/L	<	0.26									
	Hexachlorocyclopentadiene	µg/L	<	0.395									
	Hexachloroethane	µg/L	<	0.464									
	Indeno(1,2,3-od)Pyrene	µg/L	<	0.38									
	Isophorone	µg/L	<	0.25									
	Naphthalene	µg/L	<	0.5									
	Nitrobenzene	µg/L	<	0.24									
	n-Nitrosodimethylamine	µg/L	<	0.24									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.41									
	n-Nitrosodiphenylamine	µg/L	<	0.41									
	Phenanthrene	µg/L	<	0.41									
	Pyrene	µg/L	<	0.58									
	1,2,4-Trichlorobenzene	µg/L	<	0.27									
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

New Hanover Township WWTP, NPDES Permit No. PA0057819, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: Swamp 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	001309	4.85	220.08	39.7			Yes
End of Reach 1	001309	4.82	214.06	42.5			Yes

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

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	4.85	0.06										100	7		
End of Reach 1	4.82	0.06										100	7		

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	4.85														
End of Reach 1	4.82														

Model Results

New Hanover Township WWTP, NPDES Permit No. PA0057819, Outfall 001

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

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 1.117 PMF: 1 Analysis Hardness (mg/l): 199.45 Analysis pH: 7.25

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	1,350	
Total Antimony	0	0		0	1,100	1,100	1,980	
Total Arsenic	0	0		0	340	340	612	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	37,797	
Total Boron	0	0		0	8,100	8,100	14,579	
Total Cadmium	0	0		0	3.938	4.3	7.75	Chem Translator of 0.915 applied
Hexavalent Chromium	0	0		0	16	16.3	29.3	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	171	
Total Copper	0	0		0	25.756	26.8	48.3	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	39.6	
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	135.745	197	354	Chem Translator of 0.69 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.96	Chem Translator of 0.85 applied
Total Nickel	0	0		0	839.705	841	1,514	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	10.547	12.4	22.3	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	117	
Total Zinc	0	0		0	210.333	215	387	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	5.4	
Acrylonitrile	0	0		0	650	650	1,170	
Benzene	0	0		0	640	640	1,152	
Bromoform	0	0		0	1,800	1,800	3,240	
Carbon Tetrachloride	0	0		0	2,800	2,800	5,040	
Chlorobenzene	0	0		0	1,200	1,200	2,160	

Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	32,398	
Chloroform	0	0		0	1,900	1,900	3,420	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	26,998	
1,1-Dichloroethylene	0	0		0	7,500	7,500	13,499	
1,2-Dichloropropane	0	0		0	11,000	11,000	19,799	
1,3-Dichloropropylene	0	0		0	310	310	558	
Ethylbenzene	0	0		0	2,900	2,900	5,220	
Methyl Bromide	0	0		0	550	550	990	
Methyl Chloride	0	0		0	28,000	28,000	50,396	
Methylene Chloride	0	0		0	12,000	12,000	21,598	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,800	
Tetrachloroethylene	0	0		0	700	700	1,260	
Toluene	0	0		0	1,700	1,700	3,060	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	12,239	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	5,400	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	6,120	
Trichloroethylene	0	0		0	2,300	2,300	4,140	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	1,008	
2,4-Dichlorophenol	0	0		0	1,700	1,700	3,060	
2,4-Dimethylphenol	0	0		0	660	660	1,188	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	144	
2,4-Dinitrophenol	0	0		0	660	660	1,188	
2-Nitrophenol	0	0		0	8,000	8,000	14,399	
4-Nitrophenol	0	0		0	2,300	2,300	4,140	
p-Chloro-m-Cresol	0	0		0	160	160	288	
Pentachlorophenol	0	0		0	11.231	11.2	20.2	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	828	
Acenaphthene	0	0		0	83	83.0	149	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	540	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.9	
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	53,996	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	8,099	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	486	
Butyl Benzyl Phthalate	0	0		0	140	140	252	
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	1,476	
1,3-Dichlorobenzene	0	0		0	350	350	630	

1,4-Dichlorobenzene	0	0		0	730	730	1,314	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	7,199	
Dimethyl Phthalate	0	0		0	2,500	2,500	4,500	
Di-n-Butyl Phthalate	0	0		0	110	110	198	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	2,880	
2,6-Dinitrotoluene	0	0		0	990	990	1,782	
1,2-Diphenylhydrazine	0	0		0	15	15.0	27.0	
Fluoranthene	0	0		0	200	200	360	
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	18.0	
Hexachlorocyclopentadiene	0	0		0	5	5.0	9.0	
Hexachloroethane	0	0		0	60	60.0	108	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	17,999	
Naphthalene	0	0		0	140	140	252	
Nitrobenzene	0	0		0	4,000	4,000	7,199	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	30,598	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	540	
Phenanthrene	0	0		0	5	5.0	9.0	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	234	

☑ *CFC* CCT (min): 1.117 PMF: 1 Analysis Hardness (mg/l): 199.45 Analysis pH: 7.25

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	396	
Total Arsenic	0	0		0	150	150	270	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	7,379	
Total Boron	0	0		0	1,600	1,600	2,880	
Total Cadmium	0	0		0	0.397	0.45	0.81	Chem Translator of 0.88 applied
Hexavalent Chromium	0	0		0	10	10.4	18.7	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	34.2	
Total Copper	0	0		0	16.155	16.8	30.3	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	9.36	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	2,700	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	5.290	7.66	13.8	Chem Translator of 0.69 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.63	Chem Translator of 0.85 applied
Total Nickel	0	0		0	93.265	93.5	168	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	8.98	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	23.4	
Total Zinc	0	0		0	212.053	215	387	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	5.4	
Acrylonitrile	0	0		0	130	130	234	
Benzene	0	0		0	130	130	234	
Bromoform	0	0		0	370	370	666	
Carbon Tetrachloride	0	0		0	560	560	1,008	
Chlorobenzene	0	0		0	240	240	432	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	6,300	
Chloroform	0	0		0	390	390	702	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	5,580	
1,1-Dichloroethylene	0	0		0	1,500	1,500	2,700	
1,2-Dichloropropane	0	0		0	2,200	2,200	3,960	
1,3-Dichloropropylene	0	0		0	61	61.0	110	
Ethylbenzene	0	0		0	580	580	1,044	
Methyl Bromide	0	0		0	110	110	198	
Methyl Chloride	0	0		0	5,500	5,500	9,899	
Methylene Chloride	0	0		0	2,400	2,400	4,320	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	378	
Tetrachloroethylene	0	0		0	140	140	252	
Toluene	0	0		0	330	330	594	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	2,520	
1,1,1-Trichloroethane	0	0		0	610	610	1,098	
1,1,2-Trichloroethane	0	0		0	680	680	1,224	
Trichloroethylene	0	0		0	450	450	810	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	198	
2,4-Dichlorophenol	0	0		0	340	340	612	
2,4-Dimethylphenol	0	0		0	130	130	234	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	28.8	
2,4-Dinitrophenol	0	0		0	130	130	234	
2-Nitrophenol	0	0		0	1,600	1,600	2,880	
4-Nitrophenol	0	0		0	470	470	846	
p-Chloro-m-Cresol	0	0		0	500	500	900	
Pentachlorophenol	0	0		0	8.617	8.62	15.5	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	164	
Acenaphthene	0	0		0	17	17.0	30.6	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	106	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.18	
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	10,799	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	1,638	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	97.2	
Butyl Benzyl Phthalate	0	0		0	35	35.0	63.0	
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	288	
1,3-Dichlorobenzene	0	0		0	69	69.0	124	
1,4-Dichlorobenzene	0	0		0	150	150	270	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	1,440	
Dimethyl Phthalate	0	0		0	500	500	900	
Di-n-Butyl Phthalate	0	0		0	21	21.0	37.8	
2,4-Dinitrotoluene	0	0		0	320	320	576	
2,6-Dinitrotoluene	0	0		0	200	200	360	
1,2-Diphenylhydrazine	0	0		0	3	3.0	5.4	
Fluoranthene	0	0		0	40	40.0	72.0	
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	3.6	
Hexachlorocyclopentadiene	0	0		0	1	1.0	1.8	
Hexachloroethane	0	0		0	12	12.0	21.6	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	3,780	
Naphthalene	0	0		0	43	43.0	77.4	
Nitrobenzene	0	0		0	810	810	1,458	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	6,120	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	106	
Phenanthrene	0	0		0	1	1.0	1.8	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	46.8	

☑ ***THH*** CCT (min): 1.117 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	10.1	
Total Arsenic	0	0		0	10	10.0	18.0	
Total Barium	0	0		0	2,400	2,400	4,320	
Total Boron	0	0		0	3,100	3,100	5,580	
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	7.2	
Dissolved Iron	0	0		0	300	300	540	
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	1,800	
Total Mercury	0	0		0	0.050	0.05	0.09	
Total Nickel	0	0		0	610	610	1,098	
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	0.43	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	5.4	
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	180	
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	10.3	
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	59.4	
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	122	
Methyl Bromide	0	0		0	100	100.0	180	
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	103	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	180	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	17,999	
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	54.0	
2,4-Dichlorophenol	0	0		0	10	10.0	18.0	
2,4-Dimethylphenol	0	0		0	100	100.0	180	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	3.6	
2,4-Dinitrophenol	0	0		0	10	10.0	18.0	

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	7,199	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	126	
Anthracene	0	0		0	300	300	540	
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	360	
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	0.18	
2-Chloronaphthalene	0	0		0	800	800	1,440	
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	1,800	
1,3-Dichlorobenzene	0	0		0	7	7.0	12.6	
1,4-Dichlorobenzene	0	0		0	300	300	540	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	1,080	
Dimethyl Phthalate	0	0		0	2,000	2,000	3,600	
Di-n-Butyl Phthalate	0	0		0	20	20.0	36.0	
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	36.0	
Fluorene	0	0		0	50	50.0	90.0	
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	7.2	
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	61.2	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	18.0	
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	36.0	

1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.13	

☑ *CRL* CCT (min): 1.749 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	0.38	
Benzene	0	0		0	0.58	0.58	3.67	
Bromoform	0	0		0	7	7.0	44.3	
Carbon Tetrachloride	0	0		0	0.4	0.4	2.53	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	5.06	
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	6.01	
1,2-Dichloroethane	0	0		0	9.9	9.9	62.6	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	5.69	
1,3-Dichloropropylene	0	0		0	0.27	0.27	1.71	
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	127	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	1.27	

Tetrachloroethylene	0	0		0	10	10.0	63.3	
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	3.48	
Trichloroethylene	0	0		0	0.6	0.6	3.8	
Vinyl Chloride	0	0		0	0.02	0.02	0.13	
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	0.19	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	9.49	
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	0.0006	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.006	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0006	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.006	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.063	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.19	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	2.02	
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	0.76	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.0006	
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	0.32	
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	0.32	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.32	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.19	
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	0.0005	

Hexachlorobutadiene	0	0		0	0.01	0.01	0.063	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.63	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.006	
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	0.004	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.032	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	20.9	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	Report	Report	Report	Report	Report	µg/L	865	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Boron	Report	Report	Report	Report	Report	µg/L	2,880	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	30.3	CFC	Discharge Conc > 10% WQBEL (no RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Antimony	10.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	4,320	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Cadmium	N/A	N/A	Discharge Conc < TQL
Hexavalent Chromium	18.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	N/A	N/A	Discharge Conc < TQL
Free Cyanide	N/A	N/A	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	540	µg/L	Discharge Conc < TQL
Total Iron	2,700	µg/L	Discharge Conc < TQL
Total Lead	13.8	µg/L	Discharge Conc < TQL
Total Manganese	1,800	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.09	µg/L	Discharge Conc < TQL

Total Nickel	168	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	8.98	µg/L	Discharge Conc < TQL
Total Silver	14.3	µg/L	Discharge Conc < TQL
Total Thallium	0.43	µg/L	Discharge Conc < TQL
Total Zinc	248	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.46	µg/L	Discharge Conc < TQL
Acrylonitrile	0.38	µg/L	Discharge Conc < TQL
Benzene	3.67	µg/L	Discharge Conc < TQL
Bromoform	44.3	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	2.53	µg/L	Discharge Conc < TQL
Chlorobenzene	180	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	5.06	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	6,300	µg/L	Discharge Conc < TQL
Chloroform	10.3	µg/L	Discharge Conc < TQL
Dichlorobromomethane	6.01	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	62.6	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	59.4	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	5.69	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	1.71	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	122	µg/L	Discharge Conc < TQL
Methyl Bromide	180	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride	9,899	µg/L	Discharge Conc < TQL
Methylene Chloride	127	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2,2-Tetrachloroethane	1.27	µg/L	Discharge Conc < TQL
Tetrachloroethylene	63.3	µg/L	Discharge Conc < TQL
Toluene	103	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	180	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	1,098	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	3.48	µg/L	Discharge Conc < TQL
Trichloroethylene	3.8	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.13	µg/L	Discharge Conc < TQL
2-Chlorophenol	54.0	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	18.0	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	180	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	3.6	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	18.0	µg/L	Discharge Conc < TQL
2-Nitrophenol	2,880	µg/L	Discharge Conc < TQL
4-Nitrophenol	846	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	185	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.19	µg/L	Discharge Conc < TQL
Phenol	7,199	µg/L	Discharge Conc < TQL

2,4,6-Trichlorophenol	9.49	µg/L	Discharge Conc < TQL
Acenaphthene	30.6	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	540	µg/L	Discharge Conc < TQL
Benzidine	0.0006	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.006	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.0006	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.006	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.063	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.19	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	360	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	2.02	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	97.2	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.18	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	1,440	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.76	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.0006	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	288	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	12.6	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	270	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.32	µg/L	Discharge Conc < TQL
Diethyl Phthalate	1,080	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	900	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	36.0	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dinitrotoluene	0.32	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.32	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.19	µg/L	Discharge Conc < TQL
Fluoranthene	36.0	µg/L	Discharge Conc < TQL
Fluorene	90.0	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0005	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.063	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	1.8	µg/L	Discharge Conc < TQL
Hexachloroethane	0.63	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.006	µg/L	Discharge Conc < TQL
Isophorone	61.2	µg/L	Discharge Conc < TQL
Naphthalene	77.4	µg/L	Discharge Conc < TQL
Nitrobenzene	18.0	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.004	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.032	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	20.9	µg/L	Discharge Conc < TQL
Phenanthrene	1.8	µg/L	Discharge Conc < TQL
Pyrene	36.0	µg/L	Discharge Conc < TQL

1,2,4-Trichlorobenzene	0.13	µg/L	Discharge Conc < TQL

WETT

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.43
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: PWD NE WPCP

Permit No.: PA0026689

Replicate No.	Test Completion Date 9/17/2024 Control	TIWC	Test Completion Date 9/5/2023 Control	TIWC
1	10	10	10	10
2	10	10	10	10
3	10	10	10	10
4	9	10	10	10
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
Mean	9.750	10.000	10.000	10.000
Std Dev.	0.500	0.000	0.000	0.000
# Replicates	4	4	4	4
T-Test Result	12.5523			
Deg. of Freedom	3			
Critical T Value	0.7649			
Pass or Fail	PASS			

Replicate No.	Test Completion Date 11/8/2022 Control	TIWC	Test Completion Date 7/27/2021 Control	TIWC
1	10	10	8	10
2	9	10	9	10
3	10	10	9	8
4	10	10	10	8
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
Mean	9.750	10.000	9.000	9.000
Std Dev.	0.500	0.000	0.816	1.155
# Replicates	4	4	4	4
T-Test Result	12.5523		3.1999	
Deg. of Freedom	3		5	
Critical T Value	0.7649		0.7267	
Pass or Fail	PASS		PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.43
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.25

Facility Name: PWD NE WPCP

Permit No.: PA0026689

Replicate No.	Test Completion Date 9/17/2024 Control	TIWC	Test Completion Date 9/5/2023 Control	TIWC
1	0.392	0.305	0.388	0.382
2	0.331	0.399	0.379	0.367
3	0.385	0.384	0.408	0.458
4	0.419	0.403	0.433	0.425
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
Mean	0.382	0.373	0.402	0.408
Std Dev.	0.037	0.046	0.024	0.041
# Replicates	4	4	4	4
T-Test Result	3.2260		4.7180	
Deg. of Freedom	5		4	
Critical T Value	0.7267		0.7407	
Pass or Fail	PASS		PASS	

Replicate No.	Test Completion Date 11/8/2022 Control	TIWC	Test Completion Date 7/27/2021 Control	TIWC
1	0.335	0.327	0.327	0.369
2	0.296	0.317	0.287	0.348
3	0.317	0.294	0.354	0.349
4	0.296	0.301	0.316	0.328
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
Mean	0.311	0.310	0.321	0.349
Std Dev.	0.019	0.015	0.028	0.017
# Replicates	4	4	4	4
T-Test Result	7.4300		8.0722	
Deg. of Freedom	5		5	
Critical T Value	0.7267		0.7267	
Pass or Fail	PASS		PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.43
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: PWD NE WPCP

Permit No.: PA0026689

Replicate No.	Test Completion Date 9/16/2024 Control	TIWC	Test Completion Date 9/5/2023 Control	TIWC
1	1	1	1	1
2	1	1	1	1
3	1	1	1	1
4	1	1	1	1
5	1	1	1	1
6	1	1	1	1
7	1	1	1	1
8	1	1	1	1
9	1	1	1	1
10	1	1	1	0
11				
12				
13				
14				
15				
Mean	1.000	1.000	1.000	0.900
Std Dev.	0.000	0.000	0.000	0.316
# Replicates	10	10	10	10
T-Test Result				
Deg. of Freedom				
Critical T Value				
Pass or Fail	PASS		PASS	

Replicate No.	Test Completion Date 11/7/2022 Control	TIWC	Test Completion Date 7/27/2021 Control	TIWC
1	1	1	1	1
2	1	1	1	1
3	1	1	1	1
4	1	1	1	1
5	1	1	1	1
6	1	1	1	1
7	1	1	1	1
8	1	1	1	1
9	1	1	1	1
10	1	1	1	1
11				
12				
13				
14				
15				
Mean	1.000	1.000	1.000	1.000
Std Dev.	0.000	0.000	0.000	0.000
# Replicates	10	10	10	10
T-Test Result				
Deg. of Freedom				
Critical T Value				
Pass or Fail	PASS		PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.43
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: PWD NE WPCP

Permit No.: PA0026689

Replicate No.	Test Completion Date 9/16/2024 Control	TIWC	Test Completion Date 9/5/2023 Control	TIWC
1	28	36	40	30
2	40	28	35	40
3	38	33	37	29
4	35	39	45	37
5	30	17	36	15
6	34	36	33	34
7	18	22	41	40
8	36	38	38	36
9	28	37	41	38
10	16	37	32	17
11				
12				
13				
14				
15				
Mean	30.300	32.300	37.800	31.600
Std Dev.	8.084	7.514	4.022	9.033
# Replicates	10	10	10	10
T-Test Result	3.1362		1.0791	
Deg. of Freedom	16		13	
Critical T Value	0.8647		0.8702	
Pass or Fail	PASS		PASS	

Replicate No.	Test Completion Date 11/7/2022 Control	TIWC	Test Completion Date 7/27/2021 Control	TIWC
1	43	40	32	31
2	36	42	16	20
3	37	34	19	27
4	40	32	25	18
5	38	45	13	24
6	34	36	18	28
7	35	39	27	21
8	38	42	19	21
9	34	37	23	23
10	34	26	13	23
11				
12				
13				
14				
15				
Mean	36.900	37.300	20.500	23.600
Std Dev.	2.961	5.599	6.187	4.006
# Replicates	10	10	10	10
T-Test Result	5.0535		4.2431	
Deg. of Freedom	13		17	
Critical T Value	0.8702		0.8633	
Pass or Fail	PASS		PASS	

WET Summary and Evaluation

Facility Name	New Hanover Township STP
Permit No.	PA0057819
Design Flow (MGD)	1.925
Q_{7-10} Flow (cfs)	2.39
PMF_a	1
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	9/17/24	9/5/23	11/8/22	7/27/21
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	9/17/24	9/5/23	11/8/22	7/27/21
Pimephales	Growth	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	9/16/24	9/5/23	11/7/22	7/27/21
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	9/16/24	9/5/23	11/7/22	7/27/21
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	Chronic
TIWC	55 % Effluent
Dilution Series	**14, 28, 55, 78, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	