Pennsylvania Department of Environmental Protection

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0028380**
Facility Type	**Municipal**	APS ID	**1134482**
Major / Minor	**Major**	Authorization ID	**1522031**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Tinicum Township**	Facility Name	**Tinicum Township WWTP**
Applicant Address	Historic Lazaretto Building, 97 Wanamaker Avenue Essington, PA 19029	Facility Address	125 Chippewa Street Lester, PA 19029-1612
Applicant Contact	David Schreiber	Facility Contact	Louis Clarke
Applicant Phone	(610) 521-3530	Facility Phone	(610) 521-9191
Client ID	51570	Site ID	255084
Ch 94 Load Status	Not Overloaded	Municipality	Tinicum Township
Connection Status	No Limitations	County	Delaware
Date Application Received	April 1, 2025	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility

Purpose of Application: Permit Renewal

Summary of Review

The applicant requests renewal of an NPDES permit to discharge treated sewage from the Tinicum Township WWTP to Darby Creek (Tidal). The annual average flow is 1.4 mgd and the hydraulic design capacity is 2.8 mgd. The stormwater is discharging into Long Hook Creek which is a tributary of Darby Creek.

The method of treatment is a two-stage High-Rate Trickling Filter. Flows initially go through a Grit Chamber and a Comminutor. Primary settling, primary trickling filter, secondary trickling filter, secondary settling and chlorination are part of the treatment. Chlorine gas is used for disinfection.

Wastewater treatment chemicals listed in the application are chlorine gas (disinfectant), coagulant 1850 (to precipitate copper), bisulfite (to precipitate copper) and magnesium hydroxide (for copper removal).

No upgrades are planned over the next five years.

Sludge use and disposal description and location(s): Class B sludge is produced, then sent to Delcora for further treatment.

There are no industrial users discharging into this facility.

DMR review shows the discharge is in compliance with the permit limitations most of the times. No comments received from operations section. DEP inspection was conducted on 11/6/2024. No violations were noted.

Approve	Deny	Signatures	Date
X		*Sara Abraham* Sara Reji Abraham, E.I.T. / Project Manager	August 20, 2025
X		*Pravin Patel* Pravin C. Patel, P.E. / Environmental Engineer Manager	08/20/2025

Summary of Review

There are no changes in the treatment units, influent quality, stream designation etc. Most of the existing permit limits are recommended to be carried over to the new permit.

Existing influent monitoring for BOD5, CBOD5 and TSS are continued to be in the draft permit based on the Chapter 94 requirement and to check the percentage removal requirement.

The DRBC Docket No. D-2014-014 CP-1 approved (June 10, 2015) for this project permits the docket holder monitor CBOD5 as a surrogate for CBOD20 as long as the docket holder continues to meet the loading limit and 89.25 % removal requirement for CBOD5. CBOD20 loading and percent removal requirement were eliminated from the permit at the 2020 permit renewal. Instead CBOD5 loading and 89.25 percent removal requirement were included in the 2020 permit and recommended to continue in the draft permit.

The current permit has a Copper limit of 0.045 mg/l (average monthly) which was calculated based on a dilution factor of 4. The dilution factor 4 was carried over historically. In the past, questions came up about the validity of the dilution factor used in the calculation. The facility had the option of conducting a CORMIX study to find the appropriate dilution factor. However, the township decided not to do that since the facility was able to meet the effluent limit for copper in a consistent manner. The current limit is recommended to continue in the draft permit.

On December 15, 2003, the U.S. EPA, Regions 2 and 3, adopted a TMDL for PCBs for Zones 2, 3, 4, and 5 of the tidal Delaware River. The WLA for Total PCB loading for this facility is 16.59 ug/day. Based on the 2023-2024 PCB PMP report the average PCB concentration in the discharge is 4342 ug/l and loading is 17.25 mg/day. The current requirement for continued monitoring and implementation of PCB PMP is included in the draft permit.

Act 14 Notifications:

Tinicum Township - March 13, 2025
Delaware County - March 13, 2025

Permit Conditions:

A. No Stormwater Condition
B. Acquire Necessary Property Rights
C. Proper Sludge Disposal
D. Chlorine Optimization
E. Operator Notification
F. TMDL/WLA Data
G. Fecal Coliform Reporting
H. Solids Management
I. WET Requirement
J. Stormwater Outfall Requirement
K. PCB PMP Implementation
L. WQBELs Below Quantitation Limits

Public Participation

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

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	1.4
Latitude	39º 52' 37.23"	Longitude	-75º 17' 52.53"
Quad Name	Lansdowne	Quad Code	1943
Wastewater Description:	Treated Sewage Effluent		
Receiving Waters	Tidal Darby Creek (WWF, MF)	Stream Code	00742
NHD Com ID	25601509	RMI	1.9
Drainage Area	71.3 mi^2		
Q_{7-10} Flow (cfs)	11.7	Q_{7-10} Basis	Previous fact sheet (USGS streamstats)
Watershed No.	3-G	Chapter 93 Class.	WWF, MF
Assessment Status	Impaired		
Cause(s) of Impairment	POLYCHLORINATED BIPHENYLS (PCBS)		
Source(s) of Impairment	SOURCE UNKNOWN		
TMDL Status	Final	Name	Delaware River Estuary PCB TMDLs*

*Secondary Waters, Delaware River Estuary Zone 4 is impaired of PCBs.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0
Latitude	39º 52' 28.25"	Longitude	-75º 17' 29.71"
Quad Name	Bridgeport	Quad Code	2043
Wastewater Description:	Stormwater		
Receiving Waters	Long Hook Creek (WWF, MF)	Stream Code	00749
NHD Com ID	25590735	RMI	0.4
Watershed No.	3-G	Chapter 93 Class.	WWF, MF
Assessment Status	Impaired		
Cause(s) of Impairment	POLYCHLORINATED BIPHENYLS (PCBS)		
Source(s) of Impairment	SOURCE UNKNOWN		

Treatment Facility Summary

Treatment Facility Name: Tinicum Township WWTP

WQM Permit No.	Issuance Date
2300411	01/08/2001

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Trickling Filter with Settling	Gas Chlorine	1.4

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
2.8	2100	Not Overloaded	Anaerobic Digestion	Other WWTP

Compliance History

DMR Data for Outfall 001 (from March 1, 2024 to February 28, 2025)

Parameter	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24
Flow (MGD) Average Monthly	0.5442	0.48	0.4624	0.3565	0.3959	0.4589	0.5898	0.54	0.5494	0.731	1.2077	1.30
Flow (MGD) Daily Maximum	0.8482	0.52	0.5158	0.3965	0.4736	0.5099	0.8461	0.63	0.6226	0.7821	2.8447	2.54
pH (S.U.) Instantaneous Minimum	6.68	6.6	6.6	7.24	7.3	7.15	6.9	6.92	6.88	6.93	6.95	7.13
pH (S.U.) Instantaneous Maximum	7.23	7.3	7.45	7.62	7.8	7.81	7.63	7.23	7.05	7.3	7.58	7.33
DO (mg/L) Instantaneous Minimum	10.9	10.8	10.03	9.79	8.5	8.64	8.06	8.26	8.48	9.03	9.88	10.43
DO (mg/L) Average Monthly	12.2	12.3	11.45	12.5	9.7	9.11	8.74	8.62	8.99	9.74	11.05	11.01
TRC (mg/L) Average Monthly	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
TRC (mg/L) Instantaneous Maximum	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
CBOD5 (lbs/day) Average Monthly	< 21	14	< 12	< 6	< 6	< 7	< 10	< 9	< 9	< 11	< 19	< 25
CBOD5 (lbs/day) Raw Sewage Influent Average Monthly	442	< 448	400	345	313	337	321	336	361	370	< 426	< 445
CBOD5 (lbs/day) Weekly Average	51	17	18	< 7	< 7	< 8	< 12	< 11	< 11	13	< 26	34
CBOD5 (mg/L) Average Monthly	< 5	4	< 3.2	< 2	< 2	< 2	< 2.1	< 2.1	< 2	< 2.1	< 2.1	< 2.4
CBOD5 (mg/L) Raw Sewage Influent Average Monthly	102	< 117	106.7	121	101	91.3	66.3	76.2	82.3	71.4	< 49.7	< 45.6
CBOD5 (mg/L) Weekly Average	10	4	5.5	< 2	< 2	< 2	< 2.3	< 2.5	< 2.1	2.4	< 2.4	3.1

BOD5 (lbs/day) Raw Sewage Influent Average Monthly	736	191	686	735	362	550	549	596	818	604	510	569
BOD5 (mg/L) Raw Sewage Influent Average Monthly	101	154	96.6	120	110	83	63	73	97.2	70.5	30	55
CBOD5 % Removal (%) Percent Removal Minimum Monthly Average	81.10	96.83	96.98	98.26	97.94	97.26	96.76	97.13	97.53	97.04	94.71	87.73
TSS (lbs/day) Average Monthly	49	62	22	15	14	16	20	34	25	26	55	105
TSS (lbs/day) Raw Sewage Influent Average Monthly	180	58	163	368	153	359	338	460	351	180	606	457
TSS (lbs/day) Weekly Average	69	73	24	19	16	18	28	40	34	31	85	135
TSS (mg/L) Average Monthly	11	16	6	5	4	4	4	8	6	5	6	10
TSS (mg/L) Raw Sewage Influent Average Monthly	41	396	43.6	61	49	55	43	94	44	35.2	47	39
TSS (mg/L) Weekly Average	14	19	6	6	6	5	5	10	7	7	10	12
Total Dissolved Solids (mg/L) Daily Maximum			477			426			348			351
Fecal Coliform (No./100 ml) Geometric Mean	< 2	< 1	< 1	< 1	< 2	< 3	< 1	< 1	< 1.0	< 1	< 2	< 2
Fecal Coliform (No./100 ml) Instantaneous Maximum	12	3	5	16	15	87	4	1	1.0	6	6	4
Total Nitrogen (mg/L) Average Monthly	20.7	21.8	18	14.4	9.41	7.67	9.69	16.3	19.5	18.2	12.27	15.1
Ammonia (lbs/day) Average Monthly	< 2.0	2.0	< 0.3	< 0.2	< 0.3	< 0.3	< 0.4	< 0.4	< 0.4	0.40	0.6	0.8

Ammonia (mg/L) Average Monthly	< 0.4	0.5	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	0.08	0.08	0.08
Total Phosphorus (mg/L) Average Monthly	0.84	0.85	0.61	0.78	1.12	0.88	0.65	0.83	0.6	0.38	0.49	0.69
Total Aluminum (mg/L) Daily Maximum			0.398			0.607			0.464			0.441
Total Copper (lbs/day) Average Monthly	0.20	0.20	0.10	0.10	0.10	0.10	0.20	0.10	0.10	0.10	0.20	0.20
Total Copper (lbs/day) Daily Maximum	0.20	0.20	0.20	0.10	0.10	0.10	0.20	0.20	0.20	0.20	0.30	0.30
Total Copper (mg/L) Average Monthly	0.038	0.045	0.039	0.037	0.034	0.032	0.032	0.032	0.033	0.0272	0.022	0.023
Total Copper (mg/L) Daily Maximum	0.049	0.055	0.057	0.052	0.042	0.037	0.036	0.037	0.040	0.036	0.027	0.028
Available Cyanide (mg/L) Daily Maximum			< 0.0060			< 0.0060			< 0.006			< 0.0060
Dichlorobromo-methane (mg/L) Daily Maximum			0.0127			0.0077			0.0024			0.0031
Bis(2-Ethyl-hexyl)Phthalate (mg/L) Daily Maximum	< 0.00312	< 0.00306	< 0.00316	< 0.00309	< 0.00333	< 0.00306	< 0.00312	< 0.00319	< 0.00316	< 0.00297	< 0.00303	< 0.00303
Chrysene (mg/L) Daily Maximum	< 0.00104	< 0.00102	< 0.00105	< 0.00103	< 0.00111	< 0.00102	< 0.00104	< 0.00106	< 0.00105	< 0.00099	< 0.00101	< 0.00101
Total Phenolics (mg/L) Daily Maximum			< 0.05			< 0.05			< 0.05			< 0.05
PCBs (Dry Weather) (pg/L) Daily Maximum			2480						4210			
PCBs (Wet Weather) (pg/L) Daily Maximum			2830						3690			
Chronic WET - Ceriodaphnia Survival (TUc) Daily Maximum			5.56			GG			GG			GG
Chronic WET - Ceriodaphnia Reproduction (TUc) Daily Maximum			5.56			GG			GG			GG

Chronic WET - Pimephales Survival (TUc) Daily Maximum			5.56			GG			GG			GG
Chronic WET - Pimephales Growth (TUc) Daily Maximum			5.56			GG			GG			GG

DMR Data for Outfall 002 (from March 1, 2024 to February 28, 2025)

Parameter	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24
pH (S.U.) Daily Maximum			7.25									
CBOD5 (mg/L) Daily Maximum			< 2.0									
COD (mg/L) Daily Maximum			10.2									
TSS (mg/L) Daily Maximum			11									
Oil and Grease (mg/L) Daily Maximum			< 4.8									
Fecal Coliform (No./100 ml) Daily Maximum			1									
TKN (mg/L) Daily Maximum			0.75									
Total Phosphorus (mg/L) Daily Maximum			0.10									
Dissolved Iron (mg/L) Daily Maximum			< 0.100									

Compliance History

Effluent Violations for Outfall 001, from: April 1, 2024 To: February 28, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
CBOD5 % Removal	02/28/25	Min Mo Avg	81.10	%	89.25	%

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 1.4
Latitude 39º 52' 30.44" **Longitude** -75º 17' 48.00"
Wastewater Description: Treated 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

Parameter	Limit (mg/l)	SBC	Basis
CBOD5	183 lbs/day	Average Monthly	DRBC WLA*
CBOD5	16	Average Monthly	DRBC WLA*
CBOD5 % Removal*	89.25	Minimum	DRBC Docket*
TSS	30	Average Monthly	DRBC Regulation (3.10.4.D)
NH3-N**	3.0 mg/l	Average Monthly	BPJ /BAT
Total Nitrogen	Report	Average Monthly	Data Collection
Total Phosphorus	Report	Average Monthly	Data Collection
Dissolved Oxygen	5.0	Inst. Minimum	BPJ/existing***
TRC****	0.30	Average Monthly	Spreadsheet
Fecal Coliform	200/1000	Geometric Mean/Inst.Max.	Cha. 93 & DRBC
pH	6.0 to 9.0 STD units at all times		Cha. 93
TDS	Monitoring	Daily Max	DRBC Docket*
E. Coli*****	Report	Inst.Max	Ch.92a

* DRBC Docket No. D-2014-014 CP-2

** Review of the monitoring results shows this limit is easily achievable. This limit was established in the past to maintain the current treatment quality while DRBC is planning to come up with an ammonia criterion for Estuary.

***This is consistent with the Chapter 93 minimum criterion for WWF streams.

****TRC limit is more stringent than the existing limit. Based on the review this limit is easily achievable. Spreadsheet is attached for referenc.

*****E. Coli monitoring is included in the draft permit according to the DEP SOP guidance (Chapter 92.a.61). This is a new requirement and is consistent with the requirements of other similar discharges in the area.

PFAS:

As part of the permit renewal, facility provided the PFAS sampling results. The reported concentrations for Outfall 001 are 14.4 ng/L for PFOA, 21 ng/L for PFOS, 8.31 ng/L for PFBS and < 1.6 ng/L for HFPO-DA. For Outfall 002 the concentrations are 15.3 ng/L for PFOA, 24.1 for PFOS, 4.43 ng/L for PFBS and <1.61 ng/L for HFPO-DA. Quarterly monitoring for these PFAS parameters is included in the draft permit for Outfalls 001 and 002.

These are new parameters required to be monitored according to our new guidance. The permittee may discontinue monitoring for these parameters if the results in 4 consecutive monitoring periods indicate non-detect results for
all of these parameters 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, permittee must enter a No Discharge Indicator (NODI) Code of "GG" on DMRs.

A "Reasonable Potential Analysis" determined that the following are parameters of concern:

Parameter	Maximum Concentration in Application (ug/l)	Most Stringent Criterion (ug/l) (a)	Max. Allowable Concentration (ug/l) using dilution factor (a*6.4)	Comments
Total Dissolved Solids	726000	500000	3200000	Recommend existing monitoring
Total Aluminum	2370	750	4800	Monitoring/existing
Total Copper	57	9.0	57.6	Continue existing limit
Total Mercury*	<0.2	0.05	0.32	No Monitoring
Total Thallium**	<0.4	0.24	1.54	No Monitoring
Chloroform	7.0	5.7	36.48	No Monitoring
Total Phenols***	<50	5	32	Monitoring/existing
Bis(2-Ethylhexyl) Phthalate	5.49	0.32	2.05	****Recommend limit
Chrysene	<0.49	0.12	0.77	*****Monitoring/existing
Dichlorobromomethane	12.7	0.95	6.08	****Recommend limit
Available Cyanide******	<6			Monitoring/existing

The discharge is into the tidal portion of Darby Creek and a dilution factor is not established based on any studies. Therefore, the following dilution factor is calculated based on the Darby Creek flow.

Q7-10 = 11.7 cfs = 7.56 mgd

Qd = 1.4 mgd

Dilution factor = (7.56+1.4)/1.4 = 6.4

* Three sample results are available. All three are non-detect results reported using the DEP recommended TQL.

** Three sample results are available. All three are non-detect results reported using a QL less than the DEP recommended TQL.

***There are no surface water intakes for public water supply within a 5-mile tidal influence of the discharge and existing monitoring recommended.

**** These are new limits. One year compliance time is provided to meet the limits. For Bis(2-Ethylhexyl) Phthalate the calculated limit is below the Target Quantitation Limit of 5.0 ug/l. Therefore, for the purpose of compliance, a statistical value reported on the DMR that is less than the TQL will be considered to be in compliance. Standard condition associated with WQBELs below detection limits is incorporated in Part C of the permit.

***** review of the sample results (from 2020 to 2025) shows that all of the results are reported as non-detect using an MDL less than the DEP recommended TQL. Existing monitoring is recommended to continue in the draft permit.

****** Available Cyanide is reported in the DMR as < 6 ug/l. There is no criterion for Available Cyanide. Existing monitoring is recommended to continue (the most stringent criterion for free cyanide is 4 and sampling results show no concern for free cyanide).

Anti-Backsliding

N/A

Development of Effluent Limitations

Outfall No.	002	**Design Flow (MGD)**	0
Latitude	39º 52' 29.00"	**Longitude**	-75º 17' 30.00"
Wastewater Description:	Stormwater		

The current stormwater parameters pH, CBOD5, COD, TSS, Oil and Grease, Fecal Coliform, Total Kjeldahl Nitrogen, Total Phosphorus and Dissolved Iron are continued in the new permit.

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Whole Effluent Toxicity (WET)

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

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

The dilution series used for the tests was: 100%, 59%, 18%, 9%, and 5%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 18%.

WET Summary and Evaluation

Facility Name	Tinicum Township WWTP
Permit No.	PA0028380
Design Flow (MGD)	1.4
Q_{7-10} Flow (cfs)	11.7
PMF_a	0.365
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	3/15/22	10/25/2022	12/5/23	12/17/24
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	3/15/22	10/25/22	12/5/23	12/17/24
Pimephales	Growth	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	3/15/22	10/25/22	12/5/23	12/16/24
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	3/15/22	10/25/2022	12/5/23	12/16/24
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**
TIWC	**16** % Effluent
Dilution Series	**4, 8, 16, 58, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	

* The PMFa and PMFc are taken from the previous fact sheet.

Based on the review of the WET test reports, test of significant toxicity (TST) was performed using DEP's WET Analysis Spreadsheet. There is no reasonable potential, and no WET limits are recommended. The standard WET condition based on the DEP WET SOP is incorporated in Part C of the draft permit.

Proposed Effluent Limitations and Monitoring Requirements

Outfall 001, Effective Period: Permit Effective Date through Start of Final Period.

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		
Dichlorobromomethane (ug/L)	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Bis(2-Ethylhexyl) Phthalate (ug/L)	XXX	XXX	XXX	XXX	Report	XXX	1/month	24-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements

Outfall 001, Effective Period: Start of Final Period 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		
Dichlorobromomethane (ug/L)	XXX	XXX	XXX	6.08	12.16	15.2	1/month	Grab
Bis(2-Ethylhexyl) Phthalate (ug/L)	XXX	XXX	XXX	2.05	4.1	5.13	1/month	24-Hr Composite

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Proposed Effluent Limitations and Monitoring Requirements

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	Report	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.3	XXX	1.0	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5)	183	275	XXX	16	24 Wkly Avg	32	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
CBOD5 Minimum % Removal (%) Percent Removal	XXX	XXX	XXX	89.25 Min Mo Avg	XXX	XXX	2/week	Calculation
Total Suspended Solids	350	525	XXX	30	45 Wkly Avg	60	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Ammonia-Nitrogen	35.0	XXX	XXX	3.0	XXX	6	2/month	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Aluminum, Total	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Copper, Total	0.53	1.05 Daily Max	XXX	0.045	0.090	0.113	1/month	24-Hr Composite
Cyanide, Available	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Chrysene	XXX	XXX	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Phenolics, Total	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
PCBs Dry Weather Analysis (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	24-Hr Composite
PCBs Wet Weather Analysis (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	24-Hr Composite
PFOA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Toxicity, Chronic - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Pimephales Survival (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Pimephales Growth (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements

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

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

TRC EVALUATION		Enter Facility Name in E3	
Input appropriate values in B4:B8 and E4:E7		Tinicum Twp STP	
11.7	= Q stream (cfs)	0.5	= CV Daily
1.4	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	0.365	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Strea	1	= CFC_Partial Mix Factor
	= Chlorine Demand of Disch	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.648	1.3.2.iii	WLA cfc = 1.691
PENTOXSD TRC	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRC	5.1b	LTA_afc= 0.241	5.1d	LTA_cfc = 0.983

Source		Effluent Limit Calculations	
PENTOXSD TRC	5.1f	AML MULT = 1.231	
PENTOXSD TRC	5.1g	AVG MON LIMIT (mg/l) = 0.297	AFC
		INST MAX LIMIT (mg/l) = 0.972	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...**
	...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...**
	...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**