pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0027421**
Facility Type	**Municipal**	APS ID	**1091015**
Major / Minor	**Major**	Authorization ID	**1446193**

Applicant and Facility Information

Applicant Name	**Norristown Municipal Waste Authority**	Facility Name	**Norristown Borough STP**
Applicant Address	235 East Airy Street	Facility Address	368 East Washington Street
	Norristown, PA 19401		Norristown, PA 19401
Applicant Contact	Barry Thompson	Facility Contact	Vanbuskirk Shane
Applicant Phone	(484) 680-7572	Facility Phone	(610) 270-3190
Client ID	315560	Site ID	450624
Ch 94 Load Status	Not Overloaded	Municipality	Norristown Borough
Connection Status	No Limitations	County	Montgomery
Date Application Received	May 3, 2023	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility, Pretreatment
Purpose of Application	Permit Renewal		

Summary of Review

Applicant requests renewal of an NPDES permit to discharge treated sewage from the Norristown Borough STP to Schuylkill River.

The municipalities served by the STP are the following: Norristown Municipality, West Norriton Township, Plymouth Township.

Effluent is discharged through Outfalls 001 and 002. The majority of the time, it is discharged only through Outfall 001. It is only during times of high influent flow, typically rain events, that effluent is discharged from Outfall 002.

Influent flow at the STP first enters the screening chamber followed by a grit removal chamber. The wastewater then flows to the pre-aeration tank for additional grit removal. The wastewater then flows to the pre-aeration tank for additional grit removal. The flow is then distributed to five (5) primary clarifiers and then is pumped to the aeration tanks (total 7). Flow then moves to the final settling tanks (total 6) before it goes through chlorine disinfection via their chlorine contact tanks. Finally, the treated effluent is aerated in the post-aeration tanks (2 total) and is discharged to Outfall 001. The treatment plant also uses digesters and a belt filter press for sludge dewatering and hires a contractor for sludge disposal.

The wastewater treatment chemicals listed in the application are: Chlorine for disinfection, Polymer for dewatering (belt filter press) and polymer to precipitate solids (secondary clarifier).

The facility began constructing treatment improvements in 2020 under the treatment plant improvements project (Phase I) and construction upgrades were completed in August 2023. The project includes the replacement of pumps, replacement of the aeration system, replacement of the belt filter press and construction of new buildings blower operations, electrical building and disinfection building.

Approve	Deny	Signatures	Date
X		*Sara Abraham* Sara Reji Abraham, E.I.T./ Project Manager	March 12, 2024
X		*Pravin Patel* Pravin C. Patel, P.E. /Environmental Engineer Manager	03/13/2024

Summary of Review

The instantaneous peak flow to the plant during wet weather events often exceeds the plant's hydraulic capacity due to infiltration and inflow in the collection system. The permittee implements its High Flow Maintenance Plan that includes various measures to reduce the impacts of wet weather flows, including temporary storage of excess flows within unused tanks at the plant.

Previously a small portion of the sewer system was combined, sanitary and stormwater discharging through CSO Outfall 003. CSO was removed from the sewer system in December 2022. The discharge pipe was plated and grouted inside of the manhole and then the manhole was lined by Advanced Rehab Technology. According to the applicant's request the CSO Outfall 003 is eliminated from the draft permit.

The industrial users listed in the application are:

(i) Pennsylvania American Water Company (SIU)
(ii) Von C Brewing Company

The facility currently implements an EPA approved pretreatment program.

eDMR review shows a couple of noncompliance occurrences with Fecal Coliform limitations during the past year. DEP inspection was conducted at the facility on 10/20/2022. No violations were noted.

The Schuylkill River is listed as impaired for PCBs. In April 2007, EPA established the "PCB Total Maximum Daily Load for the Schuylkill River" to address the impairment. The Schuylkill River's PCB TMDL was established using a water quality criterion of 0.044 ng/l for PCBs. Appendix D, Table B-1 lists the PCB waste load allocations for point source dischargers to the main stem Schuylkill River. The waste load allocation assigned to this facility is 1.62×10^{-3} grams/day.

According to the current permit, the facility submitted a PCB PMP in February 2020. 2023 annual report shows a cumulative PCB reduction of approximately 45.7 % from Year 2020 to Year 2023 during dry weather events. The standard condition requiring PCB PMP and monitoring is included in the permit. According to the 2023 annual report the Authority is planning to submit some revisions to the originally submitted PCB PMP.

Influent monitoring for CBOD5, TSS and BOD5 are recommended for the draft permit to check compliance with the 85% removal requirement and Chapter 94 requirement. This requirement is consistent with the requirements of other similar dischargers in the area.

Sludge use and disposal description and location(s): Sludge is disposed at Pioneer Crossing Landfill by the hauling contractor.

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.

Act 14 Notifications:

Montgomery County	-	February 14, 2023
Norristown Borough	-	February 11, 2023
Plymouth Township	-	February 11, 2023
West Norriton Township	-	February 9, 2023

Summary of Review

Permit Conditions:

A. No Stormwater to Sewers
B. Necessary Property Rights
C. Proper Sludge Disposal
D. Chlorine Minimization
E. Notification of Designation of Responsible Operator
F. Fecal Coliform Reporting
G. Operations and Maintenance Plan
H. Pretreatment Program Implementation
I. Solids Management
J. Whole Effluent Toxicity Testing
K. Stormwater Requirements
L. PCB Pollutant Minimization Plan and Monitoring

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	9.75
Latitude	40º 6' 28.03"	Longitude	-75º 20' 10.96"
Quad Name	Norristown	Quad Code	08-22-2
Wastewater Description:	Treated Sewage Effluent		

Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	00833
NHD Com ID	25985560	RMI	23.4
Drainage Area	1766 mi^2	Yield (cfs/mi^2)	0.195
Q_{7-10} Flow (cfs)	344.4	Q_{7-10} Basis	Previous fact sheet*
Elevation (ft)	49	Slope (ft/ft)	0.0003
Watershed No.	3-F	Chapter 93 Class.	WWF, MF
Existing Use	Same as Ch. 93		
Assessment Status	Impaired		
Cause(s) of Impairment	POLYCHLORINATED BIPHENYLS (PCBS)		
Source(s) of Impairment	SOURCE UNKNOWN		
TMDL Status	Final	Name	Schuylkill River PCB TMDL

Nearest Downstream Public Water Supply Intake	Philadelphia Water Dept. – Queen Lane		
PWS Waters	Schuylkill River	Flow at Intake (cfs)	394 cfs
PWS RMI	12.6	Distance from Outfall (mi)	10.8

* Q7-10 = 344.41 cfs (based on Schuylkill River at Pottstown, USGS 01472000, where Q7-10 = 261.7 cfs/1147 mi.2 = 0.228 cfsm, from 1929-1987). This value was used for the watershed except for the Perkiomen basin where, based on the Graterford gage, USGS 01472000, Q7-10 = 18.7 cfs/279 mi.2 = 0.067 cfsm, from 1916-1988. Applied at the

mouth, where DA = 362 mi.2, the Q7-10 for Perkiomen basin = 24.3 cfs. Therefore, Q7-10 = (0.228 cfsm x 1404 mi2) + (0.067 cfsm x 362mi2) = 344.41 cfs

Alternate Outfall 002: Alternate discharge location during periods of high flow. Combined flow of 9.75 MGD through Outfalls 001 and 002
Latitude 40° 06' 29.86", Longitude 75° 20' 10.18", RMI 23.4 miles, Receiving waters – Schuylkill River

Stormwater Outfall:

The current permit has a stormwater Outfall 004 which the Authority does not have any record of or not been able to locate it. There is no stormwater that flows towards the documented Outfall 004 and based on the Authority's request the Outfall 004 is relocated to a more appropriate location where the stormwater is flowing to Schuylkill River as sheet flow. New latitude and longitude are provided for the Outfall 004. The physical location is described as 22 feet east and 112 feet south of the Blower Pad for Post Aeration Tanks.

Since the discharge to Outfall 004 is sheet flow and it is difficult to monitor for this outfall, no monitoring is required for Outfall 004.

Treatment Facility Summary

Treatment Facility Name: Norristown Municipal STP

WQM Permit No.	Issuance Date
4619408	1/22/2020
4612402	10/25/2012
4603419	11/14/2003

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Gas Chlorine	9.75

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
9.75	34540	Not Overloaded	Digester & Belt Filter Press	Landfill

Compliance History

DMR Data for Outfall 001 (from October 1, 2022 to September 30, 2023)

Parameter	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22
Flow (MGD) Average Monthly	4.53	4.81	5.63	4.61	4.62	3.69	4.27	4.02	4.73	4.95	4.57	5.12
Flow (MGD) Daily Maximum	6.03	6.11	9.34	7.17	6.53	4.96	6.51	5.45	6.38	6.78	6.31	6.95
pH (S.U.) Instantaneous Minimum	6.5	6.8	6.6	6.4	6.7	6.3	6.3	6.3	6.4	6.4	6.3	6.5
pH (S.U.) Instantaneous Maximum	7.0	7.1	7.4	7.2	7.1	7.1	6.9	7.1	7.1	7.0	6.8	7.1
DO (mg/L) Instantaneous Minimum	6.9	7.3	6.6	5.9	6.7	6.0	6.0	6.6	7.3	7.0	6.3	6.5
DO (mg/L) Minimum Monthly Average	7.8	7.6	7.5	5.9	6.9	7.0	7.3	7.9	8.4	8.5	7.8	8.0
TRC (mg/L) Average Monthly	0.48	0.45	0.50	0.46	0.46	0.48	0.48	0.48	0.47	0.47	0.47	0.44
TRC (mg/L) Instantaneous Maximum	0.61	0.59	0.71	0.89	0.69	0.67	0.69	0.63	0.65	0.59	0.60	0.64
CBOD5 (lbs/day) Average Monthly	196	165	314	393	394	281	301	340	280	296	205	280
CBOD5 (lbs/day) Weekly Average	235	203	540	442	761	319	333	447	423	313	269	338
CBOD5 (mg/L) Average Monthly	4.6	4.0	6.1	9.8	8.90	8.6	8	9.3	6	6.1	5	6.2
CBOD5 (mg/L) Weekly Average	5	5.0	8.6	12	13.1	11	9	14.1	7	7.4	7	8.4
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	12256	8267	11750	12737	14152	15081	13313	14677	16107	14519	14703	17420

BOD5 (mg/L) Raw Sewage Influent Average Monthly	231	197	193	250	266	284	252	287	290	261	319	356
TSS (lbs/day) Average Monthly	336	245	580	502	485	381	556	507	453	494	463	497
TSS (lbs/day) Weekly Average	402	302	952	567	678	467	577	578	570	678	661	584
TSS (mg/L) Average Monthly	7.9	6	11	12.3	11.5	11.8	16	13	9	10	12	11
TSS (mg/L) Raw Sewage Influent Average Monthly	214	187	181	232	266	234	231	317	312	236	284	390
TSS (mg/L) Weekly Average	10	6.9	15.1	14	13	15	16	16	11	16	18	13
Total Dissolved Solids (mg/L) Average Monthly	425.0			439.0			247			424.0		
Fecal Coliform (No./100 ml) Geometric Mean	17	6	10	17	16	9	14	32	24	13	39	19
Fecal Coliform (No./100 ml) Instantaneous Maximum	121	19	1733	2420	146	291	411	980	548	770	517	131
Total Nitrogen (lbs/day) Average Monthly	41	21	57	103	172	66	136	614	180	138	87	81
Total Nitrogen (mg/L) Average Monthly	1.1	1.0	2.7	5.8	8.4	1.8	3.5	14	4	3.2	2.4	1.9
Ammonia (lbs/day) Average Monthly	6	6	15	117	285	84	53	318	322	149	34	94
Ammonia (mg/L) Average Monthly	0.12	0.14	0.26	2.94	7.01	2.26	1.5	8	7	3	0.88	2.11
Total Phosphorus (lbs/day) Average Monthly	129	152	117	81	106	54	136	109	125	123	115	124
Total Phosphorus (mg/L) Average Monthly	3.05	3.64	2.94	2.16	2.55	3.60	3.96	2.91	2.59	2.70	3.11	2.57
Total Copper (mg/L) Daily Maximum	0.011			0.008			0.049			0.009		

Total Lead (mg/L) Daily Maximum	0.001			0.001			0.004			0.001		
Sulfate (mg/L) Daily Maximum	41.5			52.9			43.3			38.4		
Total Thallium (mg/L) Daily Maximum	0.003			0.003			< 0.003			0.003		
Total Zinc (mg/L) Daily Maximum	0.095			0.095			0.221			0.060		
Chloride (mg/L) Daily Maximum	112			139			118			112		
Bromide (mg/L) Daily Maximum	1.00			1.00			< 1.00			< 1.0		
PCBs (Dry Weather) (pg/L) Daily Maximum										1550		
PCBs (Wet Weather) (pg/L) Daily Maximum										1500		
Chronic WET - Ceriodaphnia Survival (TUc) Daily Maximum										25		
Chronic WET - Ceriodaphnia Reproduction (TUc) Daily Maximum										25		
Chronic WET - Pimephales Survival (TUc) Daily Maximum										25		
Chronic WET - Pimephales Growth (TUc) Daily Maximum										25		

DMR Data for Outfall 002 (from October 1, 2022 to September 30, 2023)

Parameter	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22
Flow (MGD) Average Monthly	0.30		0.12	0.10	0.36	0.12		0.09	1.14	0.92		0.45
Flow (MGD) Daily Maximum	2.72		1.15	1.46	3.49	2.31		1.34	3.06	2.91		2.97

pH (S.U.) Instantaneous Minimum	7.0		6.9	7.0	6.9	6.8		7.2	6.4	6.4		7.2
pH (S.U.) Instantaneous Maximum	7.1		7.2	7.1	7.1	7.1		7.2	7.1	7.3		7.5
DO (mg/L) Instantaneous Minimum	8.1		6.3	6.5	6.0	7.2		7.9	5.0	6.2		7.2
DO (mg/L) Minimum Monthly Average	8.4		8.0	6.5	7.6	7.9		7.9	8.4	8.3		8.3
TRC (mg/L) Average Monthly	0.49		0.41	0.49	0.42	0.49		0.47	0.42	0.45		0.47
TRC (mg/L) Instantaneous Maximum	0.51		0.51	0.50	0.55	0.50		0.50	0.59	0.61		0.62
Fecal Coliform (No./100 ml) Geometric Mean	9		5	42	16	395		10	6	3		17
Fecal Coliform (No./100 ml) Instantaneous Maximum	36		36	190	146	1733		16	44	11		205

Compliance History

Effluent Violations for Outfall 001, from: November 1, 2022 To: September 30, 2023

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	07/31/23	IMAX	1733	No./100 ml	1000	No./100 ml
Fecal Coliform	06/30/23	IMAX	2420	No./100 ml	1000	No./100 ml

Effluent Violations for Outfall 002, from: November 1, 2022 To: September 30, 2023

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	04/30/23	Geo Mean	395	No./100 ml	200	No./100 ml
Fecal Coliform	04/30/23	IMAX	1733	No./100 ml	1000	No./100 ml

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 9.75
Latitude 40º 6' 29.86" **Longitude** -75º 20' 10.18"
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	Model
CBOD5 (5/1 to 10/31)	20	Average Monthly	WQM 7.0
CBOD5 (11/1 to 4/30)	25	Average Monthly	Existing (seasonal limit)
TSS	30	Average Monthly	Existing/DRBC
NH3-N (5/1 t0 10/31)	10	Average Monthly	WQM 7.0
NH3-N (11/1 to 4/30)	20	Average Monthly	Existing (seasonal limit)
DO*	5.0	Inst.Min.	WQM 7.0
TDS	1000	Average quarterly	Existing/DRBC
Fecal Coliform	200 /1000	Geo Mean/Inst. Max.	Ch. 92a & DRBC
TRC**	0.5/1.2	Average Monthly/IMax.	Spreadsheet
Total Phosphorus	Report	Average Monthly	Existing/Data Collection
Total Nitrogen	Report	Average Monthly	Existing/Data Collection
E. Coli***	Report	Inst. Max.	Ch. 92a
PFOA****	Report	Daily Max	Data collection/SOP
PFOS****	Report	Daily Max	Data collection/SOP
HFPO-DA****	Report	Daily Max	Data collection/SOP
PFBS***	Report	Daily Max	Data collection/SOP

*DO limit is changed to 5.0 mg/l and the facility can easily achieve the limit.
**TRC IMax. is changed to 1.2 and the facility can easily achieve the limit.

***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.

******** 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 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 the following parameters were candidates for limitations/monitoring:

Parameter	Limit (mg/l)	SBC	Model
Total Copper	Report	Average Monthly	Toxic Management Spreadsheet (TMS)
Total Thallium*	0.0057	Average Monthly	TMS
Total Zinc	Report	Average Monthly	TMS
Total Lead **			

***** Total Thallium is in the existing permit with monitoring requirement. All the past results are ≤ 0.003 mg/l. According to the permittee there are no sources for this parameter. Monthly monitoring is included in the draft permit. We suggest the facility to use the best technology available to achieve the Target QL (0.002 mg/l) listed in the application instructions for future analyses. This will be reevaluated at the next permit renewal.

**Existing permit has a monitoring requirement for Total Lead. Lead is not a parameter of concern based on TMS. Recommend continuing monitoring as an existing parameter since there is industrial users.

Anti-Backsliding

Monitoring for Chloride, Bromide, and Sulfate are eliminated. Discharge concentrations for Chloride and Sulfate are much lower than the criteria and there is no criterion for Bromide. Historically PADEP was implementing monitoring for these special parameters and since PADEP has more than 7 years' worth of data, a monitoring is no longer implemented unless required by other agencies, e.g. DRBC. Therefore, it is recommended that the existing monitoring requirements for Chloride, Sulfate and Bromide to be removed. This is justified by the anti-backsliding prohibition exception as stated in 40 CFR 122.44(l)(2)(i)(B)(1).

Alternate Outfall 002: The requirements from the existing permit are recommended to continue for pH, DO, TRC and Fecal Coliform. Similar to Outfall 001 changes have been made to DO (Inst. Min.) and TRC (IMax). eDMR review shows the limits are achievable.

See the below attached TMS and WQM reports:

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Norristown Boro STP** NPDES Permit No.: **PA0027421** Outfall No.: **001**

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

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
9.75	148	6.7						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		439									
	Chloride (PWS)	mg/L		139									
	Bromide	mg/L		1									
	Sulfate (PWS)	mg/L		52.9									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		30									
	Total Antimony	µg/L		0.6									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		57									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		300									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L		1.3									
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L		0.4									
	Total Copper	µg/L		15									
	Free Cyanide	µg/L		14									
	Total Cyanide	µg/L		9									
	Dissolved Iron	µg/L		50									
	Total Iron	µg/L		120									
	Total Lead	µg/L		4									
	Total Manganese	µg/L		78									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		4.7									
	Total Phenols (Phenolics) (PWS)	µg/L		3									
	Total Selenium	µg/L	<	1									
	Total Silver	µg/L	<	0.3									
	Total Thallium	µg/L	<	3									
	Total Zinc	µg/L		239									
	Total Molybdenum	µg/L	<	3									
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	2									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L	<	0.5									
	Carbon Tetrachloride	µg/L	<	0.5									
	Chlorobenzene	µg/L		0.5									
	Chlorodibromomethane	µg/L	<	0.5									
	Chloroethane	µg/L	<	0.5									
	2-Chloroethyl Vinyl Ether	µg/L	<	5									

Group 3	Chloroform	µg/L		11									
	Dichlorobromomethane	µg/L		2.2									
	1,1-Dichloroethane	µg/L	<	0.5									
	1,2-Dichloroethane	µg/L	<	0.5									
	1,1-Dichloroethylene	µg/L	<	0.5									
	1,2-Dichloropropane	µg/L	<	0.5									
	1,3-Dichloropropylene	µg/L	<	0.5									
	1,4-Dioxane	µg/L	<	5									
	Ethylbenzene	µg/L	<	0.5									
	Methyl Bromide	µg/L	<	0.5									
	Methyl Chloride	µg/L	<	0.5									
	Methylene Chloride	µg/L	<	0.5									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5									
	Tetrachloroethylene	µg/L	<	0.5									
	Toluene	µg/L	<	0.5									
	1,2-trans-Dichloroethylene	µg/L	<	0.5									
	1,1,1-Trichloroethane	µg/L	<	0.5									
	1,1,2-Trichloroethane	µg/L	<	0.5									
	Trichloroethylene	µg/L	<	0.5									
	Vinyl Chloride	µg/L	<	0.5									
Group 4	2-Chlorophenol	µg/L	<	10									
	2,4-Dichlorophenol	µg/L	<	10									
	2,4-Dimethylphenol	µg/L	<	10									
	4,6-Dinitro-o-Cresol	µg/L	<	10									
	2,4-Dinitrophenol	µg/L	<	10									
	2-Nitrophenol	µg/L	<	10									
	4-Nitrophenol	µg/L	<	10									
	p-Chloro-m-Cresol	µg/L	<	10									
	Pentachlorophenol	µg/L	<	10									
	Phenol	µg/L	<	10									
	2,4,6-Trichlorophenol	µg/L	<	10									
Group 5	Acenaphthene	µg/L	<	2.5									
	Acenaphthylene	µg/L	<	2.5									
	Anthracene	µg/L	<	2.5									
	Benzidine	µg/L	<	50									
	Benzo(a)Anthracene	µg/L	<	2.5									
	Benzo(a)Pyrene	µg/L	<	2.5									
	3,4-Benzofluoranthene	µg/L	<	2.5									
	Benzo(ghi)Perylene	µg/L	<	2.5									
	Benzo(k)Fluoranthene	µg/L	<	2.5									
	Bis(2-Chloroethoxy)Methane	µg/L	<	5									
	Bis(2-Chloroethyl)Ether	µg/L	<	5									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	5									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	5									
	4-Bromophenyl Phenyl Ether	µg/L	<	5									
	Butyl Benzyl Phthalate	µg/L	<	5									
	2-Chloronaphthalene	µg/L	<	5									
	4-Chlorophenyl Phenyl Ether	µg/L	<	5									
	Chrysene	µg/L	<	2.5									
	Dibenzo(a,h)Anthrancene	µg/L	<	2.5									
	1,2-Dichlorobenzene	µg/L	<	0.5									
	1,3-Dichlorobenzene	µg/L	<	0.5									
	1,4-Dichlorobenzene	µg/L	<	0.5									
	3,3-Dichlorobenzidine	µg/L	<	5									
	Diethyl Phthalate	µg/L	<	5									
	Dimethyl Phthalate	µg/L	<	5									
	Di-n-Butyl Phthalate	µg/L	<	5									
	2,4-Dinitrotoluene	µg/L	<	5									
	2,6-Dinitrotoluene	µg/L	<	5									
	Di-n-Octyl Phthalate	µg/L	<	5									
	1,2-Diphenylhydrazine	µg/L	<	5									
	Fluoranthene	µg/L	<	2.5									
	Fluorene	µg/L	<	2.5									
	Hexachlorobenzene	µg/L	<	5									
	Hexachlorobutadiene	µg/L	<	0.5									
	Hexachlorocyclopentadiene	µg/L	<	5									
	Hexachloroethane	µg/L	<	5									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	2.5									

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

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Norristown Boro STP, NPDES Permit No. PA0027421, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: _____ No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	000833	23.39	49	1766			Yes
End of Reach 1	000833	22.94	48.2	1766.6			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	23.39	0.1	344.41		65							154	7		
End of Reach 1	22.94	0.1	344.55												

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	23.39														
End of Reach 1	22.94														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Norristown Boro STP, NPDES Permit No. PA0027421, Outfall 001

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

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ ***AFC*** CCT (min): 15 PMF: 0.219 Analysis Hardness (mg/l): 153 Analysis pH: 6.93

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	4,497	
Total Antimony	0	0		0	1,100	1,100	6,596	
Total Arsenic	0	0		0	340	340	2,039	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	125,928	
Total Boron	0	0		0	8,100	8,100	48,572	
Total Cadmium	0	0		0	3.044	3.29	19.7	Chem Translator of 0.926 applied
Total Chromium (III)	0	0		0	807.152	2,554	15,317	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	97.7	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	570	
Total Copper	0	0		0	20.063	20.9	125	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	132	
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	102.280	140	841	Chem Translator of 0.729 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	9.88	Chem Translator of 0.85 applied
Total Nickel	0	0		0	670.984	672	4,032	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	6.685	7.86	47.2	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	390	
Total Zinc	0	0		0	168.013	172	1,030	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	18.0	
Acrylonitrile	0	0		0	650	650	3,898	
Benzene	0	0		0	640	640	3,838	

Bromoform	0	0		0	1,800	1,800	10,794	
Carbon Tetrachloride	0	0		0	2,800	2,800	16,790	
Chlorobenzene	0	0		0	1,200	1,200	7,196	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	107,938	
Chloroform	0	0		0	1,900	1,900	11,393	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	89,948	
1,1-Dichloroethylene	0	0		0	7,500	7,500	44,974	
1,2-Dichloropropane	0	0		0	11,000	11,000	65,962	
1,3-Dichloropropylene	0	0		0	310	310	1,859	
Ethylbenzene	0	0		0	2,900	2,900	17,390	
Methyl Bromide	0	0		0	550	550	3,298	
Methyl Chloride	0	0		0	28,000	28,000	167,903	
Methylene Chloride	0	0		0	12,000	12,000	71,959	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	5,997	
Tetrachloroethylene	0	0		0	700	700	4,198	
Toluene	0	0		0	1,700	1,700	10,194	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	40,777	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	17,990	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	20,388	
Trichloroethylene	0	0		0	2,300	2,300	13,792	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	3,358	
2,4-Dichlorophenol	0	0		0	1,700	1,700	10,194	
2,4-Dimethylphenol	0	0		0	660	660	3,958	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	480	
2,4-Dinitrophenol	0	0		0	660	660	3,958	
2-Nitrophenol	0	0		0	8,000	8,000	47,972	
4-Nitrophenol	0	0		0	2,300	2,300	13,792	
p-Chloro-m-Cresol	0	0		0	160	160	959	
Pentachlorophenol	0	0		0	8.158	8.16	48.9	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	2,758	
Acenaphthene	0	0		0	83	83.0	498	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	1,799	
Benzo(a)Anthracene	0	0		0	0.5	0.5	3.0	
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	179,897	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	26,984	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	1,619	
Butyl Benzyl Phthalate	0	0		0	140	140	840	
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	4,917	
1,3-Dichlorobenzene	0	0		0	350	350	2,099	
1,4-Dichlorobenzene	0	0		0	730	730	4,377	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	23,986	
Dimethyl Phthalate	0	0		0	2,500	2,500	14,991	
Di-n-Butyl Phthalate	0	0		0	110	110	660	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	9,594	
2,6-Dinitrotoluene	0	0		0	990	990	5,937	
1,2-Diphenylhydrazine	0	0		0	15	15.0	89.9	
Fluoranthene	0	0		0	200	200	1,199	
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	60.0	
Hexachlorocyclopentadiene	0	0		0	5	5.0	30.0	
Hexachloroethane	0	0		0	60	60.0	360	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	59,966	
Naphthalene	0	0		0	140	140	840	
Nitrobenzene	0	0		0	4,000	4,000	23,986	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	101,941	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	1,799	
Phenanthrene	0	0		0	5	5.0	30.0	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	780	

☑ ***CFC*** CCT (min): ######## PMF: 1 Analysis Hardness (mg/l): 153.75 Analysis pH: 6.98

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	5,243	
Total Arsenic	0	0		0	150	150	3,575	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	97,719	
Total Boron	0	0		0	1,600	1,600	38,134	
Total Cadmium	0	0		0	0.332	0.37	8.87	Chem Translator of 0.891 applied
Total Chromium (III)	0	0		0	105.415	123	2,921	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	248	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	453	
Total Copper	0	0		0	12.934	13.5	321	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	124	

Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	35,751	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	4.007	5.5	131	Chem Translator of 0.728 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	21.6	Chem Translator of 0.85 applied
Total Nickel	0	0		0	74.834	75.1	1,789	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	119	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	310	
Total Zinc	0	0		0	170.090	173	4,111	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	71.5	
Acrylonitrile	0	0		0	130	130	3,098	
Benzene	0	0		0	130	130	3,098	
Bromoform	0	0		0	370	370	8,819	
Carbon Tetrachloride	0	0		0	560	560	13,347	
Chlorobenzene	0	0		0	240	240	5,720	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	83,419	
Chloroform	0	0		0	390	390	9,295	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	73,885	
1,1-Dichloroethylene	0	0		0	1,500	1,500	35,751	
1,2-Dichloropropane	0	0		0	2,200	2,200	52,435	
1,3-Dichloropropylene	0	0		0	61	61.0	1,454	
Ethylbenzene	0	0		0	580	580	13,824	
Methyl Bromide	0	0		0	110	110	2,622	
Methyl Chloride	0	0		0	5,500	5,500	131,087	
Methylene Chloride	0	0		0	2,400	2,400	57,201	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	5,005	
Tetrachloroethylene	0	0		0	140	140	3,337	
Toluene	0	0		0	330	330	7,865	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	33,368	
1,1,1-Trichloroethane	0	0		0	610	610	14,539	
1,1,2-Trichloroethane	0	0		0	680	680	16,207	
Trichloroethylene	0	0		0	450	450	10,725	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	2,622	
2,4-Dichlorophenol	0	0		0	340	340	8,104	
2,4-Dimethylphenol	0	0		0	130	130	3,098	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	381	
2,4-Dinitrophenol	0	0		0	130	130	3,098	
2-Nitrophenol	0	0		0	1,600	1,600	38,134	
4-Nitrophenol	0	0		0	470	470	11,202	
p-Chloro-m-Cresol	0	0		0	500	500	11,917	
Pentachlorophenol	0	0		0	6.259	6.26	149	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	2,169	
Acenaphthene	0	0		0	17	17.0	405	

Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	1,406	
Benzo(a)Anthracene	0	0		0	0.1	0.1	2.38	
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	143,004	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	21,689	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	1,287	
Butyl Benzyl Phthalate	0	0		0	35	35.0	834	
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	3,813	
1,3-Dichlorobenzene	0	0		0	69	69.0	1,645	
1,4-Dichlorobenzene	0	0		0	150	150	3,575	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	19,067	
Dimethyl Phthalate	0	0		0	500	500	11,917	
Di-n-Butyl Phthalate	0	0		0	21	21.0	501	
2,4-Dinitrotoluene	0	0		0	320	320	7,627	
2,6-Dinitrotoluene	0	0		0	200	200	4,767	
1,2-Diphenylhydrazine	0	0		0	3	3.0	71.5	
Fluoranthene	0	0		0	40	40.0	953	
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	47.7	
Hexachlorocyclopentadiene	0	0		0	1	1.0	23.8	
Hexachloroethane	0	0		0	12	12.0	286	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	50,051	
Naphthalene	0	0		0	43	43.0	1,025	
Nitrobenzene	0	0		0	810	810	19,305	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	81,035	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	1,406	
Phenanthrene	0	0		0	1	1.0	23.8	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	620	

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

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

Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	133	
Total Arsenic	0	0		0	10	10.0	238	
Total Barium	0	0		0	2,400	2,400	57,201	
Total Boron	0	0		0	3,100	3,100	73,885	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	4	4.0	95.3	
Dissolved Iron	0	0		0	300	300	7,150	
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	23,834	
Total Mercury	0	0		0	0.050	0.05	1.19	
Total Nickel	0	0		0	610	610	14,539	
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	5.72	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	71.5	
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	2,383	
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	136	
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	787	
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	1,621	
Methyl Bromide	0	0		0	100	100.0	2,383	
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	1,359	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	2,383	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	238,339	
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	715	

2,4-Dichlorophenol	0	0		0	10	10.0	238	
2,4-Dimethylphenol	0	0		0	100	100.0	2,383	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	47.7	
2,4-Dinitrophenol	0	0		0	10	10.0	238	
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	95,336	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	1,668	
Anthracene	0	0		0	300	300	7,150	
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	4,767	
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	2.38	
2-Chloronaphthalene	0	0		0	800	800	19,067	
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	23,834	
1,3-Dichlorobenzene	0	0		0	7	7.0	167	
1,4-Dichlorobenzene	0	0		0	300	300	7,150	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	14,300	
Dimethyl Phthalate	0	0		0	2,000	2,000	47,668	
Di-n-Butyl Phthalate	0	0		0	20	20.0	477	
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	477	
Fluorene	0	0		0	50	50.0	1,192	
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	95.3	
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	810	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	238	
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	477	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	1.67	

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

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	4.94	
Benzene	0	0		0	0.58	0.58	47.7	
Bromoform	0	0		0	7	7.0	576	
Carbon Tetrachloride	0	0		0	0.4	0.4	32.9	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	65.8	
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	78.2	
1,2-Dichloroethane	0	0		0	9.9	9.9	814	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	74.0	
1,3-Dichloropropylene	0	0		0	0.27	0.27	22.2	
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	1,645	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	16.5	
Tetrachloroethylene	0	0		0	10	10.0	823	
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	45.2	
Trichloroethylene	0	0		0	0.6	0.6	49.4	
Vinyl Chloride	0	0		0	0.02	0.02	1.65	
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	2.47	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	123	
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	0.008	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.082	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.008	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.082	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.82	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	2.47	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	26.3	
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	9.87	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.008	
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	4.11	
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	4.11	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	4.11	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	2.47	
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	0.007	

Hexachlorobutadiene	0	0		0	0.01	0.01	0.82	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	8.23	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.082	
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	0.058	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.41	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	271	
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 Copper	Report	Report	Report	Report	Report	µg/L	80.3	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Thallium	0.47	0.73	5.72	8.92	14.3	µg/L	5.72	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	660	AFC	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 Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	2,883	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	133	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	57,201	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	31,133	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	8.87	µg/L	Discharge Conc < TQL
Total Chromium (III)	2,921	µg/L	Discharge Conc ≤ 10% WQBEL

Hexavalent Chromium	62.6	µg/L	Discharge Conc < TQL
Total Cobalt	365	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	84.6	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	7,150	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	35,751	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	131	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	23,834	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	1.19	µg/L	Discharge Conc < TQL
Total Nickel	1,789	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	119	µg/L	Discharge Conc < TQL
Total Silver	30.2	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	11.5	µg/L	Discharge Conc < TQL
Acrylonitrile	4.94	µg/L	Discharge Conc < TQL
Benzene	47.7	µg/L	Discharge Conc < TQL
Bromoform	576	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	32.9	µg/L	Discharge Conc < TQL
Chlorobenzene	2,383	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	65.8	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	69,184	µg/L	Discharge Conc < TQL
Chloroform	136	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	78.2	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	814	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	787	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	74.0	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	22.2	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	1,621	µg/L	Discharge Conc < TQL
Methyl Bromide	2,114	µg/L	Discharge Conc < TQL
Methyl Chloride	107,619	µg/L	Discharge Conc < TQL
Methylene Chloride	1,645	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	16.5	µg/L	Discharge Conc < TQL
Tetrachloroethylene	823	µg/L	Discharge Conc < TQL
Toluene	1,359	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	2,383	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	11,531	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	45.2	µg/L	Discharge Conc < TQL
Trichloroethylene	49.4	µg/L	Discharge Conc < TQL
Vinyl Chloride	1.65	µg/L	Discharge Conc < TQL
2-Chlorophenol	715	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	238	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	2,383	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	47.7	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	238	µg/L	Discharge Conc < TQL
2-Nitrophenol	30,748	µg/L	Discharge Conc < TQL

4-Nitrophenol	8,840	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	615	µg/L	Discharge Conc < TQL
Pentachlorophenol	2.47	µg/L	Discharge Conc < TQL
Phenol	95,336	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	123	µg/L	Discharge Conc < TQL
Acenaphthene	319	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	7,150	µg/L	Discharge Conc < TQL
Benzidine	0.008	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.082	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.008	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.082	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.82	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	2.47	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	4,767	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	26.3	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	1,038	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	2.38	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	19,067	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	9.87	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.008	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	3,152	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	167	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	2,806	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	4.11	µg/L	Discharge Conc < TQL
Diethyl Phthalate	14,300	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	9,609	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	423	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	4.11	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	4.11	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	2.47	µg/L	Discharge Conc < TQL
Fluoranthene	477	µg/L	Discharge Conc < TQL
Fluorene	1,192	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.007	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.82	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	19.2	µg/L	Discharge Conc < TQL
Hexachloroethane	8.23	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.082	µg/L	Discharge Conc < TQL
Isophorone	810	µg/L	Discharge Conc < TQL
Naphthalene	538	µg/L	Discharge Conc < TQL
Nitrobenzene	238	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.058	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.41	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	271	µg/L	Discharge Conc < TQL
Phenanthrene	19.2	µg/L	Discharge Conc < TQL

Pyrene	477	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	1.67	µg/L	Discharge Conc < TQL

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03F	833	SCHUYLKILL RIVER	**23.390**	49.00	1766.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	344.41	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
Norristown Boro	PA0027421	0.0000	0.0000	9.7500	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	20.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	10.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03F	833	SCHUYLKILL RIVER	**22.940**	48.20	1766.60	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	0.100	0.00	344.55	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
ENPWJSA	PA0026816	0.0000	0.0000	8.1000	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	20.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	12.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03F	833	SCHUYLKILL RIVER	**22.790**	47.90	1766.70	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	0.100	0.00	344.57	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
Bridgeport STP	PA0020397	0.0000	0.0000	0.9000	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	20.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
03F	833	SCHUYLKILL RIVER

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												
23.390	344.41	0.00	344.41	15.0833	0.00034	1.17	337.93	288.94	0.91	0.030	20.21	7.00
22.940	344.55	0.00	344.55	27.614	0.00038	1.165	342.18	293.66	0.93	0.010	20.37	7.00
Q1-10 Flow												
23.390	220.42	0.00	220.42	15.0833	0.00034	NA	NA	NA	0.72	0.038	20.32	7.00
22.940	220.51	0.00	220.51	27.614	0.00038	NA	NA	NA	0.74	0.012	20.56	7.00
Q30-10 Flow												
23.390	468.40	0.00	468.40	15.0833	0.00034	NA	NA	NA	1.07	0.026	20.16	7.00
22.940	468.59	0.00	468.59	27.614	0.00038	NA	NA	NA	1.10	0.008	20.28	7.00

WQM 7.0 Modeling Specifications

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

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
03F	833	SCHUYLKILL RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
23.390	9.750	20.210	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
337.929	1.170	288.939	0.910
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.76	0.450	0.42	0.711
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.107	1.436	Tsivoglou	6
Reach Travel Time (days)			
0.030			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.003	2.75	0.42	8.10
0.006	2.75	0.42	8.10
0.009	2.74	0.42	8.09
0.012	2.74	0.42	8.09
0.015	2.74	0.42	8.08
0.018	2.73	0.41	8.08
0.021	2.73	0.41	8.07
0.024	2.73	0.41	8.07
0.027	2.72	0.41	8.06
0.030	2.72	0.41	8.06

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
22.940	17.850	20.371	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
342.185	1.165	293.663	0.933
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.30	0.655	0.80	0.720
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.952	1.664	Tsivoglou	6
Reach Travel Time (days)			
0.010			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.001	3.30	0.80	7.95
0.002	3.29	0.80	7.94
0.003	3.29	0.80	7.94
0.004	3.29	0.80	7.94
0.005	3.29	0.80	7.93
0.006	3.29	0.80	7.93
0.007	3.28	0.80	7.92
0.008	3.28	0.80	7.92
0.009	3.28	0.80	7.92
0.010	3.28	0.80	7.91

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
03F	833	SCHUYLKILL RIVER

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
23.390	Norristown Boro	16.32	20	16.32	20	0	0
22.940	ENPWJSA	16.39	24	16	24	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
23.390	Norristown Boro	1.87	10	1.87	10	0	0
22.940	ENPWJSA	1.87	12	1.85	12	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)		
23.39	Norristown Boro	20	20	10	10	5	5	0	0
22.94	ENPWJSA	20	20	12	12	5	5	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
03F	833	SCHUYLKILL RIVER

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)
23.390	Norristown Boro	PA0027421	0.000	CBOD5	20		
				NH3-N	10	20	
				Dissolved Oxygen			5

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)
22.940	ENPWJSA	PA0026816	0.000	CBOD5	20		
				NH3-N	12	24	
				Dissolved Oxygen			5

See the below attached TRC spreadsheet:

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9 — PA0027421 Norristown Boro STP

344.41	= Q stream (cfs)	0.5	= CV Daily
9.75	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 7.303	1.3.2.iii	WLA cfc = 7.112
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 2.721	5.1d	LTA_cfc = 4.135

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.170	

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)

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%, 60%, 30%, 4%, and 2%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 4%.

WET Summary and Evaluation

Facility Name	Norristown Boro STP
Permit No.	PA0027421
Design Flow (MGD)	9.75
Q_{7-10} Flow (cfs)	344.41
PMF_a	0.219
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	3/5/19	4/21/20	11/16/21	12/13/22
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	3/5/23	4/21/20	11/16/21	12/13/22
Pimephales	Growth	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	3/4/19	4/21/20	11/16/21	10/31/22
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	3/5/29	4/21/20	11/16/21	10/31/22
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**	
TIWC	**4**	% Effluent
Dilution Series	**2, 4, 30, 60, 100**	% Effluent
Permit Limit	**None**	
Permit Limit Species		

*PMFa and PMFc are taken from the TMS report.

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 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
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.2	1/day	Grab
CBOD5 Nov 1 - Apr 30	2030	3250	XXX	25	40 Wkly Avg	50	1/day	24-Hr Composite
CBOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/day	24-Hr Composite
CBOD5 May 1 - Oct 31	1630	2440	XXX	20	30 Wkly Avg	40	1/day	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/day	24-Hr Composite
TSS	2440	3660	XXX	30	45 Wkly Avg	60	1/day	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000.0 Avg Qrtly	XXX	2500	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/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 Nov 1 - Apr 30	1630	XXX	XXX	20	XXX	40	1/day	24-Hr Composite
Ammonia May 1 - Oct 31	810	XXX	XXX	10	XXX	20	1/day	24-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Copper	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Total Thallium	XXX	XXX	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
PCBs (Dry Weather) (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
PCBs (Wet Weather) (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
PFOA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
PFOS (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
PFBS (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
Chronic WET - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite
Chronic WET - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite
Chronic WET - Pimephales Survival (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite
Chronic WET - Pimephales Growth (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite

*Compliance Sampling Location: Outfall 001 *During periods when discharge occurs through Outfall 002, a combined sample shall be collected and analyzed for the parameters $CBOD_5$, Total Suspended Solids, NH_3-N, Phosphorus, and Nitrogen.

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	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	Daily when Discharging	Grab
DO	XXX	XXX	5.0 Inst Min	5.0 Min Mo Avg	XXX	XXX	Daily when Discharging	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.2	Daily when Discharging	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	Daily when Discharging	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	Daily when Discharging	Grab

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