pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0020397**
Facility Type	**Municipal**	APS ID	**847057**
Major / Minor	**Minor**	Authorization ID	**1033167**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Borough of Bridgeport**	Facility Name	**Borough of Bridgeport WWTP**
Applicant Address	P.O. Box 148	Facility Address	375 River Road
	Bridgeport, PA 19405-0148		Bridgeport, PA 19405
Applicant Contact	Keith Truman	Facility Contact	Christopher Conway
Applicant Phone	(610) 272-1811	Facility Phone	(610) 275-4236
Client ID	86433	Site ID	451902
Ch 94 Load Status	Not Overloaded	Municipality	Upper Merion Township
Connection Status	No Limitations	County	Montgomery
Date Application Received	July 9, 2014	EPA Waived?	No
Date Application Accepted	July 9, 2014	If No, Reason	CSO facility
Purpose of Application	Permit Renewal.		

Summary of Review

The PA Department of Environmental Protection (PADEP/Department) received an NPDES permit renewal application from Borough of Bridgeport (permittee) on July 9, 2014 for permittee's Bridgeport WWTP located in Upper Merion TWP, Montgomery County. This is a minor facility with CSOs. The treated effluent discharges through Outfall 001 into Schuylkill River, WWF/MF. The existing permit expired on December 31, 2014. The terms and conditions were administratively extended since the renewal application was not received at least 180 days prior to permit expiration date. Renewal NPDES permit applications under Clean Water program are not covered by PADEP's PDG per 021-2100-001. A draft permit was issued in December 3, 2019 and was withdrawn due to EPA's general objection on CSO language.

This fact sheet is developed in accordance with 40 CFR §124.56

Sludge use and disposal description and location(s): Belt filtered biosolid cakes are landfilled

Changes in this renewal: DO limit is changed to 5 mg/l daily minimum from monitor/report, seasonal fecal coliform applied, SBC code for TDS is changed to Average Quarterly from Average Monthly, year 1 sampling requirement for PCBs, IMAX TDS limit is removed, and influent BOD5, CBOD5, and TSS monitoring is added.

Public Participation

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

Approve	Deny	Signatures	Date
√		Reza H. Chowdhury, E.I.T. / Project Manager	March 25, 2022
X		*Pravin Patel* Pravin C. Patel, P.E. / Environmental Engineer Manager	03/25/2022

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.9
Latitude	40º 6' 8"	Longitude	-75º 19' 33"
Quad Name	Norristown	Quad Code	1843
Wastewater Description:	Treated Sewage Effluent		
Receiving Waters	Schuylkill River (WWF)	Stream Code	00833
NHD Com ID	25985560	RMI	22.79
Drainage Area	1,770 mi^2	Yield (cfs/mi^2)	0.125
Q_{7-10} Flow (cfs)	221.25	Q_{7-10} Basis	Please see below
Elevation (ft)	43.73	Slope (ft/ft)	
Watershed No.	3-F	Chapter 93 Class.	WWF, MF
Existing Use	**WWF/MF**	Existing Use Qualifier	Ch. 93
Exceptions to Use	None	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	POLYCHLORINATED BIPHENYLS (PCBS)		
Source(s) of Impairment	SOURCE UNKNOWN		
TMDL Status	Final	Name	Schuylkill River PCB TMDL

Background/Ambient Data		Data Source
pH (SU)	7.5	Previous protection report
Temperature (°C)	25	Previous protection report
Hardness (mg/L)	200	Previous protection report
Other:		

Nearest Downstream Public Water Supply Intake	Philadelphia Water Department Queen Lane		
PWS Waters	Schuylkill River	Flow at Intake (cfs)	374 cfs
PWS RMI	12.6	Distance from Outfall (mi)	10.19

Streamflow:

Streamflow data was collected from the nearest upstream USGS stream gage 01473500 located in Schuylkill River at Norristown, PA. Q_{7-10}, Q_{1-10}, and Q_{30-10} values at this gage are 220 cfs, 182 cfs, and 247 cfs respectively for the reporting years of 1929-2008. The drainage area was found to be 1,760 mi^2. These values were obtained from the latest USGS streamflow report [(1)]. The drainage area at the discharge point was found to be 1,770 mi^2 from USGS StreamStats Version 3.0 Flow Statistics Ungaged Site Report on November 14, 2019.

Q_{7-10} runoff rate = 220 cfs/1760 mi^2 = 0.125 cfs/mi^2
Q_{7-10} = 0.125 cfs/mi^2 * 1770 mi^2 = 221.25 cfs
Q_{1-10}/Q_{7-10} = 182 cfs/220 cfs = 0.827
Q_{30-10}/Q_{7-10} = 247 cfs/220 cfs = 1.123
Q_{1-10} = 0.827*221.25 = 182.97 cfs
Q_{30-10} = 1.123*221.25 = 248.46 cfs

DEP's SOP (BPMPSM-PMT-033, revised Oct 1, 2020) section II.B.4 states that where a facility is eligible for technology-based limits of $CBOD_5$ exceeding 25 mg/l, application managers will evaluate a WQBEL for $CBOD_5$ as follows:

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

a. *Model the discharge using Toxics Management Spreadsheet (TMS)*
b. *Multiply the acute partial mix factor by the Q_{7-10} of the receiving waters*
c. *Run the WQM 7.0 model using the adjusted Q_{7-10} and apply the WQBEL in the permit, if less than the technology-based limits*
d. *Establish the average monthly concentration limit for TSS at the same concentration as for $CBOD_5$ using BPJ, if the $CBOD_5$ limit is a WQBEL*

The attached TMS model suggested a PMFa of 5.2%. A partial mixing factor, according to DEP's technical guidance (391-2000-011) , is used to describe the factional portion of the stream that mixes with the discharge at the criteria compliance times. The partial mix factor is a value between 0 and 1; 1 presenting complete mixing and less than 1 represents there is incomplete mixing between the discharge and the stream. Therefore, the revised Q_{7-10} will be **221.25 * 0.052 or 11.51 cfs**.

PWS Intake:
The nearest downstream public water supply is Philadelphia Water Department Queen Lane, located in City of Philadelphia on Schuylkill River at RMI 12.6. It is approximately 10 miles downstream of the discharge. Due to the distance, dilution, and effluent limits the discharge is not expected to impact the public water supply.

Wastewater Characteristics:
A median pH of 7.2 during July through September for the reporting years 2020-2021 from eDMR, a default temperature of 20^0C, and discharge hardness of 100 mg/l will be used for modeling.

Background data:
A median pH of 7.5, hardness of 200 mg/l, and temperature of 25ºC was directly taken from previous protection report for the stream.

303d Listed Streams:
The discharge from this facility is to Schuylkill River which has the following designated use impairments:
1. Fish consumption: Impaired due to PCB from unknown source
2. Aquatic Life: Impaired due to Agriculture (unknown cause), Urban Runoff/Storm Sewers (unknown cause), and Municipal Point Source Discharges (unknown cause)

Schuylkill River PCB TMDL was finalized in April 7, 2007. The TMDL is briefly described below.

Schuylkill River PCB TMDL:
On April 7, 2007, The U.S. EPA, Region III, established a Total Maximum Daily Load (TMDL) for Polychlorinated Biphenyl (PCB) for the Schuylkill River, which was listed on Pennsylvania's 1996 303(d) list of impaired streams as impaired due to the presence of elevated PCB concentrations found in fish tissue. PCBs are a group of synthetic chemicals that consist of 209 individual compounds (knowns as Congeners). The Schuylkill River's PCB TMDL was established using a water-quality criterion of 0.044 ng/l for PCBs.

Implementation of the TMDL requires that permitted facilities that discharge directly to the Schuylkill River conduct monitoring for PCBs using analytical method 1668A. The results of PCB monitoring will be evaluated to determine a need to develop and implement a PCB's Waste Minimization and Reduction Program, also known as Pollutant Minimization Plan (PMP). Implementation of the TMDL is planned to be completed in two phases. Phase I implementation of the TMDL requires that this facility collect and analyze two samples for PCBs utilizing method 1668A during the first 12 months of the permit that was effective from January 1, 2010. One sample was directed to be collected during a wet weather flow period and the second sample be collected during a dry weather flow from Outfall 001. The permittee indicated they conducted one sample on April 22, 2014. But the sample was analyzed using EPA method 608 which is not acceptable for RP analysis or compliance purpose. The permittee was advised to use EPA method 1668A. In absence of appropriate sample results, the existing requirement of collecting two samples within 12 months of this renewal effective date, one during wet weather flow and another one in dry weather flow, and submitting the results within 15 months of this renewal effective date, will be reinstated.

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. The receiving stream is a WWF/MF, not a special protection water.

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

Combined Sewer Overflows:
There are currently five Combined Sewer Overflows (CSOs) within the system. These CSOs act as relief valves allowing excess untreated sewage and stormwater to overflow the newly constructed Front Street Interceptor (FSI) and discharge directly to the canal or river. CSO outfall 002 is located in the DeKalb sub-basin, adjacent to the DeKalb Street PS. CSOs 003, 004, and 005 were reconstructed as part of the construction of FSI in 2011. Outfalls 003 and 005 have hydrodynamic treatment devices that prevents mostly settleable from discharging to surface water. CSO Outfall 006 is located adjacent to the River Road PS. CSO Outfalls 002, 005, and 006 discharge directly to the Schuylkill River while CSO outfalls 003 and 004 discharge to the Schuylkill Canal. The below table summarizes the existing CSO outfalls in the Borough of Bridgeport:

CSO #	Former CSO #	Discharge Point	Location			Treatment Device?
			Latitude	Longitude	Location	
002	1	Schuylkill River	40º 6' 3.33"	-75º 19' 21.83"	DeKalb St. Br	No
003	New	Canal	40º 6' 3.33"	-75º 19' 21.83"	Foot of Hurst St.	Yes
004	5	Canal	40º 6' 3.33"	-75º 19' 21.83"	Near 003	No
005	New	Schuylkill River	40º 6' 3.33"	-75º 19' 21.83"	Foot of Coates St.	Yes
006	6	Schuylkill River	40º 6' 3.33"	-75º 19' 21.83"	River Rd. PS	No

In 2007, some sewers within the DeKalb Basin was rerouted as a result of the PENNDOT DeKalb Street bridge re-construction. These changes resulted in the elimination of the Green Basin. The bridge construction also included the addition of some PENNDOT separate storm sewers along DeKalb Street. At this time these separate storm sewers recombine prior to CSO 002.

In 2011, a new FSI and the associated CSO outfalls (003 and 005) between Mill Street and the River Road PS were constructed under WQM permit number 4610401. The original 20-inch interceptor was replaced with a 24-inch dry weather sewer, a combination of 54-inch and 60-inch wet weather interceptor was installed parallel to the 24-inch and one of the CSO outfalls was eliminated. The wet weather interceptor provides approximately 0.5 MG of storage.

The permittee submitted a Long-Term Control Plan (LTCP) in September 2003, which was approved by DEP in May 2004. The permittee submitted a revised LTCP in January 2007, which was approved by DEP in February 2007. The permittee submitted a Long-Term Control Plan Update (LTCPU) in January 2019, which was revised slightly in February 2019. In February 2022 the permittee submitted a Supplement Report to the LTCPU to address the issue of “percent capture.” The February 2022 Supplement Report also contained a revised schedule for the Control Measures described in the 2019 LTCPU. The permittee’s LTCP Update (2019, 2022) and revised schedule (2022) are approved by the Department and are incorporated by reference into this NPDES Permit.

The 2019 LTCPU includes projects that would represent substantial further progress. They include:

- Interior pipe inspections by video to cover the entire collection system, followed by pipe repair or rehabilitation as necessary.
- Optimization of the Front Street Interceptor based on metering data and modeling.
- Separation of the Hurst Street basin, which represents approximately 10% of the total area served by the system.

The Borough initiated the CSO metering program in April 2018. The CSO meters were installed in the CSO outfall pipes at CSO 2, 3, 4, 5, and 6. The CSO meters are equipped with ultrasonic level and submerged area velocity sensors to measure level and velocity. The measured readings are then used to calculate the flow. Below table summarizes all overflows from February 2019 to May 2021.

Year	Month	Events	CSO Total Volume 006 (MG)	CSO Total Volume 005 (MG)	CSO Total Volume 004 (MG)	CSO Total Volume 003 (MG)	CSO Total Volume 002 (MG)	CSO Volume Total (MG)
2021	May	5/3/21 (20:05)-5/5/21 (14:35)	0.36	0.717	0.028	0.389	0.036	1.53
		5/26/21 (21:50)-5/30/21 (13:25)	0.938	1.313	0.038	0.354	0.042	2.685
	April	4/11/21 (5:40)-4/12/21 (2:35)	0.244	0.453	0.009	0.031	0.021	0.758
		4/25/21 (3:55)-4/25/21 (4:10)	0.003	0	0	0	0	0.003
		4/29/21 (19:45)-4/29/21 (21:05)	0.088	0.163	0.004	0.005	0.015	0.275
	March	3/18/21 (10:00)-3/19/21 (2:20)	0.418	0.559	0	0	0.007	0.984
		3/24/21 (11:50-3/24/21 (23:15)	0.946	2.046	0.153	0.59	0.122	3.857
		3/28/21 (9:05)-3/31/21 (20:35)	0.288	0.301	0.005	0.028	0.013	0.635
	Febuary	2/5/21 (14:20)-2/7/21 (16:55)	0.034	0	0	0	0	0.034
		2/16/21 (1:05)-2/16/21 (19:00)	1.016	0.835	0	0.019	0.016	1.886
		2/23/21 (15:20)-3/1/21 (10:10)	1.357	1.445	0	0.033	0	2.835
	January	1/1/21 (17:05)-1/3/21 (18:40)	0.484	0.721	0.012	0.074	0	1.291
		1/16/21 (0:20)-1/16/21 (1:10)	0.019	0	0	0	0	0.019
		1/26/21 (11:40)-1/26/21 (12:50)	0.041	0	0	0	0	0.041
2020	December	12/5/20 (3:05)-12/5/20 (10:00)	0.311	0.378	0	0.007	0.001	0.697
		12/14/20 (8:45)-12/14/20 (15:45)	0.26	0.5	0	0	0.002	0.762
		12/24/20 (18:30)-12/25/20 (13:50)	1.209	3.64	0.393	2.18	0	7.422
		12/31/20 (8:45)-12/31/20 (9:15)	0.014	0	0	0	0	0.014
	November	11/1/20 (12:45)-11/1/20 (15:10)	0.072	0.503	0	0	0	0.575
		11/11/20 (13:15)-11/12/20 (8:45)	0.549	0.356	0.002	0.082	0.005	0.994
		11/15/20 (20:00)-11/15/20 (21:50)	0.101	0.199	0.01	0.026	0.014	0.35
		11/23/20 (4:25)-11/26/20 (5:50)	0.222	0.405	0.003	0.074	0.015	0.719
		11/30/20 (8:35)-11/30/20 (17:10)	0.868	2.72	0.233	0.276	0	4.097
	October	10/12/20 (1:45)-10/12/20 (11:30)	0.206	0.263	0	0.005	0	0.474
		10/16/20 (10:20)-10/16/20 (15:10)	0.153	0.077	0	0	0	0.23
		10/29/20 (6:15)-10/30/20 (9:50)	1.016	1.909	0.028	0.286	0.021	3.26
	September	9/3/20 (19:20)-9/3/20 (19:50)	0.02	0	0	0	0.34	0.36
		9/10/20 (1:25)-9/10/20 (2:05)	0.024	0	0	0	0.509	0.533
		9/26/20 (13:30)-9/30/20 (3:55)	0.346	0.439	0	2.339	0.287	3.411
	August	8/4/20 (3:50)-8/7/20 (20:50)	1.193	4.73	2.531	3.352	0	11.806
		8/13/20 (16:50)-8/13/20 (19:25)	0.152	0.303	0	0.0114	0.046	0.5124
		8/23/20 (13:05)-8/23/20 (13:50)	0.023	0	0	0	0.007	0.03
		8/28/20 (16:35)-8/29/20 (16:00)	0.234	0.522	0.08	0.254	0.207	1.297
	July	7/6/20 (15:05)-7/6/20 (19:20)	0.353	1.23	0.42	0.839	0.253	3.095
		7/10/20 (10:40)-7/12/20 (23:55)	1.059	2.892	0.589	1.774	0.315	6.629
		7/22/20 (18:05)-7/23/20 (11:05)	0.216	0.481	0.095	0.31	0.077	1.179
		7/30/20 (23:20)-7/31/20) (13:20)	0.027	0	0	0	0.006	0.033
	June	6/3/20 (12:30)-6/5/20 (18:50)	0.403	1.003	0.393	0.565	0.178	2.542
		6/11/20 (4:30)-6/11/20 (15:40)	0.195	0.425	0.048	0.266	0.053	0.987
		6/20/20 (17:30)-6/20/20 (18:25)	0.048	0	0.052	0	0.007	0.107
	May	5/6/20 (4:15)-5/9/20 (1:25)	0.332	0.347	0	0.063	0.008	0.75
		5/22/20 (14:15)-5/23/20 (15:15)	0.414	0.69	0.079	0.32	0.038	1.541
		5/29/20 (13:50)-5/29/20 (22:05)	0.069	0.095	0.031	0.005	0.008	0.208
	March	3/3/20 (21:25)-3/6/20 (19:55)	0.104	0.138	0.004	0.028	0.005	0.279
		3/13/20 (5:45)-3/13/20 (8:05)	0.057	0	0	0	0	0.057
		3/19/20 (1:35)-3/19/20 (8:45)	0.516	0.866	0.001	0.334	0.008	1.725
		3/23/20 (11:30)-3/23/20 (20:20)	0.382	0.444	0	0.089	0.004	0.919
		3/28/20 (9:25)-3/29/20 (0:10)	0.634	0.904	0.001	0.263	0.01	1.812

	Febuary	2/6/20 (0:25)-2/7/20 (13:50)	0.549	0.331	0	0.011	0.018	0.909
		2/1/20 (16:35)-2/11/20 (9:55)	0.166	0.118	0	0	0.007	0.291
		2/27/20 (1:50)-2/27/20 (2:30)	0.029	0	0	0	0.008	0.037
	January	1/25/20 (7:05)-1/25/20 (17:20)	0.845	1.951	0.229	0.8	0	3.825
2019	December	12/1/19 (12:55)-12/1/19 (20:25)	0.256	0.173	0	0.015	0.002	0.446
		12/9/19 (6:00)-12/17/19 (17:20)	1.668	1.313	0.001	0.281	0.01	3.273
		12/29/19 (22:50)-12/30/19 (16:10)	0.049	0.064	0	0.000	0.001	0.114
	November	11/24/19 (1:45)-11/24/19 (13:45)	0.368	0.655	0.013	0.251	0.053	1.34
	October	10/16/19 (15:15)-10/16/19 (21:10)	0.243	1.168	0.04	0.461	0.044	1.956
		10/20/19 (14:00)-10/22/19 (23:05)	0.414	0.548	0	0.039	0.016	1.017
		10/27/19 (7:10)-10/27/19 (14:40)	0.44	0.901	0.041	0.539	0.05	1.971
		10/31/19 (0:30)-11/1/19 (4:15)	0.4	0.787	0.068	0.296	0.009	1.56
	September	9/2/19 (9:40)-9/2/19 (16:15)	0.247	0.798	0.176	0.448	0.207	1.876
		9/12/19 (16:35)-9/12/19 (16:55)	0	0	0	0	0.001	0.001
		9/28/19 (22:30)-9/28/19 (23:00)	0.017	0	0	0	0.001	0.018
	August	8/7/19 (16:20)-8/7/19 (21:50)	0.335	0.6	0.105	0.33	0.06	1.43
		8/14/19 (20:45)-8/15/19 (0:15)	0.259	0.454	0.43	0.431	0.472	2.046
		8/18/19 (22:40)-8/23/19 (12:10)	0.145	0.284	0.062	0.191	0.075	0.757
	July	7/5/19 (18:30)-7/12/19 (11:15)	0.723	1.297	0.505	0.574	0.452	3.551
		7/16/19 (21:30)-7/18/19 (18:10)	0.254	0.252	0.001	0.014	0.025	0.546
		7/22/19 (23:00)-7/23/19 (7:40)	0.371	0.546	0.006	0.095	0	1.018
		7/31/19 (15:35)-7/31/19 (17:05)	0.078	0.095	0.003	0.008	0.012	0.196
	June	6/1/19 (23:40)-6/20/19 (17:35)	1.905	2.93	0.885	1.725	0.823	8.268
		6/29/19 (16:35)-6/29/19 (18:00)	0.055	0.086	0.006	0	0.009	0.156
	May	5/5/19 (6:10)-5/5/19 (23:20)	0.807	1.386	0.009	0.287	0.039	2.528
		5/12/19 (9:50)-5/13/19 (17:45)	0.798	1.682	0.008	0.357	0.055	2.9
		5/24/19 (0:55)-5/30/19 (23:20)	0.442	1.038	0.452	0.463	0.342	2.737
	April	4/8/19 (2:35)-4/15/19 (6:30)	0.322	0.647	0.078	0.233	0.019	1.299
		4/20/19 (1:15)-4/20/19 (10:15)	0.168	0.27	0	0.046	0.022	0.506
		4/26/19 (3:35)-4/26/19 (21:00)	0.261	0.485	0.062	0.204	0.04	1.052
	March	3/2/19 (2:35)-3/4/19 (13:50)	0.033	0	0	0	0.172	0.205
		3/10/19 (3:35)-3/11/19 (22:40)	0.401	2.15	0.061	0.077	0.376	3.065
		3/15/19 (20:55)-3/15/19 (22:40)	0.105	0.177	0.001	0.054	0.014	0.351
		3/21/19 (10:10)-3/22/19 (14:40)	1.478	2.005	0.004	0.41	0.075	3.972
	Febuary	2/12/19 (15:30)-2/13/19 (12:50)	0.334	0.468	0	0.006	0.082	0.89
		2/21/19 (13:30)-2/24/19 (8:05)	0.077	0	0	0	0.019	0.096

The River Road PS magnetic flow meter was installed in November 2018 and was replaced in early January 2022. The permit will contain updated NMCs and LTCPs applicable to this facility.

Treatment Facility Summary

Treatment Facility Name: Borough of Bridgeport STP

WQM Permit No.	Issuance Date
4610401	04/06/2011
4696401	05/29/1996

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia And Phosphorus	Trickling Filter With Settling	Gas Chlorine	0.9

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.9	3363	Not Overloaded	Belt Filtration	Landfill

Changes Since Last Permit Issuance: Construction of FSI in 2011.

Treatment Plant Summary

Borough of Bridgeport WWTP is a minor STP with a design flow of 0.9 MGD with CSOs which serves mostly the Borough of Bridgeport (99% flow contribution with 95% combined) and Upper Merion Township (1% flow contribution with 100% separate). The WWTP is located in Bridgeport Borough, Montgomery County in state watershed 3-F. The renewal application (received in July 9, 2014) indicated annual average flows of 0.538 MGD, 0.503 MGD, and 0.48 MGD for years 2011, 2012, 2013, respectively with highest monthly flow of 0.7 MGD. There is one non significant industrial facility named Tube Methods contributing to the treatment plant. There is no EPA approved pretreatment program in place.

Per the most recent inspection report (09/15/2021), the facility consists of the following treatment units:

1. Two primary clarifiers
2. Two secondary clarifiers
3. Two trickling filters
4. Two chlorine contact tanks
5. One filter press

A process flow diagram is attached in the Appendix. Sodium Hypochlorite is used for disinfection and Sodium Bisulfite is used for dechlorination of the effluent. Soda ash/lime is added to the liquid sludge prior to the belt filter press. Zeta Beta 19 and Zeta Lyte are also added to the liquid sludge before it is processed into filter cake.

Summary of inspection

09/15/2021: Incidental inspection conducted to observe the damage by recent hurricane event and flooding. The main PS VFDs damaged, replacement was installed. Some zoogleal mass was lost due to the storm on secondary trickling filter #1. Trickling filter #2 had good mass growth. The effluent quality was exceptional.

01/15/2021: RTPT conducted. No violation noted.

08/28/2020: CEI conducted. No violation noted.

04/15/2020: RTPT conducted. Violations noted including failure to use an NIST thermometer and failure to maintain permitted treatment units in operable condition.

08/28/2020: CSO inspection conducted. No discharge or solids were visible during the inspection from any of the CSO outfalls.

Compliance History

DMR Data for Outfall 001 (from February 1, 2021 to January 31, 2022)

Parameter	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21
Flow (MGD) Average Monthly	0.53	0.4	0.35	0.43	0.38	0.48	0.43	0.5	0.42	0.38	0.54	0.77
Flow (MGD) Daily Maximum	1.5	0.55	0.88	1.19	1.32	1.00	1.09	0.95	1.24	1.13	1.4	1.71
pH (S.U.) Instantaneous Minimum	6.3	6.4	6.3	6.5	7.1	6.9	6.9	7.0	7.0	6.7	6.8	7.2
pH (S.U.) IMAX	6.9	6.9	6.9	7.3	7.4	7.3	7.3	7.6	7.5	7.1	7.5	7.6
DO (mg/L) Instantaneous Minimum	8.6	8.4	6.9	6.3	7.2	6.7	6.7	7.2	6.8	8.5	8.9	11.4
TRC (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TRC (mg/L) IMAX	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	< 0.1	0.1	0.2	0.1
CBOD5 (lbs/day) Average Monthly	128	59	55	24	17	26	16	21	19	77	33	83
CBOD5 (lbs/day) Weekly Average	181	71	60	25	26	69	23	24	26	207	55	128
CBOD5 (mg/L) Average Monthly	25	18	21	8	6	5	6	7	8	15	9	11
CBOD5 (mg/L) Weekly Average	38	21	21	10	8	11	8	8	10	22	12	15
TSS (lbs/day) Average Monthly	96	23	23	13	11	24	13	11	13	43	< 11	41
TSS (lbs/day) Weekly Average	245	54	43	20	16	69	32	19	18	113	24	102
TSS (mg/L) Average Monthly	17	7	8	4	4	5	5	4	5	9	< 3	5
TSS (mg/L) Weekly Average	28	13	15	8	5	11	11	7	7	16	4	12
Total Dissolved Solids (mg/L) Average Monthly	922	GG	GG	521	GG	GG	306	GG	GG	503	GG	GG
Fecal Coliform (CFU/100 ml) Geometric Mean	< 2	2	< 2	< 2	< 2	< 2	< 2	< 3	2	< 2	< 2	< 5
Fecal Coliform (CFU/100 ml) IMAX	< 2	2	< 2	< 2	< 2	< 2	< 2	10	2	2	< 2	26
Ammonia (lbs/day) Average Monthly	62	28	5	8	3	5	3	3	3	10	21	42
Ammonia (mg/L) Average Monthly	12	9	12	3	1	1	1	1	1	3	6	8

Non-compliance: there is no eDMR violation for the reporting period February 1, 2021 to January 31, 2022.

Existing Effluent Limitations and Monitoring Requirements

The table below summarizes effluent limitations and monitoring requirements specified in the existing NPDES permit for Outfall 001.

Discharge Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [3] Measurement Frequency	Required Sample Type
	Monthly Average	Weekly Average	Instantaneous Minimum	Monthly Average	Weekly Average	Instantaneous Maximum [2]		
Flow (MGD)	Monitor/Report	Monitor/Report Max. Daily					Continuous	Recorded
CBOD5	187	300		25	40	50	1/Week	24 Hour Comp
Total Suspended Solids	225	338		30	45	60	1/Week	24 Hour Comp
Ammonia as N	150			20		40	1/Week	24 Hour Comp
Fecal Coliform (Col/100 ml)				Geo. Mean 200		1,000*	1/Week	Grab
Dissolved Oxygen			Monitor/Report				Daily	Grab
pH (Std. Units)			6.0			9.0	Daily	Grab
Total Residual Chlorine				0.5		1.2	Daily	Grab
Total Dissolved Solids				1,000		2,500	1/Quarter	24 Hour Comp

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.9
Latitude 40º 6' 8.00" **Longitude** -75º 19' 33.00"
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)
Fecal Coliform (10/1 – 4/30)	1,000 / 100 ml	10% rule	-	DRBC
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)
Total Dissolved Solids	1000 mg/l	Average Monthly	-	DRBC

Water Quality-Based Limitations

WQM 7.0:

WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate effluent limits for $CBOD_5$, NH_3-N and DO. The model simulates two basic processes. In the NH_3-N module, the model simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria. In the D.O. module, the model simulates the mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and NH_3N and compares calculated instream D.O. concentrations to D.O. water quality criteria. Since WQM 7.0 assumes immediate and complete mix between the discharge and stream flow, Q_{7-10} was adjusted, as shown on page 3, to examine allowable wasteload allocations under appropriate mixing conditions. The model was utilized for this permit renewal by using adjusted Q_{7-10} and historic background water quality levels of the river. In addition, due to proximity, several other upstream and downstream dischargers are included in the multiple discharge scenario. The following data were used in the attached computer model of the stream:

- Discharge pH 7.2 (median Jul-Sep, 2020-2021, eDMR data)
- Discharge Temperature 20°C (Default)
- Discharge Hardness 100 mg/l (Default)
- Stream pH 7.5 (Previous protection report)
- Stream Temperature 25°C (Default for WWF)
- Stream Hardness 200 mg/l (Previous protection report)

The following nodes were considered in modeling:

Node 1: Norristown STP (PA0027421) Outfall 001 at Schuylkill River (00833)
Elevation: 49 ft (USGS National Map viewer, 11/13/2019)
Drainage Area: 1766 mi^2 (StreamStat Version 3.0, 11/13/2019)
River Mile Index: 23.4 (PA DEP eMapPA)
Low Flow Yield: 0.125 cfs/mi^2
Discharge Flow: 9.75 MGD

Node 2: ENPWJSA STP (PA0026816) Outfall 001 at Schuylkill River (00833)
Elevation: 48 ft (USGS National Map viewer, 11/13/2019)
Drainage Area: 1766.1 mi^2 (StreamStat Version 3.0, 11/13/2019)
River Mile Index: 22.94 (PA DEP eMapPA)
Low Flow Yield: 0.125 cfs/mi^2
Discharge Flow: 8.1 MGD

Node 3: Bridgeport WWTP Outfall 001 at Schuylkill River (00833)
Elevation: 43.73 ft (USGS National Map viewer, 11/13/2019)
Drainage Area: 1770 mi^2 (StreamStat Version 3.0, 11/13/2019)
River Mile Index: 22.79 (PA DEP eMapPA)
Low Flow Yield: 0.125 cfs/mi^2
Discharge Flow: 0.9 MGD

Node 4: Matsunk STP Outfall 001 at Schuylkill River (00833)
Elevation: 42.88 ft (USGS National Map viewer, 11/13/2019)
Drainage Area: 1770.1 mi^2 (StreamStat Version 3.0, 11/13/2019)
River Mile Index: 22.0 (PA DEP eMapPA)
Low Flow Yield: 0.125 cfs/mi^2
Discharge Flow: 5.5 MGD

Node 5: At the Plymouth Dam on Schuylkill River (00833)
Elevation: 39.59 ft (USGS National Map viewer, 11/13/2019)
Drainage Area: 1770.2 mi^2 (StreamStat Version 3.0, 11/13/2019)
River Mile Index: 21.22 (PA DEP eMapPA)
Low Flow Yield: 0.125 cfs/mi^2
Discharge Flow: 0.0 MGD

NH_3-N:
WQM 7.0 suggested NH_3-N limit of 20.0 mg/l as monthly average and 40.0 mg/l as instantaneous maximum limit to protect water quality standards. The current permit has year-round average monthly limit of 20 mg/l and IMAX of 40 mg/l. The Recent DMR data show that the plant is discharging NH_3-N below 2.7 mg/l year-round. The model recommended limits are the same as are in the existing permit and will be carried over. The mass-based limits of 150 lbs./day will also be carried over. The monitoring frequency will remain the same as 1/week.

$CBOD_5$:
The attached WQM 7.0 modeling results show that secondary treatment is adequate to protect the water quality of the stream. Recent DMRs and inspection reports show that the facility has been consistently achieving concentrations below this existing limit. The WQM 7.0 model suggests a monthly average $CBOD_5$ limit may be 25 mg/l. The average monthly and average weekly mass loadings were calculated as 187 lbs./day and 300 lbs./day respectively. The minimum monitoring frequency will remain the same as 1/week.

Dissolved Oxygen (DO):
A minimum of 5.0 mg/L for D.O. is an existing effluent limit and will remain unchanged in the draft permit. 5.0 mg/L is taken directly from 25 Pa. Code § 93.7(a) (i.e., water quality criteria for WWF waters) and it is also determined to be appropriate according to water quality modeling.

Toxics:
Based on the monitoring data (maximum concentrations) reported on the application, DEP utilizes Toxics Management Spreadsheet 9TMS) to (1) evaluate reasonable potential for toxic pollutants to cause or contribute to an excursion above the water quality standards and (2) develop WQBELs for those such toxic pollutants (i.e., 40 CFR § 122.44(d)(1)(i)). The maximum reported values for Total Copper and Total Zinc were entered into TMS which then suggests no Reasonable Potential was demonstrated for either toxics. Therefore, no limit or monitoring requirements will be applied.

Additional Considerations

Total Suspended Solids (TSS):
There is no water quality criterion for TSS. The existing limits of 30 mg/L average monthly, 45 mg/l average weekly, and 60 mg/L instantaneous maximum will remain in the permit based on the minimum level of effluent quality attainable by

secondary treatment, 25 Pa. Code § 92a.47 and 40CFR 133.102(b.) The existing limit for average monthly and average weekly mass loading of 225 lbs./day and 338 lbs./day, respectively will be carried over in this renewal.

pH:
The effluent discharge pH should remain above 6 and below 9 standard units according to 25 Pa. Code § 95.2(1) which is consistent with previous permit renewal.

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

E. Coli:
DEP's SOP titled "Establishing Effluent Limitations for Individual Sewage Permits (BCW-PMT-033, revised March 24, 2021) recommends quarterly E. Coli monitoring for major sewage dischargers. This requirement will be applied from this permit term.

Total Dissolved Solids:
The maximum reported TDS concentration in the application is 560 mg/l which is less than 1,000 mg/l (for discharge flow > 0.1 MGD) doesn't trigger monitoring for TDS. However, DRBC issued a docket for Bridgeport on September 11, 2019 that included/continued a numeric limitation of 1,000 mg/l. This limitation will be carried over in this renewal with a minimum monitoring frequency of 1/quarter.

Total Residual Chlorine (TRC):
The attached computer printout utilizes the equation and calculations as presented in the Department's 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID#391-2000-015) for developing chlorine limitations. The attached printout indicates that a water quality limit of 0.5 mg/l would be needed to prevent toxicity concerns at the Outfall 001. The Instantaneous Maximum (IMAX) limit is 1.6 mg/l. The existing permit has IMAX limits of 1.2 mg/l which is a more stringent and will be carried over due to anti-backsliding policy. DMR data from February 2021 to January 2022 indicates that the permittee is meeting the limit with an average discharge concentration of <0.1 mg/l and IMAX of 0.1 mg/l year-round. The minimum monitoring frequency is 1/day.

Flow and Influent Monitoring Requirement:
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii). Influent BOD_5, $CBOD_5$, and TSS monitoring requirements are established in the permit per the requirements set in Pa Code 25 Chapter 94 and secondary treatment requirement.

Best Professional Judgment (BPJ) Limitations

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

Total Phosphorus**:** PADEP's SOP BCW-PMT-033 suggests monitoring requirement, at a minimum, for facilities with design flow greater than 2,000 GPD. This requirement is applied for all facilities meeting the flow criteria. This is a new requirement and will be implemented from this renewal. The minimum monitoring frequency will be 1/month.

Total Nitrogen:
PADEP's SOP BCW-PMT-033 suggests monitoring requirement, at a minimum, for facilities with design flow greater than 2,000 GPD. This requirement is applied for all facilities meeting the flow criteria. This is a new requirement and will be implemented from this renewal. The minimum monitoring frequency will be 1/month.

Anti-Backsliding
The proposed limits are at least as stringent as are in existing permit; therefore, anti-backsliding is not applicable.

Proposed Effluent Limitations and Monitoring Requirements

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

Outfall 001, Effective Period: Permit Effective Date through End of Interim Period 1.

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		
PCBs (Dry Weather) (ug/L)	XXX	XXX	XXX	Report Annl Avg	Report Daily Max	XXX	1/year	24-Hr Composite
PCBs (Wet Weather) (ug/L)	XXX	XXX	XXX	Report Annl Avg	Report Daily Max	XXX	1/year	24-Hr Composite

Compliance Sampling Location: At Outfall 001

Other Comments: None

Proposed Effluent Limitations and Monitoring Requirements

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

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

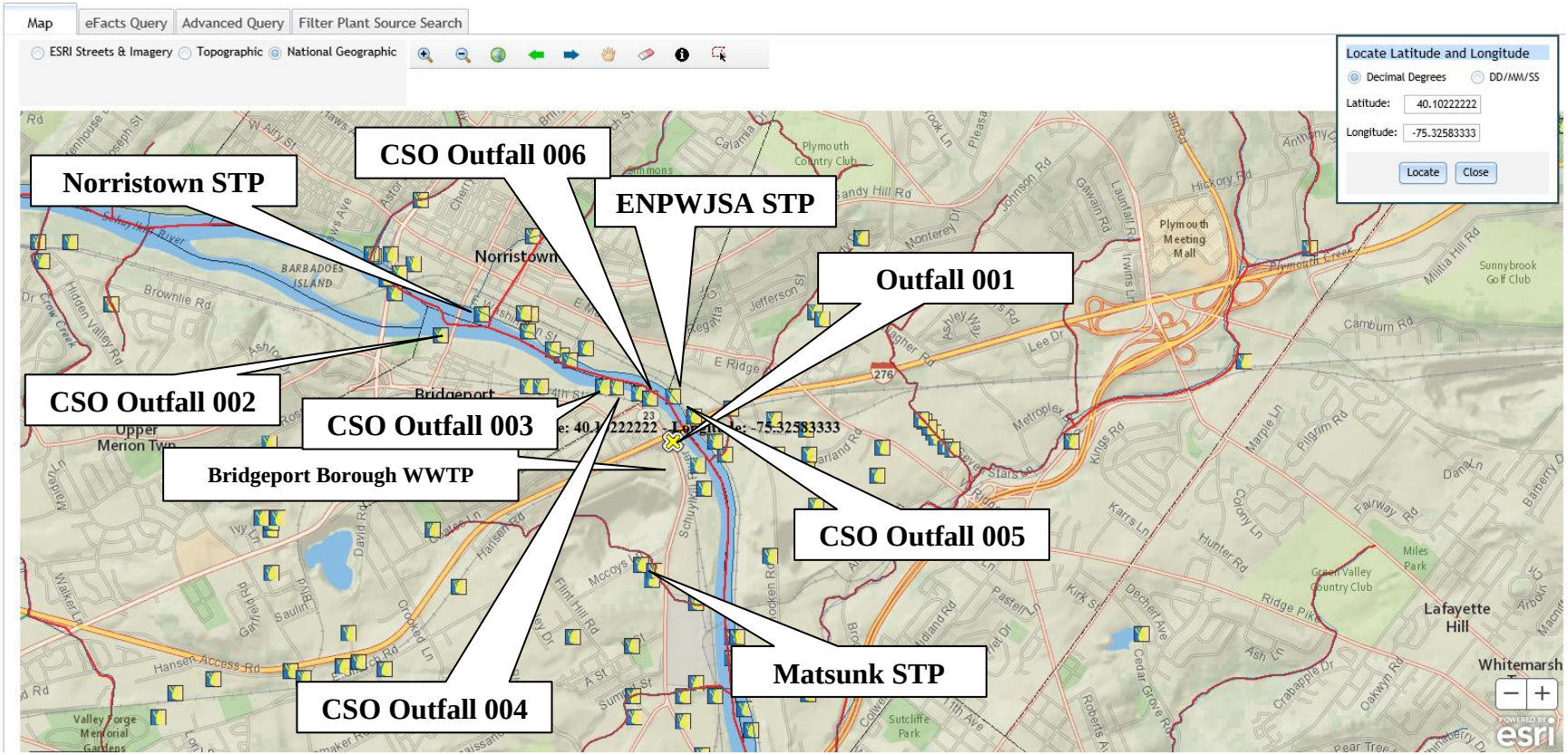
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Average Monthly	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
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 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
CBOD5	187	300	25.0	40.0 Wkly Avg	XXX	50	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	225	338	30.0	45.0 Wkly Avg	XXX	60	1/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000.0 Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	1000	XXX	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Grab

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Average Monthly	Average Monthly	Maximum	Instant. Maximum		
Ammonia-N	150.0	XXX	XXX	20.0	XXX	40	1/week	24-Hr Composite

Compliance Sampling Location: At Outfall 001

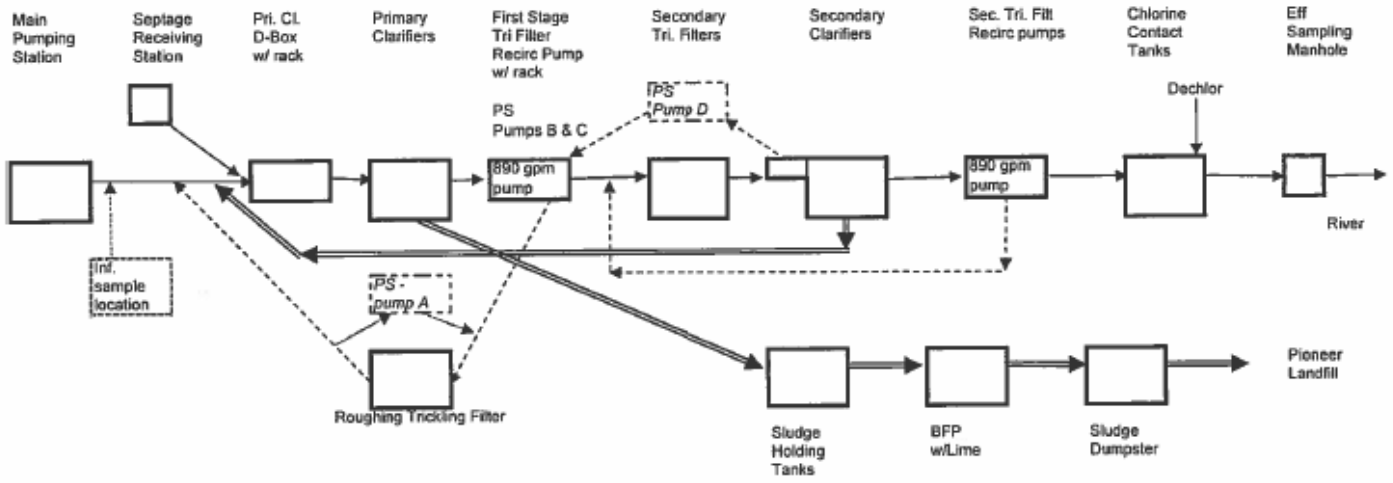
Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☒	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP: BPNPSM-PMT-033
☐	Other:

Borough of Bridgeport WWTP, Bridgeport Borough, Montgomery County



Permit No. PA0020397

BOROUGH OF BRIDGEPORT - WASTEWATER TREATMENT PLANT



Main PS has two variable speed pumps		Sludge Holding tank, small	Sludge Holding tank, large
Worthington		Length, ft. 12	Length, ft. 14.75
1,250 gpm @ 93 ft. TDH @ 1,170 rpm		Width, ft. 7	Width, ft. 12
First and Secondary trickling Filter pumps rated @ 89 gpm @ 29.1 ft. TDH		Depth, ft. 13.5	Depth, ft. 13.5
One pump at leach lift point operated 24 hr/7 day, except during extreme flow events		Volume, gals 6,500	Volume, gals 12,500
BFP filtrate sump pump rated @ 185 gpm @ 63 ft TDH			

High Rate filter		**Primary Clarifier**	2	**Second Trickling Filter**	2	**Secondary Clarifier**	2
Two but only 1 in use		Dia. Ft.	45	Dia. Ft.	84	Dia. Ft.	45
Dia, Ft.	84	Avg. Depth, ft	8.75	Depth, ft.	6.2	Avg. Depth, ft	8.75
Depth, ft.	6.2	Surface area, sq,. Ft.	1,590	surface area, sq.ft.	5,542	Surface area, sq,. Ft.	1,590
surface area, sq.ft.	5,542	Weir Length, ft	142	Media volume, cu ft.	34,300	Weir Length, ft	142
Media volume, cu ft.	34,300	volume, cu.ft.	13,913			volume, cu.ft.	13,813
Total Area, sq. ft	11,084	Total area, sq.ft	3,180	Total Area, sq. ft	11,084	Total area, sq.ft	3,180
Total volume, cu.ft	68,600	Total weir length, ft.	284	Total volume, cu.ft	68,600	Total weir length, ft.	284
		Total volume, cu.ft	27,825			Total volume, cu.ft	27,825

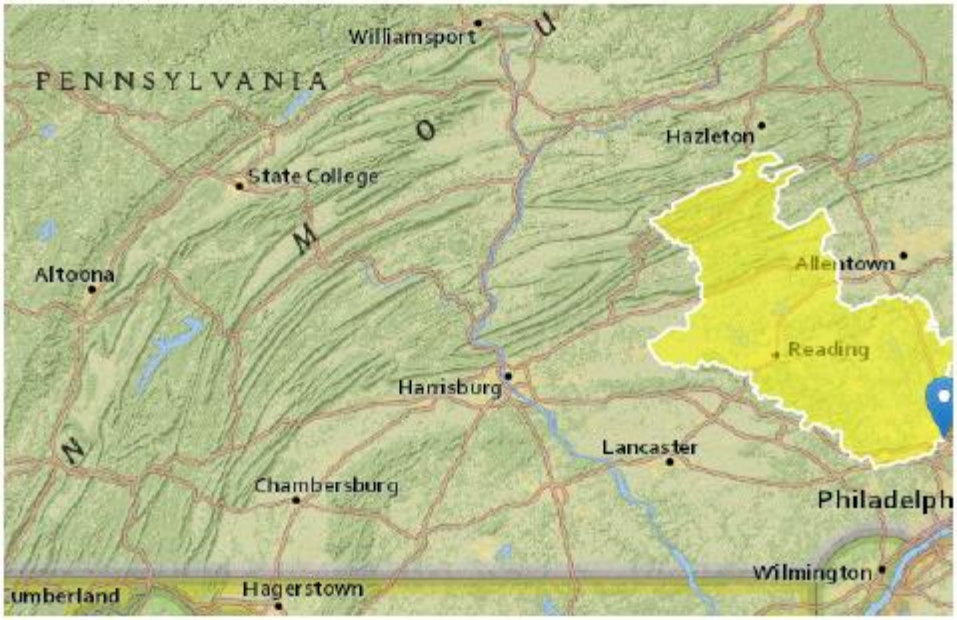
Disinfection	
Chlorine contact tank	2
Length, ft.(appro.)	59
Width, ft.	4
Depth, ft.	3.59
Volume, cu.ft	1,890
Dechlorlantion	
Location, end of Cl Contact tank	
Outfall line is 600 ft of 14 inch dia.	
Volume of tanks & outfall, gals	2,520

Abandoned suction lift pumps shown in broken lines but out of service. Initially rated for 600 gpm

R:\35493 - Bridgeport\652-Operational Assistance WWTP\Process diagram.xlsDiagram

PA0020397 at 001

Region ID: PA
Workspace ID: PA20191113162934047000
Clicked Point (Latitude, Longitude): 40.10278, -75.32469
Time: 2019-11-13 11:29:55 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1770	square miles
BSLOPD	Mean basin slope measured in degrees	5.6	degrees
ROCKDEP	Depth to rock	4.5	feet
URBAN	Percentage of basin with urban development	10	percent
PRECIP	Mean Annual Precipitation	46	inches

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Parameter Code	Parameter Description	Value	Unit
STRDEN	Stream Density -- total length of streams divided by drainage area	1.51	miles per square mile
CARBON	Percentage of area of carbonate rock	14	percent

Low-Flow Statistics Parameters[49 Percent (863 square miles) Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1770	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	5.6	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.5	feet	4.13	5.21
URBAN	Percent Urban	10	percent	0	89

Low-Flow Statistics Parameters[51 Percent (904 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1770	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	46	inches	35	50.4
STRDEN	Stream Density	1.51	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.5	feet	3.32	5.65
CARBON	Percent Carbonate	14	percent	0	99

Low-Flow Statistics Disclaimers[49 Percent (863 square miles) Low Flow Region 1]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Permit No. PA0020397

Low-Flow Statistics Flow Report[49 Percent (863 square miles) Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	442	ft^3/s
30 Day 2 Year Low Flow	544	ft^3/s
7 Day 10 Year Low Flow	277	ft^3/s
30 Day 10 Year Low Flow	332	ft^3/s
90 Day 10 Year Low Flow	442	ft^3/s

Low-Flow Statistics Disclaimers[51 Percent (904 square miles) Low Flow Region 2]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[51 Percent (904 square miles) Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	663	ft^3/s
30 Day 2 Year Low Flow	779	ft^3/s
7 Day 10 Year Low Flow	445	ft^3/s
30 Day 10 Year Low Flow	522	ft^3/s
90 Day 10 Year Low Flow	633	ft^3/s

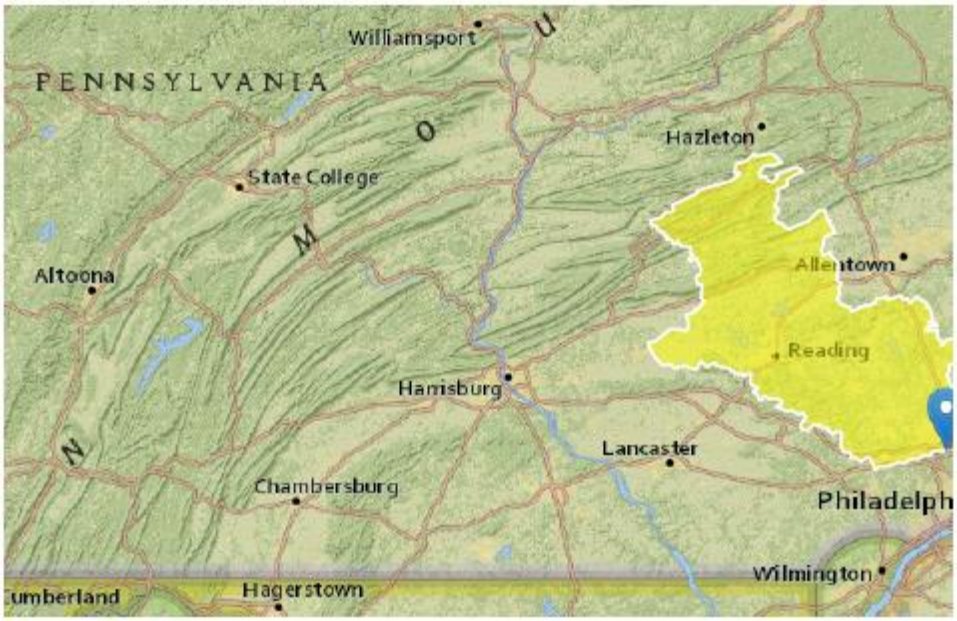
Low-Flow Statistics Flow Report[Area-Averaged]

Statistic	Value	Unit
7 Day 2 Year Low Flow	555	ft^3/s
30 Day 2 Year Low Flow	664	ft^3/s
7 Day 10 Year Low Flow	363	ft^3/s
30 Day 10 Year Low Flow	429	ft^3/s
90 Day 10 Year Low Flow	540	ft^3/s

Low-Flow Statistics Citations

PA0020397 at Plymouth Dam

Region ID: PA
Workspace ID: PA20191125211121552000
Clicked Point (Latitude, Longitude): 40.07551, -75.31587
Time: 2019-11-25 16:11:42 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1770	square miles
BSLOPD	Mean basin slope measured in degrees	5.6	degrees
ROCKDEP	Depth to rock	4.5	feet
URBAN	Percentage of basin with urban development	10	percent
PRECIP	Mean Annual Precipitation	46	inches

Parameter Code	Parameter Description	Value	Unit
STRDEN	Stream Density -- total length of streams divided by drainage area	1.5	miles per square mile
CARBON	Percentage of area of carbonate rock	14	percent

Low-Flow Statistics Parameters[49 Percent (869 square miles) Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1770	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	5.6	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.5	feet	4.13	5.21
URBAN	Percent Urban	10	percent	0	89

Low-Flow Statistics Parameters[51 Percent (904 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1770	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	46	inches	35	50.4
STRDEN	Stream Density	1.5	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.5	feet	3.32	5.65
CARBON	Percent Carbonate	14	percent	0	99

Low-Flow Statistics Disclaimers[49 Percent (869 square miles) Low Flow Region 1]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Permit No. PA0020397

Low-Flow Statistics Flow Report[49 Percent (869 square miles) Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	442	ft^3/s
30 Day 2 Year Low Flow	544	ft^3/s
7 Day 10 Year Low Flow	277	ft^3/s
30 Day 10 Year Low Flow	332	ft^3/s
90 Day 10 Year Low Flow	442	ft^3/s

Low-Flow Statistics Disclaimers[51 Percent (904 square miles) Low Flow Region 2]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[51 Percent (904 square miles) Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	667	ft^3/s
30 Day 2 Year Low Flow	783	ft^3/s
7 Day 10 Year Low Flow	448	ft^3/s
30 Day 10 Year Low Flow	525	ft^3/s
90 Day 10 Year Low Flow	637	ft^3/s

Low-Flow Statistics Flow Report[Area-Averaged]

Statistic	Value	Unit
7 Day 2 Year Low Flow	557	ft^3/s
30 Day 2 Year Low Flow	666	ft^3/s
7 Day 10 Year Low Flow	364	ft^3/s
30 Day 10 Year Low Flow	431	ft^3/s
90 Day 10 Year Low Flow	542	ft^3/s

Low-Flow Statistics Citations

Permit No. PA0020397

USGS
science for a changing world

Prepared in cooperation with the Pennsylvania Department of Environmental Protection

Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

Open-File Report 2011–1070

U.S. Department of the Interior
U.S. Geological Survey

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
01465780	Poquessing Creek above Byberry Creek at Phila., Pa.	40.070	-74.975	13.2	N
01465798	Poquessing Creek at Grant Ave. at Philadelphia, Pa.	40.057	-74.985	21.4	N
01465850	South Branch Rancocas Creek at Vincentown, N.J.	39.94	-74.763	64.5	N
01466500	McDonalds Branch in Byrne State Forest, N.J.	39.885	-74.505	2.35	N
01467000	North Branch Rancocas Creek at Pemberton, N.J.	39.97	-74.684	118	N
01467042	Pennypack Creek at Pine Road, at Philadelphia, Pa.	40.090	-75.069	37.9	N
01467048	Pennypack Creek at Lower Rhawn St Bdg, Phila., Pa.	40.050	-75.033	49.8	N
01467050	Wooden Bridge Run at Philadelphia, Pa.	40.055	-75.022	3.35	N
01467081	South Branch Pennsauken Creek at Cherry Hill, N.J.	39.942	-75.001	8.98	N
01467086	Tacony Creek ab Adams Avenue, Philadelphia, Pa.	40.047	-75.111	16.7	N
01467087	Frankford Creek at Castor Ave, Philadelphia, Pa.	40.016	-75.097	30.4	N
01467089	Frankford Creek at Torresdale Ave., Phila., Pa.	40.007	-75.092	33.8	N
01467150	Cooper River at Haddonfield, N.J.	39.903	-75.021	17.0	N
01467500	Schuylkill River at Pottsville, Pa.	40.684	-76.186	53.4	N
01468500	Schuylkill River at Landingville, Pa.	40.629	-76.125	133	N
01469500	Little Schuylkill River at Tamaqua, Pa.	40.807	-75.972	42.9	N
01470500	Schuylkill River at Berne, Pa.	40.523	-75.998	355	N
01470756	Maiden Creek at Virginville, Pa.	40.514	-75.883	159	N
01470779	Tulpehocken Creek near Bernville, Pa.	40.413	-76.172	66.5	N
01470853	Furnace Creek at Robesonia, Pa.	40.340	-76.143	4.18	N
01470960	Tulpehocken Creek at Blue Marsh Damsite near Reading, Pa.	40.371	-76.025	175	Y
01471000	Tulpehocken Creek near Reading, Pa.	40.369	-75.979	211	Y
01471510	Schuylkill River at Reading, Pa.	40.335	-75.936	880	Y
01471875	Manatawny Creek near Spangsville, Pa.	40.340	-75.742	56.9	N
01471980	Manatawny Creek near Pottstown, Pa.	40.273	-75.680	85.5	N
01472000	Schuylkill River at Pottstown, Pa.	40.242	-75.652	1,147	Y
01472157	French Creek near Phoenixville, Pa.	40.151	-75.601	59.1	N
01472174	Pickering Creek near Chester Springs, Pa.	40.090	-75.630	5.98	N
01472198	Perkiomen Creek at East Greenville, Pa.	40.394	-75.515	38.0	N
01472199	West Branch Perkiomen Creek at Hillegass, Pa.	40.374	-75.522	23.0	N
01472500	Perkiomen Creek near Frederick, Pa.	40.275	-75.455	152	N
01472620	East Branch Perkiomen Creek near Dublin, Pa.	40.404	-75.234	4.05	LF
01472810	East Branch Perkiomen Creek near Schwenksville, Pa.	40.259	-75.429	58.7	LF
01473000	Perkiomen Creek at Graterford, Pa.	40.230	-75.452	279	LF
01473120	Skippack Creek near Collegeville, Pa.	40.165	-75.433	53.7	N
01473169	Valley Creek at Pa. Turnpike Br near Valley Forge, Pa.	40.079	-75.461	20.8	N
01473500	Schuylkill River at Norristown, Pa.	40.111	-75.347	1,760	N
01473900	Wissahickon Creek at Fort Washington, Pa.	40.124	-75.220	40.8	N
01473950	Wissahickon Creek at Bells Mill Rd, Phila., Pa.	40.080	-75.226	53.6	N
01473980	Wissahickon Creek at Livezey Lane, Phila., Pa.	40.050	-75.214	59.2	N
01474000	Wissahickon Creek at Mouth, Philadelphia, Pa.	40.015	-75.207	64.0	N
01474500	Schuylkill River at Philadelphia, Pa.	39.968	-75.189	1,893	N
01475000	Mantua Creek at Pitman, N.J.	39.737	-75.113	6.05	N
01475300	Darby Creek at Waterloo Mills near Devon, Pa.	40.023	-75.422	5.15	N
01475510	Darby Creek near Darby, Pa.	39.929	-75.272	37.4	N

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft³/s)	7-day, 10-year (ft³/s)	7-day, 2-year (ft³/s)	30-day, 10-year (ft³/s)	30-day, 2-year (ft³/s)	90-day, 10-year (ft³/s)
01472174	1969–1984	16	1.2	1.5	2.4	1.8	3.1	2.7
01472198	1983–2008	26	7.1	7.5	12.9	9.6	15.4	13.9
01472199	1983–2008	26	3.8	4.3	6.8	5.1	8.3	7.2
01472500	1886–1913	28	—	14.5	24.0	20.6	34.9	33.2
01472620	1985–2008	24	0	0	7.2	.1	7.3	.5
01472810	1992–2008	15	12.9	18.8	36.0	33.7	49.2	49.8
01473000	[3]1916–1956	41	9.5	14.8	32.1	24.1	44.7	41.4
01473000	[2]1958–2008	51	28.5	33.9	61.6	42.5	77.4	53.3
01473120	1968–1994	27	1.4	1.9	4.4	3.2	6.8	5.6
01473169	1984–2008	25	8.5	9.2	13.2	10.5	15.5	13.2
01473500	1929–2008	9	182	220	422	247	518	328
01473900	1963–2008	14	5.2	6.1	11.3	7.6	14.2	9.9
01473950	1967–1981	15	9.1	11.1	19.1	14.5	24.0	19.7
01474000	1967–2008	42	13.7	16.6	25.6	21.4	32.9	30.4
01474500	1933–2008	76	58.7	108	376	180	515	320
01475000	1942–2006	37	3.5	4.1	6.1	4.8	7.0	5.7
01475300	1974–1997	24	1.0	1.2	2.1	1.6	2.9	2.4
01475510	1965–1990	26	9.3	11.5	18.8	15.5	24.2	22.6
01475530	1966–1981	19	1.2	1.3	2.0	1.8	2.8	2.7
01475550	1965–1990	25	.1	.6	4.4	2.9	8.5	8.9
01475850	1983–2008	26	1.5	2.2	4.6	3.4	6.5	5.4
01476480	1988–2008	19	2.3	3.5	8.5	5.8	11.5	9.0
01476500	1933–1954	22	3.9	4.9	11.4	6.4	14.4	9.7
01477000	1933–2007	73	10.4	12.4	24.9	15.7	31.0	22.8
01477120	1967–2008	42	6.5	7.1	12.9	8.5	15.0	11.2
01477800	1947–2008	62	.2	.2	.6	.5	1.2	1.4
01478000	1944–2008	65	.6	1.5	3.6	2.3	5.0	4.2
01478500	1953–1979	23	9.8	10.7	24.1	13.5	29.1	19.7
01479000	1933–2008	65	12.3	13.7	30.3	18.0	36.8	27.8
01479820	1989–2008	20	3.2	4.1	12.5	5.6	14.6	10.8
01480000	1944–2008	65	8.5	9.8	17.7	12.6	21.1	17.6
01480015	1990–2008	19	9.0	11.0	20.1	14.7	24.5	18.4
01480100	1965–1980	16	.3	.4	1.2	1.2	2.0	2.3
01480300	1962–2008	47	2.6	3.0	6.2	3.9	7.4	5.3
01480500	[3]1945–1993	30	7.3	8.3	14.5	10.4	18.4	14.5
01480500	[2]1995–2008	14	4.8	5.2	12.3	6.6	14.8	9.6
01480617	1971–2008	38	12.1	14.0	23.3	16.6	27.8	22.0
01480675	1968–2008	41	.6	.6	1.7	.9	2.3	1.6
01480685	1975–2008	34	.5	.9	3.7	2.4	7.4	5.7
01480700	[2]1975–2008	34	12.3	14.0	22.3	17.8	28.4	21.9
01480800	1960–1968	9	11.5	12.1	19.8	14.6	23.8	19.5
01480870	1973–2008	36	24.0	26.5	36.8	31.0	44.5	38.0
01481000	[3]1913–1973	51	—	68.5	117	79.0	136	102
01481000	[2]1975–2008	34	60.0	63.8	117	76.9	138	106
01481500	[2]1975–2008	34	64.2	68.3	128	84.5	154	117

Permit No. PA0020397

TRC_CALC

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

221.25	= Q stream (cfs)	0.5	= CV Daily
0.9	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= 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)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 50.711	1.3.2.iii	WLA cfc = 49.432
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 18.896	5.1d	LTA_cfc = 28.737

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

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)

Permit No. PA0020397

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	23.400	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	0.125	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Norristown STP	PA0027421	9.7500	9.7500	9.7500	0.000	20.00	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	4.00	8.24	0.00	0.00
NH3-N	10.00	0.00	0.00	0.70

Permit No. PA0020397

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	48.00	1766.10	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.125	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
ENPWJSA	PA0026816	8.1000	8.1000	8.1000	0.000	20.00	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

Permit No. PA0020397

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	43.79	1770.00	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	0.125	11.72	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.50	20.00	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	0.9000	0.9000	0.9000	0.000	20.00	7.20

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	20.00	0.00	0.00	0.70

Permit No. PA0020397

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	22.260	42.85	1770.10	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.153	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

Permit No. PA0020397

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	21.220	39.59	1770.20	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	0.125	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

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

Permit No. PA0020397

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	0.827	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.123	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

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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												
23.400	220.75	0.00	220.75	15.0833	0.00041	1.177	275.77	234.21	0.73	0.039	20.00	7.00
22.940	220.76	0.00	220.76	27.614	0.00532	1.217	237.23	195	0.86	0.011	20.00	7.00
22.790	232.48	0.00	232.48	29.0063	0.00034	1.181	291.17	246.65	0.76	0.043	20.00	7.01
22.260	232.50	0.00	232.50	29.0063	0.00059	1.168	285.15	244.07	0.78	0.081	20.00	7.01
Q1-10 Flow												
23.400	182.56	0.00	182.56	15.0833	0.00041	NA	NA	NA	0.66	0.043	20.00	7.00
22.940	182.57	0.00	182.57	27.614	0.00532	NA	NA	NA	0.78	0.012	20.00	7.00
22.790	192.26	0.00	192.26	29.0063	0.00034	NA	NA	NA	0.69	0.047	20.00	7.01
22.260	192.28	0.00	192.28	29.0063	0.00059	NA	NA	NA	0.71	0.089	20.00	7.01
Q30-10 Flow												
23.400	247.90	0.00	247.90	15.0833	0.00041	NA	NA	NA	0.77	0.036	20.00	7.00
22.940	247.92	0.00	247.92	27.614	0.00532	NA	NA	NA	0.91	0.010	20.00	7.00
22.790	261.08	0.00	261.08	29.0063	0.00034	NA	NA	NA	0.81	0.040	20.00	7.01
22.260	261.10	0.00	261.10	29.0063	0.00059	NA	NA	NA	0.83	0.076	20.00	7.01

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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
23.400	Norristown STP	9.67	20	9.67	20	0	0
22.940	ENPWJSA	9.67	24	9.67	24	0	0
22.790	Bridgeport STP	9.57	40	9.58	40	0	0
22.260		NA	NA	9.58	NA	NA	NA

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
23.400	Norristown STP	1.92	10	1.92	10	0	0
22.940	ENPWJSA	1.92	12	1.92	12	0	0
22.790	Bridgeport STP	1.9	20	1.9	20	0	0
22.260		NA	NA	1.9	NA	NA	NA

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)		
23.40	Norristown STP	20	20	10	10	4	4	0	0
22.94	ENPWJSA	20	20	12	12	5	5	0	0
22.79	Bridgeport STP	25	25	20	20	5	5	0	0
22.26		NA	NA	NA	NA	NA	NA	NA	NA

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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
23.400	9.750	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
275.771	1.177	234.215	0.726
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.15	0.598	0.64	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.972	1.395	Tsivoglou	5
Reach Travel Time (days)			
0.039			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.004	3.14	0.64	7.96
0.008	3.14	0.64	7.95
0.012	3.13	0.63	7.93
0.015	3.12	0.63	7.92
0.019	3.11	0.63	7.91
0.023	3.11	0.63	7.90
0.027	3.10	0.63	7.89
0.031	3.09	0.63	7.88
0.035	3.09	0.62	7.86
0.039	3.08	0.62	7.85

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
22.940	17.850	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
237.227	1.217	195.004	0.861
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.93	0.819	1.20	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.709	21.340	Tsivoglou	5
Reach Travel Time (days)			
0.011			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.001	3.93	1.20	7.73
0.002	3.93	1.19	7.76
0.003	3.92	1.19	7.78
0.004	3.92	1.19	7.80
0.005	3.92	1.19	7.82
0.006	3.91	1.19	7.84
0.007	3.91	1.19	7.86
0.009	3.91	1.19	7.88
0.010	3.90	1.19	7.90
0.011	3.90	1.19	7.92

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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
22.790	18.750	20.000	7.014
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
291.171	1.181	246.645	0.761
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.93	0.809	1.23	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.920	1.192	Tsivoglou	5
Reach Travel Time (days)			
0.043			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.004	3.91	1.23	7.89
0.009	3.90	1.23	7.86
0.013	3.89	1.22	7.83
0.017	3.87	1.22	7.80
0.021	3.86	1.22	7.77
0.026	3.85	1.21	7.74
0.030	3.83	1.21	7.71
0.034	3.82	1.21	7.68
0.038	3.81	1.20	7.65
0.043	3.79	1.20	7.63

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
22.260	18.750	20.000	7.014
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
285.154	1.168	244.075	0.785
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.79	0.774	1.20	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.626	2.174	Tsivoglou	5
Reach Travel Time (days)			
0.081			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.008	3.77	1.19	7.59
0.016	3.75	1.18	7.55
0.024	3.72	1.18	7.51
0.032	3.70	1.17	7.48
0.040	3.68	1.16	7.44
0.049	3.65	1.16	7.41
0.057	3.63	1.15	7.37
0.065	3.61	1.15	7.34
0.073	3.58	1.14	7.31
0.081	3.56	1.13	7.28

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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)
23.400	Norristown STP	PA0027421	9.750	CBOD5	20		
				NH3-N	10	20	
				Dissolved Oxygen			4

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	8.100	CBOD5	20		
				NH3-N	12	24	
				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)
22.790	Bridgeport STP	PA0020397	0.900	CBOD5	25		
				NH3-N	20	40	
				Dissolved Oxygen			5

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Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Boro of Bridgeport STP** NPDES Permit No.: **PA0020397** Outfall No.: **001**

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

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.9	100	7.2						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L											
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L		50.7									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L											
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L		140									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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

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	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										
	1,2-Diphenylhydrazine	µg/L	<										
	Fluoranthene	µg/L	<										
	Fluorene	µg/L	<										
	Hexachlorobenzene	µg/L	<										
	Hexachlorobutadiene	µg/L	<										
	Hexachlorocyclopentadiene	µg/L	<										
	Hexachloroethane	µg/L	<										
	Indeno(1,2,3-cd)Pyrene	µg/L	<										
	Isophorone	µg/L	<										
	Naphthalene	µg/L	<										
	Nitrobenzene	µg/L	<										
	n-Nitrosodimethylamine	µg/L	<										
	n-Nitrosodi-n-Propylamine	µg/L	<										
	n-Nitrosodiphenylamine	µg/L	<										
	Phenanthrene	µg/L	<										
	Pyrene	µg/L	<										
	1,2,4-Trichlorobenzene	µg/L	<										
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

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Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Boro of Bridgeport STP, NPDES Permit No. PA0020397, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: **Schuylkill River**

No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	000833	22.79	43.73	1770			Yes
End of Reach 1	000833	22	42.88	1770.1			Yes

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

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	22.79	0.125										200	7.5		
End of Reach 1	22	0.125													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	22.79														
End of Reach 1	22														

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Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Boro of Bridgeport STP, NPDES Permit No. PA0020397, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.052 Analysis Hardness (mg/l): 189.26 Analysis pH: 7.46

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	24.514	25.5	238	Chem Translator of 0.96 applied
Total Zinc	0	0		0	201.191	206	1,916	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 720 PMF: 0.362 Analysis Hardness (mg/l): 198.29 Analysis pH: 7.49

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	16.075	16.7	981	Chem Translator of 0.96 applied
Total Zinc	0	0		0	211.009	214	12,538	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 720 PMF: 0.362 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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

☑ ***CRL*** CCT (min): 720 PMF: 0.558 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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

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

Permit No. PA0020397

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	152	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	1,228	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