pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0026549**
3333Facility Type	**Municipal**	APS ID	**276209**
Major / Minor	**Major**	Authorization ID	**1234998**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Reading City Berks County**	Facility Name	**Reading WWTP**
Applicant Address	815 Washington Street Reading, PA 19601-3615	Facility Address	899 Morgantown Road Reading, PA 19607-9533
Applicant Contact	Deborah Hoag, Utilities Manager	Facility Contact	William Reilly, Operations Mgr/Acting Plant Mgr
Applicant Phone	(610) 587-0461 (cell) Deborah.Hoag@readingpa.gov	Facility Phone	(443) 223-5580 William.reilly@readingpa.gov
Client ID	87564	Site ID	455414
Ch 94 Load Status	Not Overloaded	Municipality	Reading City
Connection Status	No Limitations	County	Berks
Date Application Received	June 26, 2018; & April 14, 2022	EPA Waived?	No
Date Application Accepted	August 7, 2018	If No, Reason	Major Facility, Pretreatment
Purpose of Application	Renewal of NPDES for existing discharger		

Summary of Review

The previous NPDES permit was issued November 25, 2013 and had an expiration date of November 30, 2018. The previous permit was administratively extended, pending issuance of a renewal permit. The results of re-sampling for specific parameters, using DEP's Target Quantitation Levels, were received on April 14, 2022, and have been incorporated in the development of the renewal permit's effluent limits.

According to the renewal application, the following municipalities contribute to the WWTP:

Reading City (approximately 62.8% of total flow)
Muhlenberg Township (approximately 15% of total flow)
Spring Township (approximately 8.5% of total flow)
Cumru Township (approximately 8% of total flow)
Laureldale Borough (approximately 2.5% of total flow)
Kenhorst Borough (approximately 1.5% of total flow)
Bern Township (approximately 0.7% of total flow)
Antietam Valley MUA (approximately 0.4% of total flow) which consists of Lower Alsace Twp and Mt. Penn Borough
Mohnton Township (approximately 0.3% of total flow)
Wyomissing Borough (approximately 0.3% of total flow)
Robeson Township (approximately 0.05% of total flow)

According to the 2021 Chapter 94 Municipal Report submitted to DEP, a) flow is also received from Lower Heidelberg Township and Shillington Borough; b) Mohnton Borough as a contributor whereas Mohnton Township was indicated in the application.

Approve	Deny	Signatures	Date
X		*Bonnie Boylan* Bonnie Boylan / Clean Water Permit Writer	August 8, 2022
x		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	August 15, 2022
x		Maria D. Bebenek Maria D. Bebenek, P.E. / Environmental Program Manager	August 15, 2022

Design Flows:

The last permit was based on a design flow of 20.5 MGD. The renewal permit application also indicated a design flow of 20.5 MGD. The 2021 Chapter 94 Municipal Report showed Annual Average flows (AAF) under 20.5 MGD for the years 2017-2021 and projected AAFs under 20.5 MGD for the years 2022-2026. There were 4 months during 2017-2021 (out of 60 months) where the Monthly Average flows exceeded 20.5 MGD per the 2021 Chapter 94 Report, none of which occurred in the most recent years reported (after the treatment plant upgrade). The facility's electronic Discharge Monitoring Reports (eDMRs) from January 1, 2019 to May 31, 2022 were also reviewed: they indicated an average flow of 18.6 MGD for 2019, 15.5 MGD for 2020, and 15.6 MGD for 2021. The maximum monthly average flow was reported to be less than 20.5 MGD for 2020 and 2021. (See attached). Therefore, the design flow for the renewal permit has remained as 20.5 MGD.

The WQM permit for the Treatment Plant (#0686404) cites a design AAF of 20.5 MGD and a design Hydraulic Capacity of 27.8 MGD.

Because the Daily Maximum flows during the period January 1, 2019 through May 31, 2022 have been as high as 51.9 MGD and because there were 17 out of 41 months during this period when the Daily Maximum exceeded 27.8 MGD, an updated High Flow Management Plan will be required as a Part C Permit Condition. A High Flow Management Plan was also included in the previous permit's Part C Conditions.

Combined Sewer Outfalls: None

Hauled-in Wastes: None (nor any expected to be accepted in next five years, the term of the NPDES permit)

Pretreatment:

The 2018 application indicated 44 Industrial Users (IUs) to the Wastewater Treatment Plant (WWTP). Of these, 9 were identified as 'Categorical Industrial Users' (CIUs) subject to federal Effluent Limitation Guidelines' Pretreatment Standards.

According to the 2021 Chapter 94 Report, 1) approximately 13% of the treatment plant's total flow is from Significant Industrial Users (SIUs) and 2) they now accept wastewater from 10 CIUs, 33 non-categorical SIUs, and 16 other permitted IUs. See the attached list of CIUs from the 2021 Chapter 94 Report. For the 2021 reporting period, the permittee indicated no instances of pass through or interference at the treatment plant.

The application addendum of April 14, 2022 reported 12 additional IUs industrial users: 8 laundries, 2 facilities not contributing any process wastewater (or non-contact cooling water) but issued IU permits (for past activity), and 2 IUs that were reported as SIUs but not CIUs.

The two largest SIUs are Carpenter Technology contributing 11,520 gpd of process wastewater and 291,000 gpd of boiler blowdown and non-contact cooling water and United Corrstack/DS Smith contributing 360,000 of process wastewater. Each of these SIUs contributes <2% of the design flow. The combined process wastewater from multiple dairies, food, and drink manufacturers make up a contribution of approximately 612,500 gpd according to the permit application, i.e. 3% of the WWTP's design flow.

The permittee is required to have an industrial pretreatment program in accordance with the Clean Water Act, the General Pretreatment Regulations at 40 CFR 403, and their existing NPDES permit. The City has local limits in place, issues permits to its significant industrial users (SIU's), collects monitoring data from its SIUs, inspects the SIUs, conducts quarterly influent, effluent, and sludge monitoring for some parameters including metals, and conducts annual influent priority pollutant scans--in accordance with the requirements of an EPA Pretreatment Program [40 CFR Part 403].

The local limits are intended to control the influent to the WWTP. The City's most recent local limit re-evaluations were submitted to EPA in March 2019 with revisions submitted in July 2019. They were found acceptable by EPA on July 9, 2019. According to City of Reading's Consent Decree Quarterly Progress Report for Period ending September 30, 2021: "The local limits were re-evaluated and the ordinance was approved by City Council and signed by the Mayor.….all municipalities have adopted the new local limits."

Biosolids:

Offsite disposal to landfill .

Unresolved Violations

There are no outstanding violations for this facility according to DEP's eFacts database and DEP's WMS 'Open Violations per Client' Report'.

Delaware River Basin Commission (DRBC):

The facility discharges to a stream within the Delaware River watershed and is thus subject to the Delaware River Basin Commission's (DRBC) requirements. A copy of the draft permit and Fact Sheet will therefore be sent to the DRBC for their review in accordance with State regulations and an interagency agreement. Any comments from DRBC will be considered. The most recent DRBC docket D-1986-028 CP-4 was approved for this facility on December 10, 2019 with an expiration date of November 29, 2023.

Public Participation:

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

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	20.5
Latitude	40º 18' 13"	Longitude	-75º 55' 13"
Quad Name		Quad Code	
Wastewater Description:	Sewage and Industrial Wastewater, Stormwater		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	0833
NHD Com ID	25993160	RMI	72.8 last permit & DRBC docket
Drainage Area	919 per PA Stream Stats Online	Yield (cfs/mi^2)	0.28 * , estimated
Q_{7-10} Flow (cfs)	257 *, estimated	Q_{7-10} Basis	Gage correlation *
Elevation (ft)	188, estimated	Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	WWF, MF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired for Fish Consumption		
Cause(s) of Impairment	Polychlorinated Biphenyls (PCBS)		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final – April 7, 2007	Name	Schuylkill River PCB TMDL

Background/Ambient Data		Data Source: STORET and DEP WQ Portal
pH (SU)	7.8	upstream WQN 113:median of July-Sept values, 2011-2021 (correlating to stream low flow period, Q7-10, July-Sept)
Temperature (°F)		
Hardness (mg/L)	121	upstream WQN 113: Avg of July-Sept values, 2011-2021 (correlating to stream low flow period, Q7-10, July-Sept)
Other:		

Nearest Downstream Public Water Supply Intake		Pottstown Borough	
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	Approx. 57	Distance from Outfall (mi)	>15 miles

*USGS gage 01471510 is approximately 3.1 miles upstream from outfall 001. USGS gage 01471510 had a Q7-10 of 244 cfs based on historical records from 1980 through 2008 and a Drainage Area of 880 sq. miles, resulting in a LFY of 0.28 cfs/sq.mi. [Stuckey, M.H., and Roland, M.A., 2011, Selected streamflow statistics for stream gage locations in and near Pennsylvania: U.S. Geological Survey Open-File Report 2011-1070.] Using gage correlation to calculate the Q7-10 at outfall 001 gives the following result: LFY at upstream gage x Drainage Area at 001 = 0.28 cfs/sq.mi.x 919 sq. mi. = 257 cfs. (The last permit/FS also used a Q7-10 of 257 cfs.)

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	002	Design Flow (MGD)	0
Latitude	**40º 18' 13"** per appl. & last permit	Longitude	**-75º 55' 30"** appl.& last permit
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	to Mifflin Arm of Schuylkill River (per appl and last permit)	Stream Code	
NHD Com ID	25993150 per NHD	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s) per NHD		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	003	Design Flow (MGD)	0
Latitude	**40º 18' 18"** per appl. & last permit	Longitude	**-75º 55' 17"** per appl/last permit
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	0833
NHD Com ID	25993160	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired for Fish Consumption		
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)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	004	Design Flow (MGD)	0
Latitude	**40º 18' 19"** per appl. & last permit	Longitude	-75º 55' 19" per appl **-75º 55' 20"** per last permit
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	0833
NHD Com ID	25993160	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired for Fish Consumption		
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)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

According to DEP Inspection report of 9/23/2020, a bioretention basin was installed and the stormwater is now directed to outfall 001 routinely. Because there is still the potential for overflow during heavy storm events, this outfall has been left in the draft renewal permit.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	005 *	Design Flow (MGD)	0
Latitude	**40º 18' 11"** per appl. & last permit	Longitude	**-75º 55' 12"** per appl/last permit
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	0833
NHD Com ID	25993160	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired for Fish Consumption		
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)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

*According to the 2018 application, this outfall is no longer a discharge following the WWTP upgrade. The stormwater instead is collected in a catch basin around the final clarifiers. Collected stormwater is pumped into one of the final clarifiers and discharges via outfall 001 with the treated effluent.

Because there is still the potential for overflow during heavy storm events or if the stormwater is not pumped into a final clarifier, this outfall has been left in the draft renewal permit.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	006 *	Design Flow (MGD)	0
Latitude	**40º 18' 17"** per appl & last permit	Longitude	**-75º 55' 16"** appl/ last permit
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	0833
NHD Com ID	25993160	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired for Fish Consumption		
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)			
Temperature (°F)			
Hardness (mg/L)			
Other:			
Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

*According to the 2018 application, this outfall is no longer a discharge following the WWTP upgrade. The 2018 application provides this description for outfall 006:

Storm water drains behind the main control building. Pit is deep (20 ft. to invert). One discharge pipe on the bottom discharges to the river. The discharge is ground water from the drainage system underneath the basement floor. The discharge comes out approximately 175 ft. from the pit toward the river and the line is underground 20 ft below grade between digester #3 and the old aeration tank blower building."

Because there is still a storm water drain and a discharge, this outfall has been left in the draft renewal permit.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	007	Design Flow (MGD)	0
Latitude	**40º 18' 18"** per appl & last permit	Longitude	**-75º 55' 17"** per appl/last permit
Quad Name		Quad Code	
Wastewater Description:	Stormwater		

Receiving Waters	Schuylkill River (WWF, MF)	Stream Code	0833
NHD Com ID	25993160	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired for Fish Consumption		
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)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	008	Design Flow (MGD)	0
Latitude	**40º 18' 27"** per appl & last permit	Longitude	-75º 55' 25.5" appl/topo 2013 **-75º 55' 25"** per last permit
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Swale in field conveying to Schuylkill River (WWF, MF) per appl and last permit	Stream Code	UNT to 0833
NHD Com ID	25993150 per NHD	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired for Fish Consumption – for Schuylkill River		
Cause(s) of Impairment	Polychlorinated Biphenyls (PCBs)		
Source(s) of Impairment	Source Unknown		
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Treatment Facility Summary

Treatment Facility Name: Reading WWTP

WQM Permit No.	Issuance Date
0686404 A-3	4/13/2022
0686404 A-2	1/29/2015
0686404 A-1	2/18/2014
0686404	8/3/1998

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Gas Chlorine	20.5

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
27.8 (2015 WQM)	92,324 (2015 WQM)	Not Overloaded	Anaerobic Digestion	Disposed at Landfill

Changes Since Last NPDES Permit Issuance: Upgraded WWTP. No longer use trickling filters, now activated sludge plant, put into operation June 2020. See attached Flow diagram.

Screening and grit removal at 6th & Canal PS preceding WWTP
Grit Removal Unit at Fritz Island WWTP
Influent Junction Box*
4 Primary Clarifiers
4 Aeration Tanks (also called Biological Reactors) with fine bubble diffusers and DO probes
4 Final Clarifiers
Variable speed pumps for RAS and WAS
2 Chlorine Contact Tanks (CCTs) when crossover gates are closed, Dechlorination, and Post-Aeration**
2 Effluent Flow Meters, Totalizer and SCADA
Effluent Structure with cascading steps for aeration and two composite samplers each synch'd with an effluent flow meter

Solids Handling:
Sludge Holding Tank with mixers
2 Gravity Belt Thickeners
Primary and Secondary digestion in 5 anaerobic digestors
Digested Sludge Holding Tank
2 Centrifuges for Dewatering
Odor Control System
Offsite disposal to Landfill

4 Pump Stations (PS's):
- 6th & Canal, metered and tied into SCADA. 6 Centrifugal pumps.
- 18th Ward, metered and tied into SCADA. 4 Centrifugal pumps.
- 19th Ward, metered but not tied into SCADA. 3 Centrifugal pumps.
- West Reading, not metered. 2 Centrifugal pumps.

Another 20 PS's contributing flows from the tributary municipalities

* convergence of flow from 6th & Canal Pump Station (PS), Cumru's Flying Hills PS, gravity flow from Cumru Township, and WWTP's Grit Chamber

**WQM permit 0686404 A-2 represented as one CCT and one post-aeration tank but when post-aeration tank not in use, it would be used to provide additional chlorine contact time.

The **EXISTING** permit limits are shown below, for outfall 001:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.4	XXX	1.3	1/shift	Grab
Color (Pt-Co Units)	XXX	XXX	XXX	186	XXX	465	1/day	24-Hr Composite
CBOD5 Nov 1 - Apr 30	4103	6154 Wkly Avg	XXX	24	36 Wkly Avg	48	1/day	24-Hr Composite
CBOD5 May 1 - Oct 31	3248	4958 Wkly Avg	XXX	19	29 Wkly Avg	38	1/day	24-Hr Composite
BOD5, Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Suspended Solids	5129	7694 Wkly Avg	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	XXX	XXX	1/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	XXX	XXX	2000	1/week	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/day	Grab
Fecal Coliform (CFU/100 ml) 333May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	Grab
Ammonia Nov 1 - Apr 30	3248	XXX	XXX	19	XXX	38	1/day	24-Hr Composite
Ammonia May 1 - Oct 31	1111	XXX	XXX	6.5	XXX	13	1/day	24-Hr Composite
Total Kjeldahl Nitrogen	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Nitrate-Nitrite	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Total Nitrogen	XXX	Report	XXX	XXX	Report	XXX	1/month	Calculation
Total Phosphorus	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite
PCBs (Dry Weather) (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
PCBs (Wet Weather) (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite

Compliance History

DMR Data for Outfall 001 (from June 1, 2021 to May 31, 2022)

Parameter	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21
Flow (MGD) Average Monthly6	17.60	17.93	14.77	16.32	14.26	13.70	14.64	14.37	19.34	14.89	14.31	14.04
Flow (MGD) Daily Maximum	28.84	34.54	18.30	29.85	19.07	14.54	18.58	19.73	51.74	21.07	19.82	16.05
pH (S.U.) Minimum	6.9	6.8	6.8	6.8	6.8	6.9	6.9	7.3	7.0	7.1	7.0	7.1
pH (S.U.) Instantaneous Maximum	7.4	7.3	7.4	7.3	7.3	7.4	7.5	7.6	7.7	7.5	7.5	7.5
DO (mg/L) Minimum	8.4	7.3	9.4	9.4	8.7	8.7	8.4	7.8	7.5	7.5	5.4	6.8
TRC (mg/L) Average Monthly	< 0.02	< 0.02	< 0.02	< 0.03	< 0.03	< 0.02	< 0.03	0.04	< 0.04	0.08	0.05	< 0.02
TRC (mg/L) Instantaneous Maximum	0.10	0.12	0.14	0.24	0.15	0.17	0.14	0.20	0.20	0.53	0.12	0.10
Color (Pt-Co Units) Average Monthly	33	31	41	35	44	42	33	35	29	36	46	43
CBOD5 (lbs/day) Average Monthly	998	1433	1021	1776	2603	1447	511	341	538	416	405	1055
CBOD5 (lbs/day) Weekly Average	1567	2410	1280	2188	3695	2449	644	392	1044	526	536	2146
CBOD5 (mg/L) Average Monthly	7	< 9	8	13	> 22	13	< 4	< 3	< 3	< 3	< 3	9
CBOD5 (mg/L) Weekly Average	12	15	10	17	27	22	5	< 3	< 5	< 4	4	18
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	45874	50104	51537	50045	51062	45933	43476	47202	45357	47960	47339	48377
BOD5 (mg/L) Raw Sewage Influent Average Monthly	346	346	423	384	435	412	382	411	321	405	422	437
TSS (lbs/day) Average Monthly	2060	3848	2357	3071	4665	2802	1000	618	1126	708	758	2066
TSS (lbs/day) Raw Sewage Influent Average Monthly	52732	56868	42206	42996	41181	35990	33721	36639	41917	34970	37049	36495

TSS (lbs/day) Weekly Average	3364	7463	3608	3851	5912	5200	1202	758	2359	1126	1363	3493
TSS (mg/L) Average Monthly	15	25	19	23	39	25	8	5	6	< 6	6	17
TSS (mg/L) Raw Sewage Influent Average Monthly	400	382	346	318	345	323	296	313	289	295	329	330
TSS (mg/L) Weekly Average	25	46	29	30	51	46	10	6	10	8	11	29
Total Dissolved Solids (mg/L) Average Monthly	562	583	638	652	684	635	596	614	577	636	666	635
Total Dissolved Solids (mg/L) Special Effluent Gross Instantaneous Maximum	634	628	676	662	736	656	618	687	656	676	704	696
Fecal Coliform (CFU/100 ml) Geometric Mean	19	< 14	< 28	< 13	< 30	< 28	< 28	< 24	33	40	33	31
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	62	97	2224	145	185	108	161	122	1120	613	148	649
Nitrate-Nitrite (lbs/day) Daily Maximum	1594	430	772	1545	1412	1563	2481	1528	1839	1459	1527	926
Nitrate-Nitrite (mg/L) Daily Maximum	11.8	2.92	6.38	11.6	12.8	13.4	20.6	13.3	5.62	11.3	9.24	7.76
Total Nitrogen (lbs/day) Daily Maximum	1863	1088	1646	2352	2167	1923	2639	1716	2104	1850	1941	1323
Total Nitrogen (mg/L) Daily Maximum	13.79	7.39	13.60	18.06	19.64	16.49	21.92	14.91	6.46	14.28	11.74	11.09
Ammonia (lbs/day) Average Monthly	59	184	70	172	155	46	26	43	66	89	103	650
Ammonia (mg/L) Average Monthly	0.4	1.2	0.6	1.2	1.3	0.4	0.2	0.4	0.4	0.8	0.9	5.4
TKN (lbs/day) Daily Maximum	269	658	874	808	755	360	159	189	266	409	413	397
TKN (mg/L) Daily Maximum	1.99	4.47	7.22	6.51	6.84	3.09	1.32	1.66	0.84	3.21	2.50	3.33
Total Phosphorus (lbs/day) Daily Maximum	555	480	398	475	191	350	963	115	185	160	350	839

Total Phosphorus (mg/L) Daily Maximum	4.11	3.98	2.61	3.56	1.73	3.00	7.88	0.984	1.44	1.26	2.12	6.27
PCBs (Dry Weather) (ng/L) Daily Maximum						1.02						
PCBs (Wet Weather) (ng/L) Daily Maximum						0.951						

Compliance History, continued

Effluent Violations for Outfall 001, from: July 1, 2021 To: June 30, 2022:

Parameter	Reporting Period End Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	06/30/2022	IMAX	1733	CFU/100 ml	1000	CFU/100 ml
TSS	04/30/2022	Wkly Avg	46	mg/L	45	mg/L
CBOD5	01/31/2022	Avg Mo	> 22	mg/L	24	mg/L
TSS	01/31/2022	Avg Mo	39	mg/L	30	mg/L
TSS	01/31/2022	Wkly Avg	51	mg/L	45	mg/L
TSS	12/31/2021	Wkly Avg	46	mg/L	45	mg/L
Fecal Coliform	09/30/2021	IMAX	1120	CFU/100 ml	1000	CFU/100 ml

Other Violations:

3/4/2021 – NOV issued via electronic mail for 2/25/2021 incident.

12/10/2019 – NOV issued for discharge at 6th and Canal PS on 11/20/2019

The permittee is under a Consent Decree between City of Reading, DEP, EPA, and U.S. Dept of Justice dating back to November 7, 2005, requiring upgrades to the WWTP, pump stations, and priority areas of the sanitary sewer collection system and maintaining a Dedicated Sewer Fund. The Consent Decree has been modified February 26, 2014; January 11, 2018; and December 30, 2019.

Summary of DEP Recent Inspections:

5/10/2022 – No Violations – 4 aeration basins operate in parallel; each aeration basin is separated into 3 aeration zones with DO probes and VFD controls on aeration blowers; influent sampling is flow proportional, does not include return flows or septage receiving station, is prior to any treatment; *the effluent sample location is adequate for representative samples.* Samples collected 5/10/2022 at outfall 001 and analyzed:

pH	7.49 s.u.
DO	9.11 mg/l
TRC	0.03 mg/l
Temperature	18.7°C

11/23/2021 - Administrative Inspection, No Violations issued; an SSO from 19th Ward PS occurred due to Hurricane Ida and DEP was notified

5/12/2021 – No Violations Issued; permittee is undergoing moving the influent sampler upstream of the primary settling tank distribution box to eliminate the influent samples including return flows; plant upset occurred in February 2021 and was reported, increased filamentous growth and sludge bulking that caused effluent violations for CBOD5 and TSS; uneven feed to 4 Clarifiers observed with majority of flow entering Clarifiers #1 and # 3

3/31/2021 – Violations. Immediately corrected. Discharge of raw sewage from 6th and Canal PS's FM air release valve to the ground.

3/17/2021 – No Violations, follow-up from February upset, microbiologist hired by permittee believes nutrient deficiency and anaerobic respiration in floc due to anaerobic/fermentative conditions upstream of the aerobic reactor are causes of problem; sulfur profiling in STP and collection system is being conducted with the idea that need to better oxidize sulfides or eliminate anoxic zones

3/17/2021 – Incident Report – Violations noted and immediately corrected. Break in chlorination for less than an hour on each of 3/16 and 3/17, with DEP notified. On 3/16, chlorine gas feed did not automatically switch to second bank when first bank became empty, as designed, and TRC dropped in CCT. On 3/17, emergency stop was accidentally hit, causing no chlorine residual in CCT.

3/9/2021, 3/8/2021, 3/1/2021 and 2/26/2021 – No Violations, follow-up from February upset

2/25/2021 – Incident – Violation issued for non-reporting and for unauthorized unpermitted discharge of sewage to waters of the Commonwealth; sludge bulking and solids washout occurred 2/24 and 2/25, DEP not notified until 2/25. Filamentous growth. Inspector observed wastewater in CCTs was light brown in color with suspended solids and "effluent flow appeared grey within Schuylkill River".

11/5/2020 (during pandemic) – Admin Report – No violations; permittee notified DEP replacing-in-kind screen at 18th Ward PS, will use bar screen and manual cleaning during replacement project (approximately 7 to 10 days)

11/2/2020 report :"A NOV will follow for a formal response." Filamentous growth in influent chamber. Reactor #1 kept at DO of 0-1 mg/l while other 3 reactors are kept at DO of 2-3 mg/l (via setpoints)

10/28/2020 – Violations: a discharge of inadequately treated sewage. Hazen & Sawyer report that the plant received a significant carbonaceous loading, causing an upset on 10/23/2022. Industrial Users are being investigated (most of which are food and drink facilities)

10/27/2020 – Violations, same as above, follow-up for 10/23/2020 incident

10/23/2020 - Violation - plant upset and discharge of partially treated effluent to Schuylkill River; DEP notified; ammonia spike occurred 10/14/2022 (0.8 mg/l) and continued to rise (into the 20's mg/l) over following days; only thing out of the ordinary was the addition of 300 gallons of cleaning water from odor control towers on 10/14/2020 (sodium hydroxide and sodium hypochlorite and calcification). Several IUs investigate. To note, daily influent composite samples have not

detected anything unusual entering the WWTP treatment plant; influent is analyzed for the same parameters as are required for the effluent. DO in aeration tanks is usually kept at 2-4 mg/l for nitrification (ammonia conversion) but aeration tanks are now at 0-0.6 mg/l.

9/23/2020 – Routine Inspection (Kevin Buss) – No violations. Hydraulic loading inconsistent between clarifiers. High Flow Management Plan is available; plan implemented at 24 MGD.

> *"Fecal grabs are taken in the middle of each chlorine contact tank. Reported Fecal sample results are arithmetic mean; 2 effluent composite samplers collect from the top of each side of the cascade steps; daily readings are collected from a sample well at the bottom of the cascade steps. Two magnetic effluent flow monitoring meters at head of the cascade are online. Reading has completed a sampling plan to evaluate if the sample collection points are representative."*

SW Outfall 003- collects stormwater from the administrative buildings roof leaders and parking lot
SW Outfall 004- dry swale, discharge Bioretention basin installed, grass growing. Discharges to outfall 001.

8/6/2020 -No Violations- SSO at 19th Ward PS. PS is scheduled for upgrade.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 20.5
Latitude 40º 18' 13" **Longitude** -75º 55' 13"
Wastewater Description: Sewage, Industrial Wastewater, and Site Stormwater

Technology-Based Effluent Limitations (TBELs)

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation	DRBC 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)	
$CBOD_5$	85% Removal	Average Monthly		92a.47(a)(3)	
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)	18 CFR Part 410
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)	18 CFR Part 410
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	92a.47(a)(7)	18 CFR Part 410
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)	18 CFR Part 410
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.47(a)(8)	
BOD_5	85% Removal	-			18 CFR Part 410
Ammonia	20	Average Monthly	-	-	18 CFR Part 410
Total Dissolved Solids	1000*	Average Monthly	-	-	18 CFR Part 410
Color	100 (Pt-Co)**	Average Monthly	-	-	18 CFR Part 410

*Or a concentration established by the Commission which is compatible with designated water uses and stream quality objectives and recognizes the need for reserve capacity to serve future dischargers (i.e. limit based on a **TDS** Determination submitted to DRBC proving that the discharge will not cause the TDS in the receiving water to exceed the lesser of 500 mg/l or 133% of background). The DRBC 2019 docket does not include a TDS variance. It requires that their effluent meet a TDS limit of 1000 mg/l .

Or a limit not to cause **Color in the receiving water to exceed 100 Pt-Co. Section 4.30.5.c of DRBC's Quality Regulations allows for a variance of the 100-unit effluent limit. For this facility, DRBC approved a color determination of **186 units** on the Platinum Cobalt scale via letter from the Executive Director on October 19, 1998. The 1998 color determination was continued via the DRBC docket approved on December 10, 2019: D-1986-028 CP-4. (The instantaneous maximum (MAX) limit in previous permits was derived by using a 2.5 multiplier: 186 Pt-Co units as a monthly average x 2.5 = 465 Pt-Co units as an IMAX.)

Comments: A State limit of 2.0 mg/l for Total Phosphorus does not apply since the receiving water is not impaired for Total Phosphorus [Pa code Chapter 96.5(c)]. A State limit of 2000 mg/l for TDS does not apply since the existing discharge is not increasing its TDS load August 2010 [Pa Code Chapter 95.10]. A State limit of 15 mg/l as an average and 30 mg/l as a Maximum for Oil and Grease [Pa Code Chapter 92a.47(a)(7)] is not deemed needed based on sampling results in their application (3 out of 3 effluent samples < 5 mg/l) and in their past application.

Narrative limits are imposed in NPDES permits in addition to the numeric limits, in Part A following the limits tables. The narrative limits include: "The monthly average percent removal of BOD5 or CBOD5 and TSS must be at least 85% for WWTP facilities on a concentration basis…." Because all Municipal Wasteload (Sewage) Chapter 94 reporting is in terms of BOD5, the influent monitoring has continued to be required as BOD5, as requested by DEP's regional office Sewage Planning staff. Because DEP's WQM 7.0 model uses CBOD5, most NPDES permits for Sewage treatment plants (STPs)

include effluent limits in terms of CBOD5 rather than as BOD5. STPs designed to achieve “secondary treatment” usually have no difficulty achieving the 85% removal requirement for organic matter.

A review of the eDMRs from January 1, 2019 through May 31, 2022 show a maximum concentration of **Total Dissolved Solids (TDS)** of 882 mg/l, well below the previous permit’s IMAX limit of 2000 mg/l. The average monthly TDS limit of 1000 mg/l, consistent with the DRBC Water Quality regulations, will be carried forward from the previous NPDES permit. The IMAX limit and separate grab sample have been dropped from the previous permit.

Effluent Limitation Guidelines (ELGs) :

DEP’s Standard Operating Procedure (SOP) for Establishing Effluent Limitations for Individual Sewage Permits instructs: “Effluent concentrations of toxic pollutants should not exceed concentration-based ELGs that are applicable to the industrial category where the pollutants originate.” The CIU’s were considered to be sure the WWTP’s effluent concentrations were below Pretreatment Standards in the ELGs. See next page(s).

Name of CIU	Amount of Process WW (GPD)	Other industrial wastewater (GPD)	Applicable ELG	Applicable Subpart	Pretreat-ment Standards?	Pretreatment Standards Included in ELG as concentrations
Alcon Research	1000		Not provided	Not provided	None known	None known
Carpenter Technology	11,520	111,600 Non-contact Cooling water	40 CFR Part 420 Iron and Steel	F-Continuous Casting	Yes	ELG limits for Lead and Zinc are provided as **mass limits***, lb pollutant per 1000 lb product ; pH std of 6.0-9.0
Hoffman Industries	33,630	3600 Non-contact Cooling water	40 CFR Part 433 Metal Finishing	A-Metal Finishing	Yes	Yes with exception for Job Shops & Independent Printed Circuit Board Mfr's – see below [(a)]
Reading Plating and Polishing	15,000	3000 Non-contact Cooling water	40 CFR Part 413 Electro-plating	A-Common Metals	Yes [(b)]	Yes – see below [(b)]
Reading Truck Body	15,000	3000 Non-contact Cooling water	40 CFR Part 433 Metal Finishing	A-Metal Finishing	Yes	Yes with exception for Job Shops & Independent Printed Circuit Board Mfr's – see below [(a)]
Sealed Air	90,000		40 CFR Part 430 Pulp and Paper	J-Secondary Fiber non-de-ink and paperboard from wastepaper	Yes	ELG limits for Pentachlorophenol and Trichlorophenol* (if using chlorophenolic-containing biocides) are provided as **mass limits***, lb pollutant per 1000 lb product
Summit Steel & Mfr'ing	240		40 CFR Part 433 Metal Finishing	None supplied but only Subpart A exists at this time	Yes	Yes with exception for Job Shops & Independent Printed Circuit Board Mfr's – see below [(a)]
Termaco	500		40 CFR Part 433 Metal Finishing	None supplied	Yes	Yes with exception for Job Shops & Independent Printed Circuit Board Mfr's – see below [(a)]
United Corrstack (now known as United Corrstack/ DS Smith)	360,000		40 CFR Part 430 Pulp and Paper	J-Secondary Fiber non-de-ink and paperboard from wastepaper	Yes	ELG limits for Pentachlorophenol and Trichlorophenol* (if using chlorophenolic-containing biocides) are provided as **mass limits***, lb pollutant per 1000 lb product
Yuasa Battery	41,000	1500 RO system & boiler blowdown	40 CFR Part 461 Battery Mfrg	C-Lead subcategory	Yes	ELG limits for Copper and Lead are provided as **mass limits***, lb pollutant per 1,000,000 lb lead used in production

*Pretreatment Standards expressed as mass limits could not be estimated due to insufficient production information: Copper, Lead, Zinc. These parameters, however, were included in the modeling to develop WQBELs. Pentachlorophenol and 2,4,6-Trichlorophenol were included in the WWTP's effluent samples and were undetected at sufficiently sensitive levels.

[(a)] 40 CFR Part 433 Subpart A Pretreatment Standards for Existing Sources (< July 1983):

Pollutant	Pretreatment Standards for New Sources		Pretreatment Standards for Existing Sources		*Compare to Max Conc. in Influent (mg/l)*	*Compare to Max Conc. in Effluent (mg/l)*	*Is Maximum conc. in WWTP effluent < than Pretreat. Std?*
	Monthly Average (mg/l)	**Daily Maximum (mg/l)**	**Monthly Average (mg/l)**	**Daily Maximum (mg/l)**			
Total Cadmium	0.07	0.11	0.26	0.69	0.008	<0.005	Yes
Total Chromium	1.71	2.77	1.71	2.77	0.030	0.01	Yes
Total Copper	2.07	3.38	2.07	3.38	0.091	0.026	Yes
Total Cyanide	0.65	1.20	0.65	1.20	0.012	0.008	Yes
Total Lead	0.43	0.69	0.43	0.69	0.016	0.010	Yes
Total Nickel	2.38	3.98	2.38	3.98	0.0016	0.060	Yes
Total Silver	0.24	0.43	0.24	0.43	<0.005	0.0012	Yes
Total Zinc	1.48	2.61	1.48	2.61	0.565	0.143	Yes
Total Toxic Organics		2.13 (or a certification & Toxic Organic Mgmt. Plan)		2.13 (or a certification & Toxic Organic Mgmt. Plan)	0.0201 (quantifiable)	0.0085 (quantifiable)	Yes
Oil & Grease	26	52	26	52	22	<5	Yes
TSS	31	60	31	60	430	167, but avg per DMRs from Jan. 2019 through May 2022 was 22	No but already limited in permit
pH	6.0 s.u. - 9.0 s.u.		6.0 s.u. - 9.0 s.u.		9.4	7.8	Yes

[(b)] 40 CFR Part 413 Subpart A Pretreatment Standards for New Sources (None for existing sources):

Pollutant	4-consecutive-day Average (mg/l)	Daily Maximum (mg/l)	*Compare to Max Conc. in Influent (mg/l)*	*Compare to Max Conc. in Effluent (mg/l)*	*Is Maximum conc. in WWTP effluent < than Pretreatment Standard?*
Cadmium	0.7	1.2	0.008	<0.005	Yes
Chromium *	4.0	7.0	0.030	0.01	Yes
Copper *	2.7	4.5	0.091	0.026	Yes
Total Cyanide	1.0	1.9	0.012	0.008	Yes
Lead	0.4	0.6	0.016	0.010	Yes
Nickel *	2.6	4.1	0.0016	0.060	Yes
Zinc *	2.6	4.2	0.565	0.143	Yes
Total Metals *	6.8	10.5		0.143	Yes
Total Toxic Organics		2.13 (or a certification and Toxic Organic Mgmt. Plan)	0.0201 (quantifiable)	0.0085 (quantifiable)	Yes

*unless reduction of hexavalent chromium wastes occurs followed by neutralization by using calcium oxide or hydroxide

The April 2022 application addendum identified the following as a recent IU but indicated it was not a CIU:

Alpek Polyester (SIC 2821), contributing 110,000 gpd of process wastewater from making PET pellets from recycling plastic bottles. (Even if the OCPSF ELGs actually are applicable--40 CFR Part 414 Subpart D includes SIC 28213 for example--the effluent concentrations per the permit application were consistently below the Pretreatment Standards in that ELG. ELG 40 CFR Part 463 applies to plastics molding and forming into intermediate or final plastic products but it excludes extrusion and pelletizing for shipment off-site.)

Water Quality-Based Limitations

TMDL:

A TMDL for PCBs was developed for this section of the Schuylkill River. The TMDL consisted of Phase I for PCB sampling using the EPA-approved method 1668A and Phase II requiring Pollutant Minimization Plans (PMPs) be developed and implemented if the Phase I sampling indicated the discharge would contribute to exceedances of the target of 0.44 nanograms/liter (ng/l) in the river. The PCB sampling conducted by the permittee from 2014 through 2021 and reported on their DMRs (see the attached sampling results) indicates the need for a PMP: 16 out of 16 samples were over 0.44 ng/l. The average concentration was169.4 ng/l.

The draft renewal permit includes in the Part C conditions requirements that 1) a PMP be prepared and submitted to DEP outlining how PCBs will be investigated and reduced (such as by eliminating sources), 2) that the PMP be implemented after DEP approves it, and that Annual PCB Reports be submitted to document activities and progress. The same Part C permit condition is included in other dischargers to the Schuylkill River when effluent sampling indicates that their PCB loads are contributing to the impairment. The monitoring requirements in the previous permit have also been continued, including the use of an analytical method with a sufficiently sensitive detection level (i.e. EPA-approved method 1668A).

OTHER:

DEP's models determined the following limitations for CBOD5, NH3, and TRC. A "Reasonable Potential Analysis" and water quality modeling, combined, recommended the following limitations and monitoring requirements for toxic parameters (output files and embedded references are attached):

Parameter	Limit (mg/l)	SBC	Model
CBOD5	17.3	Monthly Average	WQM 7.0 Version 1.1
NH3-N	5.1	Monthly Average	WQM 7.0 Version 1.1
DO	5.0	Minimum	WQM 7.0 Version 1.1
TRC	0.4	Monthly Average	DEP's TRC model (Excel Spreadsheet)
TRC	1.3	Instant. Maximum	DEP's TRC model (Excel Spreadsheet)
Total Copper	0.051	Monthly Average	Toxics Mgmt Spreadsheet Vsn 1.3*
Total Copper	0.080	Daily Maximum	Toxics Mgmt Spreadsheet Vsn 1.3*
Total Mercury	0.00046	Monthly Average	Toxics Mgmt Spreadsheet Vsn 1.3*
Total Mercury	0.00071	Daily Maximum	Toxics Mgmt Spreadsheet Vsn 1.3*
Total Lead	Monitor & Report	Monthly Avg & Daily Max	Toxics Mgmt Spreadsheet Vsn 1.3*
Total Selenium	Monitor & Report	Monthly Avg & Daily Max	Toxics Mgmt Spreadsheet Vsn 1.3*
Total Zinc	Monitor & Report	Monthly Avg & Daily Max	Toxics Mgmt Spreadsheet Vsn 1.3*

*The Toxics Management Spreadsheet (TMS) replaced DEP's previous model, PENTOX, but the same logic and calculations are embedded in it.

In the above analysis, the maximum effluent concentrations used as model inputs were taken from the renewal application or from eDMR data from January 1, 2019 through May 31, 2022. For parameters where the effluent concentrations were consistently "non-detect" using DEP's Target Quantitation Levels (TQLs) or more sensitive quantitation levels, the

parameters were not included in the TMS. Group 6 pollutants (pesticides) were not included in the TMS either: all of the influent and all of the effluent samples were non-detect. (Some of the Group 6 samples used a quantitation level of 0.5 ug/l while some of the samples used a more sensitive quantitation level, such as 0.02 ug/l which is more stringent than the DEP TQLs.)

When no site-specific data was available, default values were used for model inputs. Model input values used were as follows:

Stream Hardness of 121 mg/l, the average of July-September pH results 2011-2021 from upstream WQN 113*
Stream pH of 7.8 s.u., the median of July-September pH results from 2011 through 2021 from upstream WQN 113*
Stream Temperature of 25°C for WWF designated use (consistent with DEP's Ammonia Technical Guidance documents)
Stream background concentrations for toxics of 0 ug/l
Stream background concentration for NH3 of 0 mg/l
Stream background concentration for CBOD5 of 2.0 mg/l
Stream background concentration for Dissolved Oxygen of 8.24 mg/l
Stream Chlorine Demand for TRC model: 0.3
Discharge Hardness of 261 mg/l (the average reported in the application based on three effluent samples)
Discharge pH of 7.0 s.u.
Discharge Temperature of 25°C

*see attached

The receiving water width and depth were carried forward from past models and Fact Sheets and are estimates: 200' for width and 2' for depth. Current ESRI online mapping, a layer of eMapPA, supported the 200' estimate for width.

Because discharges on one bank of a wide river typically hug the bank rather than fully mixing across the width of the river initially, the rule of thumb for modeling discharges to the Schuylkill River has been to assume initial mixing occurs in 1/3 the width of the river. The WQM model 7.0 does not account for mixing so the Low Flow Yield (LFY), an input value, was adjusted by 1/3. The TMS on the other hand does account for mixing so no adjustment to the LFY was made but 0.33 was input as the acute partial mix factor . An acute partial mix factor of 0.33 was also input in the TRC model. (These same adjustments were made in the previous permit Fact Sheet and models.)

$CBOD_5$ AND AMMONIA (NH_3-N) LIMITS:

Regulatory changes to Title 25 Chapter 93, Water Quality Standards, included a change in the Ammonia criteria. The new criteria is embedded in the WQM 7.0 model which was used to develop permit limits for Ammonia (NH3) and CBOD5, while achieving a minimum Dissolved Oxygen level of 5.0 mg/l. The model yielded an Ammonia monthly average of 5.1 mg/l and a $CBOD_5$ monthly average limit of 17.3 mg/l as protective of water quality in the receiving stream. The NH_3-N and $CBOD_5$ and monthly average limits included in the previous permit, during warm months, were 6.5 mg/l and 19 mg/l respectively.

DEP allows for less stringent NH3 limits in the cooler months, recognizing that NH3 is less toxic in cool water. The DEP Implementation Guidance for Section 93.7 Ammonia Criteria [391-2000-013] allows a multiplier of 3 to be applied to the monthly average NH3 limit: 5.1 mg/l x 3 = 15.3 mg/l for cold months. The average NH3 concentration reported on DMRs from January 1, 2019 through May 31, 2022 was 2.2 mg/l.. The new proposed limits should be achievable; no compliance schedule is needed.

DEP has in the past allowed less stringent CBOD5 limits in the cooler months as well. Past permits and an example used in The Technical Guidance for Effluent Limitations [362-0400-001] used a multiplier of 1.25 applied to the model's CBOD5 result: 17.3 mg/l x 1.25 = 21.6 mg/l for cold months. The average CBOD5 concentration reported on eDMRs from January 1, 2019 through May 31, 2022 was 9.6 mg/l. The new proposed limits should be achievable; no compliance schedule is needed.

Note: An alternative to using the above multipliers is to re-run the WQM 7.0 model using an estimate for the stream temperature during the cold months and an adjusted estimated stream flow corresponding to the month with the cold stream temperature. A second model simulation was run assuming 35°F (1.7°C) as the January stream temperature and 822.4 cfs as the estimated stream flow (3.2 x the Q7-10 of 257 cfs), based on DEP's Implementation Guidance for Temperature

Criteria [391-2000-017]. The results did not indicate more stringent CBOD5 or NH3 limits than shown above would be necessary during the cold months to protect the aquatic life or health of the River.

Dissolved Oxygen:

No change from the previous permit.

Total Residual Chlorine:

No change from the previous permit

Toxics:

After the first simulation identifying which toxic parameters may need effluent limits and/or monitoring, the available data were reviewed more closely for those parameters. If more than 10 data points were available, DEP's TOXCONC statistical spreadsheet was used to calculate averages to compare to the model's WQBELs.

Total Copper:

The TMS calculated a WQBEL of 0.051 mg/l. The maximum effluent concentration in the application was 0.026 mg/l, more than 50% of the WQBEL. When the effluent concentration is over 50% of the WQBEL, reasonable potential to cause an in-stream exceedance of water quality criteria is indicated and therefore a permit limit is typically imposed. When the effluent concentration is less than 50% of the WQBEL but more than 10% of the WQBEL, a monitoring requirement is recommended by the TMS to be added to the permit.

The 2020 and 2021 Municipal Wasteload Chapter 94 reports also included effluent sampling data for Total Copper. Using the 9 sample results from the application (pre-upgrade to the treatment plant) and the 13 effluent sample results from the two most recent Chapter 94 reports in DEP's TOXCONC statistical spreadsheet, an Average Monthly concentration of 0.020 mg/l was calculated (see the attached TOXCONC input and results). The average monthly concentration was compared to the WQBEL instead of the maximum concentration in the application, consistent with DEP's SOPs. Because 0.02 mg/l is less than 50% of the WQBEL of 0.051 mg/l, no permit limit for Total Copper is deemed necessary. Because 0.02 mg/l is more than 10% of the WQBEL, a monitoring requirement for Total Copper has been added to the renewal permit.

Total Lead:

The TMS calculated a WQBEL of 0.043 mg/l. The maximum effluent concentration in the application was 0.010 mg/l, more than 10% of the WQBEL. When the effluent concentration is over 50% of the WQBEL, reasonable potential to cause an in-stream exceedance of water quality criteria is indicated and therefore a permit limit is imposed. When the effluent concentration is less than 50% of the WQBEL but more than 10% of the WQBEL, a monitoring requirement is recommended by the TMS to be added to the permit.

The 2020 and 2021 Municipal Wasteload Chapter 94 reports also included effluent sampling data for Total Lead. Using the 9 sample results from the application (pre-upgrade to the treatment plant) and the 13 effluent sample results from the two most recent Chapter 94 reports in DEP's TOXCONC statistical spreadsheet, an Average Monthly concentration of 0.015 mg/l was calculated. (see the attached TOXCONC input and results). This average monthly concentration was compared to the WQBEL instead of the maximum concentration in the application, consistent with DEP's SOPs. Because 0.015 mg/l is less than 50% of the WQBEL of 0.043 mg/l, no permit limit for Total Lead is deemed necessary. Because 0.015 mg/l is more than 10% of the WQBEL, a monitoring requirement for Total Lead has been added to the renewal permit.

Total Mercury:

The TMS calculated a WQBEL of 0.00046 mg/l. The maximum effluent concentration in the application was 0.0004 mg/l, more than 50% of the WQBEL. When the effluent concentration is over 50% of the WQBEL, reasonable potential to

cause an in-stream exceedance of water quality criteria is indicated and therefore a permit limit is typically imposed. When the effluent concentration is less than 50% of the WQBEL but more than 10% of the WQBEL, a monitoring requirement is recommended by the TMS to be added to the permit.

The 2020 and 2021 Municipal Wasteload Chapter 94 reports also included effluent sampling data for Total Mercury: 13 out of 13 effluent sample results of non-detect using DEP's TQL of 0.0002 mg/l and 4 out of 4 influent sample results of non-detect using DEP's TQL of 0.0002 mg/l. A monitoring requirement for Total Mercury has therefore been added to the draft renewal permit instead of a permit limit.

Total Selenium:

The TMS calculated a WQBEL of 0.045 mg/l. The maximum effluent concentration in the application was 0.008 mg/l, more than 10% of the WQBEL. When the effluent concentration is over 50% of the WQBEL, reasonable potential exists to cause an in-stream exceedance of water quality criteria and therefore a permit limit is imposed. When the effluent concentration is less than 50% of the WQBEL but more than 10% of the WQBEL, a monitoring requirement is recommended by the TMS to be added to the permit.

The 2020 and 2021 Chapter 94 reports also included effluent sampling data for Total Selenium. Using the 3 sample results from the application (pre-upgrade to the treatment plant) and the 13 effluent sample results from the two most recent Municipal Wasteload Chapter 94 reports in DEP's TOXCONC statistical spreadsheet, an Average Monthly concentration of 0.0065 mg/l was calculated (see the attached TOXCONC input and results). This average monthly concentration was compared to the WQBEL instead of the maximum concentration in the application, consistent with DEP's SOPs. Because 0.0065 mg/l is less than 50% of the WQBEL of 0.045 mg/l, no permit limit for Total Selenium is deemed necessary. Because 0.0065 mg/l is more than 10% of the WQBEL, a monitoring requirement for Total Selenium has been added to the renewal permit.

Total Zinc:

The TMS calculated a WQBEL of 0.42 mg/l. The maximum effluent concentration in the application was 0.143 mg/l, more than 10% of the WQBEL. When the effluent concentration is over 50% of the WQBEL, reasonable potential to cause an in-stream exceedance of water quality criteria is indicated and therefore a permit limit is typically imposed. When the effluent concentration is less than 50% of the WQBEL but more than 10% of the WQBEL, a monitoring requirement is recommended by the TMS to be added to the permit.

The 2020 and 2021 Chapter 94 reports also included effluent sampling data for Total Selenium. Using the 9 sample results from the application (pre-upgrade to the treatment plant) and the 13 effluent sample results from the two most recent Municipal Wasteload Chapter 94 reports in DEP's TOXCONC statistical spreadsheet, an Average Monthly concentration of 0.084 mg/l was calculated (see the attached TOXCONC input and results).. This average monthly concentration was compared to the WQBEL instead of the maximum concentration in the application, consistent with DEP's SOPs. Because 0.084 mg/l is less than 50% of the WQBEL of 0.42 mg/l, no permit limit for Total Selenium is deemed necessary. Because 0.084 mg/l is more than 10% of the WQBEL, a monitoring requirement for Total Selenium has been added to the renewal permit.

OTHER

ANTI-BACKSLIDING:

No limits were made less stringent than the previous permit.

NUTRIENT MONITORING:

Nutrient levels in rivers and streams are a concern. In order to gather information to assess the situation and to adequately protect the waterways, NPDES permits for sewage discharges are now including a monitoring requirement, at a minimum, for **Total Nitrogen and Total Phosphorus**. The statutory basis for this requirement is found at Chapter 92a.61. Because this requirement is to gather data and not to demonstrate compliance with a limit, a frequency of once per month has been included (as compared to the monitoring frequency of once per week recommended by DEP's Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, for facilities of this size when determining compliance with a limit). The previous permit also included once a month monitoring for Total Nitrogen and Total Phosphorus as well as the components of Total Nitrogen: Total Kjeldahl Nitrogen and Nitrate-Nitrite.

E. COLI MONITORING:

Regulatory changes to PA Water Quality Standards occurred in July 2020 [Title 25 Pa Code Chapter 93]. For bacteria, a water quality criteria was added for E. coli. At this time, DEP is inserting a monitoring requirement for E. coli in all sewage NPDES permits to gather data.

SAMPLE TYPE:

The sample type of '24-hour composite' has been continued from the previous permit for the majority of parameters consistent with the recommendations from DEP's Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001. The sample type of 'Grab' will be continued for those parameters requiring grab samples: pH, DO, TRC, Fecal Coliform, and E. Coli..

SAMPLE FREQUENCY:

The same sample frequencies from the previous NPDES permit have been carried forward. For the newly added parameters, 1) a minimum monitoring frequency of quarterly has been added for E. Coli; 2) a monthly monitoring frequency has been added for Total Copper, Total Lead, Total Mercury, Total Selenium, and Total Zinc.

TDS BASELINE:

Chapter 95.10(c) of the Pa Code, Title 25, would require a TDS permit limit of 2000 mg/l as a monthly average or the granting of a variance if an existing discharger increased their annual average TDS load after August 21, 2010 by more than 5000 lb/day. Therefore, a TDS Baseline should be documented in case increased loads trigger this requirement in the future. The TDS Baseline is the TDS mass load as of August 21, 2010 . Therefore the TDS Baseline is carried forward from the 2013 Fact Sheet: 99,830 lbs/day. Per the 2013 Fact Sheet explaining the development of the 2013 NPDES permit, the TDS Baseline was estimated thus: 684 mg/l x 17.5 MGD x 8.34 conversion factor. The concentration of 684 mg/l was based on 60 effluent samples reported in the 2013 renewal application. The 17.5 MGD was the average flow for years 2004 through 2008 per the 2009 Fact Sheet (which used to be called 'Protection Report').

ANTIDEGRADATION (Pa Code §93.4):

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

303(d) LISTED STREAMS/ IMPAIRED WATERS:

The discharge is located on a stream segment that was included on the Clean Water Act's 303(d) list of impaired waterways. A TMDL was developed to reduce the concentration and loading of Polychlorinated Bi-Phenyls (PCBs) in this waterway. This renewal permit is consistent with the TMDL, as previously discussed. A Pollutant Minimization Plan (PMP) for PCBs has been required in the Part C Conditions of the renewal permit with the intent of reducing the PCB load from the facility.

CLASS A and WILD TROUT FISHERIES:

No Class A or Wild Trout Fisheries are impacted by this discharge. The receiving water was not designated as Trout Natural Reproduction Waters.

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:

The dilution series used for the tests was: 100%, 56%, 11%, 6%, and 3%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 11% .

Test End Dates	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
9/4/2018	Pass	Pass	Pass	Pass
10/8/2019	Pass	Pass	Pass	Pass
10/5/2020 (c.daphnia) 10/6/2020 (p.promelas)	Pass	Pass	Pass	Pass
9/6/2021 (c.daphnia) 9/7/2021 (p.promelas)	Pass	Pass	Pass	Pass

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☐ **YES** ☒ **NO**

Comments:

No WET limits will be imposed at this time.

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

Acute Partial Mix Factor (PMFa): 0.33 Chronic Partial Mix Factor (PMFc): 1

1. **Determine IWC – Acute (IWCa)**:

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

   [(20.5 MGD x 1.547) / ((257 cfs x **0.33**) + (20.5 MGD x 1.547))] x 100 = 31.7 / (84.8 + 31.7) = 27.2%

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

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

2. **Determine Target IWCc (**for Chronic Test)

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

   [(20.5 MGD x 1.547) / ((257 cfs x **1**) + (20.5 MGD x 1.547))] x 100 = 31.7 / (257+31.7) = 11% = **$TIWC_c$**

3. **Determine Dilution Series**
   (based on DEP's SOP for Clean Water Program Whole Effluent Toxicity Attachment C).

   Dilution Series = 100%, 56%, 11%, 6%, and 3% (No change from last permit)

Development of Effluent Limitations

Outfall No.'s 002-008 **Design Flow (MGD)** 0
Latitude varies **Longitude** varies
Wastewater Description: Stormwater only

Stormwater at sewage treatment plants fall within the federal definition of "stormwater associated with industrial activity" and thus needs to be authorized by a NPDES permit. No limits or monitoring requirements were imposed in the previous permit for stormwater-only outfalls nor have limits or monitoring requirements been included in the draft renewal. Instead, Part C conditions of the permit will again require Best Management Practices be followed including maintaining and updating as needed a PPC Plan intended to prevent exposure of the site stormwater to pollutants and annual inspections of each outfall.

Spills, overflows, or unauthorized discharges that cause pollutants to discharge to the receiving water from these stormwater-only outfalls would have to be reported to the DEP as "unauthorized discharges".

Due to construction occurring at the site for the WWTP upgrade, stormwater outfalls 003 and 005 could not be sampled for the 2018 application. The construction was also likely to have impacted the sampling results reported in the 2018 application at the other stormwater outfalls.

The construction caused changes to stormwater drainage. The WWTP upgrade eliminated stormwater discharges from outfall 005 during routine operations. The stormwater instead is collected in a catch basin around the final clarifiers. Collected stormwater is pumped into one of the final clarifiers and discharges via outfall 001 with the treated effluent. Because there is still the potential for overflow during heavy storm events or if the stormwater is not pumped into a final clarifier, this outfall has been left in the permit—consistent with DEP's handling of stormwater at other sites. There is another catch basin around the primary clarifiers, with stormwater directed into the WWTP. And at outfall 004, a bioretention basin was installed with stormwater directed to outfall 001, according to the 9/23/2020 DEP Inspection report. Because there is still the potential for overflow during heavy storm events, outfall 004 has been left in the permit—consistent with DEP's handling of stormwater at other sites.

Outfall No.	Area Drained (ft^2)	Latitude	Longitude	Description
002	22,500	40° 18' 13"	75° 55' 30"	Road surface runoff to swale by dumpster loading area
003	25,200	40° 18' 18"	75° 55' 17"	Collects stormwater from the admin. bldg. roof & pkg. lot
004	21,600	40° 18' 19"	75° 55' 20"	dry swale, Bioretention basin installed, now discharges to outfall 001 during routine operations
005	31,050	40° 18' 11"	75° 55' 12"	Stormwater collected in catch basin around final clarifiers
006	22,500	40° 18' 17"	75° 55' 16"	Storm drain behind control bldg., collects groundwater beneath basement
007	10,800	40° 18' 18"	75° 55' 17"	Roof drains
008	202,500	40° 18' 27"	75° 55' 25"	Trough in field, no WWTP processes in area, majority of stormwater from neighboring Berks Fire Training Center

Outfall 001 also includes some stormwater, from the site. Limits apply to outfall 001 as provided in Part A of the permit.

Anti-Backsliding

There were no permit limits for stormwater discharges in the previous permit and there are no permit limits for stormwater-only discharges in the draft renewal permit.

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 as needed 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)	Required
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen (DO)	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.4	XXX	1.3	1/shift	Grab
Color (Pt-Co Units)	XXX	XXX	XXX	186	XXX	465	1/day	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	3693	5539 Weekly Avg.	XXX	21.6	32.4 Weekly Avg.	43.2	1/day	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	2958	4445 Weekly Avg.	XXX	17.3	26.0 Weekly Avg.	34.6	1/day	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Suspended Solids	5129	7694 Weekly Avg.	XXX	30.0	45.0 Weekly Avg.	60	1/day	24-Hr Composite
Total Suspended Solids (TSS) Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Dissolved Solids (TDS)	XXX	XXX	XXX	1000	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/day	Grab

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

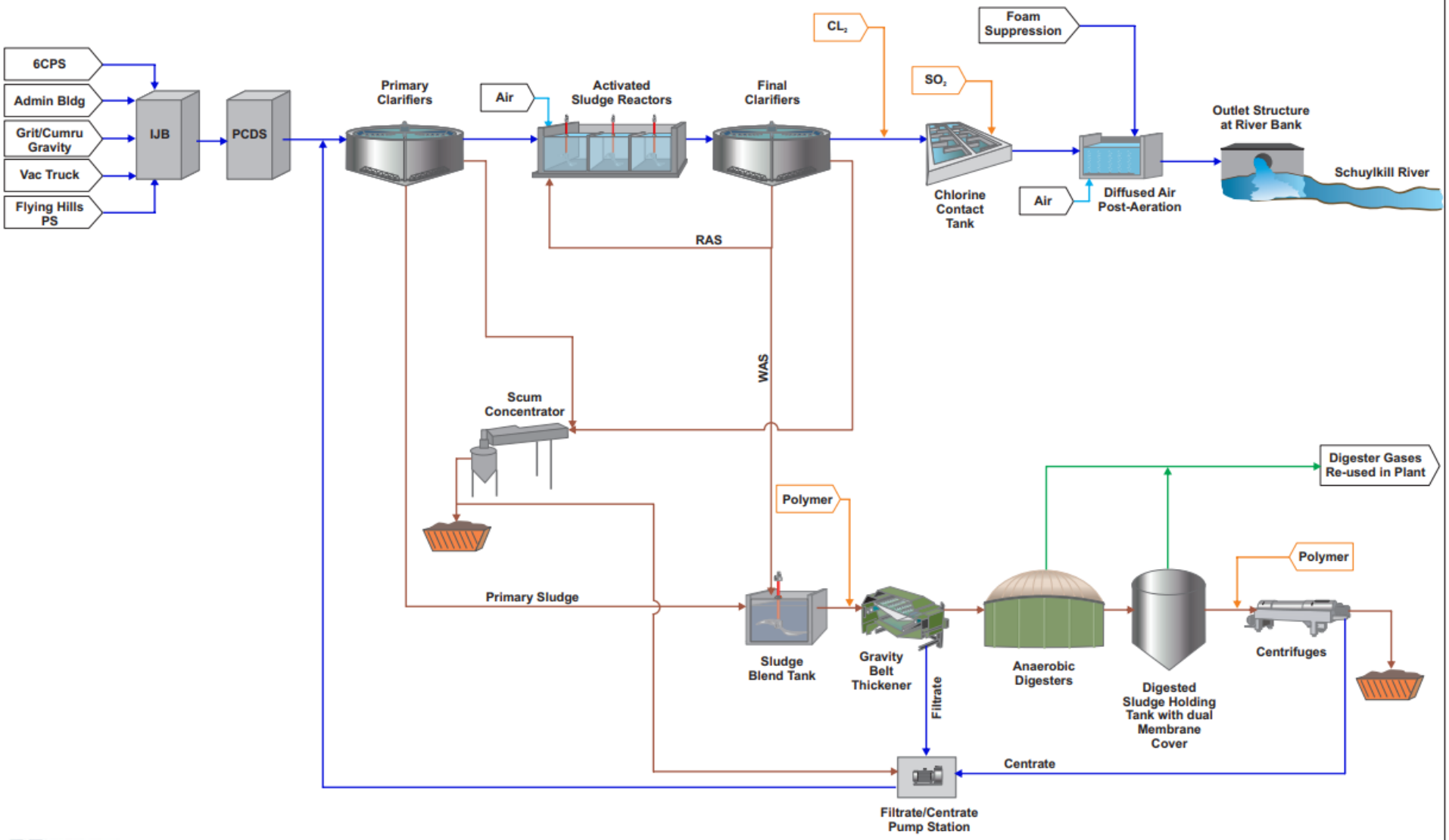
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Fecal Coliform (No./100 mL) May 1 - 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/quarter	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	2616	XXX	XXX	15.3	XXX	30.6	1/day	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	872	XXX	XXX	5.1	XXX	10.2	1/day	24-Hr Composite
Nitrate-Nitrite	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Total Kjeldahl Nitrogen	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Total Nitrogen	XXX	Report	XXX	XXX	Report	XXX	1/month	Calculation
Total Phosphorus	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Total Copper	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Total Lead	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Total Mercury	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Total Selenium	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Total Zinc	XXX	Report	XXX	XXX	Report	XXX	1/month	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

Compliance Sampling Location: at discharge from facility

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☒	PENTOXSD for Windows Model (see Attachment/combined with Toxics Screening Analysis)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Toxics Screening Analysis 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: Establishing Effluent Limitations for Individual Sewage Permits
☒	SOP: Establishing WQBELs and Permit Conditions for Toxic Pollutants
☒	Other: DRBC docket D-1986-028 CP-4, December 10, 2019

FRZ-001A

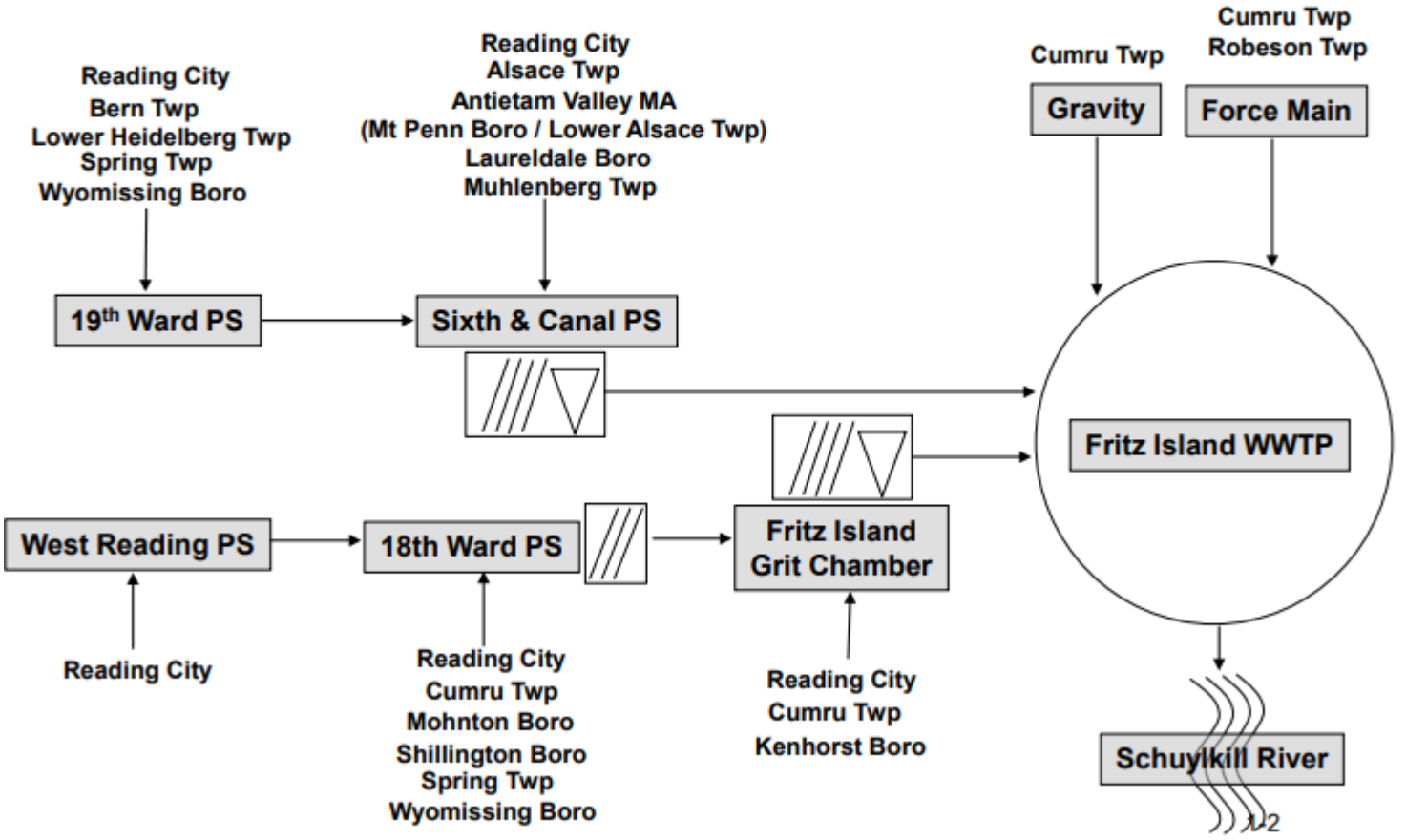
Fritz Island WWTP - Liquid and Solids Treatment Process Flow Diagram



Hazen

City of Reading

Sanitary Sewer Collection System
Wastewater Treatment Plant Tributary Flow Schematic



ATTACHMENT A - LIST OF CIUs/SIUs

2021 IPP REPORT

Industry Name	Address	Permit Information				SIU Information				Limits Type	SIC Code	Categorical Standard	Avg. Facility Flow (gpd)	SNC?
		Issuance Date	Effective Date	Expiration Date	Permit Type	Sampled	Inspected	# of Self Monitorings REQUIRED	# of Self Monitorings CONDUCTED					
Akzo Nobel Coatings	150 Columbia Avenue Reading, PA 19601	4/12/2021	4/1/2021	3/31/2024	IP	Yes	Yes	12	12	Concentration-based	2851		6,000	No
Alcon Research Ltd	700 Old Fritztown Road Sinking Spring, PA 19608	8/23/2021	10/1/2021	9/30/2024	IP	Yes	Yes	4	4	Concentration-based	3841	Surgical & Medical Instrument	1,000	No
Alpek Polyester	4030 Pottsville Pike Reading, PA 19605	9/15/2020	11/1/2020	9/30/2023	IP	Yes	Yes	4	4	Concentration-based	2821		110,000	No
Aramark Uniform	424 Blair Avenue Reading PA 19601	5/3/2019	7/1/2019	6/30/2022	IP	Yes	Yes	12	15	Concentration-based	7218		68,000	No
Berks Packing Company	307-323 Bingaman Street Reading PA 19602	12/13/2021	1/1/2022	12/31/2024	IP	Yes	Yes	24	32	Concentration-based	2013		100,000	No
Bimbo Bakery USA Inc	640 Park Avenue Reading PA 19611	4/27/2020	7/1/2020	6/30/2023	IP	Yes	Yes	2	5	Concentration-based	2051		4,500	No
CWP West dba Mister Car Wash	600 Revere Blvd Sinking Spring PA 19608	6/23/2021	7/1/2021	6/30/2024	IP	Yes	Yes	4	4	Concentration-based	7542		23,671	No
Carpenter Technology Corp	101 West Bern Street Reading, PA 19601	9/20/2021	10/1/2021	9/30/2024	IP	Yes	Yes	4	4	Concentration-based	3312	Steel Works, Blast Furnace	111,600	No
Clover Farms Dairy	3300 Pottsville Pike Reading, PA 19603	8/27/2021	10/1/2021	9/30/2024	IP	Yes	Yes	12	12	Concentration-based	2026		175,000	No
Crossroads Beverage Group	1055 Crossroads Blvd Reading, PA 19605	4/14/2021	4/1/2021	3/31/2024	IP	Yes	Yes	2	2	Concentration-based	5149		150,000	No
Dairy Farmers of America	100 McKinley Avenue Reading PA 19605	3/25/2020	4/1/2020	3/31/2003	IP	Yes	Yes	12	12	Concentration-based	2023		250,000	No
DS Smith Packaging-Reading	100 Grace Street Reading PA 19611	7/12/2019	10/1/2019	9/30/2022	IP	Yes	Yes	4	6	Concentration-based	2653		12,000	No
Exide Environmental Response Trust	Spring Valley Road and Nolan Street Laureldale PA 19605	11/21/2018	1/1/2019	12/31/2021	IP	Yes	Yes	4	4	Concentration-based	3691		450	No
Hofmann Industries	3145 Shillington Road Sinking Spring PA 19608	10/30/2019	1/1/2020	12/31/2022	IP	Yes	Yes	4	41	Concentration-based	3317	Steel Pipes and Tubes	30,000	No
Hollywood Cleaners	1428 Mulberry Street Reading PA 19604	11/12/2019	1/1/2020	3/31/2023	IP	Yes	Yes	4	4	Concentration-based	7216		2,500	No
IFS Industries	400 Orrton Avenue Reading PA 19611	8/31/2020	10/1/2020	9/30/2023	IP	Yes	Yes	12	12	Concentration-based	2891		6,000	No
Jake's Coin Laundry North 9th Street	1501 North 9th Street Reading PA 19604	11/5/2020	11/1/2020	12/31/2023	IP	Yes	Yes	4	0	Concentration-based	7215		1,000	No
Jake's Coin Laundry Buttonwood Street	128 Buttonwood Street Reading PA 19601	11/6/2020	11/1/2020	12/31/2023	IP	Yes	Yes	4	0	Concentration-based	7215		1,000	No
Jake's Coin Laundry South 5th Street	121 South 5th Street Reading PA 19602	11/6/2020	11/1/2020	12/31/2023	IP	Yes	Yes	4	0	Concentration-based	7215		1,000	No
Lentz Milling Company	2045 North 11th Street Reading PA 19604	5/14/2019	7/1/2019	6/30/2022	IP	Yes	Yes	4	4	Concentration-based	5419		2,000	No
Mitsubishi Chemical Advanced Materials Inc	2120 Fairmont Avenue Reading PA 19605	4/28/2021	4/1/2021	3/31/2024	IP	Yes	Yes	2	2	Concentration-based	3089		50,000	No
Naber Hood Laundry	751 Chestnut Street Reading PA 19602	10/6/2020	10/1/2020	9/30/2023	IP	Yes	Yes	4	1	Concentration-based	7215		1,000	No
National/Yorgey's Cleaners	1700 Fairview Street Reading PA 19606	10/15/2020	1/1/2021	12/31/2023	IP	Yes	Yes	2	3	Concentration-based	7218		20,000	No
NPX One LLC	4275 Reading Crest Avenue Reading PA 19605	3/27/2019	4/1/2019	3/31/2022	IP	Yes	Yes	4	4	Concentration-based	3086		18,000	No
Packaging Corporation of America	173 Tuckerton Road Reading PA 19605	3/25/2020	4/1/2020	3/31/2023	IP	Yes	Yes	4	4	Concentration-based	2653		12,000	No
Penn State Health dba St Joseph Medical Center	145 North 6th Street Reading PA 19601	3/29/2019	4/1/2019	3/31/2022	IP	Yes	Yes	12	12	Concentration-based	8011, 8021, 8059, 8099, 8322		40,000	No
Pratt Industries Reading	184 Tuckerton Road Reading PA 19605	7/8/2019	7/1/2019	6/30/2022	IP	Yes	Yes	4	4	Concentration-based	2653		1,000	No
Quaker Maid Meats Inc	520 and 521 Carroll Street Reading PA 19611	9/3/2021	10/1/2021	9/30/2024	IP	Yes	Yes	4	4	Concentration-based	2013		40,000	No
Reading Plating and Polishing Works Inc	1833 Cotton Street Reading PA 19606	5/7/2020	7/1/2020	6/30/2023	IP	Yes	Yes	4	4	Concentration-based	3471	Electroplating	13,500	No
Reading Truck Body	201 Hancock Blvd Reading PA 19607	9/6/2019	10/1/2019	9/30/2022	IP	Yes	Yes	12	12	Concentration-based	3715	Manufacture of Utility Truck Bodies	40,000	No
Savor Street Foods	51 Spring Valley Road Reading PA 19605	12/2/2020	1/1/2021	12/31/2023	IP	Yes	Yes	4	4	Concentration-based	2096, 2052		2,000	No
Sealed Air Corporation	450 Riverfront Drive Reading PA 19602	10/11/2018	1/1/2019	12/31/2021	IP	Yes	Yes	12	12	Concentration-based	2621	Paper Mills	90,000	No
SP Acquisition Company dba Reitech Corporation	3146 Marion Street Laureldale PA 19605	9/6/2019	10/1/2019	9/30/2022	IP	Yes	Yes	2	2	Concentration-based	2851		16,000	No
Summit Steel and Manufacturing	1005 Patriot Parkway Reading PA 19605	9/23/2021	10/1/2021	9/30/2024	IP	Yes	Yes	2	2	Concentration-based	3499	Fabricated Metal Products	500	No
Sun Rich Fresh Foods Inc	425 Gateway Drive Reading PA 19601	11/4/2019	1/1/2020	12/31/2022	IP	Yes	Yes	2	0	Concentration-based	5148		52,000	No
Super Suds Management Schuylkill Avenue	1330 Schuylkill Avenue Reading PA 19601	4/30/2021	10/1/2020	9/30/2023	IP	Yes	Yes	4	4	Concentration-based	7215		2,000	No
Super Suds Management North 8th Street	701 North 8th Street Reading PA 19604	11/24/2020	12/1/2020	9/30/2023	IP	Yes	Yes	4	4	Concentration-based	7215		2,000	Yes
Sweet Street Desserts Inc	722 Hiesters Lane Reading PA 19605	4/30/2021	4/1/2021	3/31/2024	IP	Yes	Yes	4	4	Concentration-based	2053		115,000	Yes
Termaco USA Inc	171 Tuckerton Road Reading PA 19605	6/26/2020	7/1/2020	6/30/2023	IP	Yes	Yes	4	4	Concentration-based	3499	Fabricated Metal Products	1,000	No
Tom Sturgis Pretzels Inc	2267 Lancaster Pike Shillington PA 19607	9/29/2020	1/1/2021	12/31/2023	IP	Yes	Yes	4	4	Concentration-based	2052		5,000	No
United Corrstack	720 Laurel Street Reading PA 19602	9/9/2019	10/1/2019	9/30/2022	IP	Yes	Yes	12	12	Concentration-based	2631	Recycled Paperboard Mill	600,000	No
WS Holdings LLC 6th Street Laundry	351 North 6th Street Reading PA 19601	12/4/2020	12/1/2020	12/31/2023	IP	Yes	Yes	4	1	Concentration-based	7215		1,000	No
Yuasa Battery Inc	2901 Montrose Avenue Laureldale PA 19605	9/10/2019	10/1/2019	9/30/2022	IP	Yes	Yes	4	4	Concentration-based	3691	Lead Acid Battery Manufacturing	63,000	No

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

257	= Q stream (cfs)	0.5	= CV Daily
20.5	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	0.33	= 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 =	0.872	1.3.2.iii	WLA cfc =	2.531
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.325	5.1d	LTA_cfc =	1.472

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.400	AFC
		INST MAX LIMIT (mg/l) =	1.308	

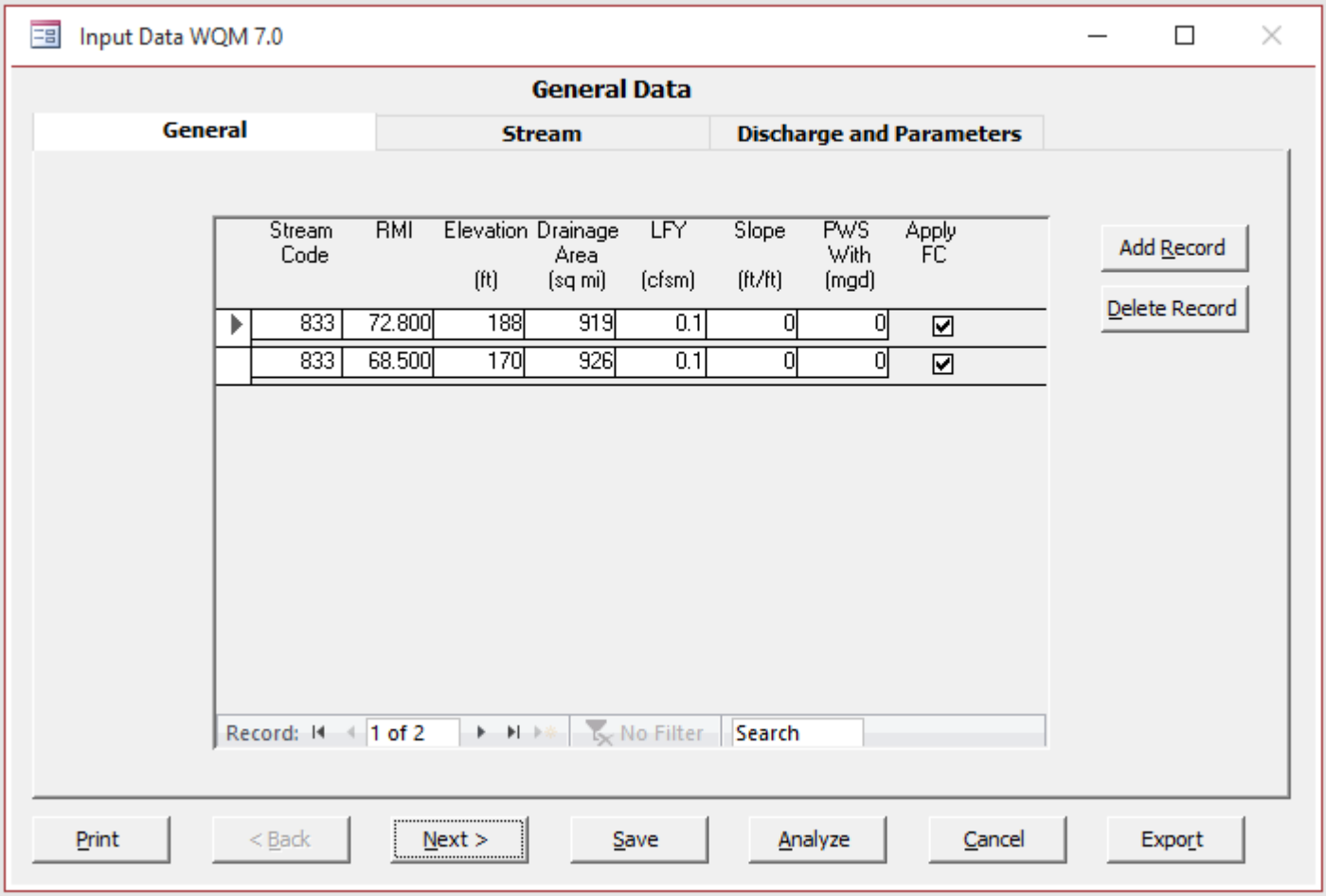
WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...
	...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...
	...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
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)

(0.011/EXP(-K*CFC_tc/1440))+(((CFC_Yc*Qs*0.011)/(1.547*Qd)....
....*EXP(-K*CFC_tc/1440)))+Xd+(CFC_Yc*Qs*Xs/1.547*Qd))*(1-FOS/100)

StreamStats Output Report - Schuylkill River at Fritz Island WWTP					
State/Reg	PA				
Workspac	PA20220728140609538000				
Latitude	40.30377				
Longitude	-75.91883				
Time	7/28/2022	10:06:30 AM			
Basin Characteristics					
Paramete	Parameter Description	Value	Unit		
BSLOPD	Mean basin slope measured in degrees	6.5314	degrees		
CARBON	Percentage of area of carbonate rock	19.72	percent		
DRNAREA	Area that drains to a point on a stream	919	square miles		
PRECIP	Mean Annual Precipitation	47	inches		
ROCKDEP	Depth to rock	4.4	feet		
STRDEN	Stream Density -- total length of streams	1.29	miles per square mile		
URBAN	Percentage of basin with urban developn	6.4855	percent		
Low-Flow	1.5 Percent Low Flow Region 1				
Paramete	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	919	square mi	4.78	1150
BSLOPD	Mean Basin Slope degrees	6.5314	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.4	feet	4.13	5.21
URBAN	Percent Urban	6.4855	percent	0	89
Low-Flow	98.5 Percent Low Flow Region 2				
Paramete	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	919	square mi	4.93	1280
PRECIP	Mean Annual Precipitation	47	inches	35	50.4
STRDEN	Stream Density	1.29	miles per	0.51	3.1
ROCKDEP	Depth to Rock	4.4	feet	3.32	5.65
CARBON	Percent Carbonate	19.72	percent	0	99
Low-Flow	1.5 Percent Low Flow Region 1				
Statistic	Value	Unit			
7 Day 2 Ye	236	ft^3/s			
30 Day 2 Y	286	ft^3/s			
7 Day 10 Y	146	ft^3/s			
30 Day 10	174	ft^3/s			
90 Day 10	222	ft^3/s			
Low-Flow	98.5 Percent Low Flow Region 2				
Statistic	Value	Unit	SE	ASEp	
7 Day 2 Ye	415	ft^3/s	38	38	
30 Day 2 Y	486	ft^3/s	33	33	
7 Day 10 Y	269	ft^3/s	51	51	
30 Day 10	317	ft^3/s	46	46	
90 Day 10	385	ft^3/s	36	36	
Low-Flow	Area-Averaged				
Statistic	Value	Unit			
7 Day 2 Ye	412	ft^3/s			
30 Day 2 Y	483	ft^3/s			

StreamStats Output Report- downstrm, 72.4 RMI Schuylkill River					
State/Region I	PA				
Workspace ID	PA20220728141525113000				
Latitude	40.29688				
Longitude	-75.91336				
Time	7/28/2022	10:15:46 AM			
Basin Characteristics					
Parameter Co	Parameter Description	Value	Unit		
BSLOPD	Mean basin slope measured in degree	6.5357	degrees		
CARBON	Percentage of area of carbonate rock	19.69	percent		
DRNAREA	Area that drains to a point on a stream	920	square miles		
PRECIP	Mean Annual Precipitation	47	inches		
ROCKDEP	Depth to rock	4.4	feet		
STRDEN	Stream Density -- total length of strear	1.3	miles per square mile		
URBAN	Percentage of basin with urban develc	6.4794	percent		
Low-Flow Stat	1.6 Percent Low Flow Region 1				
Parameter Co	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	920	square mi	4.78	1150
BSLOPD	Mean Basin Slope degrees	6.5357	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.4	feet	4.13	5.21
URBAN	Percent Urban	6.4794	percent	0	89
Low-Flow Stat	98.4 Percent Low Flow Region 2				
Parameter Co	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	920	square mi	4.93	1280
PRECIP	Mean Annual Precipitation	47	inches	35	50.4
STRDEN	Stream Density	1.3	miles per	0.51	3.1
ROCKDEP	Depth to Rock	4.4	feet	3.32	5.65
CARBON	Percent Carbonate	19.69	percent	0	99
Low-Flow Stat	1.6 Percent Low Flow Region 1				
Statistic	Value	Unit			
7 Day 2 Year Lo	237	ft^3/s			
30 Day 2 Year L	287	ft^3/s			
7 Day 10 Year L	146	ft^3/s			
30 Day 10 Year	175	ft^3/s			
90 Day 10 Year	222	ft^3/s			
Low-Flow Stat	98.4 Percent Low Flow Region 2				
Statistic	Value	Unit	SE	ASEp	
7 Day 2 Year Lo	412	ft^3/s	38	38	
30 Day 2 Year L	483	ft^3/s	33	33	
7 Day 10 Year L	267	ft^3/s	51	51	
30 Day 10 Year	315	ft^3/s	46	46	
90 Day 10 Year	382	ft^3/s	36	36	
Low-Flow Stat	Area-Averaged				
Statistic	Value	Unit			
7 Day 2 Year Lo	409	ft^3/s			
30 Day 2 Year L	480	ft^3/s			

StreamStats Output Report-Schuylkill River & Trout Run confluence					
State/Region ID	PA				
Workspace ID	PA20220519135708727000				
Latitude	40.29246				
Longitude	-75.88437				
Time	5/19/2022	9:57:31 AM			
Basin Characteristics					
Parameter Code	Parameter Description	Value	Unit		
BSLOPD	Mean basin slope measure	6.5515	degrees		
CARBON	Percentage of area of carb	19.59	percent		
DRNAREA	Area that drains to a point	926	square miles		
PRECIP	Mean Annual Precipitatio	47	inches		
ROCKDEP	Depth to rock	4.4	feet		
STRDEN	Stream Density -- total ler	1.3	miles per square mile		
URBAN	Percentage of basin with u	6.4882	percent		
Low-Flow Statistics Para	2.2 Percent Low Flow Region 1				
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	926	square mi	4.78	1150
BSLOPD	Mean Basin Slope degrees	6.5515	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.4	feet	4.13	5.21
URBAN	Percent Urban	6.4882	percent	0	89
Low-Flow Statistics Para	97.8 Percent Low Flow Region 2				
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	926	square mi	4.93	1280
PRECIP	Mean Annual Precipitatio	47	inches	35	50.4
STRDEN	Stream Density	1.3	miles per	0.51	3.1
ROCKDEP	Depth to Rock	4.4	feet	3.32	5.65
CARBON	Percent Carbonate	19.59	percent	0	99
Low-Flow Statistics Flov	2.2 Percent Low Flow Region 1				
Statistic	Value	Unit			
7 Day 2 Year Low Flow	239	ft^3/s			
30 Day 2 Year Low Flow	289	ft^3/s			
7 Day 10 Year Low Flow	148	ft^3/s			
30 Day 10 Year Low Flow	176	ft^3/s			
90 Day 10 Year Low Flow	224	ft^3/s			
Low-Flow Statistics Flov	97.8 Percent Low Flow Region 2				
Statistic	Value	Unit	SE	ASEp	
7 Day 2 Year Low Flow	415	ft^3/s	38	38	
30 Day 2 Year Low Flow	486	ft^3/s	33	33	
7 Day 10 Year Low Flow	269	ft^3/s	51	51	
30 Day 10 Year Low Flow	317	ft^3/s	46	46	
90 Day 10 Year Low Flow	385	ft^3/s	36	36	
Low-Flow Statistics Flov	Area-Averaged				
Statistic	Value	Unit			
7 Day 2 Year Low Flow	411	ft^3/s			
30 Day 2 Year Low Flow	482	ft^3/s			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General
Stream
Discharge and Parameters
Stream Code
RMI
Elevation (ft)
Drainage Area (sq mi)
LFY (cfsm)
Slope (ft/ft)
PWS With (mgd)
Apply FC
833 72.800 188 919 0.1 0 0
833 68.500 170 926 0.1 0 0
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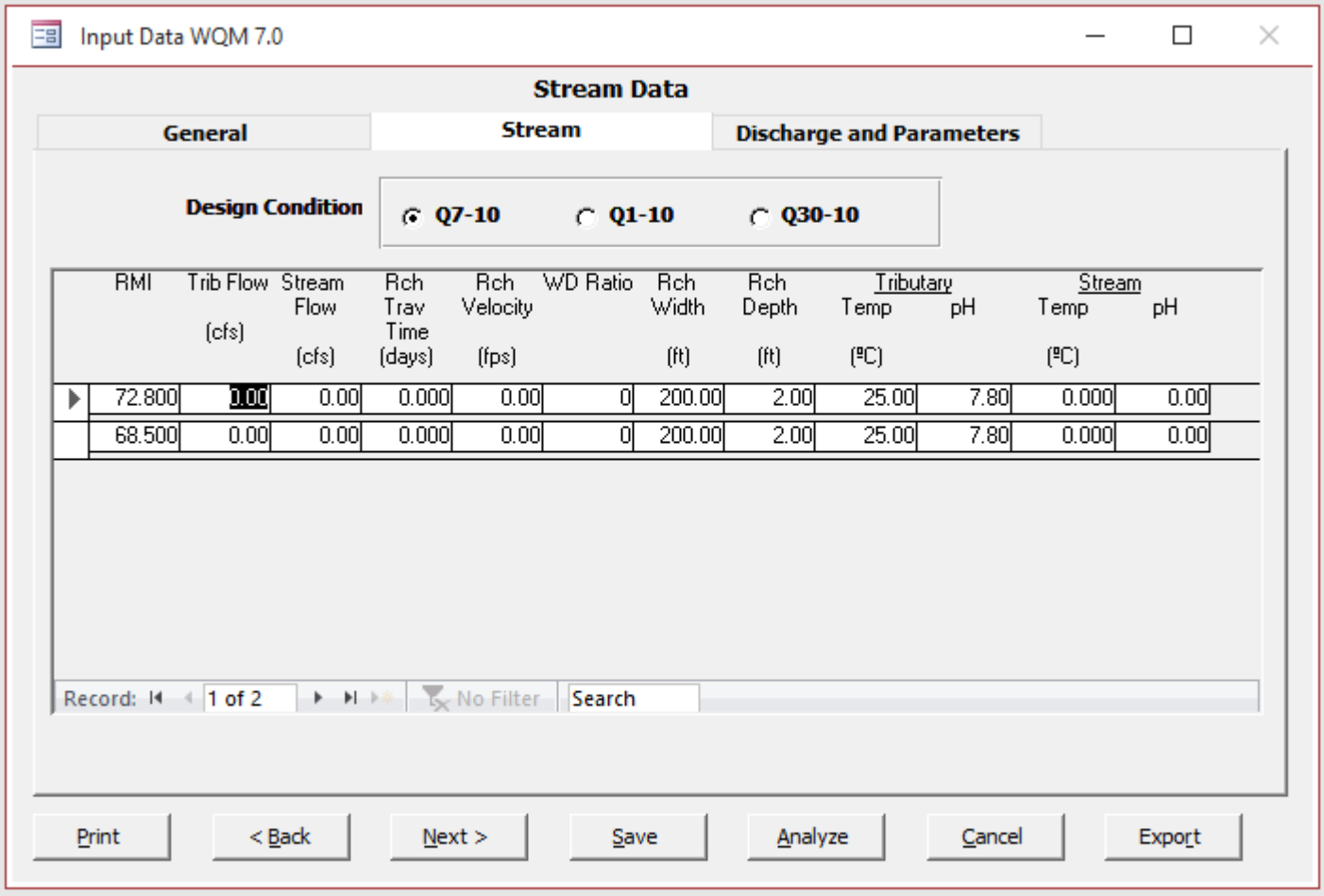
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Stream
Discharge and Parameters
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Q1-10
Q30-10
RMI
Trib Flow (cfs)
Stream Flow (cfs)
Rch Trav Time (days)
Rch Velocity (fps)
WD Ratio
Rch Width (ft)
Rch Depth (ft)
Tributary Temp (ºC)
Tributary pH
Stream Temp (ºC)
Stream pH
72.800 0.00 0.00 0.000 0.00 0 200.00 2.00 25.00 7.80 0.000 0.00
68.500 0.00 0.00 0.000 0.00 0 200.00 2.00 25.00 7.80 0.000 0.00
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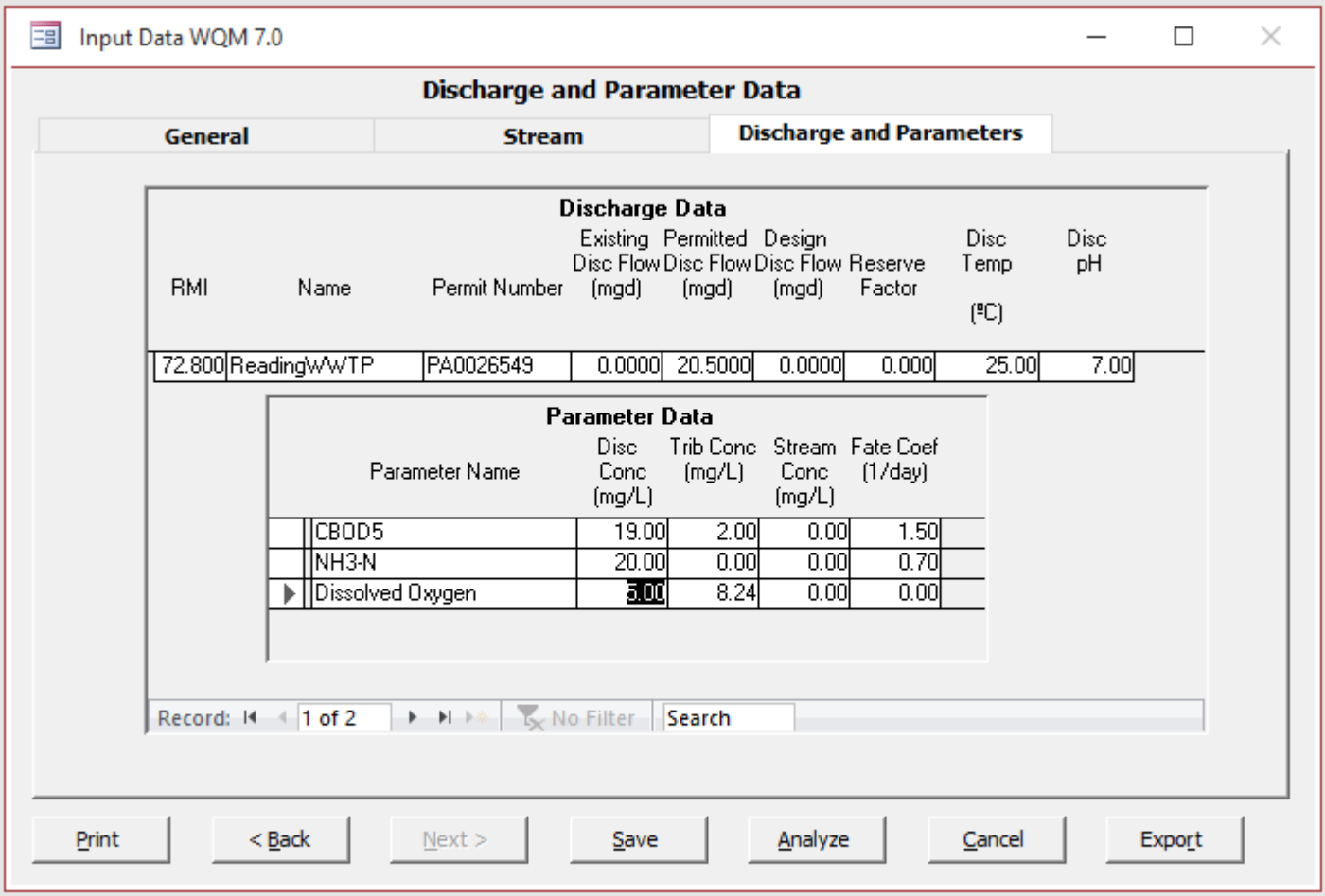
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Stream
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Discharge Data
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Permit Number
Existing Disc Flow (mgd)
Permitted Disc Flow (mgd)
Design Disc Flow (mgd)
Reserve Factor
Disc Temp (ºC)
Disc pH
72.800
ReadingWWTP
PA0026549
0.0000
20.5000
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/day)
CBOD5
19.00
2.00
0.00
1.50
NH3-N
20.00
0.00
0.00
0.70
Dissolved Oxygen
5.00
8.24
0.00
0.00
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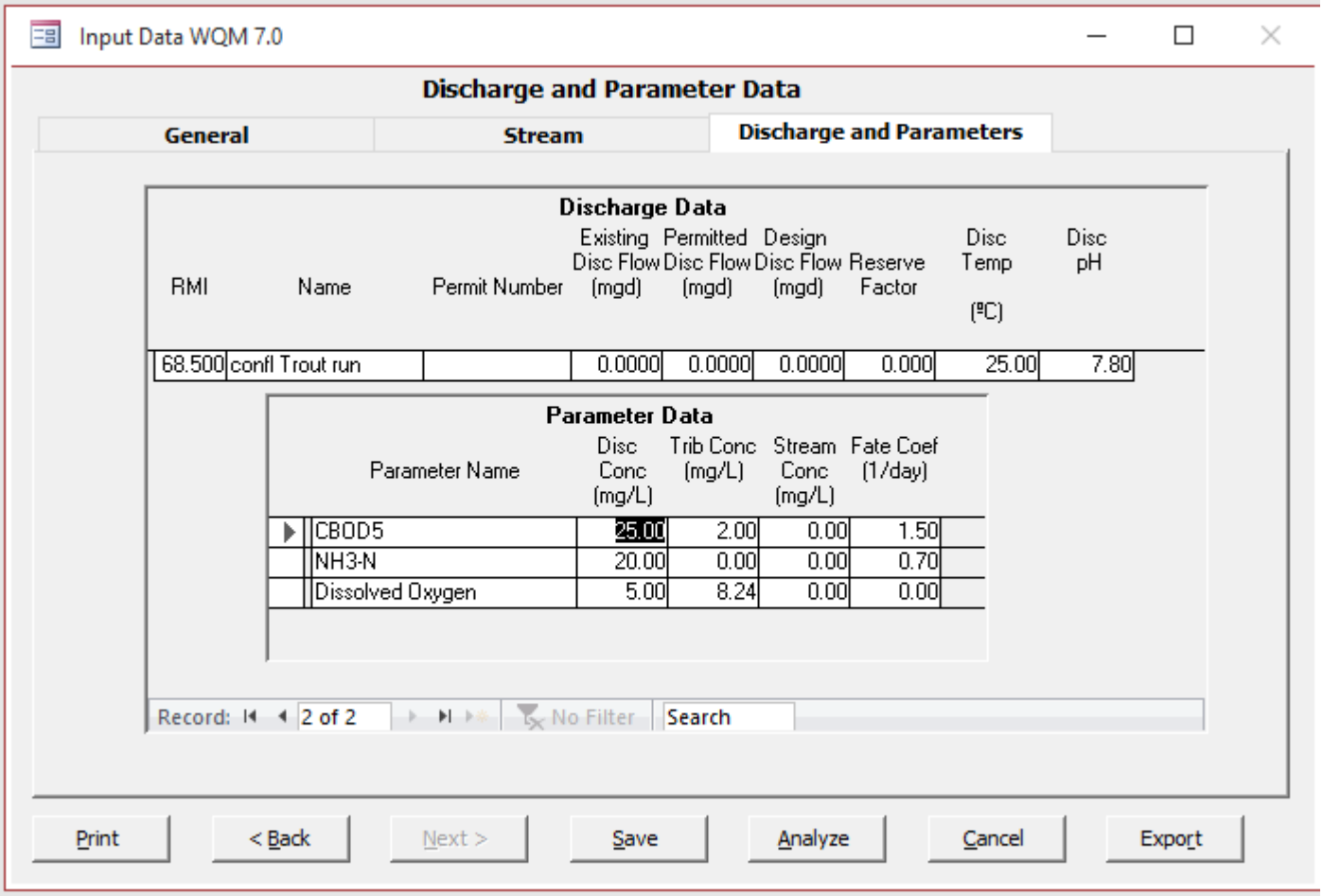
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General
Stream
Discharge and Parameters
Discharge Data
RMI
Name
Permit Number
Existing Disc Flow (mgd)
Permitted Disc Flow (mgd)
Design Disc Flow (mgd)
Reserve Factor
Disc Temp (ºC)
Disc pH
68.500
confl Trout run
0.0000
0.0000
0.0000
0.000
25.00
7.80
Parameter Data
Parameter Name
Disc Conc (mg/L)
Trib Conc (mg/L)
Stream Conc (mg/L)
Fate Coef (1/day)
CBOD5
25.00
2.00
0.00
1.50
NH3-N
20.00
0.00
0.00
0.70
Dissolved Oxygen
5.00
8.24
0.00
0.00
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2 of 2
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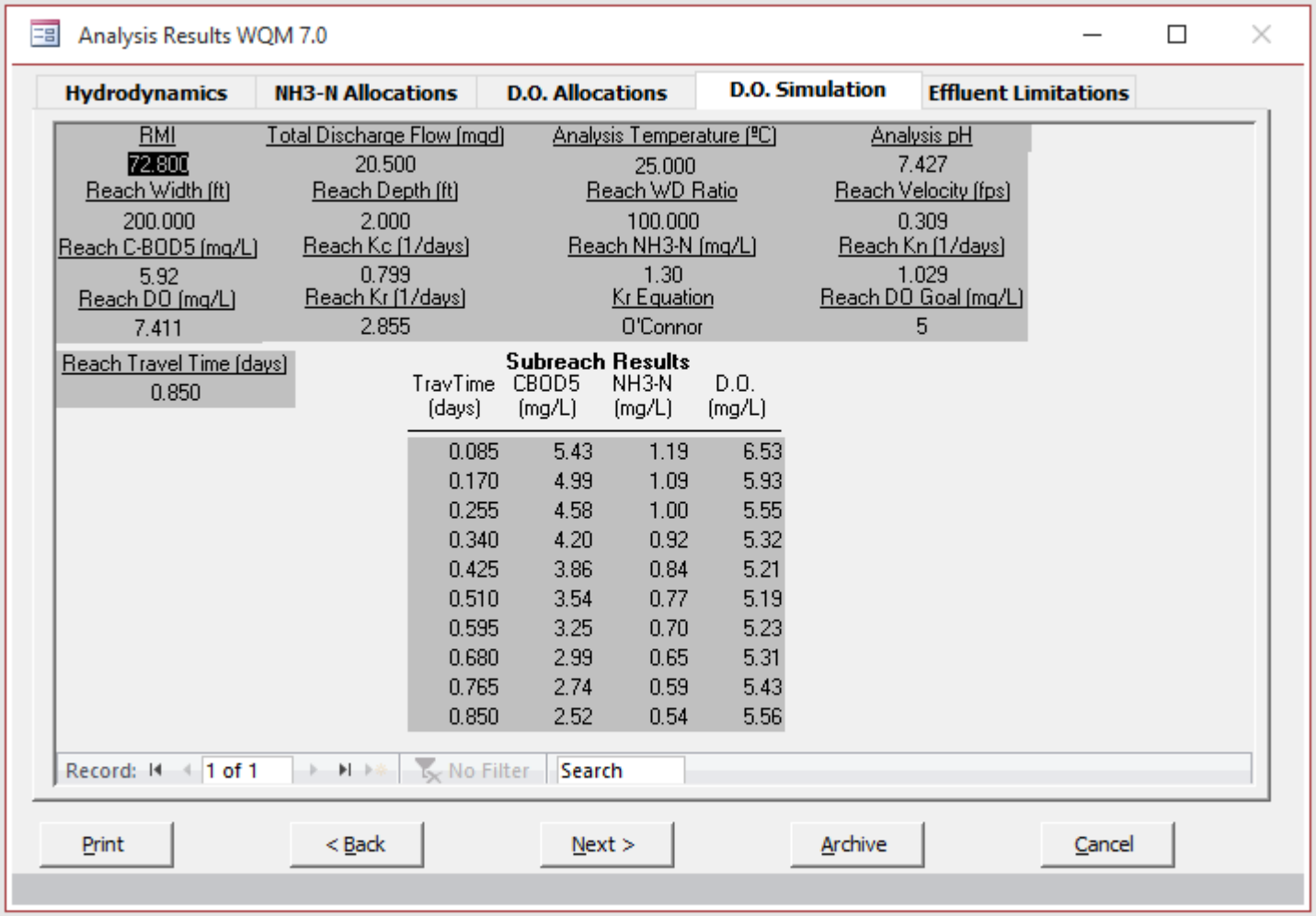
Analysis Results WQM 7.0
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
72.800
Total Discharge Flow (mgd)
20.500
Analysis Temperature (°C)
25.000
Analysis pH
7.427
Reach Width (ft)
200.000
Reach Depth (ft)
2.000
Reach WD Ratio
100.000
Reach Velocity (fps)
0.309
Reach C-BOD5 (mg/L)
5.92
Reach Kc (1/days)
0.799
Reach NH3-N (mg/L)
1.30
Reach Kn (1/days)
1.029
Reach DO (mg/L)
7.411
Reach Kr (1/days)
2.855
Kr Equation
O'Connor
Reach DO Goal (mg/L)
5
Reach Travel Time (days)
0.850
Subreach Results
TravTime (days)
CBOD5 (mg/L)
NH3-N (mg/L)
D.O. (mg/L)
0.085 5.43 1.19 6.53
0.170 4.99 1.09 5.93
0.255 4.58 1.00 5.55
0.340 4.20 0.92 5.32
0.425 3.86 0.84 5.21
0.510 3.54 0.77 5.19
0.595 3.25 0.70 5.23
0.680 2.99 0.65 5.31
0.765 2.74 0.59 5.43
0.850 2.52 0.54 5.56
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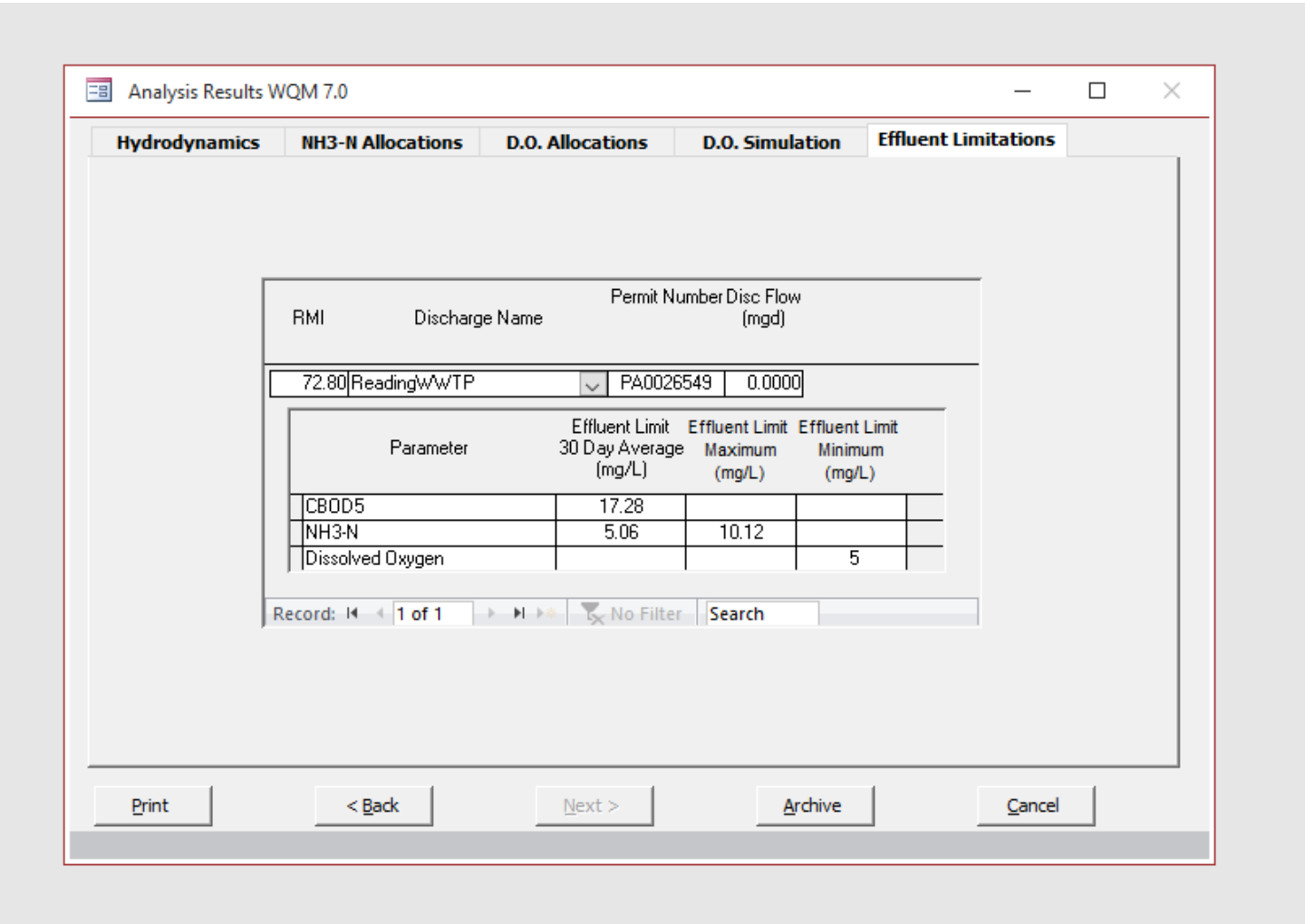
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Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
Discharge Name
Permit Number
Disc Flow (mgd)
72.80
ReadingWWTP
PA0026549
0.0000
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
17.28
NH3-N
5.06
10.12
Dissolved Oxygen
5
Record:
1 of 1
No Filter
Search
Print
< Back
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Archive
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ActivityStartD	ActivitySt	MonitoringLocationIdent	Monitorin	ActivityCc	ActivityLo	ActivityLo	SampleCo	ResultId	CharacteristicName	ResultSan	ResultMea	ResultMe	C
7/28/2011	13:01:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	148	mg/l	
9/29/2011	10:30:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	70	mg/l	
7/28/2011	13:00:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	150	mg/l	
8/23/2012	10:00:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	133	mg/l	
7/8/2013	12:00:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	81	mg/l	
9/18/2013	11:00:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	147	mg/l	
8/12/2014	12:00:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	128	mg/l	
9/29/2015	9:40:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	154	mg/l	
7/28/2015	9:30:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	136	mg/l	
8/30/2016	9:30:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	146	mg/l	
9/19/2017	10:00:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	147	mg/l	
7/26/2017	12:00:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	56	mg/l	
8/22/2018	9:30:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	112	mg/l	
7/8/2019	14:00:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	124	mg/l	
9/23/2019	10:00:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	154	mg/l	
7/8/2019	14:00:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	125	mg/l	
7/13/2020	12:00:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	80	mg/l	
9/14/2020	13:00:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	109	mg/l	
8/12/2020	10:30:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	82	mg/l	
9/21/2021	12:30:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	107	mg/l	
8/17/2021	11:30:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	148	mg/l	
7/22/2021	14:00:00	21PA_WQX-WQN0113	SCHUYLKILL RIVER		40.5219	-75.9978	1	STORET-	Hardness, Ca, Mg	Total	126	mg/l	
											121	Avg	

Discharge Information

Instructions | Discharge | Stream

Facility: City of Reading WWTP NPDES Permit No.: PA0026549 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: domestic with industrial users

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
20.5	261	7	0.33					

					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		1344									
	Chloride (PWS)	mg/L		180									
	Bromide	mg/L		2									
	Sulfate (PWS)	mg/L		96									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		100									
	Total Antimony	µg/L		3									
	Total Arsenic	µg/L		3									
	Total Barium	µg/L		51									
	Total Beryllium	µg/L	<	5									
	Total Boron	µg/L		600									
	Total Cadmium	µg/L	<	0.1									
	Total Chromium (III)	µg/L		8									
	Hexavalent Chromium	µg/L	<	0.3									
	Total Cobalt	µg/L	<	5									
	Total Copper	µg/L		26									
	Free Cyanide	µg/L		8									
	Total Cyanide	µg/L		8									
	Dissolved Iron	µg/L		150									
	Total Iron	µg/L		230									
	Total Lead	µg/L		10									
	Total Manganese	µg/L		52									
	Total Mercury	µg/L		0.4									
	Total Nickel	µg/L		60									
	Total Phenols (Phenolics) (PWS)	µg/L		93									
	Total Selenium	µg/L		8									
	Total Silver	µg/L		1.2									
	Total Thallium	µg/L	<	0.2									
	Total Zinc	µg/L		143									
	Total Molybdenum	µg/L		43									
	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									
Chloroform	µg/L		5.9									
Dichlorobromomethane	µg/L		2.1									
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	<										
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									
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	<										
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	<										

Group	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										

	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										
	1,2-Diphenylhydrazine	µg/L	<										
	Fluoranthene	µg/L	<										
	Fluorene	µg/L	<										
	Hexachlorobenzene	µg/L	<										
	Hexachlorobutadiene	µg/L	<										
	Hexachlorocyclopentadiene	µg/L	<										
	Hexachloroethane	µg/L	<										
	Indeno(1,2,3-cd)Pyrene	µg/L	<										
	Isophorone	µg/L	<										
	Naphthalene	µg/L	<										
	Nitrobenzene	µg/L	<										
	n-Nitrosodimethylamine	µg/L	<										
	n-Nitrosodi-n-Propylamine	µg/L	<										
	n-Nitrosodiphenylamine	µg/L	<										
	Phenanthrene	µg/L	<										
	Pyrene	µg/L	<										
	1,2,4-Trichlorobenzene	µg/L	<										
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

City of Reading WWTP, NPDES Permit No. PA0026549, 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	72.8	188	919			Yes
End of Reach 1	000833	72.4	178	920			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	72.8	0.28	257			200	2					121	7.8		
End of Reach 1	72.4	0.28													

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	72.8		257			200	2					121	7.8		
End of Reach 1	72.4														

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

City of Reading WWTP, NPDES Permit No. PA0026549, Outfall 001

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

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ ***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	8.73	13.6	51.1	79.7	128	µg/L	51.1	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Lead	Report	Report	Report	Report	Report	µg/L	43.0	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Mercury	0.078	0.12	0.46	0.71	1.14	µg/L	0.46	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Selenium	Report	Report	Report	Report	Report	µg/L	45.4	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	418	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	1,766	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	51.0	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	91.0	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	21,849	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	14,566	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	3.1	µg/L	Discharge Conc < TQL
Total Chromium (III)	1,012	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	38.4	µg/L	Discharge Conc < TQL
Total Cobalt	173	µg/L	Discharge Conc ≤ 10% WQBEL

Free Cyanide	36.4	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	2,731	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	13,656	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	9,104	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	617	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Silver	19.8	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	2.18	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	7.07	µg/L	Discharge Conc < TQL
Acrylonitrile	0.55	µg/L	Discharge Conc < TQL
Benzene	5.28	µg/L	Discharge Conc < TQL
Bromoform	63.7	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	3.64	µg/L	Discharge Conc < TQL
Chlorobenzene	910	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	7.28	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	31,863	µg/L	Discharge Conc < TQL
Chloroform	51.9	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	8.65	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	90.1	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	300	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	8.19	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	2.46	µg/L	Discharge Conc < TQL
Ethylbenzene	619	µg/L	Discharge Conc < TQL
Methyl Bromide	910	µg/L	Discharge Conc < TQL
Methyl Chloride	50,071	µg/L	Discharge Conc < TQL
Methylene Chloride	182	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	1.82	µg/L	Discharge Conc < TQL
Tetrachloroethylene	91.0	µg/L	Discharge Conc < TQL
Toluene	519	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-trans-Dichloroethylene	910	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	5,553	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	5.01	µg/L	Discharge Conc < TQL
Trichloroethylene	5.46	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.18	µg/L	Discharge Conc < TQL

Facility:	City of Reading WWTP
NPDES #:	PA0026549
Outfall No:	001
n (Samples/Month):	4
Reviewer/Permit Engineer:	B.Boylan

Parameter Name	Copper	Lead	Mercury	Selenium	Zinc
Units	mg/l	mg/l	mg/l	mg/l	mg/l
Detection Limit	0.01	0.01	0.0002	0.003	0.005
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*				
2/28/2016	0.02	0.01	0.0002		0.05
4/20/2016	0.026	0.01	0.0002	0.006	0.074
7/27/2016	0.026	0.01	0.0002		0.143
11/3/2016	0.015	0.01	0.0002		0.065
1/26/2017	0.014	0.002	0.0002		0.056
4/19/2017	0.017	0.002	0.0004	0.008	0.09
7/27/2017	0.014	0.002	0.0002		0.064
9/26/2017	0.011	0.001	0.0002	0.002	0.048
10/12/2017	0.012	0.001	0.0002		0.048
2020 Ch 94 Report	0.011	<0.001	<0.0002	0.001	0.046
and as a Daily Maximum	0.008	<0.001	<0.002	<0.001	0.047
2020 Ch 94 Report	0.007	<0.001	<0.0002	<0.001	0.051
2020 Ch 94 Report	0.007	<0.001	<0.0002	<0.001	0.047
2020 Ch 94 Report	0.008	<0.001	<0.0002	<0.001	0.073
2020 Ch 94 Report	0.007	<0.001	<0.0002	<0.001	0.073
2021 Ch 94 Report	0.011	<0.001	<0.0002	0.001	0.06
2021 Ch 94 Report	0.012	<0.001	<0.0002	0.001	0.062
2021 Ch 94 Report	0.006	<0.001	<0.0002	<0.001	0.06
2021 Ch 94 Report	0.006	<0.001	<0.0002	<0.001	0.057
2021 Ch 94 Report	0.007	<0.001	<0.0002	<0.001	0.048
2021 Ch 94 Report	0.006	<0.001	<0.0002	<0.001	0.046
2021 Ch 94 Report	0.008	<0.001	<0.0002	<0.001	0.053

		Reviewer/Permit Engineer:	B.Boylan
Facility:	City of Reading WWTP		
NPDES #:	PA0026549		
Outfall No:	001		
n (Samples/Month):	4		

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Copper (mg/l)	Lognormal	0.4854849	0.0199350
Lead (mg/l)	Delta-Lognormal	0.6711733	0.0151219
Mercury (mg/l)	Delta-Lognormal	0.1671402	0.0002483
Selenium (mg/l)	Delta-Lognormal	0.8021375	0.0064513
Zinc (mg/l)	Lognormal	0.2759556	0.0839988

A	H	I	S	AA	AH	AI	AJ	AK	AL	AR	AS	AT	AU
PERMIT	MON_START_	MON_END_DATE	PARAMETER	UNITS	CONC_3_\	CONC_3	CONC_3_S	SAMPLE_F	SAMPLE_TYPE				
PA0026549	1/1/2014	12/31/2014	PCBs Dry Weather	ng/L	943.1	Monitor	Daily Max	1/year	24-Hr Composite			943.1	
PA0026549	1/1/2015	12/31/2015	PCBs Dry Weather	ng/L	7.9	Monitor	Daily Max	1/year	24-Hr Composite			7.9	
PA0026549	1/1/2016	12/31/2016	PCBs Dry Weather	ng/L	5.8067	Monitor	Daily Max	1/year	24-Hr Composite			5.8067	
PA0026549	1/1/2017	12/31/2017	PCBs Dry Weather	ng/L	7.74	Monitor	Daily Max	1/year	24-Hr Composite			7.74	
PA0026549	1/1/2018	12/31/2018	PCBs Dry Weather	ng/L	6.78	Monitor	Daily Max	1/year	24-Hr Composite			6.78	
PA0026549	1/1/2019	12/31/2019	PCBs Dry Weather	ng/L	1.58	Monitor	Daily Max	1/year	24-Hr Composite			1.58	
PA0026549	1/1/2020	12/31/2020	PCBs Dry Weather	ng/L	2.58	Monitor	Daily Max	1/year	24-Hr Composite			2.58	
PA0026549	1/1/2021	12/31/2021	PCBs Dry Weather	ng/L	1.02	Monitor	Daily Max	1/year	24-Hr Composite			1.02	
					122.1	Avg							
					943.1	Max							
PA0026549	1/1/2014	12/31/2014	PCBs Wet Weather	ng/L	1696	Monitor	Daily Max	1/year	24-Hr Composite			1696	
PA0026549	1/1/2015	12/31/2015	PCBs Wet Weather	ng/L	1.4	Monitor	Daily Max	1/year	24-Hr Composite			1.4	
PA0026549	1/1/2016	12/31/2016	PCBs Wet Weather	ng/L	8.123	Monitor	Daily Max	1/year	24-Hr Composite			8.123	
PA0026549	1/1/2017	12/31/2017	PCBs Wet Weather	ng/L	8.12	Monitor	Daily Max	1/year	24-Hr Composite			8.12	
PA0026549	1/1/2018	12/31/2018	PCBs Wet Weather	ng/L	12.4	Monitor	Daily Max	1/year	24-Hr Composite			12.4	
PA0026549	1/1/2019	12/31/2019	PCBs Wet Weather	ng/L	1.76	Monitor	Daily Max	1/year	24-Hr Composite			1.76	
PA0026549	1/1/2020	12/31/2020	PCBs Wet Weather	ng/L	5.3	Monitor	Daily Max	1/year	24-Hr Composite			5.3	
PA0026549	1/1/2021	12/31/2021	PCBs Wet Weather	ng/L	0.951	Monitor	Daily Max	1/year	24-Hr Composite			0.951	
					216.8	Avg							
					1696	Max						169.41	Avg
												1696	Max