Pennsylvania Department of Environmental Protection

Northeast Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0027235**
Facility Type	**Municipal**	APS ID	**571161**
Major / Minor	**Major**	Authorization ID	**1441936**

Applicant and Facility Information

Applicant Name	**Easton Area Joint Sewer Authority**	Facility Name	**Easton WWTP**
Applicant Address	50-A S Delaware Drive	Facility Address	50-A S Delaware Drive
	Easton, PA 18042-9405		Easton, PA 18042-9405
Applicant Contact	Robert Lammi	Facility Contact	Charles Wilson
Applicant Phone	(610) 250-6707	Facility Phone	(610) 250-6705
Client ID	87609	Site ID	443488
Ch 94 Load Status	Not Overloaded	Municipality	Easton City
Connection Status		County	Northampton
Date Application Received	May 30, 2023	EPA Waived?	No
Date Application Accepted	June 2, 2023	If No, Reason	Major Facility, Pretreatment
Purpose of Application	RENEWAL OF EXISTING NPDES PERMIT.		

Summary of Review

The PA Department of Environmental Protection (PADEP/Department) received an NPDES permit renewal application from S C Engineers, Inc. (consultant) on behalf of Easton Area Joint Sewer Authority (EAJSA/Authority/Permittee) for permittee's Easton WWTP (facility) on May 30, 2023. The current permit expired on November 30 2023 and the permit is under administrative extension since then. This is a major sewage facility with design flow of 10.0 MGD and the treated effluent is discharged into Delaware River (WWF, MF) and Delaware Canal. Renewal NPDES permit applications under Clean Water program are not covered by PADEP's PDG per 021-2100-001. This fact sheet is developed in accordance with 40 CFR §124.56.

Changes in this permit: Quarterly monitoring for Total Thallium, monthly monitoring for E. Coli, and annual monitoring for PFOA, PFOS, PFBS, and HFPO-DA, removed monitoring requirements for Outfalls 003 and 004.

Sludge use and disposal description and location(s): Settled solids from the primary clarifiers are sent to Anaerobic Digester Nos. 2 and 3 for treatment and the sludge from these units is dewatered through the plant's centrifuge system. Waste activated sludge is sent to the aerobic digester cells where it is run through a gravity belt thickener, from there it is transferred to Anaerobic Digester No. 1 for treatment and the sludge from this unit is dewatered through the plant's centrifuge system. Class B Biosolids are produced. Pathogen reduction and vector attraction are not tracked since the biosolids are currently disposed of at Chrin Landfill.

Public Participation

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

Approve	Deny	Signatures	Date
√		Reza H. Chowdhury, P.E. / Environmental Engineer	November 5, 2025
X		Edward Dudick, P.E. / Environmental Engineer Manager	November 12, 2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	10.0
Latitude	40º 40' 44"	Longitude	-75º 11' 39"
Quad Name	Easton	Quad Code	1344
Wastewater Description:	Sewage Effluent		

Receiving Waters	Delaware River (WWF, MF)	Stream Code	00002
NHD Com ID	26037060	RMI	107.9
Drainage Area	6,090 mi^2	Yield (cfs/mi^2)	0.238
Q_{7-10} Flow (cfs)	**1450.32**	Q_{7-10} Basis	Please see below
Elevation (ft)	153.7	Slope (ft/ft)	0.00006
Watershed No.	2-C	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	MERCURY		
Source(s) of Impairment	SOURCE UNKNOWN		
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.6	WQN 0194, median Jul-Sep 2003-2019
Temperature (°C)	22.71	WQN 0194, median Jul-Sep 2003-2019
Hardness (mg/L)	34.5	WQN 0194, median Jul-Sep 2003-2019
Other:		

Nearest Downstream Public Water Supply Intake		BCWSA New Hope	
PWS Waters	Delaware River	Flow at Intake (cfs)	
PWS RMI	73.31	Distance from Outfall (mi)	34.59

Changes Since Last Permit Issuance: The WQM permit for the WWTP was amended on November 3, 2021, to authorize the following activities:

1. Conversion of the third anaerobic digester from a secondary digester to a primary digester with a pumped mixing system.

2. A new thickened waste activated sludge pump will be constructed adjacent to the existing gravity belt thickener. A 3-inch glass-lined ductile iron force main for the pump discharge will be connected to the existing 8-inch line.

3. Construction of a fats, oils and grease receiving and pretreatment facility. One of the existing dissolved air floatation tanks will be utilized for storage after the waste is screened with a packaged rotating drum screening unit. A heated pumped mixing system will keep the tank contents uniform. Dedicated feed pumps to the first and second digesters will be installed.

4. Construction of a combined heat and power facility to utilize the biogas produced in the anaerobic digesters to generate electricity through an internal combustion engine genset for use at the facility. Biogas will be pretreated before combustion. Two new heat exchangers will be added to the existing hot water loop.

Streamflow:
USGS's web based watershed delineation tool StreamStats (accessible at https://streamstats.usgs.gov/ss/, accessed on October 29, 2025) was utilized to determine the drainage area and low flow statistics of the receiving stream at discharge point. The drainage area at Outfall 001 was found to be 6,090 mi^2. The upstream Streamgage (01446500-Delaware River at Belvidere, NJ) data was analyzed to calculate the low flow yield. Data from this gage shows a drainage area of 4,535 mi^2, Q_{1-10} of 864 cfs, Q_{7-10} of 1,080 cfs, and Q_{30-10} of 1,260 cfs. The Q7-10 runoff rate or yield is calculated as follows:

Q_{7-10} runoff rate = 1,080 cfs/4,535 mi2 or 0.238 cfs/mi^2
Q_{7-10} at Outfall 001 = 0.238 cfs/mi^2 * 6,090 mi^2 = 1,450.32 cfs
Q_{1-10}:Q_{7-10} ratio = 864 cfs/1,080 cfs or 0.8
Q_{30-10}:Q_{7-10} ratio = 1,260 cfs/1,080 cfs or 1.17

Mixing Zone Study:
A Mixing Zone Study (Study) was conducted on January 25, 2010, by Conestoga-Rovers & Associates. The Study collected bathymetric data at and near the outfall location and conducted CORMIX modeling to calculate/co-relate the dilution with mixing factors. The study determined an acute mixing factor of 0.22, chronic mixing factor of 0.98, and human health mixing factor is 0.64. The Study also calculated/estimated slope of 0.0006 and width of stream of 113 m (370.64 ft). The Study was approved and used in subsequent permit renewals. These numbers or revised available Q_{7-10} flow values will be used in modeling, as appropriate.

PWS Intake:
The nearest downstream public water supply is Bucks County Water and Sewer Authority (BCWSA) New Hope intake. This intake is on Delaware River, at approximate RMI of 73.31 mile, which is approximately 34.59 miles downstream of Outfall 001. Because of the distance, dilution, and effluent limits, the discharge is expected not to affect the intake.

Wastewater Characteristics:
Default discharge pH of 7.0 S.U. and default discharge temperature of 25°C will be used. The application data indicated an average Total Hardness of 185 mg/l out of 3 samples.

Background data:
The nearby upstream Water Quality Network Station 21PA_WQX-WQN0194 is located on SR 1004 Bridge at Belvidere, NJ. Per the WQN station's data, the median pH is 7.6 S.U. and median temperature is 22.71°C for the months July-September for reporting period 2003-2019. Default hardness value is 100 mg/l. These values will be used for modeling, as appropriate.

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. The receiving streams are designated as Warm Water Fishes (WWF). No High-Quality (HQ) watershed is being impacted by this discharge. No Exceptional-Value (EV) watershed is being impacted by this discharge. Therefore, Anti-degradation Analysis wasn't performed.

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

DRBC Docket D-1987-010 CP 5:
The discharge is into Lower Delaware Special Protection Waters (SPW). DRBC renewed the existing Docket on June 11, 2025 with an expiration date of November 30, 2030. The DRBC parameters mimic NPDES limits with exception of TDS, for which DRBC requires a limit of 1,000 mg/l with quarterly sampling requirement. This will be discussed in the Development of Effluent Limits section of this fact sheet.

Biosolids Management:
Settled solids from the primary clarifiers are sent to Anaerobic Digester Nos. 2 and 3 for treatment and the sludge from these units is dewatered through the plant's centrifuge system. Waste activated sludge is sent to the aerobic digester cells where it is run through a gravity belt thickener, from there it is transferred to Anaerobic Digester No. 1 for treatment and the sludge from this unit is dewatered through the plant's centrifuge system. Class B Biosolids are produced. Pathogen reduction and vector attraction are not tracked since the biosolids are currently disposed of at Chrin Landfill.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	002	Design Flow (MGD)	0
Latitude	40º 40' 44"	Longitude	-75º 11' 39"
Quad Name	Easton	Quad Code	1344
Wastewater Description:	Stormwater, emergency plant effluent discharge.		
Receiving Waters	Delaware Canal	Stream Code	

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	003	Design Flow (MGD)	0
Latitude	40º 40' 44"	Longitude	-75º 11' 36"
Quad Name	Easton	Quad Code	1344
Wastewater Description:	Stormwater, Stormwater, emergency plant effluent discharge.		
Receiving Waters	Delaware Canal	Stream Code	

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	004	Design Flow (MGD)	0
Latitude	40º 40' 44"	Longitude	-75º 11' 32.00"
Quad Name	Easton	Quad Code	1344
Wastewater Description:	Stormwater		
Receiving Waters	Delaware Canal	Stream Code	
NHD Com ID	26037192	RMI	

Other Comments: The Part C.VI.E.3 states “If the drainage area characteristics for a stormwater outfall are substantially identical in nature to the drainage area characteristics of another stormwater outfall at the facility or site, the permittee may select that outfall to be representative of the other outfall in lieu of sampling the represented outfall” as a response to permittee’s comment on draft permit during last renewal. The permittee provided description of each of the stormwater outfalls which demonstrates the similarities between them. With this understanding, it is determined that the Outfall 002 is representative of Outfalls 003 and 004, and only Outfall 002 will be required semi-annual sampling and subject to eDMR reporting requirements. The Outfalls 003 and 004 will be removed from eDMR requirements but will be stated in the Part C of the permit to identify the available stormwater outfalls.

Treatment Facility Summary				

Treatment Facility Name: Easton Area Joint Sewer Authority WWTP

WQM Permit No.	Issuance Date
4876412 A-1	11/04/2021
4876412	08/16/1976

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Gas Chlorine	10

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
10	20,000	Not Overloaded	Combination	Land Application

Treatment Plant Description

Easton Area Joint Sewer Authority (EAJSA or Authority) owns and operates a wastewater treatment plant named Easton WWTP (facility), located in Easton City, Northampton County. The EAJSA is responsible for the WWTP operations, capital projects, repairs, and permitting as well as operations, capital projects and repairs associated with key conveyance facilities under a long-term (99-year) contract with the Easton City, which is a part of an intermunicipal agreement between all member parties. Management of the City's wastewater collection system is handled by City staff. This is a major sewage treatment facility with an average annual design flow of 10 MGD, hydraulic loading capacity of 20,000 lbs. BOD5/day, and hydraulic design capacity of 10 MGD. The facility treats wastewater from the following six municipalities that are member of EAJSA, and five other municipalities that aren't member of EASJA.

Authority Members	Tributary Non-Members
Easton City	Glendon Borough Williams Township
Forks Township	Stockertown Borough
Palmer Township	Bethlehem Township Lower Nazareth Township
Tatamy Borough	
West Easton Borough	
Wilson Borough	

The member and non-member municipalities own and operate their own collection and conveyance systems. On September 29, 2021, the Borough of Stockertown's sewer system was connected to the Forks Township sewer system.

The WWTP employs physical and biological treatment to achieve required treatment level. The facility's treatment process consists of grit removal and screening, primary clarification, secondary biological treatment through an oxidation ditch process, secondary clarification, disk filtration system, disinfection using sodium hypochlorite and dechlorination using sodium bisulfite. The treated effluent is discharged through Outfall 001 into Delaware River, and occasionally through Outfalls 002 and 003, during high flow condition.

The facility utilizes the following wastewater treatment chemicals:

Chemical Name	Purpose	Maximum Usage Rate	Units
Sodium Hypochlorite	Disinfection	500	GPD
Sodium Bisulfite	Dechlorination	140	GPD
Magnesium Hydroxide	Supplemental Alkalinity	600	GPD
Ferric Chloride	Settling	80	GPD
Centrifuge System Polymer	Dewatering	55	GPD
Gravity Belt Thickener Polymer	Dewatering	15	GPD
Secondary Clarifier Polymer	Settling	15	GPD

The facility is planning to accept approximately 12,400 GPD or more of food waste and/or FOG, 5 days per week, for next five years. As stated in Page 2 of this report, the facility's WQM permit was amended to approve construction/modification to accept these wastes.

Per recent CEI report dated May 28, 2025, the treatment facility consists of the following treatment units: One grit removal, two Hydro-dyne Great White screens, one influent bar screen, two primary clarifiers, three oxidation ditches, three secondary clarifiers, two rotary disk filter systems, one chlorine contact tank, three anaerobic digesters, three holding cells, one gravity belt thickener, and two centrifuges.

Industrial Users:
There are three (3) Categorical and fourteen (14) Non-categorical Significant Industrial Users contributing to this facility. The facility is implementing EPA administered pre-treatment program, which will be continued for the next permit term.

CSS and CSO:
Roughly 3% of the City's contributed wastewater are discharged through two (2) CSOs, Second Street Pump Station and Spring Garden Street CSO. The CSO and CSS are permitted under PAG062201, for which the City of Easton is the permittee. The permit was last renewed on August 28, 2024 with an expiration date of October 16, 2027.

Existing Limits

Outfall 001: Effective from December 1, 2018 through November 30, 2023

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
CBOD5	2,085	3,336	XXX	25.0	40.0	50.0	1/day	24-Hr Composite
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/shift	Grab
TSS	2,502	3,753	XXX	30.0	45.0	60.0	1/day	24-Hr Composite
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/day	Grab
Ammonia-Nitrogen	1,668	XXX	XXX	20.0	XXX	40.0	1/day	24-Hr Composite
DO	XXX	XXX	Report	Report	XXX	XXX	1/month	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	Calculation

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Nitrate-Nitrite as N	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
TDS	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Influent CBOD5	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Influent TSS	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite

Outfall 002, 003, and 004: Effective from December 1, 2018 through November 30, 2023

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance History

DMR Data for Outfall 001 (from September 1, 2024 to August 31, 2025)

Parameter	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24
Flow (MGD) Average Monthly	5.18	5.41	5.33	5.80	5.32	5.17	5.28	5.17	5.38	5.22	5.11	5.25
Flow (MGD) Daily Maximum	5.70	6.30	5.73	7.72	6.74	6.23	6.93	5.6	6.85	6.48	5.60	5.53
pH (S.U.) IMIN	6.9	6.9	7.0	6.8	6.9	6.6	7.0	7.0	6.9	6.9	6.5	6.6
pH (S.U.) IMAX	7.4	7.5	7.5	7.3	7.6	7.4	7.5	7.6	7.4	7.7	7.3	7.2
DO (mg/L) IMIN	6.06	6.68	7.04	6.12	7.00	7.63	8.26	6.88	7.48	7.42	6.72	6.83
DO (mg/L) Average Monthly	6.83	7.36	7.77	7.76	8.15	8.81	9.27	8.57	8.33	7.89	7.54	7.29
TRC (mg/L) Average Monthly	0.05	0.04	0.05	0.04	0.08	0.07	0.06	0.04	0.09	0.05	0.05	0.04
TRC (mg/L) IMAX	0.7	1.0	0.9	0.8	1.1	1.1	1.4	0.5	4.4	0.6	0.5	0.5
CBOD5 (lbs./day) Average Monthly	185	168	138	232	207	169	137	597	332	224	153	92
CBOD5 (lbs./day) Weekly Average	204	202	152	205	520	213	156	830	596	294	184	95
CBOD5 (mg/L) Average Monthly	4.3	3.7	3.1	4.8	4.7	3.9	3.1	13.8	7.4	5.1	3.6	2.1
CBOD5 (mg/L) Raw Sewage Influent Average Monthly	287.1	294.7	303.4	279.2	297.7	285.0	311.8	303.3	274.2	285.8	253.3	254.4
CBOD5 (mg/L) Weekly Average	4.7	4.3	3.3	4.2	12.4	4.7	3.7	19.2	12.7	6.9	4.4	2.2
TSS (lbs./day) Average Monthly	343	236	237	483	349	251	198	510	663	427	507	190
TSS (lbs./day) Weekly Average	388	286	252	338	1181	274	210	814	1672	542	855	202
TSS (mg/L) Average Monthly	7.9	5.2	5.3	10.0	7.9	5.8	4.5	11.8	14.8	9.8	11.9	4.3
TSS (mg/L) Raw Sewage Influent Average Monthly	256.6	242.9	261.5	271.4	263.7	270.5	273.0	274.5	275.4	282.6	269.2	262.8
TSS (mg/L) Weekly Average	8.9	6.3	5.6	7.0	30.2	6.5	4.9	18.8	34.6	12.2	20.3	4.6
TDS (mg/L) Average Quarterly			501			511			520			537
Fecal Coliform (No./100 ml) Geometric Mean	1	1	4	6	2	2	4	10	3	1	2	1

Fecal Coliform (No./100 ml) IMAX	6	14	26	88	4	12	17	1733	249	4	27	5
Nitrate-Nitrite (mg/L) Average Monthly	20.5	17.5	17.6	19.3	14.8	18.2	30	31.2	27.6	23.7	23.2	24.8
Total Nitrogen (mg/L) Average Monthly	21.3	18.0	18.3	21.2	15.8	19.5	31.3	32.7	28.1	24.2	24.0	25.3
Ammonia (lbs/day) Average Monthly	12	10	6	17	32	11	7	107	16	8	7	6
Ammonia (mg/L) Average Monthly	0.3	0.2	0.1	0.4	0.7	0.3	0.2	2.5	0.3	0.2	0.2	0.1
TKN (mg/L) Average Monthly	0.8	0.5	0.7	1.9	1.0	1.3	1.3	1.5	0.5	0.5	0.8	0.5
Total Phosphorus (mg/L) Average Monthly	5.5	5.5	4.5	4.2	4.6	5.1	5.0	5.1	4.8	5.1	3.9	5.2

DMR Data for Outfall 002 (from September 1, 2024 to August 31, 2025)

Parameter	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24
TSS (mg/L) Daily Maximum			6						3			
Oil and Grease (mg/L) Daily Maximum			5						5			

DMR Data for Outfall 004 (from September 1, 2024 to August 31, 2025)

Parameter	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24
TSS (mg/L) Daily Maximum			85									
Oil and Grease (mg/L) Daily Maximum			5									

Compliance History

Effluent Violations for Outfall 001, from: October 1, 2024 To: August 31, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TRC	12/31/24	IMAX	4.4	mg/L	1.6	mg/L
Fecal Coliform	01/31/25	IMAX	1733	No./100 ml	1000	No./100 ml

Other Comments: The submitted Non Compliance Report form stated that color interference was the cause for TRC exceedance. No comment was provided for Fecal Coliform exceedance.

Summary of Inspections:
September 23, 2025: RTPT inspection conducted. No violation noted during the inspection. Recommended to submit the sealed and signed post construction certificate for the WQM amendment.

May 28, 2025: CEI conducted. Report stated that three eDMR violations were reported since last inspection.

February 21, 2024: CEI conducted. No violation noted.

November 2, 2022: CEI conducted. No violation noted.

May 27, 2021: CEI conducted. No violation noted.

May 13, 2020: ADMIN review conducted via telephone to understand how the treatment plant was operating during the COVID-19 quarantine period. The plant was operating normally and there were no major issues at the plant. No negative impact on influent or effluent was noted.

March 2, 2020: NOV was issued for multiple SSOs.

July 9, 2019: CEI conducted. No violation noted during the inspection.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 10.0
Latitude 40º 40' 44.00" **Longitude** -75º 11' 39.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Fecal Coliform	200 / 100 ml	Geo Mean	DRBC	92a.47(a)(5)
Fecal Coliform	1,000 / 100 ml	IMAX	DRBC	92a.47(a)(5)
Total Dissolved Solids	1,000	Average Monthly		DRBC
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

WQM 7.0:
The following data were used in the attached computer model (WQM 7.0) of the stream:

- Discharge pH 7.0 (Default)
- Discharge Temperature 25°C (Default)
- Discharge Hardness 185 mg/l (Application data)
- Stream pH 7.6 (21PA_WQX-WQN0194, median Jul-Sep, 2003-2019)
- Stream Temperature 22.71°C (21PA_WQX-WQN0194, median Jul-Sep, 2003-2019)
- Stream Hardness 100 mg/l (Default)

The following two nodes were used in modeling:

Node 1: At Outfall 001 on Delaware River (00002) at RMI 107.9
Elevation: 153.7 ft (National Map-Advanced Viewer, 10/29/2025)
Drainage Area: 6,090 mi^2 (StreamStat Version 3.0, 10/29/2025)
River Mile Index: 107.9 (PA DEP eMapPA)
Low Flow Yield: 0.238 cfs/mi^2
Discharge Flow: 10.0 MGD
Available Q_{7-10}: 318.87 cfs*

Node 2: At confluence with Lopatcong Creek at Delaware River RMI 107.14
Elevation: 151.77 ft (National Map-Advanced Viewer, 10/29/2025)
Drainage Area: 6,100 mi^2 (StreamStat Version 3.0, 10/29/2025)
River Mile Index: 107.14 (PA DEP eMapPA)
Low Flow Yield: 0.238 cfs/mi^2
Discharge Flow: 0.0 MGD
Available Q_{7-10}: 319.4 cfs*

* Available Q_{7-10} was calculated as drainage area * Low Flow Yield * acute partial mixing factor (PMFa). PMFa value was obtained from Mixing Zone Study.

Ammonia (NH_3-N), Carbonaceous Biochemical Oxygen Demand (CBOD5), & Dissolved Oxygen (DO):
WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate effluent limits for $CBOD_5$, NH_3-N and DO. The model simulates two basic processes. In the NH_3-N module, the model simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria. In the D.O. module, the model simulates the mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and NH_3N and compares calculated instream D.O. concentrations to D.O. water quality criteria. The model was utilized for this permit renewal by using Q_{7-10} and current background water quality levels of the stream.

NH_3-N:
WQM 7.0 suggested NH_3-N limit of 20.0 mg/l as monthly average and 40.0 mg/l as IMAX limit to protect water quality standards. These values are the same as existing permitted limits. The average monthly mass loading is calculated to be 1,668 lbs./day. Existing limits will be continued.

$CBOD_5$:
The WQM 7.0 model suggests a monthly average $CBOD_5$ limit of 25 mg/l, weekly average limit of 40 mg/l, and IMAX of 50 mg/l. The average monthly and average weekly mass loadings were calculated as 2,085 lbs./day and 3,336 lbs./day respectively. These values are the same as existing permit and will be carried over.

Dissolved Oxygen (DO):
The current permit has monitoring requirement for DO. Pa code 25 §93.7 lists a minimum DO of 5.0 for WWF watershed. DEP's SOP titled "Establishing Effluent Limitations for Individual Sewage Permits" (SOP No. BCW-PMT-033, revised Feb 5, 2024) recommends a minimum DO limit of 4.0 mg/l, based on BPJ, to ensure adequate operation and maintenance. A review of last 12 months (September 2024 through August 2025) data indicated that the facility is meeting the recommended minimum DO limit 100% of the time, with minimum monthly value of 6.06 mg/l. Since the facility is meeting more stringent limit 100% of the time, a schedule isn't needed. The minimum DO limit of 4.0 mg/l will be effective from the effective date of the permit.

Toxics:
Based on the available data, PADEP utilizes Toxics Management Spreadsheet (TMS) to (1) evaluate reasonable potential for toxic pollutants to cause or contribute to an excursion above the water quality standards and (2) develop WQBELs for those such toxic pollutants (i.e., 40 CFR § 122.44(d)(1)(i)). It is noteworthy that some of these pollutants that may be reported as "non-detect", but still exceeded the criteria, were determined to be candidates for modeling because the method detection levels used to analyze those pollutants were higher than target QLs and/or the most stringent Chapter 93 criteria. The model then recommended the appropriate action for the Pollutants of Concerns based on the following logic:

1. In general, establish limits in the draft permit where the effluent concentration determined in B.1 or B.2 equals or exceeds 50% of the WQBEL (i.e., RP is demonstrated). Use the average monthly, maximum daily and instantaneous maximum (IMAX) limits for the permit as recommended by the TMS (or, if appropriate, use a multiplier of 2 times the average monthly limit for the maximum daily limit and 2.5 times the average monthly limit for IMAX).

2. For non-conservative pollutants, in general, establish monitoring requirements where the effluent concentration determined in B.1 or B.2 is between 25% - 50% of the WQBEL.

3. For conservative pollutants, in general, establish monitoring requirements where the effluent concentration determined in B.1 or B.2 is between 10% - 50% of the WQBEL.

NOTE 4 – If the effluent concentration determined in B.1 or B.2 is "non-detect" at or below the target quantitation limit (TQL) for the pollutant as specified in the TMS and permit application, the pollutant may be eliminated as a candidate for WQBELs or monitoring requirements unless 1) a more sensitive analytical method is available for the pollutant under 40 CFR Part 136 where the quantitation limit for the method is less than the applicable water quality criterion and 2) a detection at the more sensitive method may lead to a determination that an effluent limitation is necessary, considering available dilution at design conditions.

NOTE 5 – If the effluent concentration determined in B.1 or B.2 is a detection below the TQL but above or equal to the applicable water quality criterion, WQBELs or monitoring may be established for the pollutant.

4. Application managers may, on a site- and pollutant-specific basis, deviate from these guidelines where there is specific rationale that is documented in the fact sheet.

The below table summarizes the output from TMS:

☑ ***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 Thallium	Report	Report	Report	Report	Report	µg/L	14.6	THH	Discharge Conc > 10% WQBEL (no RP)

Total Thallium: TMS suggests monitoring for Total Thallium based on model input value of <3 ug/l (maximum of 3 sample results). A quarterly monitoring requirement will provide sufficient effluent results for a Reasonable Potential analysis during next permit term.

Additional Considerations

Fecal Coliform:
The recent coliform guidance in 25 Pa. code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml. Delaware River Basin Commission's (DRBC's) Water Quality Regulations at Section 4.30.4.A requires that during winter season from October through April, the instantaneous maximum concentration of fecal coliform organisms shall not be greater than 1,000 per 100 milliliters in more than 10 percent of the samples tested. Therefore, the summer limit is governed by DEP's regulation while winter limit is governed by DRBC's regulation. The current permit has year-round geo-mean of 200 no./100 ml. and IMAX of 1,000 no./100 ml. which will be carried over.

E. Coli:
Under the authority of Pa Code 25 § 92a. 61 the Department is requiring monitoring of E. Coli for all sewage facilities. DEP's SOP titled "Establishing Effluent Limitations for Individual Sewage Permits (BCW-PMT-033, revised February 5, 2024) recommends monthly E. Coli monitoring for major sewage dischargers. This requirement will be applied from this permit term.

pH:
The TBEL for pH is above 6.0 and below 9.0 S.U. (40 CFR §133.102(c) and Pa Code 25 §§ 95.2(1), 92a.47) which are existing limits and will be carried over.

Total Suspended Solids (TSS):
The existing limits of 30 mg/L average monthly, 45 mg/l average weekly, and 60 mg/L instantaneous maximum will remain in the permit based on the minimum level of effluent quality attainable by secondary treatment, 25 Pa. Code § 92a.47 and 40CFR 133.102(b). The mass based average monthly and weekly average limits are calculated to be 2,502 lbs./day and 3,753 lbs./day respectively, which are the same as were in existing permit. Existing limits will be carried over.

Total Residual Chlorine (TRC):
The attached computer printout utilizes the equation and calculations as presented in the Department's 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID#391-2000-015) for developing chlorine limitations. The attached printout indicates that a water quality limit of 0.5 mg/l would be needed to prevent toxicity concerns at the discharge point for Outfall 001. The Instantaneous Maximum (IMAX) limit is 1.6 mg/l. These are current limits and will be carried over.

Total Dissolved Solids (TDS):
TDS and its constituents are considered Special monitoring. The Department collected sufficient data for these parameters over last 8 years. The Department does no longer requires monitoring for these parameters, unless it's required by other agencies. The discharge is into a special protection watershed, as determined by DRBC. DRBC Docket D-1987-010 CP-5 (issued on June 11, 2025, expires on November 30, 2030) requires a quarterly monitoring with 1,000 mg/l limit. The docket provides options to apply for relief or monitor Specific Conductance in lieu of TDS. The current permit has monitoring requirement which will be carried over in this renewal.

Flow and Influent $CBOD_5$ and TSS Monitoring Requirement:
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii). Influent BOD_5 and TSS monitoring requirements are established in the permit per the requirements set in Pa Code 25 Chapter 94. To demonstrate 85% removal efficiency and based on last permit, influent cBOD5 was added that replaced influent BOD5. Current influent cBOD5 and influent TSS monitoring will be continued.

Best Professional Judgement (BPJ):

Total Phosphorus:
The current permit has monitoring requirements for Total Phosphorus, which is authorized by Pa Code 25 § 92a.61 and supported by SOP BCW-PMT-033. Current monitoring requirements will be carried over.

Total Nitrogen:
Under the authority of Pa Code 25 § 92a.61 and recommendation from BCW-PMT-033, the Department is requiring monitoring, at a minimum, for all sewage facilities. Monthly monitoring of Total Nitrogen will be continued for this renewal. Since TKN and Nitrate-Nitrite-N are needed to calculate TN, monthly monitoring of TKN and Nitrate-Nitrite-N will be continued in this renewal.

PFOA, PFOS, HFPO-DA and PFBS:
Per BCW-PMT-033 (revised February 5, 2024) and under the authority of Pa Code 25 § 92a.61, annual monitoring for PFOA, PFOS, HFPO-DA, and PFBS will be added in this renewal with a footnote that will read:

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

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

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

High Flow Management Plan
Due to the impact of wet weather flow and high flow levels from the receiving stream on the treatment plant, requirement to develop and implement a High Flow Management Plan will be included in Part C of the permit.

Development of Effluent Limitations

Outfall No. 002 **Design Flow (MGD)** 0
Latitude 40º 40' 44.00" **Longitude** -75º 11' 39.00"
Wastewater Description: Stormwater

Per Phase II stormwater regulations, major POTWs with point source discharge to surface waters are generally required to have a stormwater permit. The following limits are proposed for stormwater only Outfall 002, per Appendix J of PAG03:

Parameter	Effluent Limitations				Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)		Minimum Measurement Frequency	Required Sample Type
	Average Monthly		Minimum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	1/6 months	Grab
Chemical Oxygen Demand	XXX	XXX	XXX	Report	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	Report	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	Report	1/6 months	Calculation
Total Phosphorus	XXX	XXX	XXX	Report	1/6 months	Grab

Since the “treatment works treating domestic sewage” is considered as an “Industrial Activity” per 40 CFR §122.26(b)(14)(ix), the stormwater related to industrial activity under individual permit shall contain benchmark values. Therefore, the following benchmark values will be applied at the outfalls:

Parameter	Benchmark Value (mg/L)
Chemical Oxygen Demand	120
Total Suspended Solids	100
Oil and Grease	30
pH (S.U.)	9.0

Whole Effluent Toxicity (WET)

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

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

The dilution series used for the tests was: 100%, 60%, 30%, 2%, and 1%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 1.

Summary of Four Most Recent Test Results

TST Data Analysis

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

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
07/26/2022	Pass	Pass	Pass	Pass
4/18/2023	Pass	Pass	Pass	Pass
5/21/2024	Pass	Pass	Pass	Pass
6/10/2025	Pass	Pass	Pass	Pass

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

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

☐ **YES** ☒ **NO**

Comments:

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

Acute Partial Mix Factor (PMFa): **0.22** Chronic Partial Mix Factor (PMFc): **0.98**

1. **Determine IWC – Acute (IWCa)**:

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

   [(10 MGD x 1.547) / ((1450 cfs x 0.22) + (10 MGD x 1.547))] x 100 = **4.63%**

   Is IWCa < 1%? ☐ **YES** ☒ **NO** **Chronic Test Required**

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

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

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

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

[(10 MGD x 1.547) / ((1450 cfs x 0.98) + (10 MGD x 1.547))] x 100 = **1.08%**

3. Determine Dilution Series

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

Dilution Series = 100%, 60%, 30%, 2%, and 1%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

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

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

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

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0	XXX	XXX	XXX	1/month	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/shift	Grab
CBOD5	2085	3336	XXX	25.0	40.0	50	1/day	24-Hr Composite
CBOD5 Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
TSS	2502	3753	XXX	30.0	45.0	60	1/day	24-Hr Composite
TSS Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/month	Grab
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Ammonia	1668	XXX	XXX	20.0	XXX	40	1/day	24-Hr Composite

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
TKN	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Thallium (mg/l)	XXX	XXX	XXX	Report Avg Qrtly	XXX	Report Daily Max	1/quarter	24-Hr Composite
PFOA (ug/L)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
PFOS (ug/L)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
HFPO-DA (ug/L)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
PFBA (ug/L)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

Compliance Sampling Location: At location after last treatment unit

Other Comments: None

Proposed Effluent Limitations and Monitoring Requirements

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

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

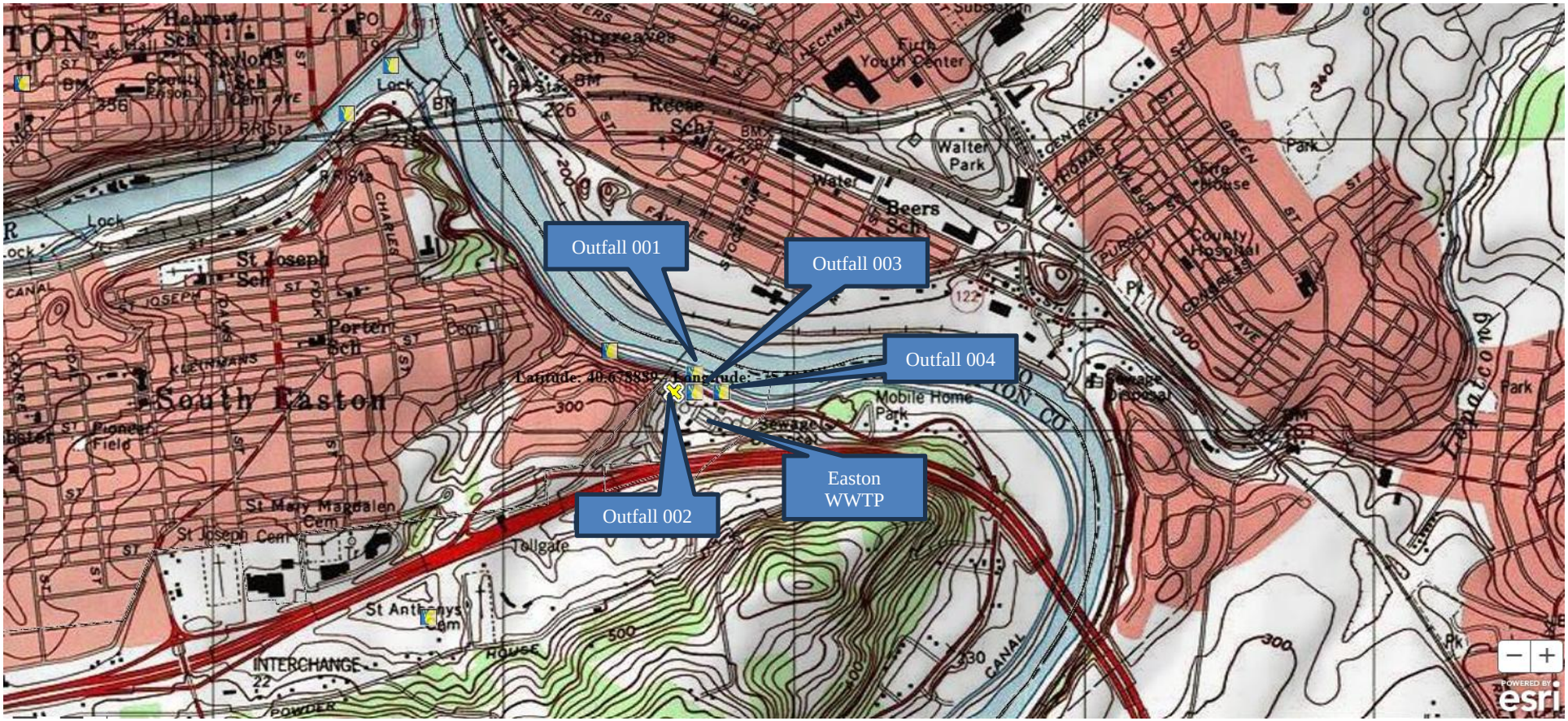
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	XXX	Report	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	XXX	Report	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	XXX	Report	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	XXX	Report	1/6 months	Calculation
Total Phosphorus	XXX	XXX	XXX	XXX	XXX	Report	1/6 months	Grab

Compliance Sampling Location: At Outfall 002

Other Comments: Outfall 002 is representative of Outfalls 003 and 004. Effluent limitations for Outfall 001 is applicable to Outfall 002 when Outfall 002 discharges treated sewage during emergency discharge.

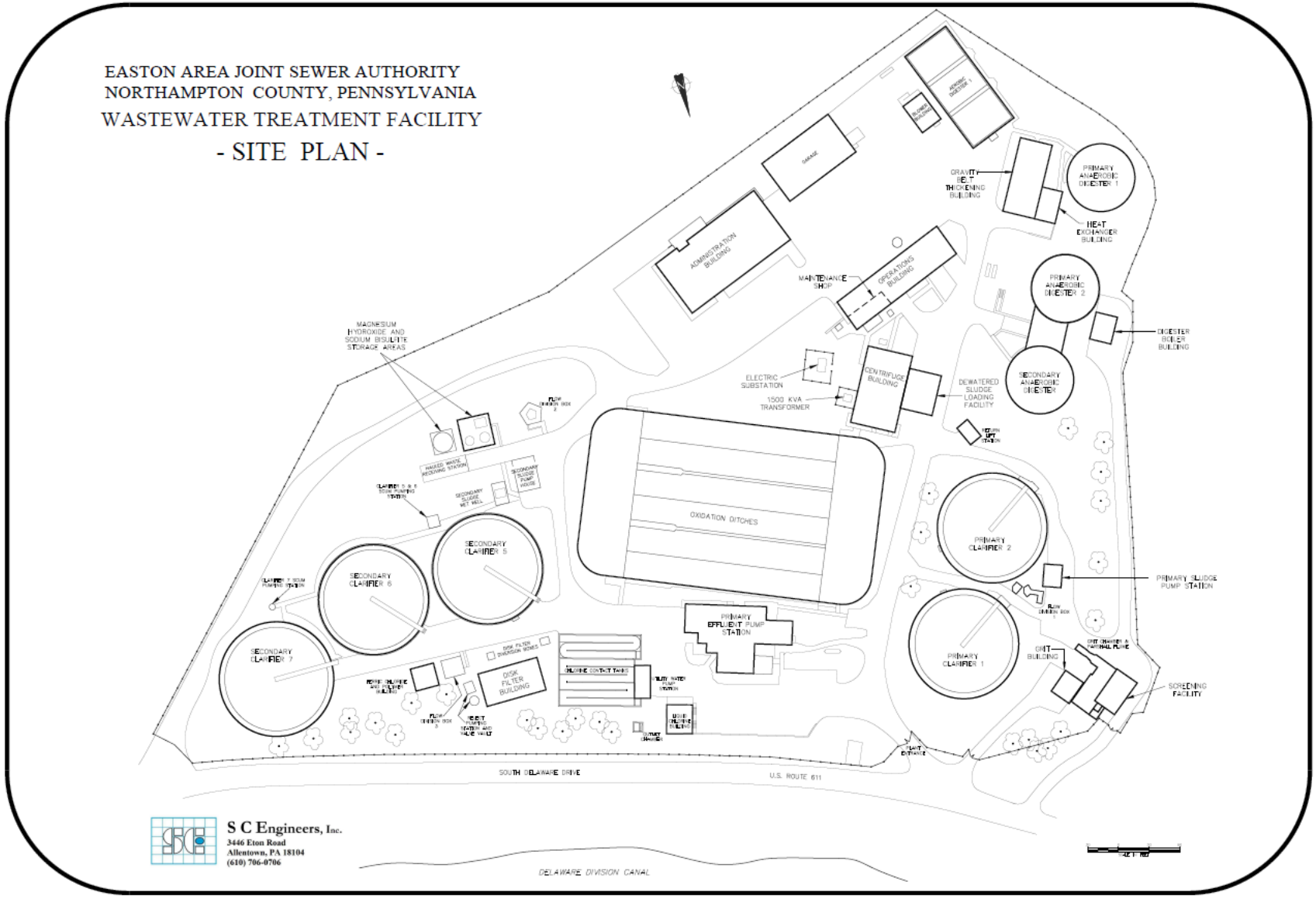
Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: BCW-PMT-033
☐	Other:

Locational Map



Easton Area Joint Sewer Authority NPDES Permit #: PA0027235; Easton WWTP Easton City, Northampton County		pennsylvania DEPARTMENT OF ENVIRONMENTAL PROTECTION	Reza H Chowdhury, P.E. Environmental Engineer November 5, 2025

Site Plan


EASTON AREA JOINT SEWER AUTHORITY
NORTHAMPTON COUNTY, PENNSYLVANIA
WASTEWATER TREATMENT FACILITY
- SITE PLAN -
ADMINISTRATION BUILDING
GARAGE
GRAVITY BELT THICKENING BUILDING
PRIMARY ANAEROBIC DIGESTER 1
HEAT EXCHANGER BUILDING
MAINTENANCE SHOP
OPERATIONS BUILDING
PRIMARY ANAEROBIC DIGESTER 2
DIGESTER BOILER BUILDING
MAGNESIUM HYDROXIDE AND SODIUM BISULFITE STORAGE AREAS
ELECTRIC SUBSTATION
1500 KVA TRANSFORMER
CENTRIFUGE BUILDING
DEWATERED SLUDGE LOADING FACILITY
SECONDARY ANAEROBIC DIGESTER
OXIDATION DITCHES
SECONDARY CLARIFIER 5
SECONDARY CLARIFIER 6
SECONDARY CLARIFIER 7
PRIMARY CLARIFIER 2
PRIMARY CLARIFIER 1
PRIMARY SLUDGE PUMP STATION
PRIMARY EFFLUENT PUMP STATION
DISK FILTER BUILDING
CHLORINE CONTACT TANKS
GRIT BUILDING
SCREENING FACILITY
SOUTH DELAWARE DRIVE
U.S. ROUTE 611
DELAWARE DIVISION CANAL
S C Engineers, Inc.
3446 Eton Road
Allentown, PA 18104
(610) 706-0706

StreamStats

PA0027235 at Outfall 001

Region ID: PA
Workspace ID: PA20251029235006225000
Clicked Point (Latitude, Longitude): 40.68070, -75.19524
Time: 2025-10-29 19:50:29 -0400

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	7.65	percent
DRNAREA	Area that drains to a point on a stream	6090	square miles
FOREST	Percentage of area covered by forest	75.3464	percent
GLACIATED	Percentage of basin area that was historically covered by glaciers	80.8998	percent
PRECIP	Mean Annual Precipitation	45	inches
ROCKDEP	Depth to rock	4.4	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.62	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [32.0 Percent (1920 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	7.65	percent	0	99
DRNAREA	Drainage Area	6090	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	45	inches	35	50.4
ROCKDEP	Depth to Rock	4.4	feet	3.32	5.65
STRDEN	Stream Density	1.62	miles per square mile	0.51	3.1

Low-Flow Statistics Parameters [68.0 Percent (4160 square miles) Low Flow Region 5]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	6090	square miles	4.84	982
FOREST	Percent Forest	75.3464	percent	41	100
GLACIATED	Percent of Glaciation	80.8998	percent	0	100
PRECIP	Mean Annual Precipitation	45	inches	33.1	47.1

Low-Flow Statistics Disclaimers [32.0 Percent (1920 square miles) Low Flow Region 2]

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

Low-Flow Statistics Flow Report [32.0 Percent (1920 square miles) Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	1970	ft^3/s
30 Day 2 Year Low Flow	2340	ft^3/s
7 Day 10 Year Low Flow	1350	ft^3/s
30 Day 10 Year Low Flow	1600	ft^3/s
90 Day 10 Year Low Flow	1980	ft^3/s

Low-Flow Statistics Disclaimers [68.0 Percent (4160 square miles) Low Flow Region 5]

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

Low-Flow Statistics Flow Report [68.0 Percent (4160 square miles) Low Flow Region 5]

Statistic	Value	Unit
7 Day 2 Year Low Flow	1660	ft^3/s
30 Day 2 Year Low Flow	1990	ft^3/s
7 Day 10 Year Low Flow	1210	ft^3/s
30 Day 10 Year Low Flow	1410	ft^3/s
90 Day 10 Year Low Flow	1750	ft^3/s

Low-Flow Statistics Flow Report [Area-Averaged]

Statistic	Value	Unit
7 Day 2 Year Low Flow	1760	ft^3/s
30 Day 2 Year Low Flow	2100	ft^3/s
7 Day 10 Year Low Flow	1250	ft^3/s
30 Day 10 Year Low Flow	1470	ft^3/s
90 Day 10 Year Low Flow	1820	ft^3/s

Low-Flow Statistics Citations

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

PA0027235 at node 2

Region ID: PA
Workspace ID: PA20251029235722992000
Clicked Point (Latitude, Longitude): 40.67856, -75.17871
Time: 2025-10-29 19:57:46 -0400

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	7.83	percent
DRNAREA	Area that drains to a point on a stream	6100	square miles
FOREST	Percentage of area covered by forest	75.2225	percent
GLACIATED	Percentage of basin area that was historically covered by glaciers	80.6661	percent
PRECIP	Mean Annual Precipitation	45	inches
ROCKDEP	Depth to rock	4.4	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.62	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [32.0 Percent (1940 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	7.83	percent	0	99
DRNAREA	Drainage Area	6100	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	45	inches	35	50.4
ROCKDEP	Depth to Rock	4.4	feet	3.32	5.65
STRDEN	Stream Density	1.62	miles per square mile	0.51	3.1

Low-Flow Statistics Parameters [68.0 Percent (4160 square miles) Low Flow Region 5]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	6100	square miles	4.84	982
FOREST	Percent Forest	75.2225	percent	41	100
GLACIATED	Percent of Glaciation	80.6661	percent	0	100
PRECIP	Mean Annual Precipitation	45	inches	33.1	47.1

Low-Flow Statistics Disclaimers [32.0 Percent (1940 square miles) Low Flow Region 2]

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

Low-Flow Statistics Flow Report [32.0 Percent (1940 square miles) Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	1980	ft^3/s
30 Day 2 Year Low Flow	2350	ft^3/s
7 Day 10 Year Low Flow	1360	ft^3/s
30 Day 10 Year Low Flow	1610	ft^3/s
90 Day 10 Year Low Flow	1980	ft^3/s

Low-Flow Statistics Disclaimers [68.0 Percent (4160 square miles) Low Flow Region 5]

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

Low-Flow Statistics Flow Report [68.0 Percent (4160 square miles) Low Flow Region 5]

Statistic	Value	Unit
7 Day 2 Year Low Flow	1650	ft^3/s
30 Day 2 Year Low Flow	1990	ft^3/s
7 Day 10 Year Low Flow	1200	ft^3/s
30 Day 10 Year Low Flow	1410	ft^3/s
90 Day 10 Year Low Flow	1750	ft^3/s

Low-Flow Statistics Flow Report [Area-Averaged]

Statistic	Value	Unit
7 Day 2 Year Low Flow	1760	ft^3/s
30 Day 2 Year Low Flow	2110	ft^3/s
7 Day 10 Year Low Flow	1250	ft^3/s
30 Day 10 Year Low Flow	1470	ft^3/s
90 Day 10 Year Low Flow	1820	ft^3/s

Low-Flow Statistics Citations

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

StreamGage 01446500 Data

USGS
science for a changing world

Prepared in cooperation with the Pennsylvania Department of Environmental Protection

Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

Open-File Report 2011–1070

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

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

[ft^3/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft^3/s)	7-day, 10-year (ft^3/s)	7-day, 2-year (ft^3/s)	30-day, 10-year (ft^3/s)	30-day, 2-year (ft^3/s)	90-day, 10-year (ft^3/s)
01434021	1992–2008	17	.1	.1	.2	.1	.3	.3
01434025	1985–2008	24	.3	.4	1.0	.6	1.5	1.2
01434498	1993–2008	16	7.0	7.4	15.2	9.4	19.5	15.2
01435000	1939–2008	67	12.2	13.5	24.9	17.3	31.8	25.4
01436000	[2]1955–2008	54	1.0	1.9	8.1	3.8	8.6	4.6
01436000	[3]1943–1953	11	18.3	19.9	33.6	25.2	43.4	42.2
01436500	[2]1955–1993	34	11.6	13.7	20.4	16.9	26.4	24.3
01436500	[3]1939–1953	15	20.4	22.0	37.4	29.1	49.2	44.4
01436690	1994–2008	15	30.4	35.0	61.5	44.1	82.4	58.9
01437500	[2]1955–2008	54	47.4	54.6	87.6	72.3	112	98.8
01437500	[3]1939–1953	15	37.2	44.7	76.0	57.2	98.8	84.6
01438500	1941–2008	68	648	887	1,460	1,050	1,700	1,310
01439500	1910–2008	99	6.6	7.5	18.6	10.3	26.4	17.5
01440000	1925–2008	84	6.6	7.4	13.2	9.2	17.0	12.8
01440200	1966–1995	30	1,030	1,200	1,830	1,440	2,110	1,660
01440400	1959–2008	50	6.9	7.4	13.5	9.1	18.1	12.3
01441000	1913–1938	26	13.3	16.2	24.3	19.1	29.8	23.3
01442500	1952–2008	57	44.7	48.4	80.6	57.0	100	73.6
01443280	1994–2008	15	2.0	2.6	6.9	3.0	8.1	4.4
01443500	1923–2008	84	11.6	16.2	28.3	20.3	36.8	26.8
01443900	1968–2008	41	.2	.6	1.0	.9	1.4	1.1
01445000	1941–2008	27	1.9	2.1	5.3	2.8	7.2	4.8
01445500	1923–2008	86	18.2	19.5	33.5	22.0	39.0	27.2
01446000	1924–2008	42	1.9	2.1	5.1	2.6	6.8	4.2
01446500	1924–2008	85	864	1,080	1,740	1,260	2,020	1,580
01446600	1963–1978	16	.1	.1	.7	.2	1.1	.4
01447500	1945–2008	64	11.8	13.1	24.8	16.5	33.1	24.5
01447680	[2]1971–2008	38	3.2	3.6	7.6	4.9	10.6	8.1
01447720	[3]1963–1985	23	—	28	43.3	34.1	58.8	43.2
01447720	[2]1987–2008	22	26.0	28.9	49.2	37.3	68.2	51.8
01447800	1959–2008	50	39.5	46.8	81.4	62.4	124	94.1
01448000	1918–1959	41	49.0	66.7	108	79.0	136	116
01448500	1950–1996	47	.4	.4	.8	.5	1.0	.7
01449000	1984–2008	25	135	148	237	180	315	236
01449360	1968–2008	41	14.4	15.1	23.7	17.3	27.7	21.7
01449800	1969–2008	40	14.2	16.5	31.0	19.9	38.1	29.4
01450500	1941–2008	68	15.1	17.0	29.3	20.0	35.6	26.7
01451000	[2]1962–2008	47	185	203	337	252	430	322
01451000	[3]1948–1960	13	203	213	311	253	391	343
01451500	1947–2008	62	27.6	28.8	43.4	32.0	48.1	35.4
01451650	1988–2008	21	29.8	36.2	52.7	41.9	60.7	50.0
01451800	1967–2008	42	1.7	2.2	7.0	3.7	11.0	7.5
01452000	1946–2008	63	3.0	3.0	12.0	4.4	13.9	7.6
01452500	1950–2008	59	12.1	13.2	22.9	14.8	25.9	16.8
01453000	[2]1929–2008	81	340	371	579	439	702	546

Table 3. Selected base-flow statistics for streamgage locations in and near Pennsylvania.—Continued

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

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	10-year base flow (ft³/s)	25-year base flow (ft³/s)	50-year base flow (ft³/s)
01434021	1992–2008	17	1.0	.9	.8
01434025	1985–2008	24	5.0	4.6	4.3
01434498	1993–2008	16	52.8	48.8	46.3
01435000	1939–2008	67	87.6	78.0	72.0
01436000	[2]1955–2008	54	15.4	11.5	9.5
01436000	[3]1943–1953	11	134	124	118
01436500	[2]1955–1993	34	38.3	34.1	31.7
01436500	[3]1939–1953	15	136	119	109
01436690	1994–2008	15	106	97.1	91.9
01437500	[2]1955–2008	54	194	172	159
01437500	[3]1939–1953	15	267	230	209
01438500	1941–2008	68	2,230	1,940	1,770
01439500	1910–2008	99	111	95.4	85.8
01440000	1925–2008	84	49.5	42.5	38.3
01440200	1966–1995	30	2,110	1,650	1,380
01440400	1959–2008	50	62.3	54.4	49.5
01441000	1913–1938	26	56.9	48.7	43.7
01442500	1952–2008	57	237	206	188
01443280	1994–2008	15	12.5	11.1	10.2
01443500	1923–2008	84	87.5	73.5	65.3
01443900	1968–2008	41	5.0	4.2	3.7
01445000	1941–2008	27	25.2	20.9	18.4
01445500	1923–2008	86	73.9	60.7	53.0
01446000	1924–2008	42	24.0	20.5	18.5
01446500	1924–2008	85	3,220	2,800	2,550
01446600	1963–1978	16	4.7	3.7	3.2
01447500	1945–2008	64	92.0	81.2	74.5
01447680	[2]1971–2008	38	22.0	18.4	16.3
01447720	[2]1987–2008	22	125	108	97.5
01447720	[3]1963–1985	23	120	107	99.0
01447800	1959–2008	50	255	221	200
01448000	1918–1959	41	307	265	238
01448500	1950–1996	47	2.4	2.1	1.9
01449000	1984–2008	25	605	528	482
01449360	1968–2008	41	53.5	46.2	41.8
01449800	1969–2008	40	76.0	64.9	58.2
01450500	1941–2008	68	70.7	61.9	56.6
01451000	[2]1962–2008	47	847	739	675
01451000	[3]1948–1960	13	1,000	913	856
01451500	1947–2008	62	49.7	40.8	35.8
01451650	1988–2008	21	68.2	59.6	54.7
01451800	1967–2008	42	32.0	27.4	24.7
01452000	1946–2008	63	38.5	31.7	27.7
01452500	1950–2008	59	24.3	19.4	16.6
01453000	[2]1929–2008	81	1,120	992	913

WQM 7.0

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03I	2	DELAWARE RIVER	107.900	153.70	1339.80	0.00060	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.238	318.87	0.00	0.000	0.000	0.0	370.64	0.00	22.71	7.60	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
EAJSA WWTP	PA0027235	10.0000	10.0000	10.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	20.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03I		2 DELAWARE RIVER	107.140	151.77	1342.00	0.00060	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.238	319.40	0.00	0.000	0.000	0.0	370.64	0.00	22.71	7.60	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.8	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.17	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	4		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
03I	2	DELAWARE RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
107.900	318.87	0.00	318.87	15.47	0.00060	.96	370.64	386.11	0.94	0.049	22.82	7.54
Q1-10 Flow												
107.900	255.10	0.00	255.10	15.47	0.00060	NA	NA	NA	0.83	0.056	22.84	7.53
Q30-10 Flow												
107.900	373.08	0.00	373.08	15.47	0.00060	NA	NA	NA	1.02	0.045	22.80	7.55

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
03I	2	DELAWARE RIVER

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
107.900	EAJSA WWTP	6.96	40	6.96	40	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
107.900	EAJSA WWTP	1.11	20	1.11	20	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
107.90	EAJSA WWTP	25	25	20	20	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
03I	2	DELAWARE RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
107.900	10.000	22.816	7.544
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
370.640	0.960	386.113	0.940
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.06	0.551	0.93	0.869
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.047	2.812	Tsivoglou	4
Reach Travel Time (days)			
0.049			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.005	3.05	0.92	7.83
0.010	3.05	0.92	7.83
0.015	3.04	0.91	7.83
0.020	3.03	0.91	7.83
0.025	3.02	0.91	7.83
0.030	3.01	0.90	7.83
0.035	3.00	0.90	7.83
0.040	2.99	0.89	7.83
0.044	2.98	0.89	7.83
0.049	2.97	0.89	7.83

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
03I	2	DELAWARE RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
107.900	EAJSA WWTP	PA0027235	10.000	CBOD5	25		
				NH3-N	20	40	
				Dissolved Oxygen			4

TMS

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: EAJSA WWTP NPDES Permit No.: PA0027235 Outfall No.: 001

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

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
10	185	7	0.22	0.98	0.64			

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L											
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L	<	10									
	Total Antimony	µg/L		0.5									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		15									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		300									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L		0.7									
	Total Copper	µg/L		9									
	Free Cyanide	µg/L		5									
	Total Cyanide	µg/L		7									
	Dissolved Iron	µg/L		70									
	Total Iron	µg/L		140									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		8									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		4.6									
	Total Phenols (Phenolics) (PWS)	µg/L	<	2									
	Total Selenium	µg/L	<	1									
	Total Silver	µg/L	<	0.3									
	Total Thallium	µg/L	<	3									
	Total Zinc	µg/L		125									
	Total Molybdenum	µg/L	<	3									
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	2									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L	<	0.5									
	Carbon Tetrachloride	µg/L	<	0.5									

Group 3	Chlorobenzene	µg/L		0.5										
	Chlorodibromomethane	µg/L		2.1										
	Chloroethane	µg/L	<	0.5										
	2-Chloroethyl Vinyl Ether	µg/L	<	5										
	Chloroform	µg/L		47										
	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	<	5										
	Ethylbenzene	µg/L	<	0.5										
	Methyl Bromide	µg/L	<	0.5										
	Methyl Chloride	µg/L	<	0.5										
	Methylene Chloride	µg/L	<	0.5										
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5										
	Tetrachloroethylene	µg/L	<	0.5										
	Toluene	µg/L	<	0.5										
	1,2-trans-Dichloroethylene	µg/L	<	0.5										
	1,1,1-Trichloroethane	µg/L	<	0.5										
	1,1,2-Trichloroethane	µg/L	<	0.5										
	Trichloroethylene	µg/L	<	0.5										
	Vinyl Chloride	µg/L	<	0.5										
Group 4	2-Chlorophenol	µg/L	<	10										
	2,4-Dichlorophenol	µg/L	<	10										
	2,4-Dimethylphenol	µg/L	<	10										
	4,6-Dinitro-o-Cresol	µg/L	<	10										
	2,4-Dinitrophenol	µg/L	<	10										
	2-Nitrophenol	µg/L	<	10										
	4-Nitrophenol	µg/L	<	100										
	p-Chloro-m-Cresol	µg/L	<	10										
	Pentachlorophenol	µg/L	<	10										
	Phenol	µg/L	<	10										
	2,4,6-Trichlorophenol	µg/L	<	10										
Group 5	Acenaphthene	µg/L	<	2.5										
	Acenaphthylene	µg/L	<	2.5										
	Anthracene	µg/L	<	2.5										
	Benzidine	µg/L	<	50										
	Benzo(a)Anthracene	µg/L	<	2.5										
	Benzo(a)Pyrene	µg/L	<	2.5										
	3,4-Benzofluoranthene	µg/L	<	2.5										
	Benzo(ghi)Perylene	µg/L	<	2.5										
	Benzo(k)Fluoranthene	µg/L	<	2.5										
	Bis(2-Chloroethoxy)Methane	µg/L	<	5										
	Bis(2-Chloroethyl)Ether	µg/L	<	5										
	Bis(2-Chloroisopropyl)Ether	µg/L	<	5										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	5										
	4-Bromophenyl Phenyl Ether	µg/L	<	5										
	Butyl Benzyl Phthalate	µg/L	<	5										
	2-Chloronaphthalene	µg/L	<	5										
	4-Chlorophenyl Phenyl Ether	µg/L	<	5										
	Chrysene	µg/L	<	2.5										
	Dibenzo(a,h)Anthrancene	µg/L	<	2.5										
	1,2-Dichlorobenzene	µg/L	<	0.5										
	1,3-Dichlorobenzene	µg/L	<	0.5										
	1,4-Dichlorobenzene	µg/L	<	0.5										
	3,3-Dichlorobenzidine	µg/L	<	5										
	Diethyl Phthalate	µg/L	<	5										
	Dimethyl Phthalate	µg/L	<	5										
	Di-n-Butyl Phthalate	µg/L	<	5										
	2,4-Dinitrotoluene	µg/L	<	5										
	2,6-Dinitrotoluene	µg/L	<	5										
	Di-n-Octyl Phthalate	µg/L	<	5										

	1,2-Diphenylhydrazine	µg/L	<	5									
	Fluoranthene	µg/L	<	2.5									
	Fluorene	µg/L	<	2.5									
	Hexachlorobenzene	µg/L	<	5									
	Hexachlorobutadiene	µg/L	<	0.5									
	Hexachlorocyclopentadiene	µg/L	<	5									
	Hexachloroethane	µg/L	<	5									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	2.5									
	Isophorone	µg/L	<	5									
	Naphthalene	µg/L	<	0.5									
	Nitrobenzene	µg/L	<	5									
	n-Nitrosodimethylamine	µg/L	<	5									
	n-Nitrosodi-n-Propylamine	µg/L	<	5									
	n-Nitrosodiphenylamine	µg/L	<	5									
	Phenanthrene	µg/L	<	2.5									
	Pyrene	µg/L	<	2.5									
	1,2,4-Trichlorobenzene	µg/L	<	0.5									
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<	0.2									
	PCB-1221	µg/L	<	0.2									
	PCB-1232	µg/L	<	0.2									
	PCB-1242	µg/L	<	0.2									
	PCB-1248	µg/L	<	0.2									
	PCB-1254	µg/L	<	0.2									
	PCB-1260	µg/L	<	0.2									
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

Receiving Surface Water Name: Delaware 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	000002	107.9	153.7	6090	0.0006		Yes
End of Reach 1	000002	107.14	151.77	6100	0.0006		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	107.9	0.238				370.64						100	7.6		
End of Reach 1	107.14	0.238				370.64						100	7.6		

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	107.9														
End of Reach 1	107.14														

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.220 Analysis Hardness (mg/l): 103.93 Analysis pH: 7.54

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	750	750	16,209	
Total Antimony	0	0		0	1,100	1,100	23,774	
Total Arsenic	0	0		0	340	340	7,348	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	453,858	
Total Boron	0	0		0	8,100	8,100	175,060	
Total Cadmium	0	0		0	2.091	2.22	47.9	Chem Translator of 0.942 applied
Hexavalent Chromium	0	0		0	16	16.3	352	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	2,053	
Total Copper	0	0		0	13.937	14.5	314	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	475	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	67.350	85.8	1,853	Chem Translator of 0.785 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	35.6	Chem Translator of 0.85 applied
Total Nickel	0	0		0	483.769	485	10,476	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.437	4.04	87.4	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	1,405	
Total Zinc	0	0		0	121.074	124	2,676	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	64.8	
Acrylonitrile	0	0		0	650	650	14,048	
Benzene	0	0		0	640	640	13,832	
Bromoform	0	0		0	1,800	1,800	38,902	
Carbon Tetrachloride	0	0		0	2,800	2,800	60,514	
Chlorobenzene	0	0		0	1,200	1,200	25,935	

Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	389,022	
Chloroform	0	0		0	1,900	1,900	41,063	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	324,185	
1,1-Dichloroethylene	0	0		0	7,500	7,500	162,092	
1,2-Dichloropropane	0	0		0	11,000	11,000	237,735	
1,3-Dichloropropylene	0	0		0	310	310	6,700	
Ethylbenzene	0	0		0	2,900	2,900	62,676	
Methyl Bromide	0	0		0	550	550	11,887	
Methyl Chloride	0	0		0	28,000	28,000	605,145	
Methylene Chloride	0	0		0	12,000	12,000	259,348	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	21,612	
Tetrachloroethylene	0	0		0	700	700	15,129	
Toluene	0	0		0	1,700	1,700	36,741	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	146,964	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	64,837	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	73,482	
Trichloroethylene	0	0		0	2,300	2,300	49,708	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	12,103	
2,4-Dichlorophenol	0	0		0	1,700	1,700	36,741	
2,4-Dimethylphenol	0	0		0	660	660	14,264	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	1,729	
2,4-Dinitrophenol	0	0		0	660	660	14,264	
2-Nitrophenol	0	0		0	8,000	8,000	172,898	
4-Nitrophenol	0	0		0	2,300	2,300	49,708	
p-Chloro-m-Cresol	0	0		0	160	160	3,458	
Pentachlorophenol	0	0		0	15.068	15.1	326	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	9,942	
Acenaphthene	0	0		0	83	83.0	1,794	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	6,484	
Benzo(a)Anthracene	0	0		0	0.5	0.5	10.8	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	648,369	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	97,255	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	5,835	
Butyl Benzyl Phthalate	0	0		0	140	140	3,026	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	17,722	
1,3-Dichlorobenzene	0	0		0	350	350	7,564	
1,4-Dichlorobenzene	0	0		0	730	730	15,777	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	86,449	
Dimethyl Phthalate	0	0		0	2,500	2,500	54,031	
Di-n-Butyl Phthalate	0	0		0	110	110	2,377	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	34,580	
2,6-Dinitrotoluene	0	0		0	990	990	21,396	
1,2-Diphenylhydrazine	0	0		0	15	15.0	324	
Fluoranthene	0	0		0	200	200	4,322	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	216	
Hexachlorocyclopentadiene	0	0		0	5	5.0	108	
Hexachloroethane	0	0		0	60	60.0	1,297	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	216,123	
Naphthalene	0	0		0	140	140	3,026	
Nitrobenzene	0	0		0	4,000	4,000	86,449	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	367,409	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	6,484	
Phenanthrene	0	0		0	5	5.0	108	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	2,810	

☑ *CFC* CCT (min): 720 PMF: 0.980 Analysis Hardness (mg/l): 100.92 Analysis pH: 7.59

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	20,420	
Total Arsenic	0	0		0	150	150	13,923	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	380,556	
Total Boron	0	0		0	1,600	1,600	148,510	
Total Cadmium	0	0		0	0.248	0.27	25.3	Chem Translator of 0.909 applied
Hexavalent Chromium	0	0		0	10	10.4	965	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	1,764	
Total Copper	0	0		0	9.026	9.4	873	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	483	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	142,038	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.542	3.22	299	Chem Translator of 0.79 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	84.1	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.409	52.6	4,879	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	463	Chem Translator of 0.922 applied

Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	1,207	
Total Zinc	0	0		0	119.055	121	11,207	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	278	
Acrylonitrile	0	0		0	130	130	12,066	
Benzene	0	0		0	130	130	12,066	
Bromoform	0	0		0	370	370	34,343	
Carbon Tetrachloride	0	0		0	560	560	51,978	
Chlorobenzene	0	0		0	240	240	22,276	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	324,865	
Chloroform	0	0		0	390	390	36,199	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	287,737	
1,1-Dichloroethylene	0	0		0	1,500	1,500	139,228	
1,2-Dichloropropane	0	0		0	2,200	2,200	204,201	
1,3-Dichloropropylene	0	0		0	61	61.0	5,662	
Ethylbenzene	0	0		0	580	580	53,835	
Methyl Bromide	0	0		0	110	110	10,210	
Methyl Chloride	0	0		0	5,500	5,500	510,502	
Methylene Chloride	0	0		0	2,400	2,400	222,764	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	19,492	
Tetrachloroethylene	0	0		0	140	140	12,995	
Toluene	0	0		0	330	330	30,630	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	129,946	
1,1,1-Trichloroethane	0	0		0	610	610	56,619	
1,1,2-Trichloroethane	0	0		0	680	680	63,117	
Trichloroethylene	0	0		0	450	450	41,768	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	10,210	
2,4-Dichlorophenol	0	0		0	340	340	31,558	
2,4-Dimethylphenol	0	0		0	130	130	12,066	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	1,485	
2,4-Dinitrophenol	0	0		0	130	130	12,066	
2-Nitrophenol	0	0		0	1,600	1,600	148,510	
4-Nitrophenol	0	0		0	470	470	43,625	
p-Chloro-m-Cresol	0	0		0	500	500	46,409	
Pentachlorophenol	0	0		0	11.561	11.6	1,073	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	8,446	
Acenaphthene	0	0		0	17	17.0	1,578	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	5,476	
Benzo(a)Anthracene	0	0		0	0.1	0.1	9.28	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	

Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	556,911	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	84,465	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	5,012	
Butyl Benzyl Phthalate	0	0		0	35	35.0	3,249	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	14,851	
1,3-Dichlorobenzene	0	0		0	69	69.0	6,404	
1,4-Dichlorobenzene	0	0		0	150	150	13,923	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	74,255	
Dimethyl Phthalate	0	0		0	500	500	46,409	
Di-n-Butyl Phthalate	0	0		0	21	21.0	1,949	
2,4-Dinitrotoluene	0	0		0	320	320	29,702	
2,6-Dinitrotoluene	0	0		0	200	200	18,564	
1,2-Diphenylhydrazine	0	0		0	3	3.0	278	
Fluoranthene	0	0		0	40	40.0	3,713	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	186	
Hexachlorocyclopentadiene	0	0		0	1	1.0	92.8	
Hexachloroethane	0	0		0	12	12.0	1,114	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	194,919	
Naphthalene	0	0		0	43	43.0	3,991	
Nitrobenzene	0	0		0	810	810	75,183	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	315,583	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	5,476	
Phenanthrene	0	0		0	1	1.0	92.8	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	2,413	

☑ ***THH*** CCT (min): 720 PMF: 0.640 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	341	
Total Arsenic	0	0		0	10	10.0	610	
Total Barium	0	0		0	2,400	2,400	146,311	
Total Boron	0	0		0	3,100	3,100	188,986	
Total Cadmium	0	0		0	N/A	N/A	N/A	

Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	4	4.0	244	
Dissolved Iron	0	0		0	300	300	18,289	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	60,963	
Total Mercury	0	0		0	0.050	0.05	3.05	
Total Nickel	0	0		0	610	610	37,187	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	14.6	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	183	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	6,096	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	347	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	2,012	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	4,145	
Methyl Bromide	0	0		0	100	100.0	6,096	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	3,475	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	6,096	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	609,631	
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	30	30.0	1,829	
2,4-Dichlorophenol	0	0		0	10	10.0	610	
2,4-Dimethylphenol	0	0		0	100	100.0	6,096	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	122	
2,4-Dinitrophenol	0	0		0	10	10.0	610	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	243,852	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	4,267	
Anthracene	0	0		0	300	300	18,289	
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	12,193	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	6.1	
2-Chloronaphthalene	0	0		0	800	800	48,770	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	60,963	
1,3-Dichlorobenzene	0	0		0	7	7.0	427	
1,4-Dichlorobenzene	0	0		0	300	300	18,289	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	36,578	
Dimethyl Phthalate	0	0		0	2,000	2,000	121,926	
Di-n-Butyl Phthalate	0	0		0	20	20.0	1,219	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	1,219	
Fluorene	0	0		0	50	50.0	3,048	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	244	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	2,073	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	610	
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	1,219	

1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	4.27	

☑ *CRL* CCT (min): 720 PMF: 0.822 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	13.8	
Benzene	0	0		0	0.58	0.58	133	
Bromoform	0	0		0	7	7.0	1,607	
Carbon Tetrachloride	0	0		0	0.4	0.4	91.8	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	184	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	218	
1,2-Dichloroethane	0	0		0	9.9	9.9	2,273	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	207	
1,3-Dichloropropylene	0	0		0	0.27	0.27	62.0	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	4,592	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	45.9	
Tetrachloroethylene	0	0		0	10	10.0	2,296	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	126	
Trichloroethylene	0	0		0	0.6	0.6	138	
Vinyl Chloride	0	0		0	0.02	0.02	4.59	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	6.89	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	344	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.0001	0.0001	0.023	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.23	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.023	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.23	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	2.3	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	6.89	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	73.5	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	27.6	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.023	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	11.5	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	11.5	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	11.5	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	6.89	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.018	

Hexachlorobutadiene	0	0		0	0.01	0.01	2.3	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	23.0	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.23	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.16	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	1.15	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	758	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

Pollutants	*Mass Limits* AML (lbs/day)	MDL (lbs/day)	*Concentration Limits* AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Thallium	Report	Report	Report	Report	Report	µg/L	14.6	THH	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 Aluminum	N/A	N/A	Discharge Conc < TQL
Total Antimony	341	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	146,311	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	112,206	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	N/A	N/A	Discharge Conc < TQL
Hexavalent Chromium	N/A	N/A	Discharge Conc < TQL
Total Cobalt	1,316	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	201	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	244	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	18,289	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	142,038	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	299	µg/L	Discharge Conc < TQL
Total Manganese	60,963	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	3.05	µg/L	Discharge Conc < TQL
Total Nickel	4,879	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	463	µg/L	Discharge Conc < TQL
Total Silver	56.0	µg/L	Discharge Conc < TQL
Total Zinc	1,715	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	41.6	µg/L	Discharge Conc < TQL
Acrylonitrile	13.8	µg/L	Discharge Conc < TQL
Benzene	133	µg/L	Discharge Conc < TQL
Bromoform	1,607	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	91.8	µg/L	Discharge Conc < TQL
Chlorobenzene	6,096	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	184	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	249,347	µg/L	Discharge Conc < TQL
Chloroform	347	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	218	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	2,273	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	2,012	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	207	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	62.0	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	4,145	µg/L	Discharge Conc < TQL
Methyl Bromide	6,096	µg/L	Discharge Conc < TQL
Methyl Chloride	387,873	µg/L	Discharge Conc < TQL
Methylene Chloride	4,592	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	45.9	µg/L	Discharge Conc < TQL
Tetrachloroethylene	2,296	µg/L	Discharge Conc < TQL
Toluene	3,475	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	6,096	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	41,558	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	126	µg/L	Discharge Conc < TQL
Trichloroethylene	138	µg/L	Discharge Conc < TQL
Vinyl Chloride	4.59	µg/L	Discharge Conc < TQL
2-Chlorophenol	1,829	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	610	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	6,096	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	122	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	610	µg/L	Discharge Conc < TQL
2-Nitrophenol	110,821	µg/L	Discharge Conc < TQL
4-Nitrophenol	31,861	µg/L	Discharge Conc ≤ 25% WQBEL
p-Chloro-m-Cresol	2,216	µg/L	Discharge Conc < TQL
Pentachlorophenol	6.89	µg/L	Discharge Conc < TQL
Phenol	243,852	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	344	µg/L	Discharge Conc < TQL
Acenaphthene	1,150	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	18,289	µg/L	Discharge Conc < TQL
Benzidine	0.023	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.23	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.023	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.23	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	2.3	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	6.89	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	12,193	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	73.5	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	3,740	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	6.1	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	48,770	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	27.6	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.023	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	11,359	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	427	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	10,112	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	11.5	µg/L	Discharge Conc < TQL
Diethyl Phthalate	36,578	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	34,632	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	1,219	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	11.5	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	11.5	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	6.89	µg/L	Discharge Conc < TQL
Fluoranthene	1,219	µg/L	Discharge Conc < TQL
Fluorene	3,048	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.018	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	2.3	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	69.3	µg/L	Discharge Conc < TQL
Hexachloroethane	23.0	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.23	µg/L	Discharge Conc < TQL
Isophorone	2,073	µg/L	Discharge Conc < TQL
Naphthalene	1,939	µg/L	Discharge Conc < TQL
Nitrobenzene	610	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.16	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	1.15	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	758	µg/L	Discharge Conc < TQL
Phenanthrene	69.3	µg/L	Discharge Conc < TQL

Pyrene	1,219	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	4.27	µg/L	Discharge Conc < TQL
PCB-1016	N/A	N/A	No WQS
PCB-1221	N/A	N/A	No WQS
PCB-1232	N/A	N/A	No WQS
PCB-1242	N/A	N/A	No WQS
PCB-1248	N/A	N/A	No WQS
PCB-1254	N/A	N/A	No WQS
PCB-1260	N/A	N/A	No WQS

TRC_Calc

TRC_CALC

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

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

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 6.594	1.3.2.iii	WLA cfc = 6.421
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 2.457	5.1d	LTA_cfc = 3.733

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

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

WETT

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.01
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Easton Area JSA WWTP
Permit No.: PA0027235

Replicate No.	Test Completion Date 7/26/2022 Control	TIWC	Test Completion Date 4/18/2023 Control	TIWC
1	10	9	10	9
2	10	10	10	10
3	10	9	10	10
4	9	10	10	9
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
Mean	9.750	9.500	10.000	9.500
Std Dev.	0.500	0.577	0.000	0.577
# Replicates	4	4	4	4
T-Test Result	5.3848		5.7714	
Deg. of Freedom	5		3	
Critical T Value	0.7267		0.7649	
Pass or Fail	PASS		PASS	

Replicate No.	Test Completion Date 5/21/2024 Control	TIWC	Test Completion Date 6/10/2025 Control	TIWC
1	10	10	10	10
2	10	10	10	10
3	10	10	10	10
4	10	10	10	10
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
Mean	10.000	10.000	10.000	10.000
Std Dev.	0.000	0.000	0.000	0.000
# Replicates	4	4	4	4
T-Test Result				
Deg. of Freedom				
Critical T Value				
Pass or Fail	PASS		PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.01
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Easton Area JSA WWTP
Permit No.: PA0027235

Replicate No.	Test Completion Date 7/26/2022 Control	TIWC	Test Completion Date 4/18/2023 Control	TIWC
1	0.383	0.433	0.33	0.344
2	0.346	0.404	0.327	0.386
3	0.385	0.439	0.372	0.394
4	0.358	0.448	0.382	0.389
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
Mean	0.368	0.431	0.353	0.378
Std Dev.	0.019	0.019	0.028	0.023
# Replicates	4	4	4	4
T-Test Result	13.0087		7.2502	
Deg. of Freedom	5		5	
Critical T Value	0.7267		0.7267	
Pass or Fail	PASS		PASS	

Replicate No.	Test Completion Date 5/21/2024 Control	TIWC	Test Completion Date 6/10/2025 Control	TIWC
1	0.412	0.319	0.395	0.398
2	0.392	0.348	0.384	0.328
3	0.34	0.364	0.381	0.294
4	0.399	0.412	0.404	0.388
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
Mean	0.386	0.361	0.391	0.352
Std Dev.	0.032	0.039	0.011	0.050
# Replicates	4	4	4	4
T-Test Result	3.1357		2.3438	
Deg. of Freedom	5		3	
Critical T Value	0.7267		0.7649	
Pass or Fail	PASS		PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.01
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Easton Area JSA WWTP

Permit No.: PA0027235

Replicate No.	Test Completion Date: 7/25/2022 Control	TIWC	Test Completion Date: 4/18/2023 Control	TIWC
1	1	1	1	1
2	1	1	1	1
3	1	0	1	1
4	1	1	1	1
5	1	1	1	1
6	1	1	1	1
7	0	1	1	1
8	1	1	1	1
9	1	1	1	1
10	1	1	1	1
11				
12				
13				
14				
15				
Mean	0.900	0.900	1.000	1.000
Std Dev.	0.316	0.316	0.000	0.000
# Replicates	10	10	10	10
T-Test Result				
Deg. of Freedom				
Critical T Value				
Pass or Fail	PASS		PASS	

Replicate No.	Test Completion Date: 5/20/2024 Control	TIWC	Test Completion Date: 6/10/2025 Control	TIWC
1	1	1	1	1
2	1	1	1	1
3	1	1	1	1
4	1	1	1	1
5	1	1	1	1
6	1	1	1	1
7	1	1	1	1
8	1	1	1	1
9	1	1	1	1
10	1	0	1	1
11				
12				
13				
14				
15				
Mean	1.000	0.900	1.000	1.000
Std Dev.	0.000	0.316	0.000	0.000
# Replicates	10	10	10	10
T-Test Result				
Deg. of Freedom				
Critical T Value				
Pass or Fail	PASS		PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.01
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Easton Area JSA WWTP

Permit No.: PA0027235

Replicate No.	Test Completion Date: 7/25/2022 Control	TIWC	Test Completion Date: 4/18/2023 Control	TIWC
1	34	34	42	39
2	27	30	44	40
3	16	4	38	38
4	29	27	35	38
5	36	18	38	39
6	30	34	24	39
7	16	29	33	36
8	26	36	41	38
9	33	32	39	21
10	38	34	38	29
11				
12				
13				
14				
15				
Mean	28.500	27.800	37.200	35.700
Std Dev.	7.605	9.830	5.633	6.038
# Replicates	10	10	10	10
T-Test Result	1.7878		3.3471	
Deg. of Freedom	15		16	
Critical T Value	0.8662		0.8647	
Pass or Fail	PASS		PASS	

Replicate No.	Test Completion Date: 5/20/2024 Control	TIWC	Test Completion Date: 6/10/2025 Control	TIWC
1	40	38	40	36
2	35	40	34	34
3	39	39	36	43
4	34	41	32	39
5	36	37	35	37
6	32	30	37	36
7	17	31	33	37
8	30	34	42	34
9	36	35	33	31
10	32	0	31	33
11				
12				
13				
14				
15				
Mean	33.100	32.500	35.300	36.000
Std Dev.	6.454	11.993	3.529	3.367
# Replicates	10	10	10	10
T-Test Result	1.8766		7.0335	
Deg. of Freedom	13		16	
Critical T Value	0.8702		0.8647	
Pass or Fail	PASS		PASS	

WET Summary and Evaluation

Facility Name	Easton Area JSA WWTP
Permit No.	PA0027235
Design Flow (MGD)	10
Q_{7-10} Flow (cfs)	1450
PMF_a	0.22
PMF_c	0.98

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	7/26/22	4/18/23	5/21/24	6/10/25
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	7/26/22	4/18/23	5/21/24	6/10/25
Pimephales	Growth	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	7/25/22	4/18/23	5/20/24	6/10/25
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	7/25/22	4/18/23	5/20/24	6/10/25
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**	
TIWC	**1**	% Effluent
Dilution Series	**1, 2, 30, 60, 100**	% Effluent
Permit Limit	**None**	
Permit Limit Species		