pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0247103**
Facility Type	**Municipal**	APS ID	**473744**
Major / Minor	**Minor**	Authorization ID	**1434081**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Northeastern York County Sewer Authority**	Facility Name	**Northeastern York County STP Saginaw**
Applicant Address	200 N Main Street PO Box 516 Mount Wolf, PA 17347-0516	Facility Address	175 Chestnut Street 175 Chestnut Street Mount Wolf, PA 17347-0516
Applicant Contact	Patrice Poet	Facility Contact	Patrice Poet
Applicant Phone	(717) 266-1493	Facility Phone	(717) 266-1493
Client ID	25250	Site ID	610101
Ch 94 Load Status	Not Overloaded	Municipality	East Manchester Township
Connection Status	No Limitations	County	York
Date Application Received	March 28, 2023	EPA Waived?	Yes
Date Application Accepted	April 19, 2023	If No, Reason	

Purpose of Application: NPDES Permit Renewal

Summary of Review

The Northeastern York County Sewer Authority (NYCSA) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of a NPDES permit for the Saginaw STP. The permit was last reissued on September 27, 2018. The permit expired on September 30, 2023 but the terms and conditions of the permit have been administratively extended since that time.

Based on the review outlined in this fact sheet, it is recommended that the permit be drafted, and a notice of the draft permit be published in the *Pennsylvania Bulletin* for public comments for 30 days. A file review of documents associated with the discharge or permittee may be available at the PA DEP southcentral regional office (SCRO), 909 Elmerton Avenue, Harrisburg, PA 17110. To make an appointment for file reviews, contact the SCRO file review coordinator at 717.705.4700.

Sludge use and disposal description and location(s): Mt. Wolf STP

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
x		*Aaron Baar* Aaron Baar / Project Manager	May 26, 2024
x		*Maria D. Bebenek* for Daniel W. Martin, P.E. / Environmental Engineer Manager	June 11, 2024

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.3
Latitude	40º 4' 14.14"	Longitude	-76º 40' 22.43"
Quad Name	York Haven	Quad Code	1832
Wastewater Description:	Sewage Effluent		
Receiving Waters	Hartman Run/Susquehanna River (WWF)	Stream Code	06685
NHD Com ID	57464701	RMI	37.5
Drainage Area	25600 sq. mi.	Yield (cfs/mi^2)	0.056
Q_{7-10} Flow (cfs)	1440	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	250	Slope (ft/ft)	
Watershed No.	7-H	Chapter 93 Class.	WWF/MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired (Aquatic Life)		
Cause(s) of Impairment	**Agriculture**		
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Wrightsville Water Supply Company		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	28.51	Distance from Outfall (mi)	~9 miles

Drainage Area

The discharge is to either Hartman Run or the Susquehanna River depending on the depth of the Susquehanna. Hartman Run joins the Susquehanna under low flow conditions a short distance downstream of Outfall 001, so the receiving water is generally assumed to be the Susquehanna River for the purpose of this review. The discharge of the Saginaw STP is at RMI 37.5 on the Susquehanna. A drainage area upstream of the discharge is determined to be 25,600 sq.mi. according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow

According to StreamStats, the watershed has a local Q_{7-10} of 1440 cfs. This information was used to obtain a LFY, a chronic 30-day (Q_{30-10}) and acute (Q_{1-10}) exposure stream flows for the discharge point as follows (Guidance No. 391-2000-023).

Q_{7-10} = 1440 cfs
Q_{30-10} = 1.36 * 1440 cfs = 1958 cfs
Q_{1-10} = 0.64 * 1440 cfs = 921.6 cfs
LFY = 1440 cfs/25,600 mi^2 = 0.056 cfs/mi^2

Hartman Run/Susquehanna River

25 Pa Code §93.9 classifies the receiving water, Hartman Run/Susquehanna River, with a WWF/MF Existing Use designation. 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 discharge is in a stream segment listed as not attaining use; the cause of the impairment has been identified as agriculture (see *Local Watershed TMDL* below).

Local Watershed Total Maximum Daily Loads (TMDLs)

According to PA's 2024 integrated water quality monitoring and assessment report, Hartman Run/Susquehanna River in the vicinity of the proposed point of discharge is impaired for aquatic life due agriculture. The aquatic life impairment is listed as Category 5 in the 2024 integrated report, indicating that the waters are impaired for one or more uses by a pollutant that requires the development of a TMDL. No TMDL has been developed to date, so no local watershed TMDL has been taken into consideration during this review.

Public Water Supply Intake

The nearest downstream public water supply intake is the Wrightsville Water Supply Co. on the Susquehanna River in York County, approximately 9 miles downstream of this discharge. Considering the distance and nature, the discharge is not expected to significantly affect the water supply.

Class A Wild Trout Streams

The receiving stream is not a Class A Wild Trout stream; therefore, no Class A Wild Trout Fishery is impacted by this discharge.

Treatment Facility Summary

Treatment Facility Name: Saginaw WWTP

WQM Permit No.	Issuance Date
WQM 6703408	April 6, 2005

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Hypochlorite	0.3

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.501	500	Not Overloaded	Aerobic Digestion	Other WWTP

The NYCSA owns and operates the sanitary wastewater treatment facility located in East Manchester Township, York County. This NPDES permit covers discharges of sewage treated by the Saginaw STP. The facility only serves portions of East Manchester Township; all sewer systems are 100% separated. With an annual average design flow 0.300 MGD and a hydraulic design capacity of 0.501 MGD, this facility utilizes an extended aeration system consisting of The WWTP train is as follows:

Comminutor (1) ⇒ Bar Screen (2) ⇒ EQ Tank (1) ⇒ Aeration Tank (2) ⇒ SEQUOX Tank (2) ⇒ Clarifier (2) ⇒ Chlorine Contact Tank (1) ⇒ Discharge

Chemical additions to the treatment process include sodium hypochlorite and alum. Two sludge digesters are also on site. Waste sludge from the Saginaw STP is hauled to the Mt. Wolf STP. There is no industrial/commercial user contributing industrial wastewater to the sewer system.

Compliance History	
Summary of Inspections:	Since the last renewal of the facility's NPDES permit, the following inspections have been logged: August 29, 2019: A routine CEI was conducted by Austen Randecker. No violations were noted. Recommendations were made regarding maintaining chlorine standards on-site and updating the Emergency Response plan. May 26, 2020: An administrative inspection was conducted via phone by Austen Randecker. No violations were noted. A Consent Assessment of Civil Penalty was entered into on September 8, 2022 for failing to meet pathogen reduction requirements before land applying biosolids.

Other Comments: As of May 26, 2024, there are no open violations associated with this facility.

Existing Effluent Limitations and Monitoring Requirements

Parameter	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2)	Required
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.1	XXX	0.4	1/day	Grab
CBOD5	62.5	100	XXX	25.0	40.0	50	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	75	112.5	XXX	30.0	45.0	60	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Nitrate-Nitrite (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Nitrogen (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Ammonia Nov 1 - Apr 30	15.0	XXX	XXX	6.0	XXX	12	1/week	24-Hr Composite
Ammonia May 1 - Oct 31	5.0	XXX	XXX	2.0	XXX	4	1/week	24-Hr Composite
Ammonia (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation

Parameter	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/week	24-Hr Composite
TKN (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus	5.0	XXX	XXX	2.0	XXX	4	1/week	24-Hr Composite
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location: Outfall 001

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
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Total Nitrogen (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Ammonia (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: Outfall 001

Compliance History

DMR Data for Outfall 001 (from April 1, 2023 to March 31, 2024)

Parameter	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23
Flow (MGD) Average Monthly	0.122	0.119	0.19	0.141	0.094	0.097	0.095	0.09	0.097	0.09	0.091	0.098
Flow (MGD) Daily Maximum	0.295	0.177	0.717	0.417	0.168	0.173	0.178	0.117	0.135	0.122	0.131	0.226
pH (S.U.) Instantaneous Minimum	6.22	6.71	6.24	6.44	6.29	6.27	6.34	7.01	7.08	6.48	7.01	7.0
pH (S.U.) Instantaneous Maximum	8.04	7.65	7.55	7.81	7.73	7.86	7.89	8.24	7.98	7.91	7.79	7.75
DO (mg/L) Instantaneous Minimum	6.54	6.11	5.55	6.4	6.57	5.84	5.03	5.09	5.13	5.13	5.1	5.83
TRC (mg/L) Average Monthly	< 0.03	< 0.02	0.05	< 0.04	0.02	0.04	0.04	0.03	< 0.03	< 0.04	< 0.02	0.04
TRC (mg/L) Instantaneous Maximum	0.13	0.08	0.16	0.1	0.1	0.1	0.11	0.1	0.09	0.1	0.07	0.14
CBOD5 (lbs/day) Average Monthly	< 3.1	< 2.5	5.7	< 9.6	< 2.1	< 1.7	< 2.2	< 2.2	3.2	< 2.1	< 1.9	< 1.7
CBOD5 (lbs/day) Weekly Average	6.0	3.0	12.0	< 20.0	< 3.0	2.0	3.0	3.0	4.0	3.0	3.0	< 2.0
CBOD5 (mg/L) Average Monthly	< 3.0	< 3.0	4.0	< 6.0	< 2.0	< 2.0	< 3.0	< 3.1	4.0	< 3.0	< 3.0	< 2.4
CBOD5 (mg/L) Weekly Average	5.0	3.0	6.0	< 12.0	3.0	3.0	4.0	4.5	7.0	3.0	3.0	< 2.4
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	170	211	271	205	182	150	162	166	124	180.0	186	189
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	217	250	313	393	301	192	176	184	147	189	236	217
BOD5 (mg/L) Raw Sewage Influent Average Monthly	190	240	217	183	217	213	213	234	170	233.0	256	262

TSS (lbs/day) Average Monthly	2.0	5.0	14.0	50.0	3.0	4.0	3.0	2.0	3.0	2.0	1.0	1.0
TSS (lbs/day) Raw Sewage Influent Average Monthly	203	235	270	233	232	184	211	204	210	227.0	220	209
TSS (lbs/day) Raw Sewage Influent Daily Maximum	270	268	343	370	417	209	244	234	227	256.0	285	224
TSS (lbs/day) Weekly Average	4.6	9.8	33.2	117.6	4.3	7.7	3.5	4.7	5.5	3.7	2.3	1.5
TSS (mg/L) Average Monthly	2.0	6.0	10.0	31.0	4.0	5.0	4.0	2.2	4.0	3.0	2.0	1.5
TSS (mg/L) Raw Sewage Influent Average Monthly	238	268	214	210	274	264	277	286	288	294.0	305	289
TSS (mg/L) Weekly Average	4.0	11.0	25.0	70.0	5.0	10.0	5.0	6.0	7.0	5.0	3.0	1.5
Fecal Coliform (No./100 ml) Geometric Mean	19	27	100	9	< 5	12	< 11	15	< 2.0	< 2.0	< 3	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	345	210	687	20	16	24	770	51	12.0	6.0	30	1
Nitrate-Nitrite (mg/L) Average Monthly	19.4	< 21.4	< 10.4	< 20.93	< 28.4	30.4	< 19.4	< 7.2	< 2.9	< 2.4	< 6.5	< 6.7
Nitrate-Nitrite (lbs) Total Monthly	687	< 481	< 280	< 767	< 561	723	< 413	< 162	< 70	< 53.0	< 168	< 154
Total Nitrogen (mg/L) Average Monthly	21.9	< 21.9	< 11.31	< 27.68	< 28.9	< 30.5	< 19.9	< 8.4	< 4.7	< 3.8	7.12	< 8.7
Total Nitrogen (lbs) Total Monthly	776	< 493	< 304	< 1115	< 571	< 725	< 423	< 189	< 114	< 84.0	184	< 200
Total Nitrogen (lbs) Total Annual							< 8738					
Ammonia (lbs/day) Average Monthly	< 0.2	0.2	< 0.2	< 0.6	0.2	< 0.07	< 0.08	0.2	0.3	0.5	0.9	2.0
Ammonia (mg/L) Average Monthly	< 0.22	0.20	< 0.2	< 0.1	< 0.1	< 0.1	< 0.1	0.31	0.42	0.7	1.0	2.9
Ammonia (mg/L) Instantaneous Maximum	0.55	0.39	0.33	1.0	0.48	< 0.1	< 0.1	0.46	1.0	1.4	4.1	5.7
Ammonia (lbs) Total Monthly	< 7	5	< 7	< 18	7	< 2	< 2	7	9	16.0	27	61

Ammonia (lbs) Total Annual							< 177					
TKN (mg/L) Average Monthly	< 2.5	< 0.5	0.91	< 6.8	< 0.5	< 0.5	< 0.5	1.2	1.8	1.4	0.62	2.0
TKN (lbs) Total Monthly	< 89	< 11	24	< 348	< 10	< 12	< 11	27	44	31.0	16	46
Total Phosphorus (lbs/day) Average Monthly	0.5	0.4	1.0	1.6	0.5	0.5	0.4	0.3	0.4	0.4	0.6	0.5
Total Phosphorus (mg/L) Average Monthly	0.53	0.47	0.63	1.09	0.55	0.71	0.58	0.41	0.55	0.49	0.83	0.76
Total Phosphorus (mg/L) Instantaneous Maximum	0.75	0.61	0.97	3.3	0.78	0.78	0.63	0.53	0.8	0.75	1.3	0.93
Total Phosphorus (lbs) Total Monthly	15.9	12.1	29.7	50.1	13.5	15.4	13.3	9.0	12.5	11.4	18	16.3
Total Phosphorus (lbs) Total Annual							339					

Compliance History

Effluent Violations for Outfall 001, from: May 1, 2023 To: March 31, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TSS	12/31/23	Wkly Avg	117.6	lbs/day	112.5	lbs/day
TSS	12/31/23	Avg Mo	31.0	mg/L	30.0	mg/L
TSS	12/31/23	Wkly Avg	70.0	mg/L	45.0	mg/L
Ammonia	05/31/23	IMAX	4.1	mg/L	4.0	mg/L

Other Comments: The May 2023 DMR includes a Non-Compliance Form that states that the above ammonia violation was the result of impaired blower operation resulting in under aeration of the mixed liquor. The December 2023 DMR includes a Non-Compliance Form that states that the above TSS violations were the result of high flows resulting the plant being put into storm mode. The reviewer notes that putting a plant into storm mode is a technique to hold solids in a plant during periods of high flow, so it is not clear why this is being identified as the cause of the TSS excursion.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .3
Latitude 40º 4' 16.00" **Longitude** -76º 40' 24.00"
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)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments: These standards apply, subject to water quality analysis and BPJ where applicable.

Water Quality-Based Limitations

CBOD5, NH3-N and Dissolved Oxygen (DO)

WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD5, NH3-N and DO. DEP's guidance no. 391-2000-007 provides the technical methods contained in WQM 7.0 for conducting wasteload allocation and for determining recommended NPDES effluent limits for point source discharges. The model was utilized using data derived by USGS StreamStats and the model output indicated that existing WQBELs for ammonia and CBOD5 are still protective of water quality.

The model also determined that the facility's existing DO limits of 5 mg/L are still protective of water quality.

Total Dissolved Solids (TDS)

The requirement to monitor TDS and its constituents is not needed given that the maximum concentration of TDS reported in the application is less than 1,000 mg/L.

Toxics

A reasonable potential (RP) analysis is not required for minor facilities with no commercial or industrial contributions.

E. Coli Monitoring

In conformity with the Department's *Establishing Effluent Limitations for Individual Sewage Permits* (SOP No. BCW-PMT-033) and as authorized by § 92a.61 of the PA Code, quarterly E. Coli monitoring has been proposed in this permit. The collection method will be via grab sample.

Best Professional Judgment (BPJ) Limitations

Dissolved Oxygen

A minimum of 5.0 mg/L for DO is an existing effluent limit and will remain unchanged in the draft permit as recommended by DEP's SOP. This requirement has also been assigned to other sewage facilities in the region. 5.0 mg/L is taken directly from 25 Pa. Code § 93.7(a) and it is also determined to be appropriate according to water quality modeling.

Total Residual Chlorine (TRC)

Chlorine is currently used for disinfection and the current NPDES permit contains water quality based effluent limits for TRC. It is necessary to utilize DEP's TRC_CALC excel worksheet to determine appropriate permit requirements for the upcoming permit term. The worksheet indicated that existing limits of 0.1 mg/L (average monthly) and 0.4 mg/L (instantaneous maximum) are no longer protective of water quality. The worksheet indicates that limits of 0.1 mg/L (average monthly) and 0.3 mg/L (IMAX) are needed. Based on the facility's DMR data, the facility is already configured to meet the proposed new IMAX limit.

Total Phosphorus & Total Nitrogen

DEP's SOP no. BPNPSM-PMT-033 (Establishing Effluent Limitations for Individual Sewage Permits) recommends monitoring requirements for Total Phosphorus and Total Nitrogen for all sewage facilities. Therefore, routine monitoring for TKN, Nitrate-Nitrite, and TN are recommended to be continued in this permit. Sampling frequency for TKN, Nitrate-Nitrite, TN, and TP are currently required 1/week, which is consistent with Table 6.3 in Guidance Doc. 362-0400-001, which recommends the testing of conventional pollutants weekly for facilities with flows between 0.1 mgd to 1.0 mgd. No change is proposed in this permit renewal.

Historically, an average monthly Total Phosphorus limit of 2.0 mg/L was recommended in NPDES permits, per DEP phosphorus guidance 391-2000-018, to control phosphorus effluent levels for any facilities that are expected to contribute 0.25% or more of the total phosphorus loading of the entire basin. DEP has previously determined that this facility meets the criteria and the limit has been continuously imposed in the permit. It is recommended to maintain this limit in the draft permit.

Additional Considerations

Flow Monitoring

The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii).

Chesapeake Bay TMDL

The Department formulated a strategy in April 2007, to comply with the EPA's and Chesapeake Bay Foundation's requirements to reduce point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP) to the Bay. In the Strategy, sewage dischargers have been prioritized by Central Office based on their delivered TN loadings to the Bay. The highest priority (Phases 1, 2, and 3) dischargers received annual loading caps based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. Phase 4 (0.2 -0.4mgd) and Phase 5 (below 0.2mdg) facilities were required to monitor and report TN and TP during permit renewal at a monitoring frequency following Table 6-3 of DEP's Technical Guidance for Development and Specification of effluent Limitations (No. 362-0400-001).

EPA published the Chesapeake Bay Total Maximum Daily Load (TMDL) in December of 2010. Despite extensive restoration efforts during the past 25 years, the TMDL was prompted by insufficient progress and continued poor water quality in the Chesapeake Bay and its tidal tributaries.

In order to address the TMDL, Pennsylvania developed, in addition to the Bay Strategy, a Chesapeake Watershed Implementation Plan (WIP) Phase 1 in January 2011, Phase 2 in March 2012 and Phase 3 in December 2019. In accordance with the Phase 3 WIP, re-issuing permits for significant dischargers follow the same phased approach formulated in the original Bay strategy, whilst Phase 4 and Phase 5 will be required to monitor and report TN and TP during permit renewal.

The Phase 3 WIP categorizes this facility as a phase 4 sewage facility that has a design flow less than 0.4 MGD but greater than 0.2 MGD. The WIP recommends the following:

1. Renewed or amended permits for facilities that do not increase design flow (compared to the date of the latest prior permit action) will contain monitoring and reporting for TN and TP throughout the permit term at a frequency no less than monthly.

2. Renewed or amended permits that include an increase in design flow will contain Cap Loads based on the lesser of a) existing TN and TP concentrations at current design average annual flow or b) 7,306 lbs/yr TN and 974 lbs/yr TP.

There is no proposed increased in design flow. Therefore, monitoring and reporting for TN and TP will remain in the permit.

Monitoring Frequency and Sample Type

Unless discussed otherwise above, the permit's monitoring frequency and sample type for all parameters will remain unchanged from the last permit renewal.

Antidegradation Requirements

All effluent limitations and monitoring requirements have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected.

Anti-backsliding Requirement

All effluent limits proposed in this fact sheet are as stringent as effluent limits specified in the existing permit renewal unless noted otherwise above. This approach is in accordance with 40 CFR §122.44(l(1).

Annual Fees

An annual fee clause was added to the permit in accordance with 25 Pa. Code § 92a.62. The facility covered by the permit is classified in the Minor Sewage Facility >=0.05 and <1 MGD fee category, which has an annual fee of $1,000.

Mass Loading Limitations

Unless stated otherwise in this fact sheet, mass loading effluent limits are calculated based on the formula: design flow (average annual) (MGD) x concentration limit (mg/L) at design flow x conversion factor (8.34).

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
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Total Nitrogen (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Ammonia (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: Outfall 001

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.

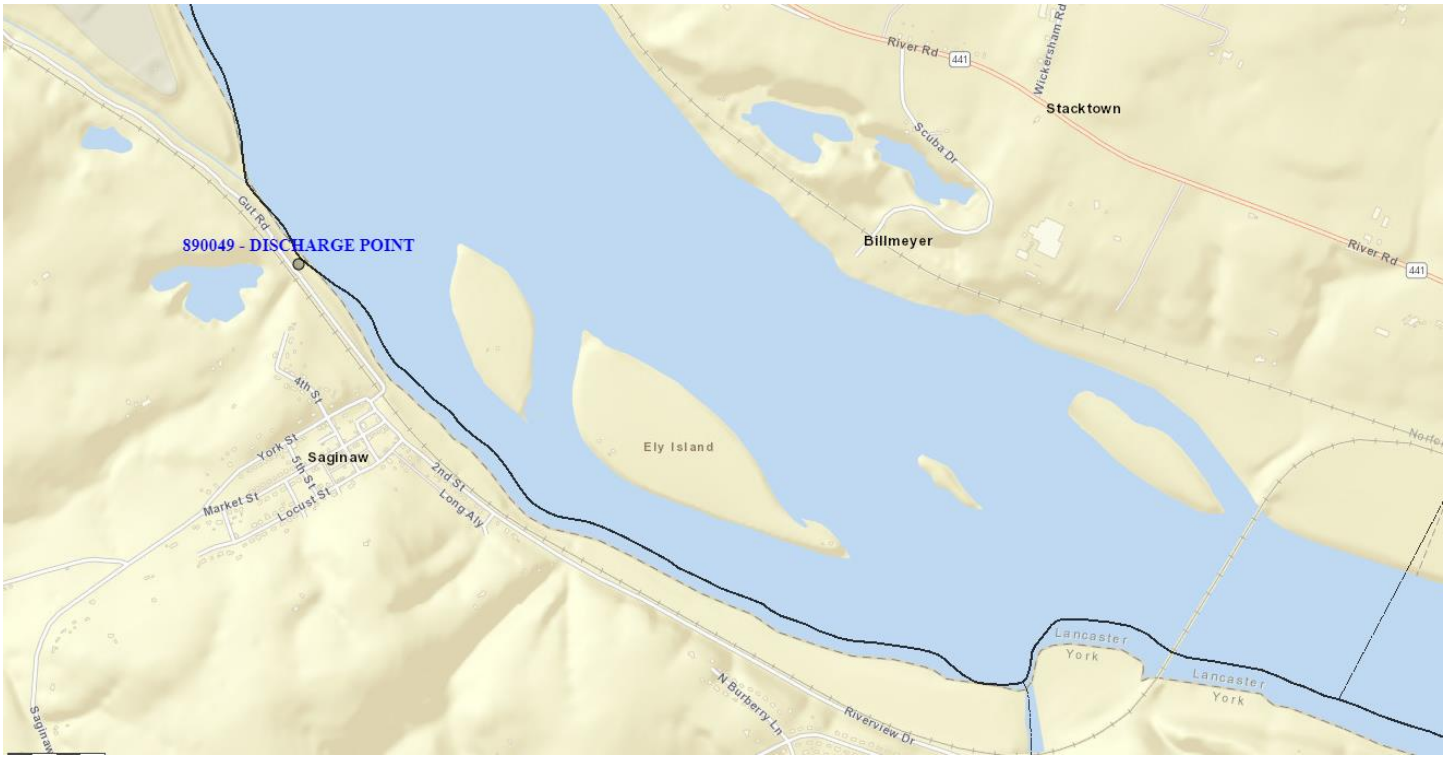
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.1	XXX	0.3	1/day	Grab
CBOD5	62.5	100	XXX	25.0	40.0	50	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	75	112.5	XXX	30.0	45.0	60	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Nitrate-Nitrite (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	Calculation

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		
Total Nitrogen (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Ammonia Nov 1 - Apr 30	15.0	XXX	XXX	6.0	XXX	12	1/week	24-Hr Composite
Ammonia May 1 - Oct 31	5.0	XXX	XXX	2.0	XXX	4	1/week	24-Hr Composite
Ammonia (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
TKN	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TKN (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus	5.0	XXX	XXX	2.0	XXX	4	1/week	24-Hr Composite
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location: Outfall 001

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 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:
☐	Other:

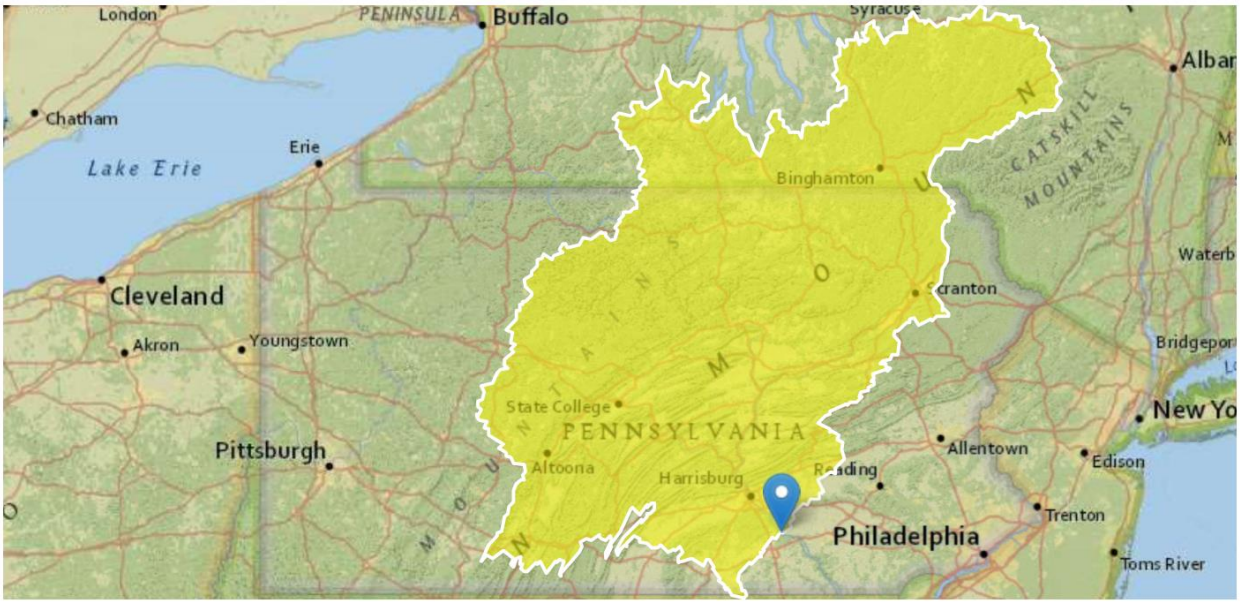

890049 - DISCHARGE POINT
River Rd
441
Wickersham Rd
Stacktown
Scuba Dr
Billmeyer
Gut Rd
4th St
York St
5th St
Saginaw
Market St
Locust St
2nd St
Long Aly
Ely Island
Lancaster
York
N Burberry Ln
Riverview Dr

1A	B	C	D	E	F	G
2	**TRC EVALUATION**					
3	Input appropriate values in B4:B8 and E4:E7					
4	1440	= Q stream (cfs)		0.5	= CV Daily	
5	0.3	= Q discharge (MGD)		0.5	= CV Hourly	
6	30	= no. samples		1	= AFC_Partial Mix Factor	
7	0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor	
8	0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
9	0.1	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
	0	= % Factor of Safety (FOS)		0	=Decay Coefficient (K)	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	1.3.2.iii	WLA afc = 989.806		1.3.2.iii	WLA cfc = 964.975
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 368.825		5.1d	LTA_cfc = 560.991
14						
15	Source		Effluent Limit Calculations			
16	PENTOXSD TRG	5.1f	AML MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.100		BAT/BPJ	
18			INST MAX LIMIT (mg/l) = 0.327			

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)**

StreamStats Report

Region ID: PA
Workspace ID: PA20240522123226769000
Clicked Point (Latitude, Longitude): 40.07377, -76.66075
Time: 2024-05-22 08:32:57 -0400



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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	8.1927	degrees
CARBON	Percentage of area of carbonate rock	6.29	percent
DRNAREA	Area that drains to a point on a stream	25600	square miles
ELEV	Mean Basin Elevation	1342	feet
FOREST	Percentage of area covered by forest	68.5655	percent
GLACIATED	Percentage of basin area that was historically covered by glaciers	46.1965	percent
PRECIP	Mean Annual Precipitation	40	inches
ROCKDEP	Depth to rock	4.5	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.76	miles per square mile
URBAN	Percentage of basin with urban development	2.7768	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [2.0 Percent (554 square miles) Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	25600	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	8.1927	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.5	feet	4.13	5.21
URBAN	Percent Urban	2.7768	percent	0	89

Low-Flow Statistics Parameters [43.0 Percent (11100 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	25600	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
STRDEN	Stream Density	1.76	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.5	feet	3.32	5.65
CARBON	Percent Carbonate	6.29	percent	0	99

Low-Flow Statistics Parameters [6.0 Percent (1600 square miles) Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	25600	square miles	2.33	1720
ELEV	Mean Basin Elevation	1342	feet	898	2700
PRECIP	Mean Annual Precipitation	40	inches	38.7	47.9

Low-Flow Statistics Parameters [48.0 Percent (12300 square miles) Low Flow Region 5]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	25600	square miles	4.84	982
PRECIP	Mean Annual Precipitation	40	inches	33.1	47.1
GLACIATED	Percent of Glaciation	46.1965	percent	0	100
FOREST	Percent Forest	68.5655	percent	41	100

Low-Flow Statistics Disclaimers [2.0 Percent (554 square miles) Low Flow Region 1]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors. Weighted flows were not calculated. Users should be careful to evaluate the applicability of the provided estimates. Percentage of area falls outside where region is undefined. Whole estimates have been provided using available regional equations.

Low-Flow Statistics Flow Report [2.0 Percent (554 square miles) Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	9210	ft^3/s
30 Day 2 Year Low Flow	10200	ft^3/s
7 Day 10 Year Low Flow	7210	ft^3/s
30 Day 10 Year Low Flow	7580	ft^3/s
90 Day 10 Year Low Flow	8060	ft^3/s

Low-Flow Statistics Disclaimers [43.0 Percent (11100 square miles) Low Flow Region 2]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors. Weighted flows were not calculated. Users should be careful to evaluate the applicability of the provided estimates. Percentage of area falls outside where region is undefined. Whole estimates have been provided using available regional equations.

Low-Flow Statistics Flow Report [43.0 Percent (11100 square miles) Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	5840	ft^3/s
30 Day 2 Year Low Flow	6900	ft^3/s
7 Day 10 Year Low Flow	4350	ft^3/s
30 Day 10 Year Low Flow	5130	ft^3/s
90 Day 10 Year Low Flow	6390	ft^3/s

Low-Flow Statistics Disclaimers [6.0 Percent (1600 square miles) Low Flow Region 3]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors. Weighted flows were not calculated. Users should be careful to evaluate the applicability of the provided estimates. Percentage of area falls outside where region is undefined. Whole estimates have been provided using available regional equations.

Low-Flow Statistics Flow Report [6.0 Percent (1600 square miles) Low Flow Region 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	2390	ft^3/s
30 Day 2 Year Low Flow	2950	ft^3/s
7 Day 10 Year Low Flow	1440	ft^3/s
30 Day 10 Year Low Flow	1790	ft^3/s
90 Day 10 Year Low Flow	2450	ft^3/s

Low-Flow Statistics Disclaimers [48.0 Percent (12300 square miles) Low Flow Region 5]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors. Weighted flows were not calculated. Users should be careful to evaluate the applicability of the provided estimates.

Percentage of area falls outside where region is undefined. Whole estimates have been provided using available regional equations.

Low-Flow Statistics Flow Report [48.0 Percent (12300 square miles) Low Flow Region 5]

Statistic	Value	Unit
7 Day 2 Year Low Flow	3550	ft^3/s
30 Day 2 Year Low Flow	4460	ft^3/s
7 Day 10 Year Low Flow	2290	ft^3/s
30 Day 10 Year Low Flow	2980	ft^3/s
90 Day 10 Year Low Flow	3840	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/)

Application Version: 4.20.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20240522123935145000
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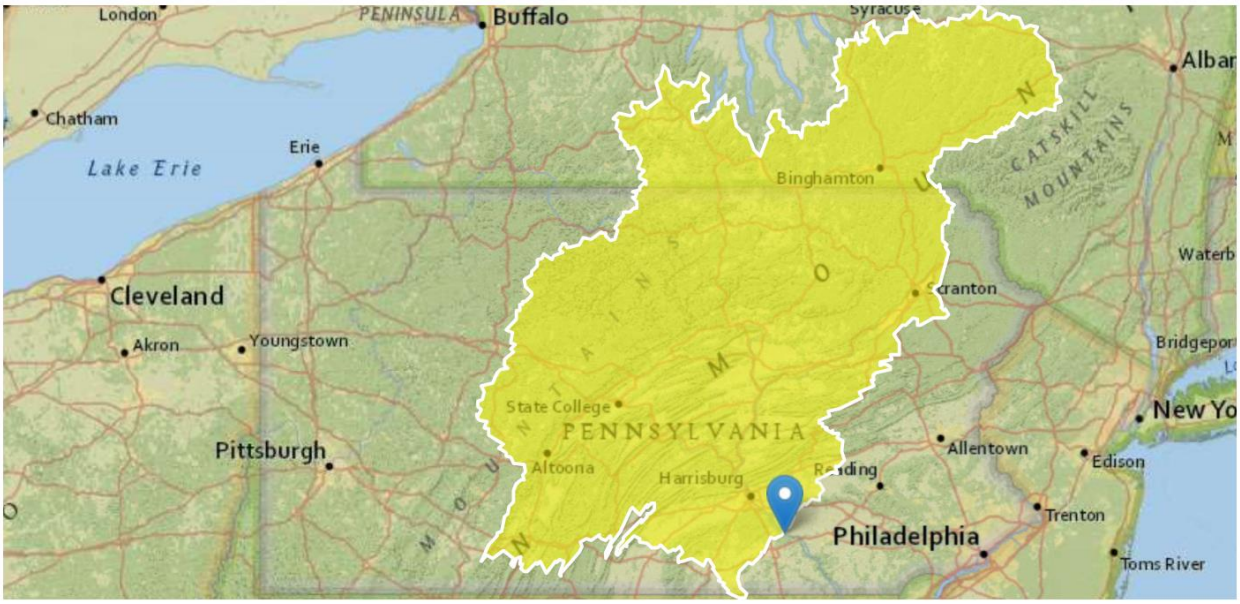
Time: 2024-05-22 08:40:10 -0400



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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	8.1925	degrees
CARBON	Percentage of area of carbonate rock	6.29	percent
DRNAREA	Area that drains to a point on a stream	25600	square miles
ELEV	Mean Basin Elevation	1342	feet
FOREST	Percentage of area covered by forest	68.5627	percent
GLACIATED	Percentage of basin area that was historically covered by glaciers	46.1932	percent
PRECIP	Mean Annual Precipitation	40	inches
ROCKDEP	Depth to rock	4.5	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.76	miles per square mile
URBAN	Percentage of basin with urban development	2.7771	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [2.0 Percent (556 square miles) Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	25600	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	8.1925	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.5	feet	4.13	5.21
URBAN	Percent Urban	2.7771	percent	0	89

Low-Flow Statistics Parameters [43.0 Percent (11100 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	25600	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
STRDEN	Stream Density	1.76	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.5	feet	3.32	5.65
CARBON	Percent Carbonate	6.29	percent	0	99

Low-Flow Statistics Parameters [6.0 Percent (1600 square miles) Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	25600	square miles	2.33	1720
ELEV	Mean Basin Elevation	1342	feet	898	2700
PRECIP	Mean Annual Precipitation	40	inches	38.7	47.9

Low-Flow Statistics Parameters [48.0 Percent (12300 square miles) Low Flow Region 5]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	25600	square miles	4.84	982
PRECIP	Mean Annual Precipitation	40	inches	33.1	47.1
GLACIATED	Percent of Glaciation	46.1932	percent	0	100
FOREST	Percent Forest	68.5627	percent	41	100

Low-Flow Statistics Disclaimers [2.0 Percent (556 square miles) Low Flow Region 1]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors. Weighted flows were not calculated. Users should be careful to evaluate the applicability of the provided estimates. Percentage of area falls outside where region is undefined. Whole estimates have been provided using available regional equations.

Low-Flow Statistics Flow Report [2.0 Percent (556 square miles) Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	9210	ft^3/s
30 Day 2 Year Low Flow	10200	ft^3/s
7 Day 10 Year Low Flow	7210	ft^3/s
30 Day 10 Year Low Flow	7580	ft^3/s
90 Day 10 Year Low Flow	8060	ft^3/s

Low-Flow Statistics Disclaimers [43.0 Percent (11100 square miles) Low Flow Region 2]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors. Weighted flows were not calculated. Users should be careful to evaluate the applicability of the provided estimates. Percentage of area falls outside where region is undefined. Whole estimates have been provided using available regional equations.

Low-Flow Statistics Flow Report [43.0 Percent (11100 square miles) Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	5840	ft^3/s
30 Day 2 Year Low Flow	6900	ft^3/s
7 Day 10 Year Low Flow	4350	ft^3/s
30 Day 10 Year Low Flow	5130	ft^3/s
90 Day 10 Year Low Flow	6390	ft^3/s

Low-Flow Statistics Disclaimers [6.0 Percent (1600 square miles) Low Flow Region 3]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors. Weighted flows were not calculated. Users should be careful to evaluate the applicability of the provided estimates. Percentage of area falls outside where region is undefined. Whole estimates have been provided using available regional equations.

Low-Flow Statistics Flow Report [6.0 Percent (1600 square miles) Low Flow Region 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	2390	ft^3/s
30 Day 2 Year Low Flow	2950	ft^3/s
7 Day 10 Year Low Flow	1440	ft^3/s
30 Day 10 Year Low Flow	1790	ft^3/s
90 Day 10 Year Low Flow	2450	ft^3/s

Low-Flow Statistics Disclaimers [48.0 Percent (12300 square miles) Low Flow Region 5]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors. Weighted flows were not calculated. Users should be careful to evaluate the applicability of the provided estimates.

Percentage of area falls outside where region is undefined. Whole estimates have been provided using available regional equations.

Low-Flow Statistics Flow Report [48.0 Percent (12300 square miles) Low Flow Region 5]

Statistic	Value	Unit
7 Day 2 Year Low Flow	3550	ft^3/s
30 Day 2 Year Low Flow	4460	ft^3/s
7 Day 10 Year Low Flow	2290	ft^3/s
30 Day 10 Year Low Flow	2980	ft^3/s
90 Day 10 Year Low Flow	3840	ft^3/s

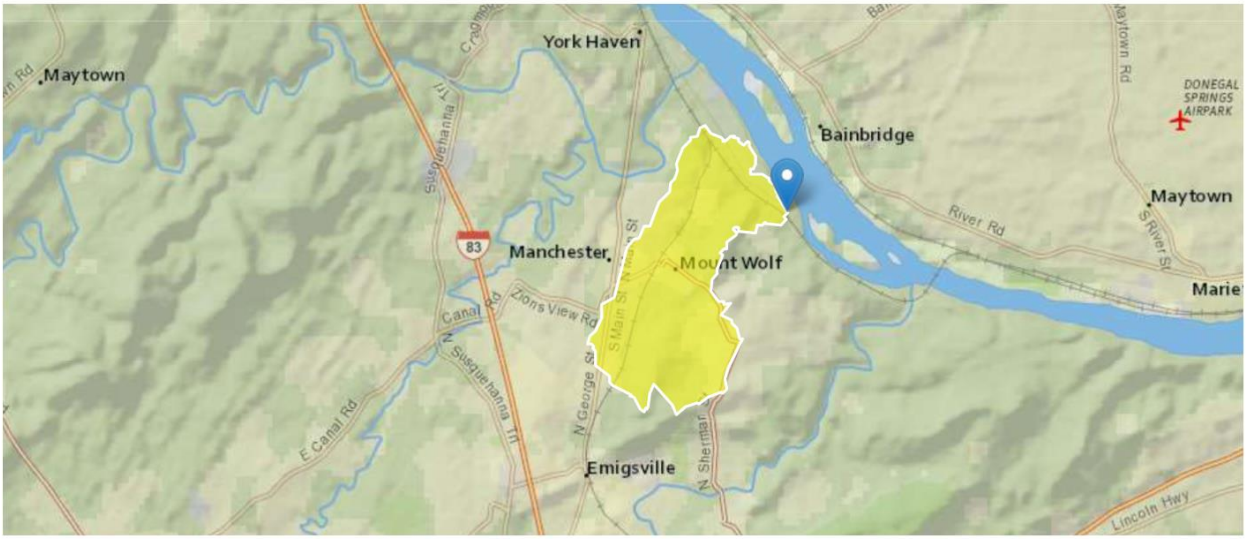
Low-Flow Statistics Citations

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/)

Application Version: 4.20.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20240522130659108000
Clicked Point (Latitude, Longitude): 40.07416, -76.67642
Time: 2024-05-22 09:07:19 -0400



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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	4.4525	degrees
DRNAREA	Area that drains to a point on a stream	5.37	square miles
ROCKDEP	Depth to rock	4.4	feet
URBAN	Percentage of basin with urban development	14.6461	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	5.37	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	4.4525	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.4	feet	4.13	5.21
URBAN	Percent Urban	14.6461	percent	0	89

Low-Flow Statistics Flow Report [Low Flow Region 1]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	0.95	ft^3/s	46	46
30 Day 2 Year Low Flow	1.3	ft^3/s	38	38
7 Day 10 Year Low Flow	0.421	ft^3/s	51	51
30 Day 10 Year Low Flow	0.599	ft^3/s	46	46
90 Day 10 Year Low Flow	0.994	ft^3/s	41	41

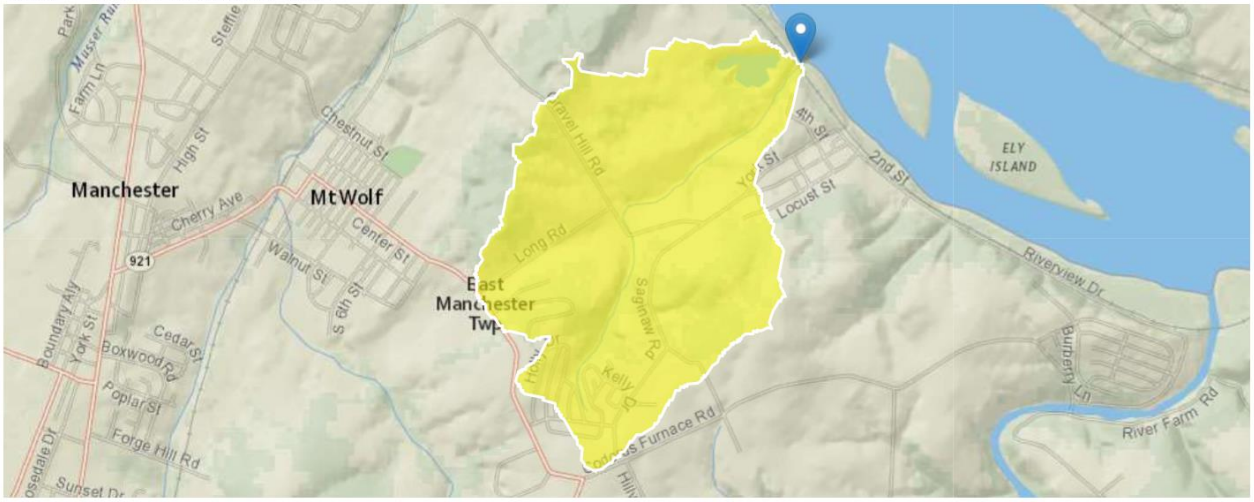
Low-Flow Statistics Citations

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/)

Application Version: 4.20.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20240522131013135000
Clicked Point (Latitude, Longitude): 40.07065, -76.67337
Time: 2024-05-22 09:10:33 -0400



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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	5.2382	degrees
DRNAREA	Area that drains to a point on a stream	1.23	square miles
ROCKDEP	Depth to rock	4.9	feet
URBAN	Percentage of basin with urban development	9.303	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.23	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	5.2382	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.9	feet	4.13	5.21
URBAN	Percent Urban	9.303	percent	0	89

Low-Flow Statistics Disclaimers [Low Flow Region 1]

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

Low-Flow Statistics Flow Report [Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.381	ft^3/s
30 Day 2 Year Low Flow	0.478	ft^3/s
7 Day 10 Year Low Flow	0.18	ft^3/s
30 Day 10 Year Low Flow	0.235	ft^3/s
90 Day 10 Year Low Flow	0.345	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/)

Application Version: 4.20.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA 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)
37.500	Saginaw STP	PA0247103	0.300	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA 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
37.500	Saginaw STP	16.76	50	16.76	50	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
37.500	Saginaw STP	1.89	25	1.89	25	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)		
37.50	Saginaw STP	25	25	25	25	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
37.500	0.300	20.002	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
979.915	1.080	907.739	1.362
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.01	0.006	0.01	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.242	3.513	Tsivoglou	6
Reach Travel Time (days)			
0.022			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.002	2.01	0.01	8.24
0.004	2.01	0.01	8.24
0.007	2.01	0.01	8.24
0.009	2.01	0.01	8.24
0.011	2.01	0.01	8.24
0.013	2.01	0.01	8.24
0.016	2.01	0.01	8.24
0.018	2.01	0.01	8.24
0.020	2.01	0.01	8.24
0.022	2.01	0.01	8.24

WQM 7.0 Modeling Specifications

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA 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												
37.500	1440.00	0.00	1440.00	.4641	0.00055	1.08	979.92	907.74	1.36	0.022	20.00	7.00
Q1-10 Flow												
37.500	921.60	0.00	921.60	.4641	0.00055	NA	NA	NA	1.06	0.029	20.00	7.00
Q30-10 Flow												
37.500	1958.40	0.00	1958.40	.4641	0.00055	NA	NA	NA	1.62	0.019	20.00	7.00

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
07K	6685	SUSQUEHANNA RIVER	**37.500**	250.00	25600.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	1440.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Saginaw STP	PA0247103	0.3000	0.3000	0.3000	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	5.00	8.24	0.00	0.00
NH3-N	25.00	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
07K	6685	SUSQUEHANNA RIVER	**37.000**	248.54	25605.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	1440.50	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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