Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0111350**
Facility Type	**Municipal**	APS ID	**500567**
Major / Minor	**Minor**	Authorization ID	**1500444**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Petersburg Borough Sewer Authority Huntingdon County**	Facility Name	**Petersburg STP**
Applicant Address	316 King Street, PO Box 6	Facility Address	6975 Juniata Valley Pike
	Petersburg, PA 16669-0006		Alexandria, PA 16611
Applicant Contact	Cheryl Musser	Facility Contact	Cheryl Musser
Applicant Phone	(814) 251-5350	Facility Phone	(814) 251-5350
Client ID	214799	Site ID	251507
Ch 94 Load Status	Not Overloaded	Municipality	Petersburg Borough
Connection Status	No Limitations	County	Huntingdon
Date Application Received	September 18, 2024	EPA Waived?	Yes
Date Application Accepted	September 24, 2024	If No, Reason	
Purpose of Application	NPDES permit renewal.		

Summary of Review

Petersburg Borough Sewer Authority (PBSA) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on January 30, 2020, and became effective on February 1, 2020. The permit expired on January 31, 2025.

PBSA owns, operates, and maintains the wastewater treatment plant located in Petersburg Borough, Huntingdon County. The extended aeration secondary treatment plant discharges treated municipal wastewater to Shaver Creek, which is classified for High Quality-Cold Water Fishes (HQ-CWF). The collection system has no combined sewers and serves Petersburg Borough and Logan Township. The facility has a design average annual flow of 0.1 MGD.

The WQM No. 3106403 was issued on 3/22/2007. The 3106403 A-1 & 3106403 A-2 were issued on 9/28/2009 & 3/9/2016.

Sludge use and disposal description and location(s): N/A because sludge is hauled by Altoona Water Authority.

Changes from the previous permit: The E. Coli. monitoring and report requirements will add to the permit.

Based on the review outline in this fact sheet, it is recommended that the permit be drafted and published in the Pennsylvania Bulletin for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	December 27, 2024
X		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	January 27, 2025

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.1
Latitude	40º 34' 2.98"	Longitude	-78º 2' 53.39"
Quad Name	Alexandria	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Shaver Creek (HQ-CWF)	Stream Code	15575
NHD Com ID	65605864	RMI	0.3
Drainage Area	62.9 mi.^{2}	Yield (cfs/mi^2)	See comments below
Q_{7-10} Flow (cfs)	See comments below	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	661.42	Slope (ft/ft)	
Watershed No.	11-B	Chapter 93 Class.	HQ-CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Mifflintown Borough Municipal Authority, Juniata County		
PWS Waters	Juniata River	Flow at Intake (cfs)	
PWS RMI	37.5 miles	Distance from Outfall (mi)	Approximate 64.0 miles

Changes Since Last Permit Issuance:

Drainage Area

The discharge is to Shaver Creek at RMI 0.30 mile. A drainage area upstream of the discharge is estimated to be 62.9 mi.^{2}, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow

Streamflow will be correlated with past streamflow records taken from the nearby USGS gage station 01559500 on the Standing Stone Creek. The Q_{7-10} is 6.7 cfs and the drainage area is 129 mi.^{2} (according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/) which results in a Q_{7-10} low flow yield of 0.05 cfs/mi.^{2}. This information is used to obtain a chronic or 30-day (Q_{30-10}), and an acute or 1-day (Q_{1-10}) exposure stream flow for the discharge point as follows (Guidance No. 391-2000-023):

$$\text{Low Flow Yield} = Q_{7\text{-}10gage} / \text{Drainage Area}_{gage} = 6.7 \text{ cfs} / 129 \text{ mi.}^2 = 0.05 \text{ cfs/mi.}^2$$
$$Q_{7\text{-}10discharge} = 0.05 \text{ cfs/mi.}^2 * \text{Drainage Area}_{discharge} = 0.05 \text{ cfs/mi.}^2 * 62.9 \text{ mi.}^2 = 3.1 \text{ cfs}$$
$$Q_{30\text{-}10} = 1.36 * Q_{7\text{-}10discharge} = 1.36 * 3.1 \text{ cfs} = 4.2 \text{ cfs}$$
$$Q_{1\text{-}10} = 0.64 * Q_{7\text{-}10discharge} = 0.64 * 3.1 \text{ cfs} = 2.0 \text{ cfs}$$

Potable Water Supply Intake

The nearest downstream public water supply intake is the Mifflintown Borough Municipal Authority, Juniata County intake on the Juniata River, approximately 64 miles from the point of discharge. Given the nature and dilution, the discharge is not expected to significantly impact the water supply.

Treatment Facility Summary				

Treatment Facility Name: Petersburg STP

WQM Permit No.	Issuance Date
3106403	3/22/2007
3106403 A-1	9/28/2009
3106403 A-2	3/9/2016

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Ultraviolet	0.1

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.1	170	Not Overloaded	Aerobic Digestion	Combination of methods

Changes Since Last Permit Issuance:

Other Comments:

The treatment plant consists of a wet well (1), comminutor (1), bar screen (1), aeration tanks (2), clarifiers (2), UV disinfection units (2), post aeration (1), sludge holding tank (1), sludge digester (1), and discharge.

Biosolids:
The total sewage sludge/biosolids production within the facility for the previous year was 4.5 dry tons.

Industrial/Commercial Users:
The permit application indicated there are no commercial or industrial contributors to the treatment plant.

Compliance History	
Summary of DMRs:	DMRs reported last 12 months are summarized in the next page.
Summary of Inspections:	3/04/2024: Mr. Clark, DEP's WQS, conducted a compliance evaluation inspection. The field test results were within permitted limits. Effluent appeared clear. There were no violations identified during inspection. The recommendation was to submit a planned change to the waste stream supplemental form as soon as possible.
Other Comments:	There are no open violations against the facility or the permittee.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from November 1, 2023 to October 31, 2024)

Parameter	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23
Flow (MGD) Average Monthly	0.028	0.014	0.036	0.016	0.015	0.0223	0.082	0.039	0.027	0.059	0.033	0.0188
Flow (MGD) Daily Maximum	0.114	0.025	0.179	0.036	0.026	0.075	0.578	0.137	0.056	0.140	0.08	0.043
pH (S.U.) Daily Minimum	6.18	6.02	6.04	6.16	6.01	6.04	6.36	6.32	6.52	6.58	6.08	6.16
pH (S.U.) Instantaneous Maximum	7.34	7.34	7.38	7.73	7.13	7.46	8.07	7.53	7.89	7.52	7.53	7.42
DO (mg/L) Daily Minimum	8.9	8.92	8.1	8.0	8.69	9.85	8.2	11.81	11.9	9.97	8.74	8.46
CBOD5 (lbs/day) Average Monthly	0.9	< 1.0	< 1.0	< 0.7	< 0.4	1.0	< 2.0	< 2.0	< 2.0	< 1.0	< 0.7	< 0.6
CBOD5 (lbs/day) Weekly Average	1.0	2.0	2.0	2.0	0.7	3.0	7.0	3.0	6.0	< 2.0	< 1.0	< 1.0
CBOD5 (mg/L) Average Monthly	3.77	< 10.07	< 4.15	< 5.0	< 4.09	7.06	< 4.42	< 6.68	< 12.21	< 3.0	< 3.0	< 3.7
CBOD5 (mg/L) Weekly Average	5.58	22.1	6.81	11.2	6.85	12.5	6.44	10.9	38.4	< 3.0	< 3.0	5.6
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	63	38	53	42	33	34	89	65	47	108	69	47
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	107	60	84	73	39	73	217	91	78	168	142	105
BOD5 (mg/L) Raw Sewage Influent Average Monthly	276	281	182	278	309	228	211	246	210	256	286	267
TSS (lbs/day) Average Monthly	4.0	1.0	1.0	< 0.6	< 0.4	0.5	< 1.0	< 2.0	< 2.0	< 1.0	< 0.5	< 0.5
TSS (lbs/day) Raw Sewage Influent Average Monthly	66	31	30	42	32	33	81	55	38	68	45	33
TSS (lbs/day) Raw Sewage Influent Daily Maximum	139	46	60	55	38	62	221	79	62	118	86	72
TSS (lbs/day) Weekly Average	8.0	2.0	2.0	1.0	0.8	1.0	< 2.0	3.0	6.0	3.0	1.0	1.0

TSS (mg/L) Average Monthly	14.0	12.0	6.0	< 4.0	< 4.0	4.0	< 3.0	< 6.0	< 11.0	< 3.0	< 2.0	< 3.0
TSS (mg/L) Raw Sewage Influent Average Monthly	264	228	155	291	298	229	174	215	176	175	190	193
TSS (mg/L) Weekly Average	19.0	21.0	11.0	8.0	7.0	6.0	2.0	10.0	37.0	5.0	4.0	4.0
Fecal Coliform (No./100 ml) Geometric Mean	< 29	< 320	< 7.0	< 42	< 4.0	< 4.0	< 4.0	< 9	213	< 4.0	< 4.0	< 4.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	4184.8	6931.6	39.2	943.6	< 4.0	< 4.0	4.0	20.8	9678.4	< 4.0	4	4.0
UV Intensity (mW/cm^2) Daily Minimum	0.9	1.4	1.7	2.5	1.4	4.6	2.8	0.4	2.5	2.1	3.4	3.8
Total Nitrogen (lbs/day) Total Annual											3777	
Total Nitrogen (mg/L) Annual Average											43.294	
Total Phosphorus (lbs/day) Total Annual											510	
Total Phosphorus (mg/L) Annual Average											5.82	

Existing Effluent Limitations and Monitoring Requirements

Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Total Annual	Daily 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
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Light Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
$CBOD_5$	21.0	33.0	XXX	25.0	40.0	50.0	1/week	24-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	25.0	38.0	XXX	30.0	45.0	60.0	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Total Nitrogen	XXX	Report	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Total Phosphorus	XXX	Report	XXX	Report Annl Avg	XXX	XXX	1/year	24-Hr Composite

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.1
Latitude 40º 34' 2.98" **Longitude** -78º 2' 53.39"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

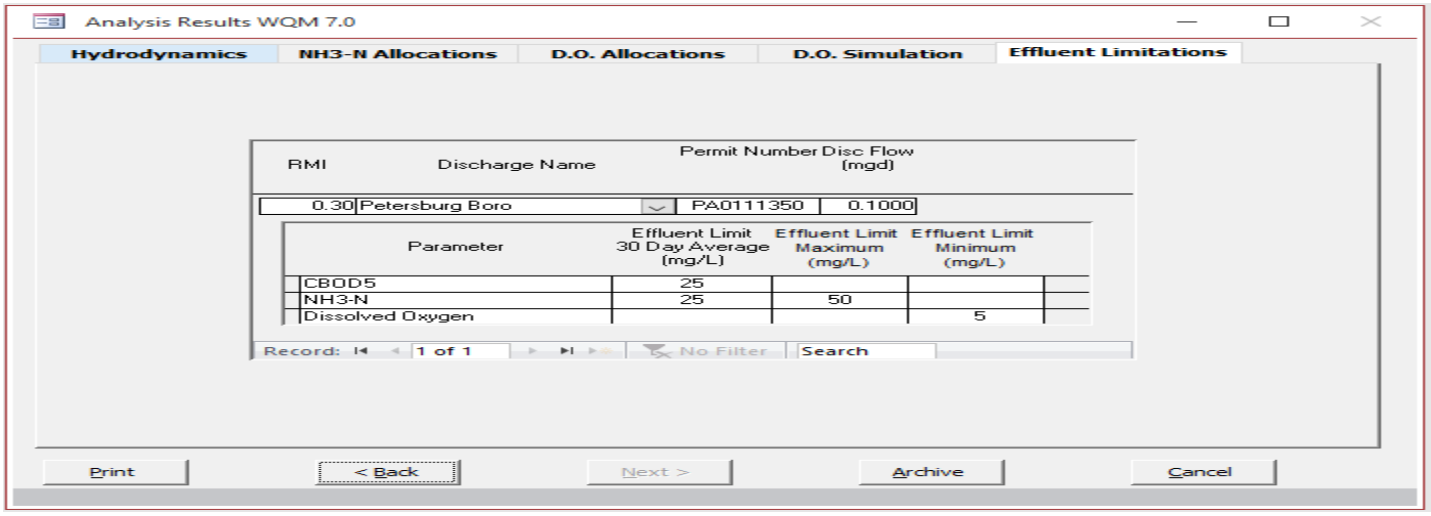
Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	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: The TRC limits does not apply to this facility because disinfection is by UV.

Water Quality-Based Limitations

Ammonia (NH_3-N):
NH_3-N calculations were first based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the in-stream NH_3-N criteria used in the attached computer model of the stream:

- Discharge pH = 7.0 (Default)
- Discharge Temperature = 25°C (Default)
- Stream pH = 7.0 (Default)
- Stream Temperature = 20ºC (Default)
- Background NH_3-N = 0 (Default)



Regarding NH_3-N limits, the attached computer printout of the WQM 7.0 stream model (version 1.1) indicates that a limit of 25.0 mg/L as a monthly average and 50.0 mg/L instantaneous maximum (IMAX) are necessary to protect the aquatic life from toxicity effects at the point of discharge. In June 19, 1986 a pollution report prepared by the Harrisburg Regional Office documented that secondary treatment with no NH_3-N requirements are needed to protect Shaver Creek and was consistent with the intended design of the STP. All following permits have agreed with the findings of the June 19, 1986, pollution report. This agrees with previous permits.

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):
The attached computer printout of the WQM 7.0 stream model indicates that a monthly average limit of 25.0 mg/L, or secondary treatment, is adequate to protect the water quality of the stream. However, the existing limits of 25.0 mg/L monthly average (AML), 40.0 mg/L average weekly limit (AWL), and 50.0 mg/L instantaneous maximum will remain in the proposed permit as per guidance document 391-2000-014. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Mass based AML (lbs/day) = 25 (mg/L) x 0.1 (MG/day) x 8.34 (lb/MG)(L/mg) = 20.85 (21.0) lbs/day
Mass based AWL (lbs/day) = 40 (mg/L) x 0.1 (MG/day) x 8.34 (lb/MG)(L/mg) = 33.36 (33.0) lbs/day

Dissolved Oxygen (D.O.):
A minimum D.O. of 5.0 mg/L is required per 25 Pa. Code § 93.7. This is consistent with the previous permit and current Department criteria.

pH:
The effluent discharge pH should remain above 6.0 and below 9.0 standard units according to 25 Pa Code § 95.2(2).

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 1,000/100 ml and § 92a.47.(a)(5) requires a winter limit of 2,000/100 ml as a geometric mean and an instantaneous maximum not greater than 10,000/100 ml.

E. Coli:
As recommended by DEP's SOP No. BCW-PMT-033, version 2.0 revised February 5, 2024, a routine monitoring for E. Coli will be included in the proposed permit under 25 Pa. Code § 92a.61. This requirement applies to all sewage dischargers greater than 0.002 MGD in their new and reissued permits. A monitoring frequency of 1/quarter will be included in the permit to be consistent with the recommendation from this SOP.

UV:
The UV system daily monitor and report the UV light intensity ($\mu W/cm^2$) will remain in the proposed permit.

Total Suspended Solids (TSS):
There is no water quality criterion for TSS. A limit of 30.0 mg/L AML & 60.0 mg/L IMAX will be required based on the minimum level of effluent quality attainable by secondary treatment as defined in 40 CFR 133.102b(1) and 25 PA § 92a.47(a)(1), and an AWL of 45.0 mg/L per 40CFR 133.102(b)(2) and 25 PA § 92a.47(a)(2). Mass limits are calculated as follows:

Mass based AML (lbs/day) = 30 (mg/L) x 0.1 (MG/day) x 8.34 (lb/MG)(L/mg) = 25.02 (25.0) lbs/day
Mass based AWL (lbs/day) = 45 (mg/L) x 0.1 (MG/day) x 8.34 (lb/MG)(L/mg) = 37.53 (38.0) lbs/day

Phosphorus:
No phosphorus permit limitations are necessary for this facility.

Chesapeake Bay Strategy:
The Department formulated a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). Sewage discharges have been prioritized by Central Office based on their delivered TN loadings to the Bay. The highest priority (Phases I, II, and III) dischargers will receive 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. These limits may be achieved through a combination of treatment technology, credits, or offsets. Phase IV (0.2 -0.4 MGD) will be required to monitor and report TN and TP during permit renewal monthly and Phase V (below 0.2 MGD) will monitor during current permit renewal once a year. However, any facility in Phases IV and V that undergoes expansion is subjected to cap load right away. This plant is classified as a phase V, and will be required to monitor and report TP and TN once a year.

Influent BOD_5 and TSS Monitoring:
The permit will include influent BOD_5 and TSS monitoring at the same frequency as is done for effluent in order to implement Chapter 94.12 and assess percent removal requirements, per DEP policy.

Biosolids Management:
Digested sludge is periodically removed and dewatered by a contractor with a mobile belt filter press prior to final disposal in a landfill.

Stormwater:
There is no stormwater outfall associated with this facility.

Toxic:
The application submitted for this permit renewal did not require sampling of toxics pollutants. According to the application, there is no commercial establishment/business within the service area. Therefore, there is no toxics pollutants of concern from this discharge.

Anti-Degradation (93.4)

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No Exceptional Value Waters are impacted by this discharge. The discharge pre-dates the HQ-CWF classification of the creek.

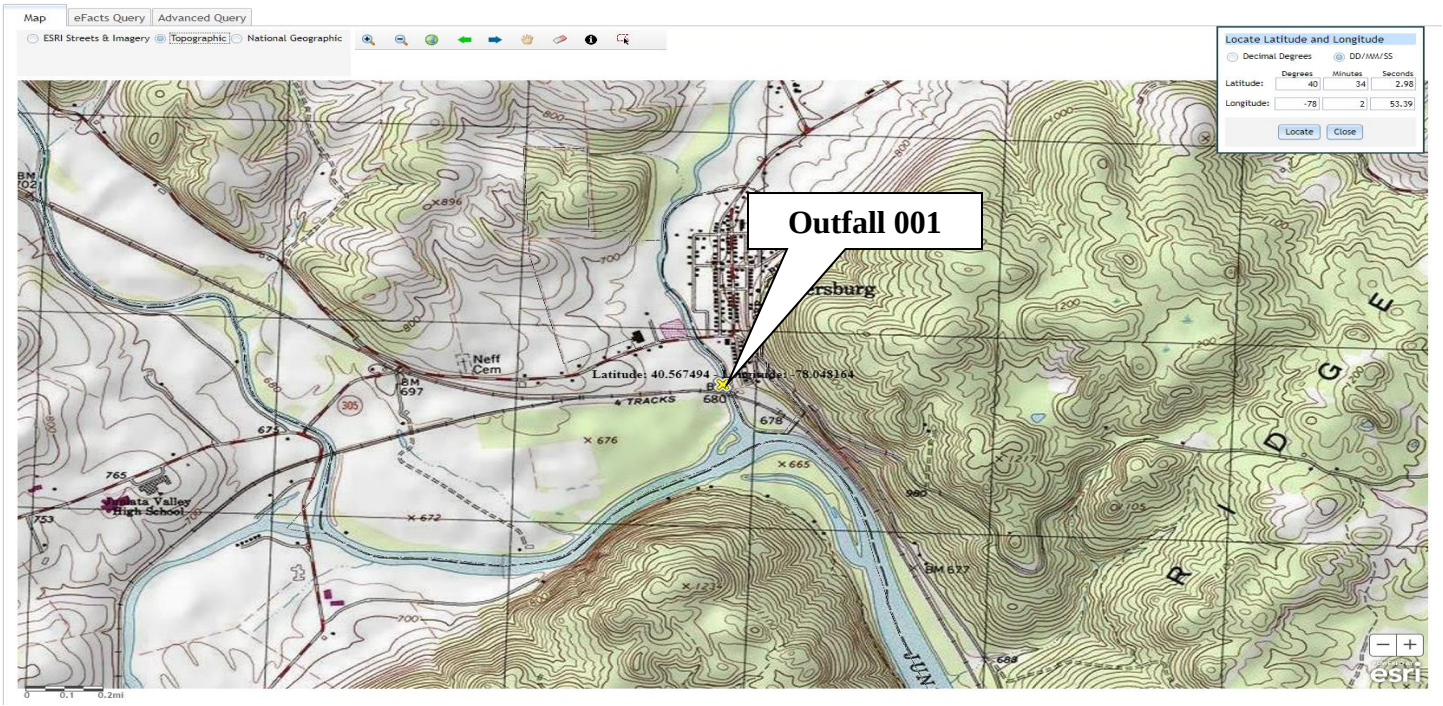
Class A Wild Trout Fisheries

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

Additional Considerations

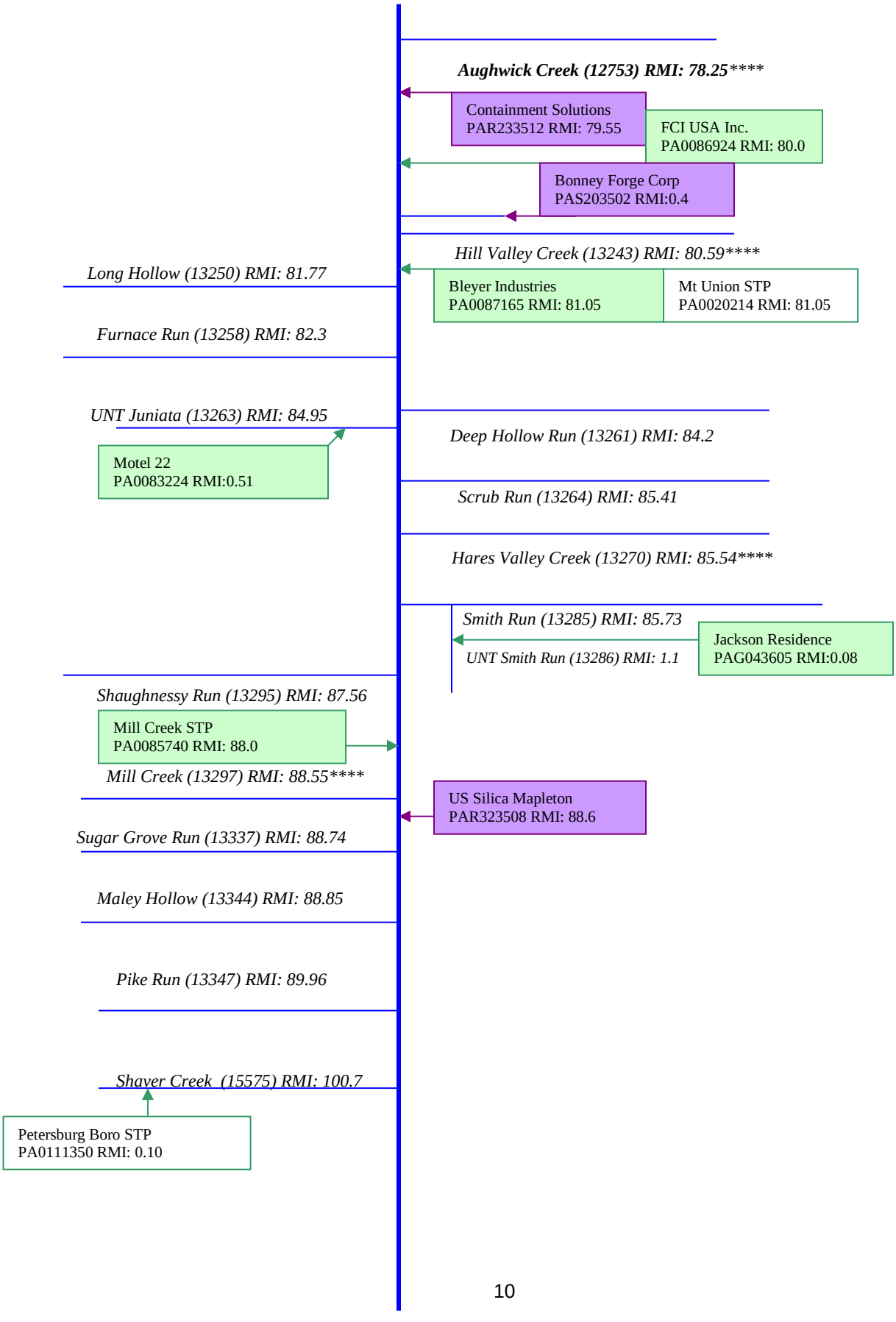
Flow Monitoring
The requirement to monitor the volume of effluent will remain in the proposed permit per 40 CFR § 122.44(i)(1)(ii).

Monitoring Frequency and Sample Type
The facility currently is required to collect daily effluent grab samples for D.O., and pH; daily record UV Light intensity (mW/cm^2); one-week effluent 24-hr composite samples of $CBOD_5$, and TSS; one-week effluent grab samples of fecal coliform; annually effluent 24-hr composite samples of TP; and annually effluent calculation samples of TN. Based on the best professional judgement of the author, the existing monitoring frequencies are sufficient and necessary. Therefore, the existing monitoring frequencies will remain the same as those specified in the proposed permit.



A. Stick Diagram

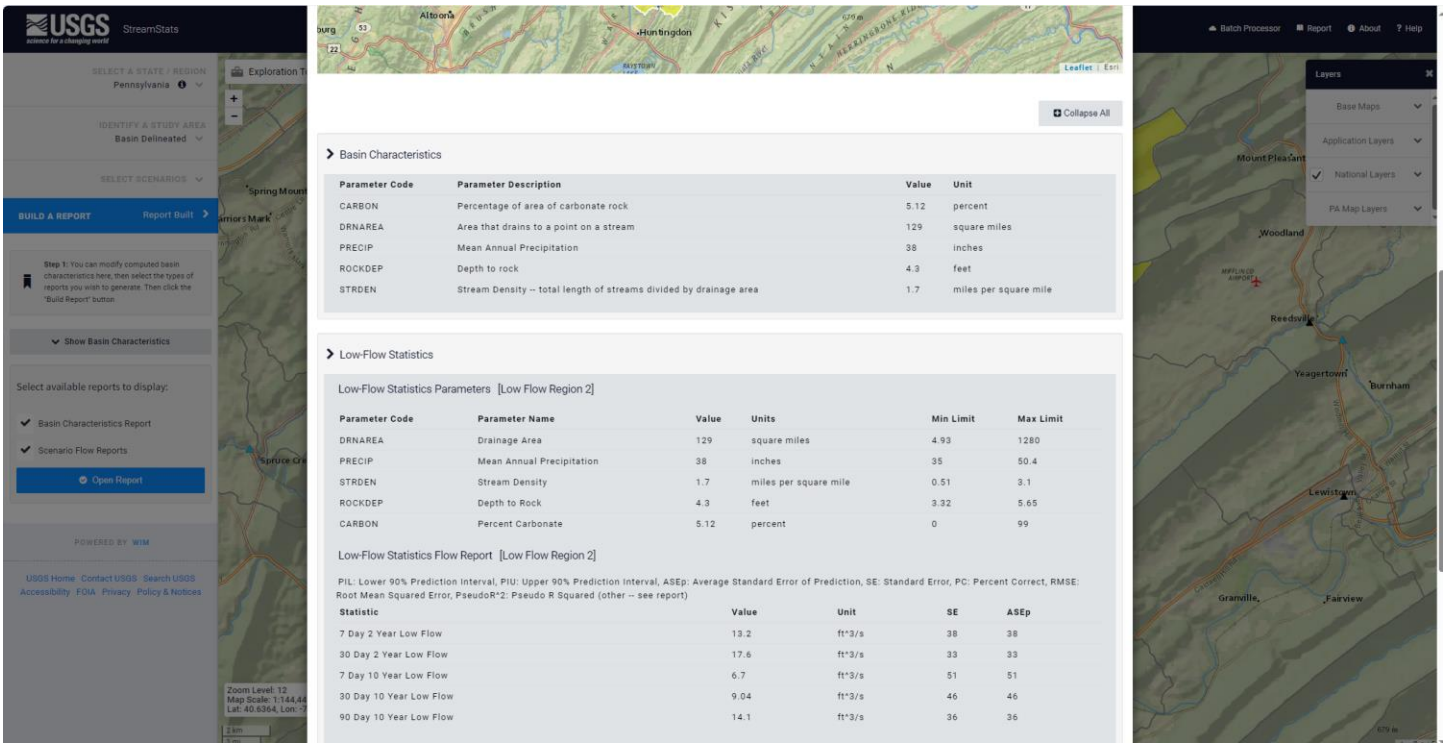
Straight Line Diagram – Juniata River in Watershed 12-C

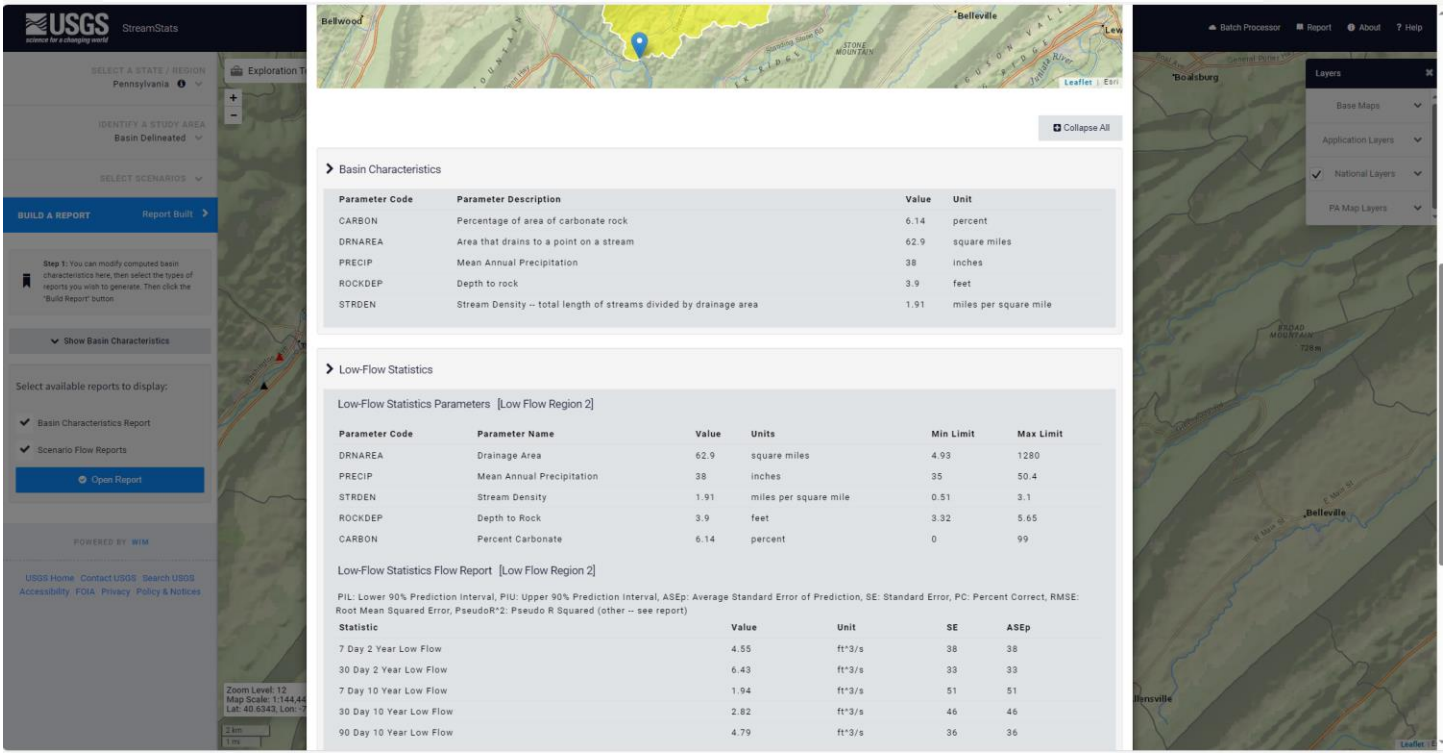


WQM 7.0 MODEL INPUT:

- Discharge pH = 7.0 (Default)
- Discharge Temperature = 25°C (Default)
- Stream pH = 7.0 (Default)
- Stream Temperature = 20°C (Default)
- Background NH_3-N = 0 (Default)

1. Outfall 001 on Shaver Creek (15575)
   a. Elevation: 661.42 ft
   b. RMI: 0.3 mile
   c. Drainage Area: 62.9 $mi.^2$
   d. Low Flow Yield: 0.05 $cfs/mi.^2$
   e. Discharge Flow: 0.1 MGD
2.
   a. Elevation: 661.27 ft
   b. RMI: 0.001 mile
   c. Drainage Area: 63.0 $mi.^2$
   d. Low Flow Yield: 0.05 $cfs/mi.^2$
   e. Discharge Flow: 0.000 MGD.



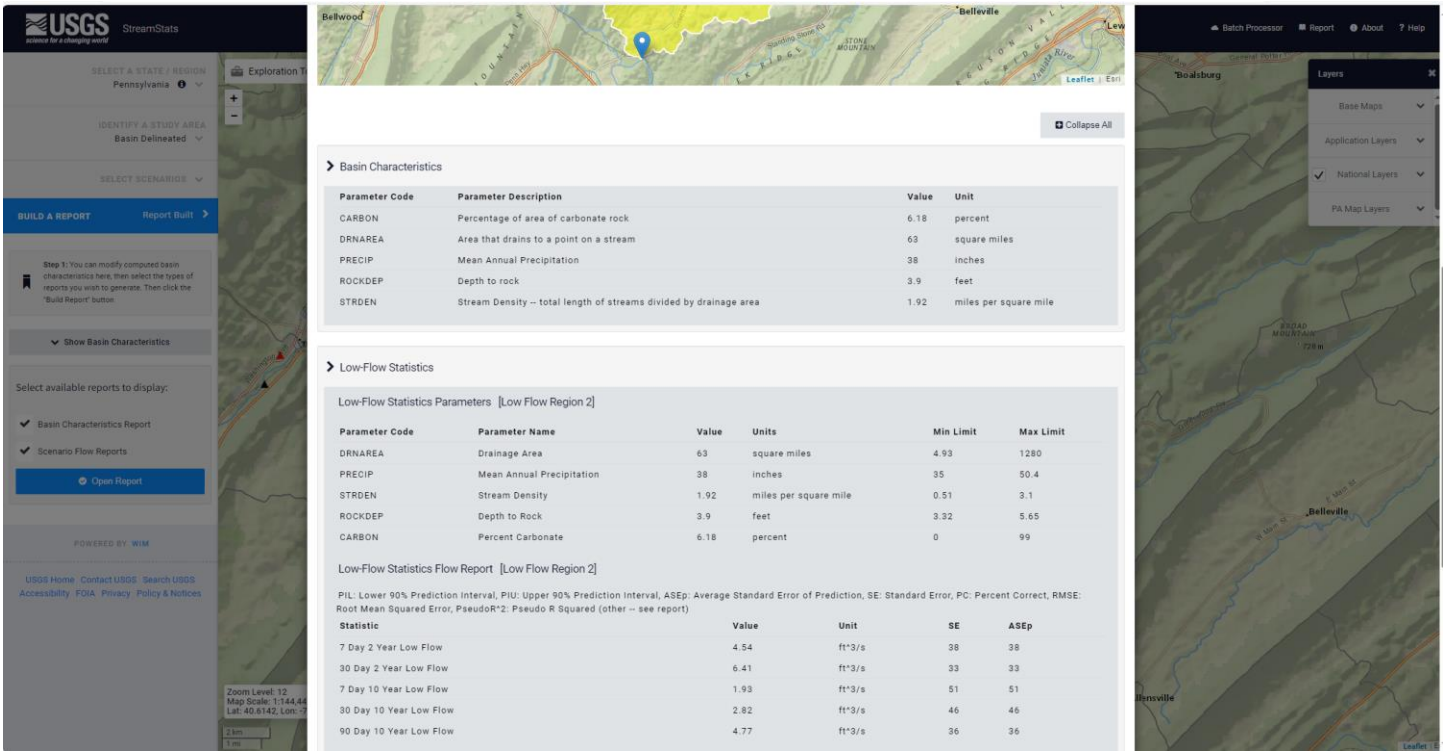


Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	6.14	percent
DRNAREA	Area that drains to a point on a stream	62.9	square miles
PRECIP	Mean Annual Precipitation	38	inches
ROCKDEP	Depth to rock	3.9	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.91	miles per square mile

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	62.9	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	38	inches	35	50.4
STRDEN	Stream Density	1.91	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	3.9	feet	3.32	5.65
CARBON	Percent Carbonate	6.14	percent	0	99

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	4.55	ft^3/s	38	38
30 Day 2 Year Low Flow	6.43	ft^3/s	33	33
7 Day 10 Year Low Flow	1.94	ft^3/s	51	51
30 Day 10 Year Low Flow	2.82	ft^3/s	46	46
90 Day 10 Year Low Flow	4.79	ft^3/s	36	36

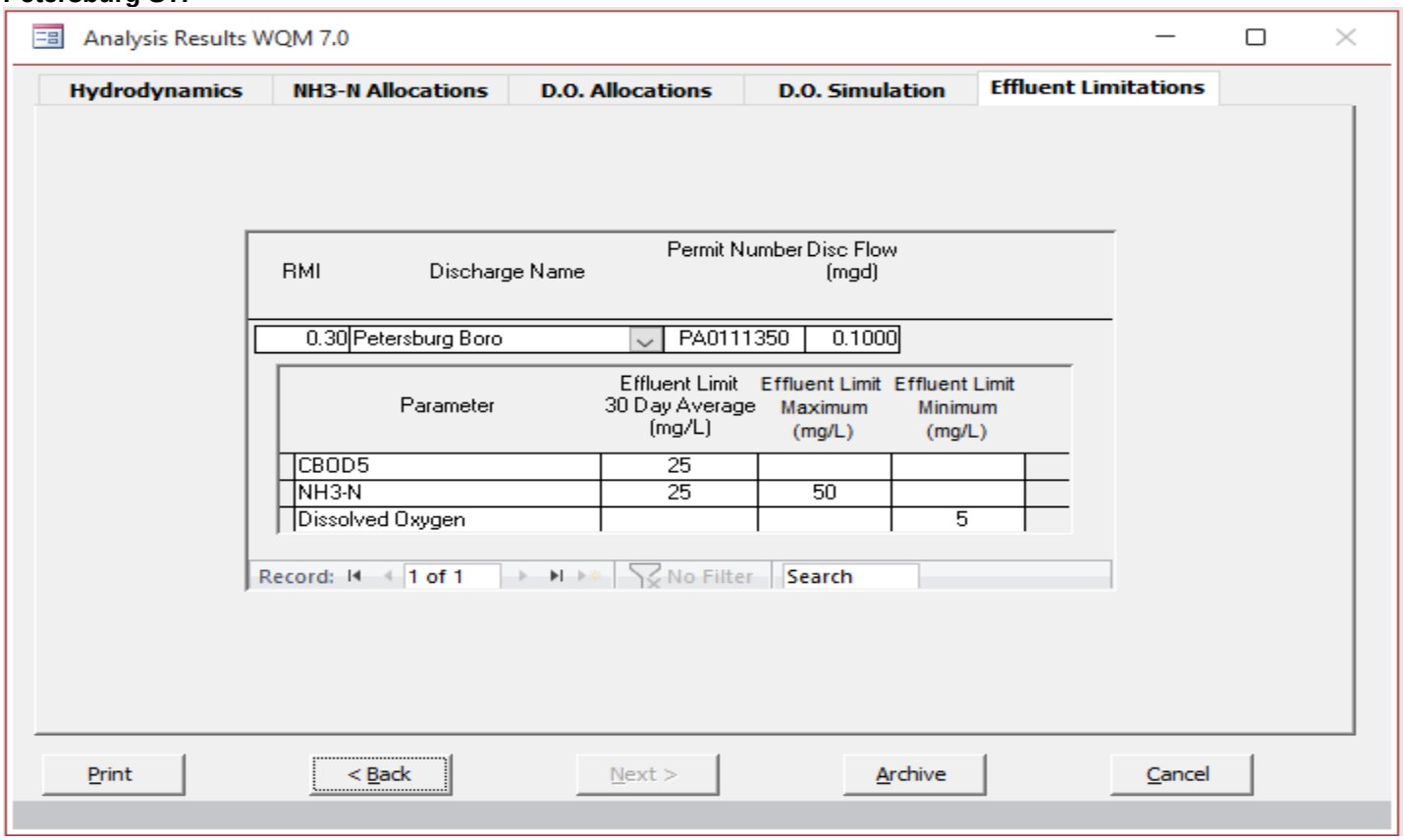


Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	6.18	percent
DRNAREA	Area that drains to a point on a stream	63	square miles
PRECIP	Mean Annual Precipitation	38	inches
ROCKDEP	Depth to rock	3.9	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.92	miles per square mile

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	63	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	38	inches	35	50.4
STRDEN	Stream Density	1.92	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	3.9	feet	3.32	5.65
CARBON	Percent Carbonate	6.18	percent	0	99

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	4.54	ft^3/s	38	38
30 Day 2 Year Low Flow	6.41	ft^3/s	33	33
7 Day 10 Year Low Flow	1.93	ft^3/s	51	51
30 Day 10 Year Low Flow	2.82	ft^3/s	46	46
90 Day 10 Year Low Flow	4.77	ft^3/s	36	36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Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
Discharge Name
Permit Number
Disc Flow (mgd)
0.30
Petersburg Boro
PA0111350
0.1000
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
25
NH3-N
25
50
Dissolved Oxygen
5
Record: 1 of 1
No Filter
Search
Print
< Back
Next >
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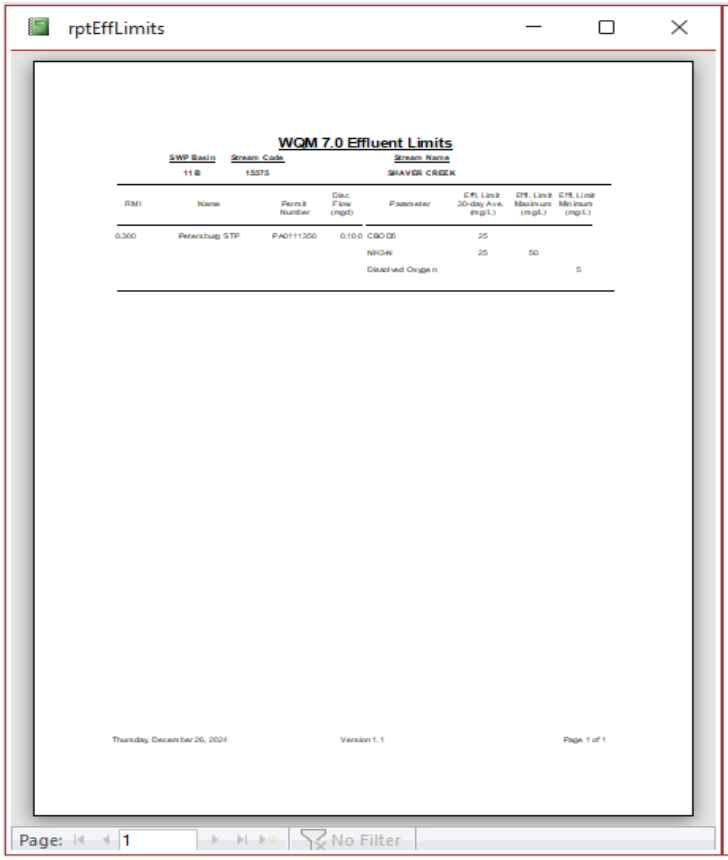
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WQM 7.0 Effluent Limits
SWP Basin
Stream Code
Stream Name
11 B
15575
SHAVER CREEK
RMI
Name
Permit Number
Disc Flow (mgd)
Parameter
Eff. Limit 30-day Ave. (mg/L)
Eff. Limit Maximum (mg/L)
Eff. Limit Minimum (mg/L)
0.300
Petersburg STP
PA0111350
0.10.0
CBOD5
25
NH3-N
25
50
Dissolved Oxygen
5
Thursday, December 26, 2024
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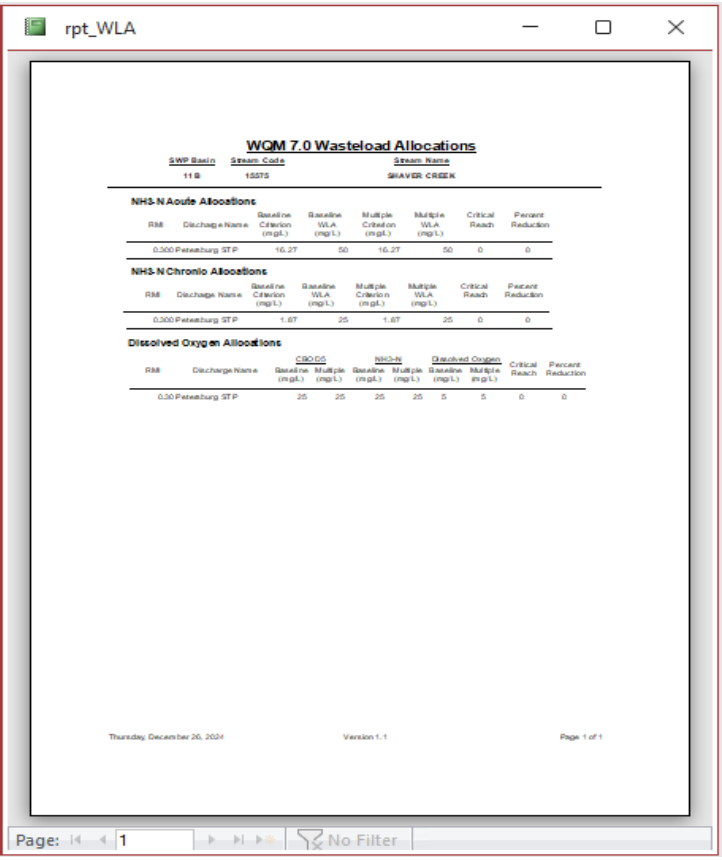
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WQM 7.0 Wasteload Allocations
SWP Basin
Stream Code
Stream Name
11 B
15575
SHAVER CREEK
NH3-N Acute Allocations
RMI
Discharge Name
Baseline Criterion (mg/L)
Baseline WLA (mg/L)
Multiple Criterion (mg/L)
Multiple WLA (mg/L)
Critical Reach
Percent Reduction
0.300 Petersburg STP
16.27
50
16.27
50
0
0
NH3-N Chronic Allocations
0.300 Petersburg STP
1.67
25
1.67
25
0
0
Dissolved Oxygen Allocations
CBOD5
NH3-N
Dissolved Oxygen
0.30 Petersburg STP
25
25
25
25
5
5
0
0
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rptDOSim

WQM 7.0 D.O. Simulation

SWP Basin	Stream Code	Stream Name
11B	15575	SHAVER CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.300	0.100	20.234	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WD Ratio**	**Reach Velocity (fps)**
37.113	0.749	49.519	0.119
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.08	0.531	1.17	0.713
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.091	0.108	Tsivoglou	5
Reach Travel Time (days)			
0.154			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.015	3.05	1.16	8.00
0.031	3.03	1.15	7.90
0.046	3.00	1.13	7.81
0.062	2.98	1.12	7.72
0.077	2.95	1.11	7.63
0.092	2.93	1.10	7.54
0.108	2.91	1.09	7.45
0.123	2.88	1.07	7.36
0.139	2.86	1.06	7.28
0.154	2.83	1.05	7.19

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rptModelSpecs

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	1.26	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

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rptHydro

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
11B	15575	SHAVER CREEK

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												
0.300	3.15	0.00	3.15	.154 T	0.00 009	.749	37.11	49.52	0.12	0.154	20.23	7.00
Q1-10 Flow												
0.300	2.01	0.00	2.01	.154 T	0.00 009	NA	NA	NA	0.09	0.195	20.36	7.00
Q30-10 Flow												
0.300	4.26	0.00	4.26	.154 T	0.00 009	NA	NA	NA	0.14	0.131	20.17	7.00

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rptGeneral

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
11B	15575	SHAVER CREEK	0.300	661.42	62.90	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	0.050	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Petersburg STP	PA0111350	0.1000	0.1000	0.1000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	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

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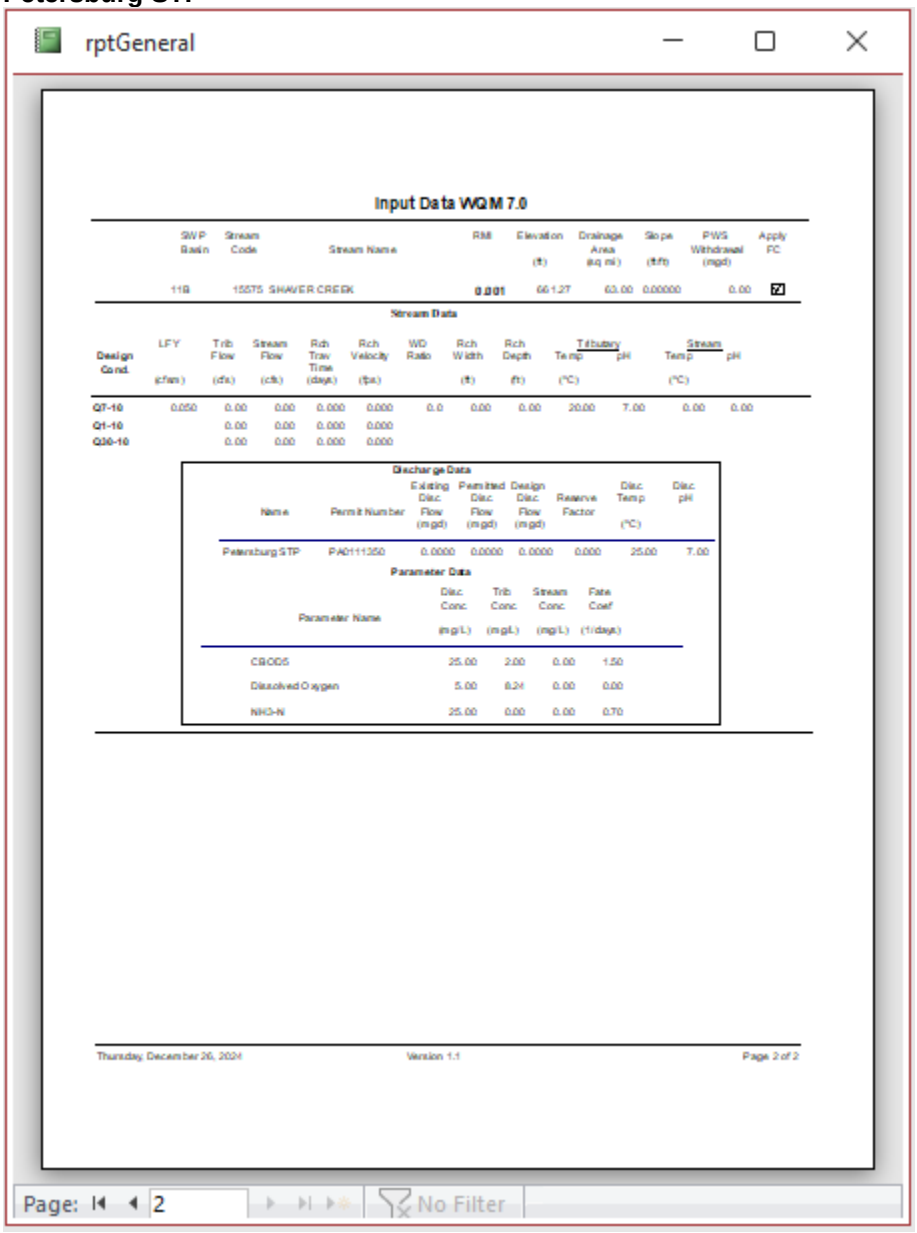
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Input Data WQM 7.0
SWP Basin
Stream Code
Stream Name
RMI
Elevation (ft)
Drainage Area (sq mi)
Slope (ft/ft)
PWS Withdrawal (mgd)
Apply FC
11B
15575 SHAVER CREEK
0.001
661.27
63.00
0.00000
0.00
Stream Data
Design Cond.
LFY (cfs/s)
Trib Flow (cfs)
Stream 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 0.050 0.00 0.00 0.000 0.000 0.0 0.00 0.00 20.00 7.00 0.00 0.00
Q1-10 0.00 0.00 0.000 0.000
Q30-10 0.00 0.00 0.000 0.000
Discharge Data
Name
Permit Number
Existing Disc Flow (mgd)
Permitted Disc Flow (mgd)
Design Disc Flow (mgd)
Reserve Factor
Disc Temp (°C)
Disc pH
Petersburg STP PA0111350 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 5.00 8.24 0.00 0.00
NH3-N 25.00 0.00 0.00 0.70
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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	Daily 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
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Intensity (mW/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
$CBOD_5$	21.0	33.0	XXX	25.0	40.0	50	1/week	24-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	25.0	38.0	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
Total Nitrogen	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Total Phosphorus	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	24-Hr Composite

Compliance Sampling Location:

Other Comments:

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: