Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0085073**
Facility Type	**Municipal**	APS ID	**277149**
Major / Minor	**Minor**	Authorization ID	**1510591**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Wood Broad Top Wells Joint Municipal Authority**	Facility Name	**Wood Broad Top Wells**
Applicant Address	PO Box 7	Facility Address	309 Lincoln Street
	Wood, PA 16694-0007		Robertsdale, PA 16674
Applicant Contact	Gary McCavitt	Facility Contact	Chad Myers
Applicant Phone	(814) 635-2354	Facility Phone	(814) 635-2354
Client ID	24230	Site ID	450550
Ch 94 Load Status	Not Overloaded	Municipality	Wood Township
Connection Status	No Limitations	County	Huntingdon
Date Application Received	December 22, 2024	EPA Waived?	Yes
Date Application Accepted	December 24, 2024	If No, Reason	
Purpose of Application	NPDES permit renewal.		

Summary of Review

GHD, on behalf of the Wood Broad Top Wells Joint Municipal Authority has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on July 16, 2020, and became effective on August 1, 2020. The permit expires on July 31, 2025. The NPDES PA0085073 A-1 DEP-Initiated Minor Amendment was issued on 8/12/2020 to correct the typo error on page # 4, Supplemental Information section, item (3) from 170 lbs to 340 lbs BOD_5 per day.

Wood Broad Top Wells Joint Municipal Authority owns, operates, and maintains the wastewater treatment plant located in Wood, Broad Top, & Wells Townships, Huntingdon County. The aeration secondary treatment plant discharges treated municipal wastewater to Unnamed Tributary Great Trough Creek, which is classified for Trout Stocking Fishes (TSF).

According to the NPDES renewal application submitted on 12/22/2024, the collection system has approximately 81% sewers from Wood, 17% sewers from Broad Top, and 2% sewers from Wells Townships. The facility has a design average annual flow of 0.084 MGD. The hydraulic capacity is 0.170 MGD.

WQM Part II No. 3192405 was issued on July 26, 1995, and No. 3192405 12-1 amendment issued December 10, 2014 to re-rate the hydraulic increase maximum monthly flow from 0.084 MGD to 0.170 MGD, and organic capacity increase the maximum monthly loading from 170 lbs/day to 340 lbs/day.

Sludge use and disposal description and location(s): sludge is hauled by Park's Garbage contractor.

Changes from the previous permit: The E. Coli monitoring and report requirements will add to the proposed 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	May 30, 2025
x		*Maria D. Bebenek* for Daniel W. Martin, P.E. / Environmental Engineer Manager	June 30, 2025

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.084
Latitude	40º 11' 12.59"	Longitude	-78º 6' 39.30"
Quad Name	Saltillo	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Great Trough Creek (TSF)	Stream Code	13617
NHD Com ID	65842661	RMI	0.03
Drainage Area	0.56 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)	1737.66	Slope (ft/ft)	
Watershed No.	11-D	Chapter 93 Class.	TSF
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 Municipal Authority, Juniata County		
PWS Waters	Juniata River	Flow at Intake (cfs)	
PWS RMI	34.4 miles	Distance from Outfall (mi)	Approximate 106 miles

Changes Since Last Permit Issuance:

Drainage Area
The discharge is to Toms Creek at RMI 0.03 mile. A drainage area upstream of the discharge is estimated to be 0.56 mi.^{2}, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow
Stream flows for the water quality modeling were determined by correlating with the yield of USGS gauging station No.01562000 on Raystown Branch Juniata River at Saxton, PA. The Q_{7-10} is 44.8 cfs and the drainage area is 754 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 0.06 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):

Low Flow Yield = 44.8 cfs / 754 mi.^{2} ≈ 0.06 cfs/mi.^{2}
Q_{7-10} discharge = 0.06 cfs/mi.^{2} x D.A discharge = 0.06 cfs/mi.^{2} x 0.56 mi.^{2} = 0.034 cfs
Q_{30-10} = 1.36 * 0.034 cfs ≈ 0.046 cfs
Q_{1-10} = 0.64 * 0.034 cfs ≈ 0.02 cfs

Unnamed Tributary to Great Trough Creek
25 Pa Code § 93.9n classifies Unnamed Tributary to Great Trough Creek as Trout Stocking Fishes (TSF) surface water. Based on the 2024 Integrated Report, Great Trough Creek, assessment unit ID 13106, is not impaired. A TMDL currently does not exist for this stream segment, therefore, no TMDL has been taken into consideration during this review.

Public Water Supply
The closest water supply intake located downstream from the discharge in the Mifflintown Municipal Authority, Juniata County approximately 106 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: Wood-Broadtop-Wells STP				
WQM Permit No.	**Issuance Date**			
3192405	7/26/1995			
3192405 12-1	12/10/2014			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Sequencing Batch Reactor	Ultraviolet	0.084
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.17	340	Not Overloaded		

Changes Since Last Permit Issuance:

Other Comments:
The WWTP train is as follows:

Influent Screens (2) – Comminutor (1) – SBRs (2) – UV disinfection (1) – Sludge Holding Tank (1) – Reed Beds (4) – Discharge (Outfall 001)

Chemical used:
Sodium bicarbonate is added as needed to increase alkalinity of SBR tank.

Industrial/Commercial Users:
There are no industrial or commercial users.

Biosolids:
The total sewage sludge/biosolids production within the facility for the previous year was 12.4 dry tons.

Aerobically digested sludge is placed into reed drying beds every few weeks where the reeds assimilate and dewater the sludge. Once every approximately 10 years the sludge beds are cleaned out and landfilled. The landfill that received the sludge is the Sandy Run Landfill (DEP Permit No. 101538).

Compliance History	
Summary of DMRs:	The eDMR reported from 12 months is summarized in the next pages.
Summary of Inspections:	4/23/2025: Mr. Clark, DEP WQS, conducted compliance evaluation inspection. The effluent looked clear, and all field test results were within the permit limits. There were no violations noted during inspection. 3/26/2024: Mr. Clark, DEP WQS, conducted compliance evaluation inspection. There were recommendations such as attach a Sludge Disposal Supplemental form to the June 2023 eDMR and obtain a replacement sensor cap for the LDO probe to have on hand. The cap must be replaced yearly. The effluent looked clear, and all field test results were within the permit limits.
Other Comments:	There are currently no open violations associated with the permittee or the facility.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from April 1, 2024 to March 31, 2025)

Parameter	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24
Flow (MGD) Average Monthly	0.06	0.066	0.049	0.06	0.03	0.035	0.028	0.067	0.031	0.032	0.072	0.123
Flow (MGD) Daily Maximum	0.109	0.168	0.168	0.14	0.091	0.1	0.05	0.394	0.122	0.05	0.244	0.453
pH (S.U.) Daily Minimum	6.7	6.9	6.7	6.9	6.9	6.5	7.0	6.9	6.9	7.0	7.0	6.9
pH (S.U.) Instantaneous Maximum	7.4	7.2	7.3	7.1	7.3	7.3	7.3	7.2	7.3	7.3	7.2	7.1
DO (mg/L) Daily Minimum	5.9	5.5	5.1	5.2	5.5	5.9	6.4	5.1	6.0	5.6	5.8	5.7
CBOD5 (lbs/day) Average Monthly	< 1.5	< 1.1	< 0.7	< 1.3	< 0.6	< 1.1	< 0.7	< 1.5	< 1.0	< 0.7	< 1.1	< 2.2
CBOD5 (lbs/day) Weekly Average	< 1.5	< 1.2	< 0.9	< 1.5	< 0.6	< 1.5	< 0.7	< 2.1	1.1	< 0.8	< 1.3	< 2.3
CBOD5 (mg/L) Average Monthly	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.9	< 3.0	< 3.0	< 3.0
CBOD5 (mg/L) Weekly Average	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	4.9	< 3.0	< 3.0	< 3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	37.0	54.0	38.0	47.0	37.0	32.0	45.0	41.0	38.0	40.0	46.0	119.0
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	40.0	61.0	44.0	47.0	38.0	35.0	55.0	43.0	43.0	45.0	50.0	133.0
BOD5 (mg/L) Raw Sewage Influent Average Monthly	75.0	147.0	157.0	116.0	194.0	93.0	190.0	105.0	152.0	163.0	134.0	161.0
TSS (lbs/day) Average Monthly	2.9	< 1.1	0.7	< 1.4	< 0.3	< 1.8	1.1	< 0.8	< 0.4	< 0.8	< 0.7	< 2.3
TSS (lbs/day) Raw Sewage Influent Average Monthly	286.0	391.0	101.0	38.0	19.0	42.0	31.0	28.0	53.0	44.0	44.0	166.0
TSS (lbs/day) Raw Sewage Influent Daily Maximum	555.0	556.0	179.0	53.0	24.0	75.0	40.0	31.0	76.0	50.0	48.0	251.0
TSS (lbs/day) Weekly Average	3.0	1.5	1.0	1.9	0.3	3.2	1.4	< 1.1	< 0.5	1.3	1.0	3.4

TSS (mg/L) Average Monthly	6.0	< 2.8	3.4	< 3.6	< 1.6	< 4.0	4.6	< 1.6	< 1.6	< 3.4	< 2.0	< 3.0
TSS (mg/L) Raw Sewage Influent Average Monthly	563.0	1069.0	372.0	100.0	100.0	92.0	133.0	67.0	187.0	180.0	124.0	220.0
TSS (mg/L) Weekly Average	6.0	4.0	5.0	6.0	2.0	6.0	6.0	< 2.0	< 2.0	5.0	2.0	4.0
Fecal Coliform (No./100 ml) Geometric Mean	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 1.0	< 1.0	< 2.0	< 1.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1.0	< 1.0	< 1.0	< 4.0	< 4.0	< 4.0	< 4.0	3.0	< 1.0	< 1.0	< 4.0	< 1.0
UV Intensity (mW/cm^2) Daily Minimum	3.9	3.9	3.2	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5	3.3
Nitrate-Nitrite (mg/L) Average Quarterly	2.834			< 3.823			< 3.3			< 1.6		
Total Nitrogen (mg/L) Average Quarterly	3.45			< 4.57			< 4.82			< 2.69		
Ammonia (lbs/day) Average Monthly	< 0.05	< 0.2	< 0.03	< 0.09	0.09	< 0.07	< 0.02	< 0.05	< 0.03	< 0.02	< 0.04	< 0.07
Ammonia (mg/L) Average Monthly	< 0.1	< 0.5048	< 0.1049	< 0.2422	0.454	< 0.1593	< 0.103	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TKN (mg/L) Average Quarterly	0.619			0.747			1.521			1.093		
Total Phosphorus (mg/L) Average Quarterly	1.4			2.69			3.37			1.88		

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	Daily Maximum	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Intensity (mW/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
$CBOD_5$	18.0	28.0 Wkly Avg	XXX	25.0	40.0	50.0	2/month	24-Hr Composite
TSS	21.0	32.0 Wkly Avg	XXX	30.0	45.0	60.0	2/month	24-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200.0 Geo Mean	XXX	1,000	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Ammonia May 1 - Oct 31	1.4	XXX	XXX	2.0	XXX	4.0	2/month	24-Hr Composite
Ammonia Nov 1 - Apr 30	4.2	XXX	XXX	6.0	XXX	12.0	2/month	24-Hr Composite
Nitrate-Nitrite	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
TKN	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Calculation

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.084
Latitude 40º 11' 12.59" **Longitude** -78º 6' 39.30"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

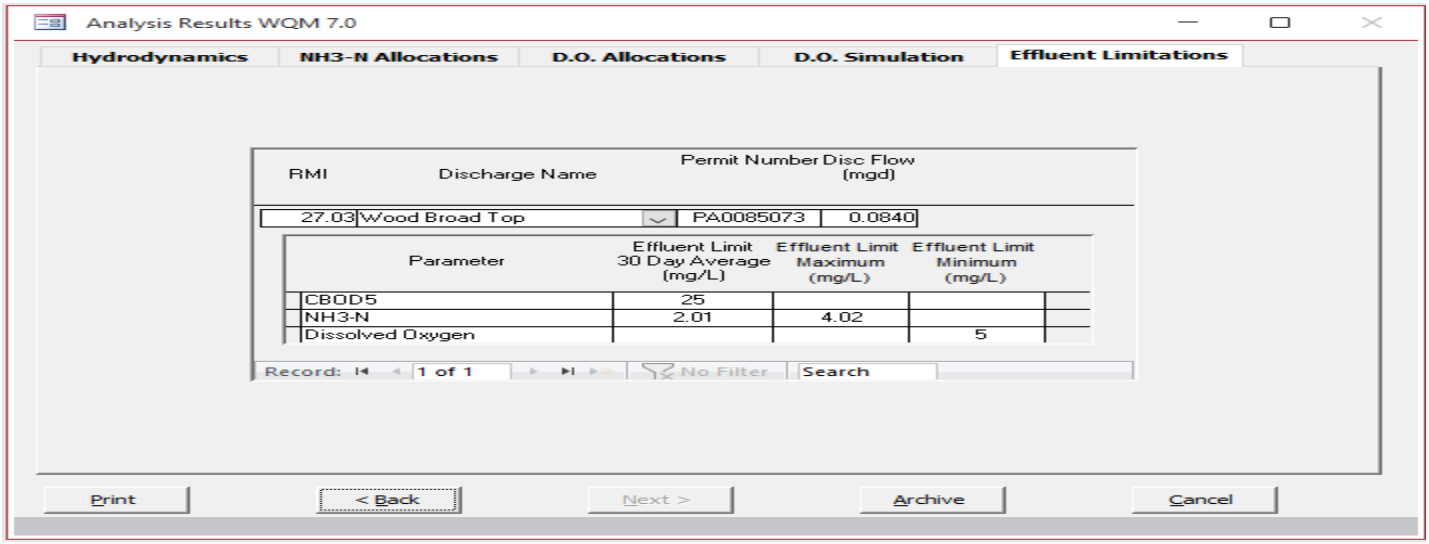
Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	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:

Water Quality-Based Limitations

Ammonia (NH_3-N):
NH_3N calculations are 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 WQM 7.0 computer model of the stream:

- Discharge pH = 7.0 (Default)
- Discharge Temperature = 25°C (Default)
- Stream pH = 7.0 (Default)
- Stream Temperature = 20ºC (Default for CWF)
- Background NH_3-N = 0 mg/L (Default)



Regarding NH_3-N limits, the attached computer printout of the WQM 7.0 stream model (version 1.1) indicates that limits (rounded according to the NPDES Technical Guidance 362-0400-001) of 2.0 mg/L NH_3-N as a monthly average and 4.0 mg/L NH_3-N instantaneous maximum are necessary to protect the aquatic life from toxicity effects. Mass limits are calculated as follows:

Summer average monthly mass limit: 2.0 mg/L x 0.084 MGD x 8.34 = 1.4 lbs/day

The winter effluent limit will be set at three-times the summer limits; therefore, the average monthly winter limit for NH_3-N will be 6.0 mg/L (2.0 mg/L x 3). For the same reason, the instantaneous maximum limit for the winter season will be 12.0 mg/L (4.0 mg/L x 3). Recent DMRs and inspection reports indicate that these limits are being attained easily.

Winter average monthly mass limit: 1.4 lbs/day x 3 = 4.2 lbs/day

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 mg/L, or secondary treatment, is adequate to protect the water quality of the stream. Therefore, the existing limits of 25 mg/L monthly average (AML), 40mg/L average weekly limit (AWL), and 50 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:

Average monthly mass limit: 25 mg/L x 0.084 MGD x 8.34 = 17.5 (18.0) lbs/day
Average weekly mass limit: 40 mg/L x 0.084 MGD x 8.34 = 28.0 lbs/day

Total Suspended Solids (TSS):
The existing technology-based 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 based on 25 Pa. Code § 92a.47. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Average monthly mass limit: 30 mg/L x 0.084 MGD x 8.34 = 21.0 lbs/day
Average weekly mass limit: 45 mg/L x 0.084 MGD x 8.34 = 31.5 (32.0) 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 and below 9 standard units according to 25 Pa Code § 95.2(1).

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 25 Pa Code § 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.

Ultraviolet (UV):
Since UV is used for disinfection, routine monitoring of UV light intensity (mW/cm^2) will remain in the proposed permit.

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 25 Pa Code § 94.12 and assess percent removal requirements, per DEP policy.

Biosolids Management:
Digested Sludge is sent out periodically to the drying beds.

Stormwater:
There is no stormwater outfall associated with 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, will be required to monitor and report for Total Phosphorus, Nitrate-Nitrite as N, Total Kjeldahl Nitrogen, and Total Nitrogen. The quarterly "Monitor & Report" requirements for TP, Nitrate-Nitrite as N, Total Kjeldahl Nitrogen, and TN will remain in the proposed permit.

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. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

303d Listed Streams:
The discharge is not located on a 303d listed stream segment. The stream segment that receives the discharge is listed as attaining its uses for aquatic life and fish consumption.

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

WQM 7.0 data:

- Discharge pH = 7.0 (Default)
- Discharge Temperature = 25°C (Default)
- Stream pH = 7.0 (Default)
- Stream Temperature = 20°C (Default for CWF)
- Background NH_3-N = 0 mg/L (Default)

Node 1: Outfall 001 on Trib. 13617 to Great Trough Creek (13460) (13617)
Elevation: 1737.66 ft (USGS National Map Viewer)
Drainage Area: 0.56 $mi.^2$ (USGS PA StreamStats)
River Mile Index: 0.03 + 27.03 mile (PA DEP eMapPA from discharge to Great Trough Creek + from Great Trough Creek to Raystown Branch Juniata River)
Low Flow Yield: 0.06 $cfs/mi.^2$
Discharge Flow: 0.084 MGD (NPDES Application)

Node 2: point at just Great Trough Creek to Trib. 13613 to Great Trough Creek
Elevation: 1694.0 ft (USGS National Map Viewer)
Drainage Area: 13.8 $mi.^2$ (USGS PA StreamStats)
River Mile Index: 26.7 miles (PA DEP eMapPA from Great Trough Creek to Raystown Branch Juniata River)
Low Flow Yield: 0.06 $cfs/mi.^2$
Discharge Flow: 0.000 MGD

Analysis Results WQM 7.0

Hydrodynamics | NH3-N Allocations | D.O. Allocations | D.O. Simulation | Effluent Limitations

RMI	Discharge Name	Permit Number	Disc Flow (mgd)
27.03	Wood Broad Top	PA0085073	0.0840

Parameter	Effluent Limit 30 Day Average (mg/L)	Effluent Limit Maximum (mg/L)	Effluent Limit Minimum (mg/L)
CBOD5	25		
NH3-N	2.01	4.02	
Dissolved Oxygen			5

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rptEffLimits

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
11D	13617	Trib 13617 to Great Trough Creek

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)
27.060	Wood Broad Top	PA0085073	0.084	CBOD5	25		
				NH3-N	2.01	4.02	
				Dissolved Oxygen			5

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rpt_WLA

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
11D	13617	Trib 13617 to Great Trough 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
27.060	Wood Broad Top	11.74	13.69	11.74	13.69	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
27.060	Wood Broad Top	1.49	2.01	1.49	2.01	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5 Baseline (mg/L)	CBOD5 Multiple (mg/L)	NH3-N Baseline (mg/L)	NH3-N Multiple (mg/L)	Dissolved Oxygen Baseline (mg/L)	Dissolved Oxygen Multiple (mg/L)	Critical Reach	Percent Reduction
27.06	Wood Broad Top	25	25	2.01	2.01	5	5	0	0

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rptDOSim

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
11D	13617	Trib 13617 to Great Trough Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
27.060	0.084	23.973	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
4.322	0.385	11.223	0.098
Reach CBOD5 (mg/L)	**Reach Kr (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
20.27	1.463	1.60	0.950
Reach DO (mg/L)	29.445	Kr Equation	**Reach DO Goal (mg/L)**
5.666		Owens	5
Reach Travel Time (days)			
0.224			

Subreach Results

Trav Time (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.022	19.49	1.56	6.08
0.045	18.74	1.53	6.33
0.067	18.02	1.50	6.49
0.090	17.33	1.47	6.61
0.112	16.66	1.44	6.70
0.134	16.02	1.41	6.78
0.157	15.40	1.38	6.84
0.179	14.80	1.35	6.91
0.201	14.23	1.32	6.97
0.224	13.69	1.29	7.03

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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	1.36	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
11D	13617	Trib 13617 to Great Trough Creek

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	WD Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
27.060	0.03	0.00	0.03	.1299	0.02297	.385	4.32	11.22	0.10	0.224	23.97	7.00
Q1-10 Flow												
27.060	0.02	0.00	0.02	.1299	0.02297	NA	NA	NA	0.09	0.234	24.29	7.00
Q30-10 Flow												
27.060	0.05	0.00	0.05	.1299	0.02297	NA	NA	NA	0.10	0.215	23.70	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
11D	13617	Trib 13617 to Great Trough Creek	**27.060**	1737.66	0.56	0.000000	0.00	☑

Stream Data

Design Cond.	LFY (cfs/mi)	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	0.000	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
Wood Broad Top	PA0085073	0.0840	0.0840	0.0840	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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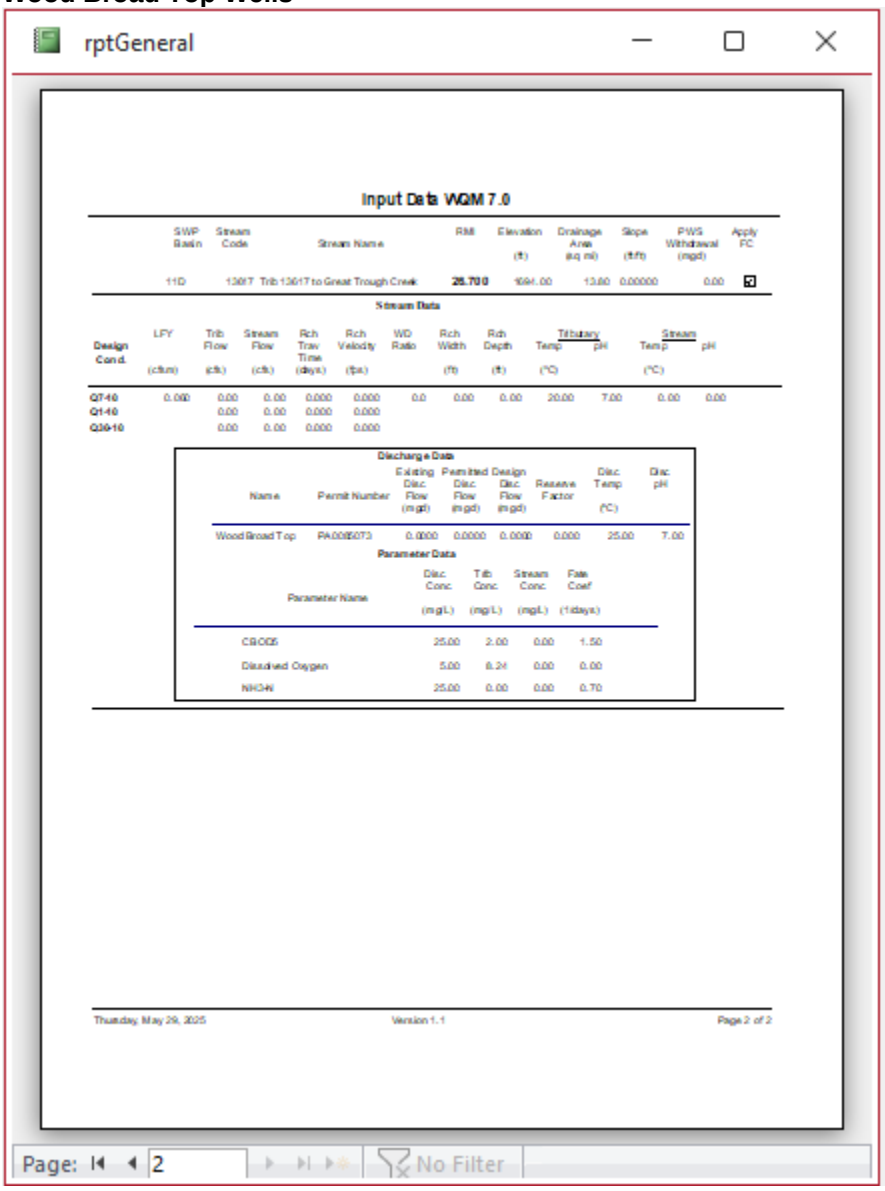
rptGeneral
Input Data WQM 7.0
SWP Basin
Stream Code
Stream Name
RMI
Elevation (ft)
Drainage Area (sq mi)
Slope (ft/ft)
PWS Withdrawal (mgd)
Apply FC
11D
13617
Trib 13617 to Great Trough Creek
26.700
1694.00
13.00
0.00000
0.00
Stream Data
Design Cond.
LFY (cfsm)
Trib Flow (cfs)
Stream Flow (cfs)
Rch Trav 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
Q1-10
Q30-10
Discharge Data
Name
Permit Number
Existing Disc. Flow (mgd)
Permitted Disc. Flow (mgd)
Design Disc. Flow (mgd)
Reserve Factor
Disc. Temp (°C)
Disc. pH
Wood Broad Top
PA0085073
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.

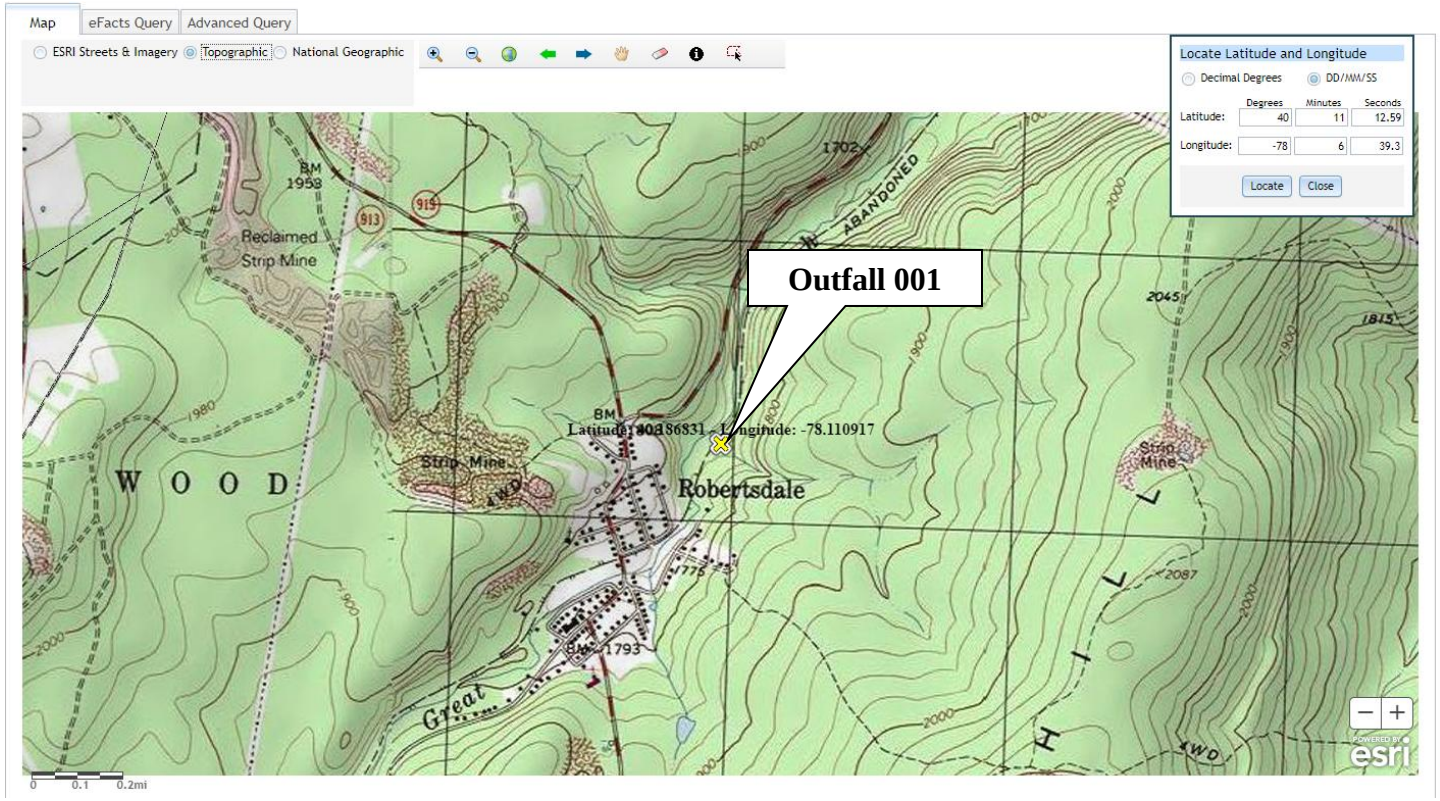
Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

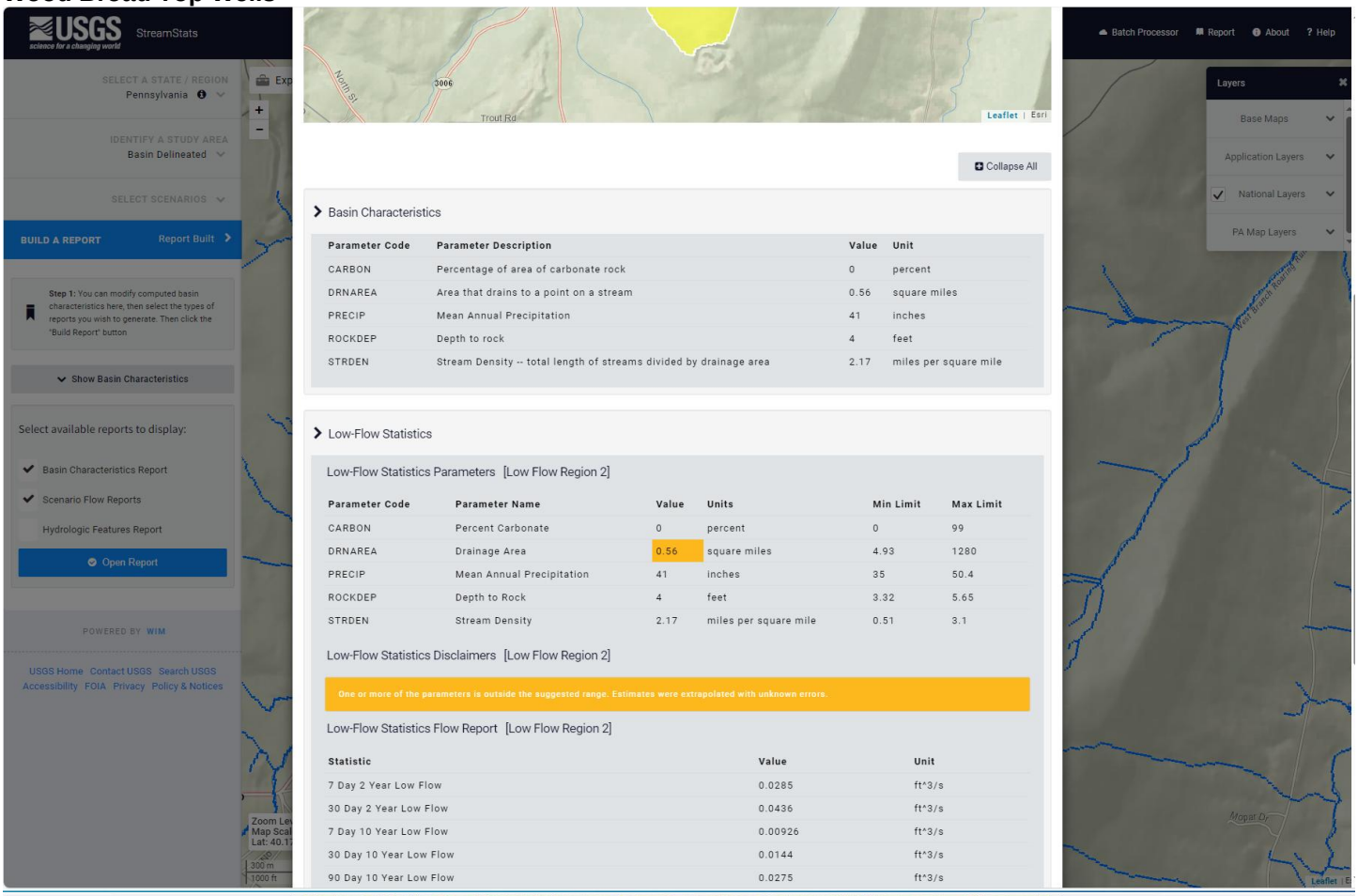
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	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	Measured
$CBOD_5$	18.0	28.0	XXX	25.0	40.0	50.0	2/month	24-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	21.0	32.0	XXX	30.0	45.0	60.0	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Ammonia Nov 1 - Apr 30	4.2	XXX	XXX	6.0	XXX	12.0	2/month	24-Hr Composite
Ammonia May 1 - Oct 31	1.4	XXX	XXX	2.0	XXX	4.0	2/month	24-Hr Composite
Nitrate-Nitrite	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
TKN	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	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	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Phosphorus	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite

Compliance Sampling Location:

Other Comments:





Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	0	percent
DRNAREA	Area that drains to a point on a stream	0.56	square miles
PRECIP	Mean Annual Precipitation	41	inches
ROCKDEP	Depth to rock	4	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	2.17	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

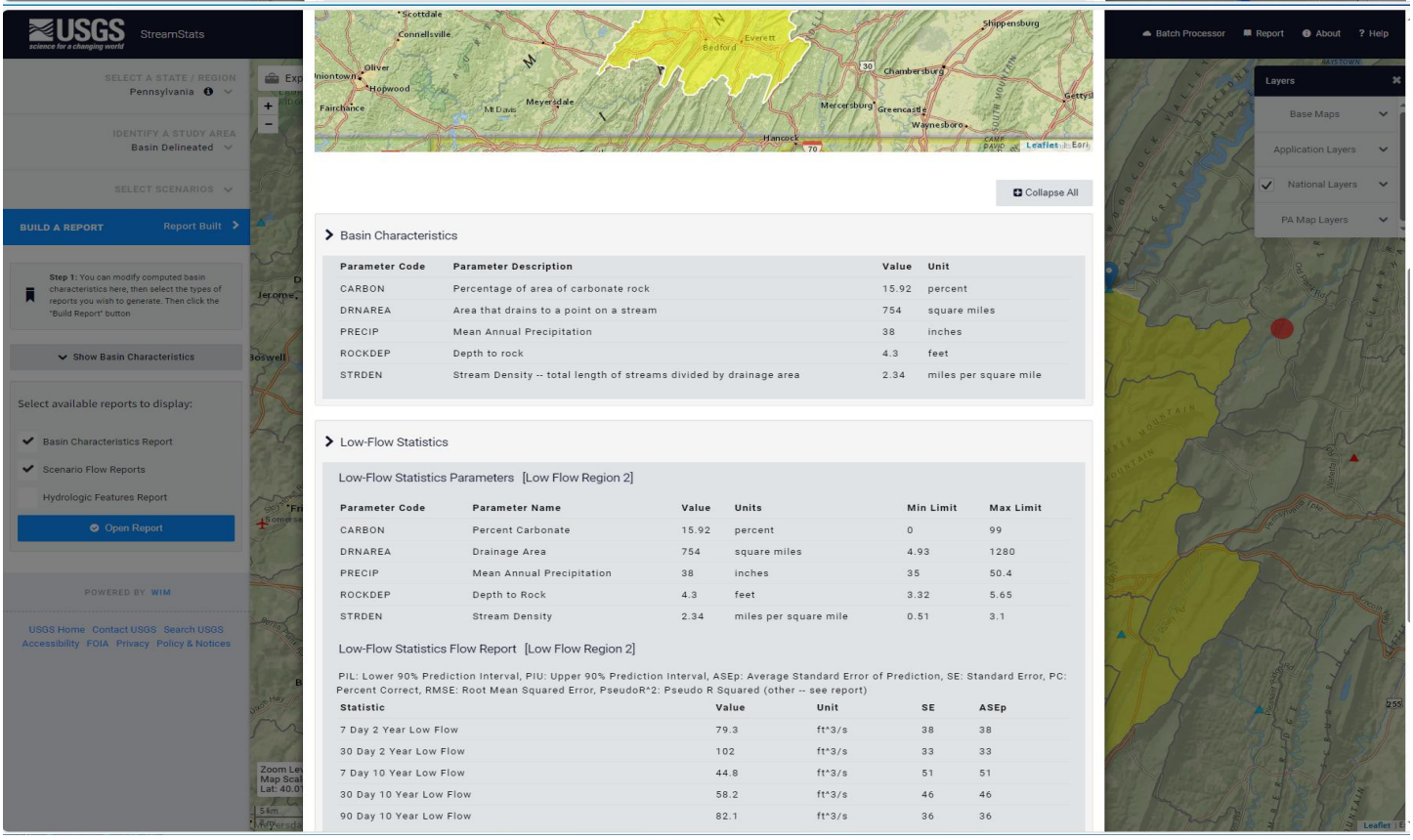
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	0	percent	0	99
DRNAREA	Drainage Area	0.56	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	41	inches	35	50.4
ROCKDEP	Depth to Rock	4	feet	3.32	5.65
STRDEN	Stream Density	2.17	miles per square mile	0.51	3.1

Low-Flow Statistics Disclaimers [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 [Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0285	ft^3/s
30 Day 2 Year Low Flow	0.0436	ft^3/s
7 Day 10 Year Low Flow	0.00926	ft^3/s
30 Day 10 Year Low Flow	0.0144	ft^3/s
90 Day 10 Year Low Flow	0.0275	ft^3/s



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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	15.92	percent
DRNAREA	Area that drains to a point on a stream	754	square miles
PRECIP	Mean Annual Precipitation	38	inches
ROCKDEP	Depth to rock	4.3	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	2.34	miles per square mile

Low-Flow Statistics

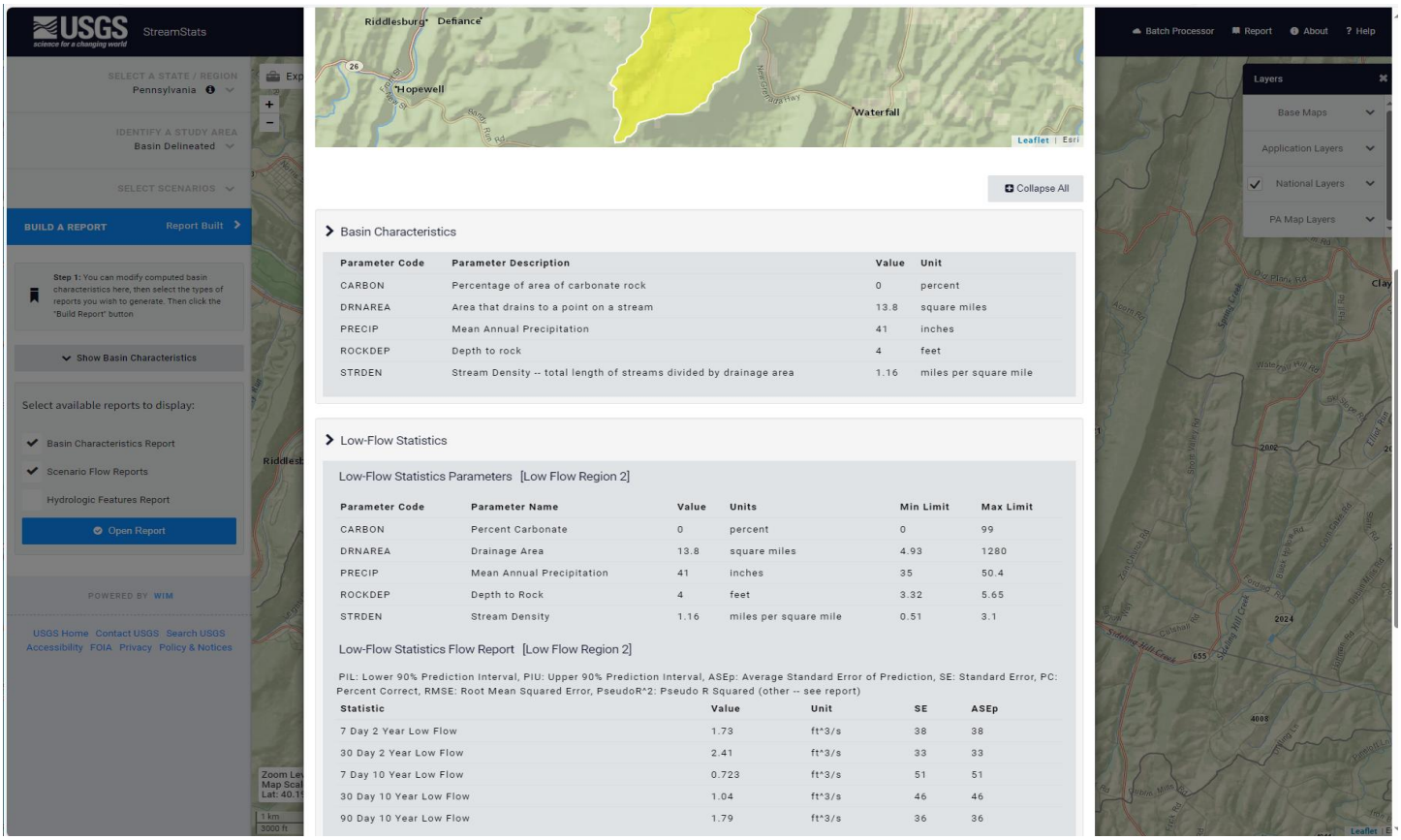
Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	15.92	percent	0	99
DRNAREA	Drainage Area	754	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	38	inches	35	50.4
ROCKDEP	Depth to Rock	4.3	feet	3.32	5.65
STRDEN	Stream Density	2.34	miles per square mile	0.51	3.1

Low-Flow Statistics Flow Report [Low Flow Region 2]

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	79.3	ft^3/s	38	38
30 Day 2 Year Low Flow	102	ft^3/s	33	33
7 Day 10 Year Low Flow	44.8	ft^3/s	51	51
30 Day 10 Year Low Flow	58.2	ft^3/s	46	46
90 Day 10 Year Low Flow	82.1	ft^3/s	36	36


USGS
StreamStats
SELECT A STATE / REGION
Pennsylvania
IDENTIFY A STUDY AREA
Basin Delineated
SELECT SCENARIOS
BUILD A REPORT
Report Built
Step 1: You can modify computed basin characteristics here, then select the types of reports you wish to generate. Then click the "Build Report" button
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Hydrologic Features Report
Open Report
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
Riddlesburg
Defiance
Hopewell
Waterfall
Leaflet | Esri
Collapse All
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
CARBON | Percentage of area of carbonate rock | 0 | percent
DRNAREA | Area that drains to a point on a stream | 13.8 | square miles
PRECIP | Mean Annual Precipitation | 41 | inches
ROCKDEP | Depth to rock | 4 | feet
STRDEN | Stream Density -- total length of streams divided by drainage area | 1.16 | miles per square mile
Low-Flow Statistics
Low-Flow Statistics Parameters [Low Flow Region 2]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
CARBON | Percent Carbonate | 0 | percent | 0 | 99
DRNAREA | Drainage Area | 13.8 | square miles | 4.93 | 1280
PRECIP | Mean Annual Precipitation | 41 | inches | 35 | 50.4
ROCKDEP | Depth to Rock | 4 | feet | 3.32 | 5.65
STRDEN | Stream Density | 1.16 | miles per square mile | 0.51 | 3.1
Low-Flow Statistics Flow Report [Low Flow Region 2]
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 | 1.73 | ft^3/s | 38 | 38
30 Day 2 Year Low Flow | 2.41 | ft^3/s | 33 | 33
7 Day 10 Year Low Flow | 0.723 | ft^3/s | 51 | 51
30 Day 10 Year Low Flow | 1.04 | ft^3/s | 46 | 46
90 Day 10 Year Low Flow | 1.79 | ft^3/s | 36 | 36
Batch Processor
Report
About
Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
Leaflet

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: