pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0070378**
Facility Type	**Non-Municipal**	APS ID	**274588**
Major / Minor	**Minor**	Authorization ID	**1425308**

Applicant and Facility Information

Applicant Name	**Blue Mountain Academy**	Facility Name	**Blue Mountain Academy STP**
Applicant Address	2363 Mountain Road	Facility Address	2363 Mountain Road
	Hamburg, PA 19526-8745		Hamburg, PA 19526-8745
Applicant Contact	Burney Culpepper	Facility Contact	Burney Culpepper
Applicant Phone	(484) 662-7000	Facility Phone	(484) 662-7000
Client ID	65047	Site ID	452432
Ch 94 Load Status	Not Overloaded	Municipality	Tilden Township
Connection Status		County	Berks
Date Application Received	January 31, 2023	EPA Waived?	Yes
Date Application Accepted	February 15, 2023	If No, Reason	

Purpose of Application: NPDES permit renewal

Summary of Review

ARRO Consulting Inc., on behalf of the Blue Mountain Academy (Authority/Permittee), applied to the Pennsylvania Department of Environmental Protection (DEP) for issuance of the NPDES permit. The permit was reissued on January 12, 2018 and became effective on February 1, 2018. The permit expired on January 31, 2023.

The average annual design flow and hydraulic design capacity is 0.05 MGD, and the organic loading capacity is 100.0 lbs BOD_5/day.

Blue Mountain Academy is a boarding school which hosts occasional conferences and special events. The sewage treatment plant serves approximately 180 students; however, this plant operates under widely divergent hydraulic loading conditions.

The WQM Part II No. 0603405 was issued on 12/9/2004.

Sludge use and disposal description and location(s): N/A

Delaware River Basin Commission

The discharge is within Delaware River basin and is therefore subject to Delaware River Basin Commission (DRBC) requirements. While the design flow falls within “reviewable projects” by DRBC, no docket was indicated on DRBC’s interactive online docket map. Either a docket does not exist, or it predates the online map. DRBC will be copied on the draft permit and a copy of the application forwarded to them.

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

Based on the review outlined in this fact sheet, it is recommended that the permit be drafted. A public notice of the draft permit will be published in the *Pennsylvania Bulletin* for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	February 2, 2024
X		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	March 22, 2024

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.05
Latitude	40º 32' 43.52"	Longitude	-76º 2' 12.04"
Quad Name	Auburn	Quad Code	1437
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Mill Creek (TSF)	Stream Code	02190
NHD Com ID	25960870	RMI	1.3 miles
Drainage Area	1.39 mi.^{2}	Yield (cfs/mi^2)	See comment below
Q_{7-10} Flow (cfs)	See comment below	Q_{7-10} Basis	USGS gage No. 01470500
Elevation (ft)	462.95	Slope (ft/ft)	
Watershed No.	3-B	Chapter 93 Class.	TSF
Existing Use	none	Existing Use Qualifier	
Exceptions to Use	N/A	Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens		
Source(s) of Impairment	Source Unknown		
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Pottstown Boro Water Authority, Montgomery County		
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	57.0 miles	Distance from Outfall (mi)	Approximate 40.0 miles

Changes Since Last Permit Issuance:

Drainage Area
The discharge is to the unnamed tributary to Mill Creek at RMI 1.3. A drainage area upstream of the point of discharge is determined to be 1.39 sq.mi. according to the USGS PA StreamStats.

Streamflow
The USGS gauging station no. 01470500 was used for a low-flow yield method to estimate the Q7-10 at the point of discharge as follows:

$$\text{Low-Flow Yield} = Q7\text{-}10_{gauge} / \text{Drainage Area}_{gauge} = 86 \text{ cfs} / 358 \text{ sq.mi.} = 0.24 \text{ cfs/sq.mi.}$$
$$Q7\text{-}10_{site} = \text{Low-Flow Yield} * \text{Drainage Area}_{site} = 0.24 \text{ cfs/sq.mi.} * 1.39 \text{ sq.mi.} = 0.33 \text{ cfs}$$

Unnamed Tributary of Mill Creek
25 Pa Code §93.9f classifies Mill Creek (basin) as Trout Stocking Fishes (TSF) surface water. For aquatic life uses, the discharge is located at a stream segment listed as an attaining use. For recreational uses, the receiving stream is impaired for pathogens as a result of an unknown source.

Public Water Supply Intake
The nearest downstream public water supply intake is the Pottstown Boro Water Authority on the Schuylkill River, located approximately 40.0 miles from the point of discharge. Considering the distance, the discharge is not expected to significantly affect the water supply.

Class A Wild Trout Streams
No Class A Wild Trout Fishery is impacted by this discharge.

Treatment Facility Summary				
Treatment Facility Name: Blue Mt Academy/Sew				
WQM Permit No.	**Issuance Date**			
0603405	12/9/2004			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Extended Aeration	Hypochlorite	0.05
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.05	100	Not Overloaded	Aerobic Digester	

Changes Since Last Permit Issuance: none

Other Comments:
Per DEP's recent visit to the WWTP on October 31, 2018, the treatment facility consists of the following units:

- One comminutor
- Four equalization tanks
- Six Aeration tanks
- Two clarifiers
- One Chlorine contact tank
- One Dechlorination tank
- One sludge holding tank

Chemical used:
Sodium Hypochlorite is used for disinfection. Salt is used for softening. Caustic Soda is used for raising pH. Chlorine tablets are used for disinfection. Dechlorination tablets are used for reducing TRC.

Biosolids:
The total sewage sludge / biosolids production within the facility for the previous year was 0.0 dry tons.

Industrial/Commercial Users:
The permit application indicated there is no industrial/commercial contributor to the treatment plant.

Compliance History	
Summary of DMRs:	A summary of past 12-month DMRs is presented on next pages.
Summary of Inspections:	**9/28/2020:** Tracy Tomtishen, DEP's WQS, conducted an administrative inspection. Recommendations were to keep the Department informed of any changes in operation, overflow, and/or equipment failures/replacements. There were no violations noted during inspection. **10/31/2018:** Mr. Buss, DEP's WQS, conducted a compliance evaluation inspection. Recommendations were to complete MLSS testing at least monthly for process control & hauled in waste supplement when reseeding. The field test results were within permit limits. There were no violations identified during inspection.
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 December 1, 2022 to November 30, 2023)

Parameter	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22
Flow (MGD) Average Monthly	0.0066	0.0069	0.0097	0.0035	0.0023	0.014	0.0064	0.0071	0.0085	0.007	0.0091	0.047943
Flow (MGD) Daily Maximum	0.0166	0.0687	0.0242	0.0116	0.0096	0.0429	0.0174	0.0232	0.0332	0.0223	0.0302	0.0497
pH (S.U.) Minimum	6.96	7.06	7.1	6.85	6.69	7.25	7.33	7.24	7.23	7.08	7.34	7.2
pH (S.U.) Instantaneous Maximum	8.09	8.23	8.26	8.14	8.37	8.17	10.12	8.14	8.03	8.32	8.27	8.19
DO (mg/L) Minimum	5.7	5.4	5.7	5.7	5.7	5.8	5.7	5.8	5.8	5.7	5.8	5.7
TRC (mg/L) Average Monthly	< 0.05	< 0.04	< 0.03	< 0.03	0.05	< 0.08	< 0.03	0.09	< 0.05	< 0.04	0.030	0.04
TRC (mg/L) Instantaneous Maximum	0.21	0.19	0.22	0.12	0.16	0.29	0.25	0.33	0.25	0.20	0.090	0.18
CBOD5 (mg/L) Average Monthly	5.3	6.4	5.1	10.7	9	13.7	9.2	10.5	8.3	9.8	5.3	6.7
BOD5 (mg/L) Raw Sewage Influent Average Monthly	436	618	216	234	150.9	566	285	257	456	562	222	66
TSS (mg/L) Average Monthly	8	9.0	9	8	13	19	5.0	11	13	21	7	13
Total Dissolved Solids (mg/L) Average Monthly	780	640	471	612	440	314	560	1036	1097	798	698	625
Fecal Coliform (No./100 ml) Geometric Mean	< 4	140	78	62	< 39	< 84	< 8	< 11	< 35	10	< 2	< 7
Fecal Coliform (No./100 ml) Instantaneous Maximum	8	340	6300	115	400	3500	33	60	600	11.4	< 2	23
Ammonia (mg/L) Average Monthly	0.05	0.27	0.08	0.29	0.05	< 8.36	0.09	4.06	0.55	0.2	< 0.05	< 0.04

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.05
Latitude 40º 32' 43.52" **Longitude** -76º 2' 12.04"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

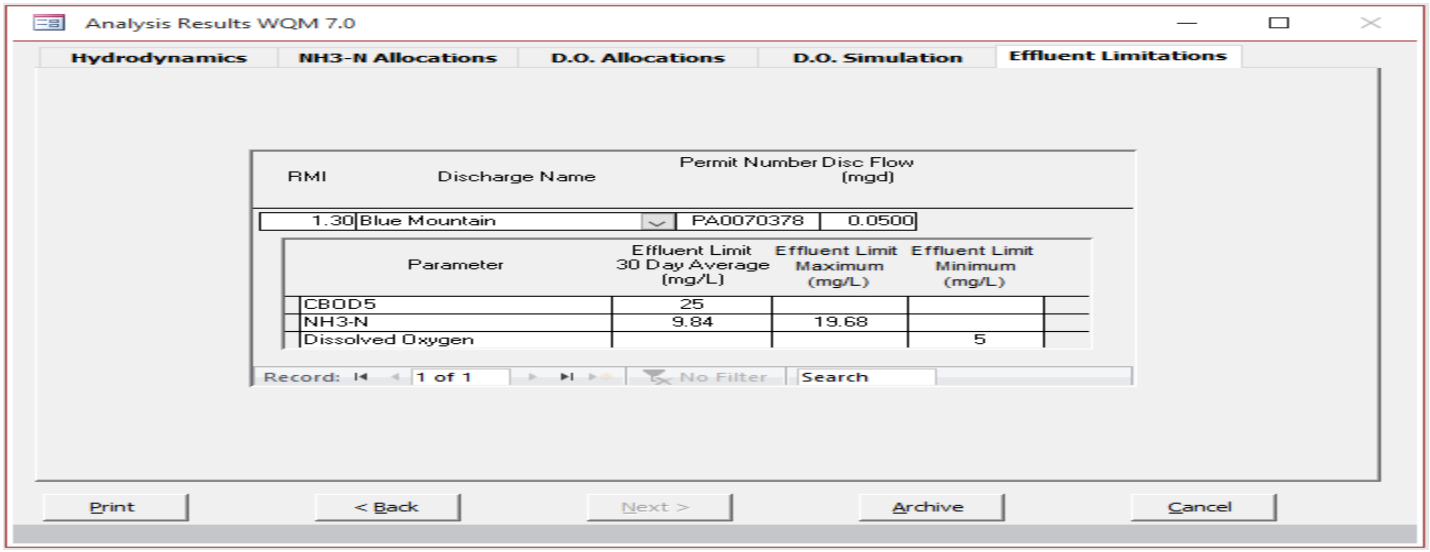
The facility is subject to secondary treatment standards found in 40 CFR §133.102 and 25 Pa Code §92a.47(a). Also, as the discharge is located within the Delaware River basin, the facility is also subject to requirements found in 18 CFR §410. All requirements/standards are listed below:

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)

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	=	20°C	(Default)
*	Stream pH	=	7.0	(Default)
*	Stream Temperature	=	25ºC	(Default)
*	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 a limit of 9.84 mg/L as a monthly average and 19.68 mg/L instantaneous maximum (IMAX) are necessary to protect the aquatic life from toxicity effects at the point of discharge. However, the existing summer limits of 9.0 mg/L monthly average & 18.0 mg/L IMAX are more stringent and will remain in the proposed permit. Per anti-backsliding policy, the existing winter average monthly limit of 20.0 mg/L & IMAX limit of 40.0 mg/L will remain in place. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits.

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):
The attached computer printout of the WQM 7.0 stream model (ver. 1.1) indicates that a monthly average limit of 25.0 mg/L, or secondary treatment, is adequate to protect the water quality of the stream. Since, recent DMRs and inspection reports show that the facility has typically been achieving concentrations below limit of 25.0 mg/L AML, & 50.0 mg/L IMAX all year round will remain in the proposed permit.

Dissolved Oxygen (D.O.):
A minimum of 5.0 mg/L for D.O. is an existing effluent limit and will remain unchanged in the draft permit as recommended by DEP's SOP. 5.0 mg/L is taken directly from 25 Pa. Code § 93.7(a) (i.e., water quality criteria for WWF waters) and it is also determined to be appropriate per water quality modeling.

pH:
The effluent discharge pH should remain above 6.0 and below 9.0 standard units according to 25 Pa. Code § 95.2(1).
Total Suspended Solids (TSS):
The existing technology-based limits of 30.0 mg/L average monthly, and 60.0 mg/L IMAX will remain in the proposed 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.

Fecal Coliform:
The recent coliform guidance in 25 Pa. Code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml.

E. Coli:
As recommended by DEP's SOP No. BCW-PMT-033, version 1.9 revised March 22, 2021, 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.

Raw Sewage Influent Monitoring:
DRBC has a basin-wide effluent requirement of 85% removal of BOD_5 (which can be substituted with $CBOD_5$). Without knowing whether the facility can meet 85% removal, the BOD_5 or $CBOD_5$ influent monitoring will remain in the proposed permit, at the same frequency as the $CBOD_5$ effluent monitoring.

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

Total Dissolved Solids (TDS):
The existing permit contains 2/month TDS monitoring requirement with the average monthly effluent limit of 1,000 mg/L. The facility has been consistently meeting this effluent limit. Accordingly, the 2/month sampling frequency with the 1,000 mg/L effluent limit proposed in the draft permit will remain unchanged.

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

Toxics:
Minor sewage facilities with a design flow less than 0.1 MGD are not required to submit toxic data in application form. Due to the lack of data, toxics monitoring, or limit requirement could not be evaluated.

WETT:
Minor facilities and facilities without a formal EPA approved pretreatment program are exempted from WETT.

Total Residual Chlorine (TRC):
The attached computer printout utilizes the equation and calculations as presented in the Department's 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID#391-2000-015) for developing chlorine limitations. The average monthly limit of 0.5 mg/L and IMAX limit of 1.64 mg/L. These limits are the same as the existing permit and will remain in the proposed permit.

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

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

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 1.380	1.3.2.iii	WLA cfc = 1.338
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.514	5.1d	LTA_cfc = 0.778

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

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

Additional Considerations

Chesapeake Bay Tributary
The discharge is not located within the Chesapeake Bay watershed; therefore, no Chesapeake Bay TMDL has been taken into consideration during this review.

Delaware River Basin Commission Permitting Requirements
As the discharge is located within the Delaware River basin, the regulations and policies developed by the Delaware River Basin Commission (DRBC) must be considered in developing NPDES permit requirements. The existing permit currently contains a TBEL for TDS derived from DRBC's Administrative Manual – Part III Water Quality Regulations (last amended on December 4, 2013). No additional requirements are needed. The current monitoring data consistently shows the average monthly TDS levels less than 500 mg/L. No additional monitoring for Bromide, Sulfate and Chloride is needed as instructed by DEP Central Office Bureau of Clean Water Program (i.e., monitoring needed if TDS > 5,000 mg/L).

Mass Loading Limitations
No mass loading limitations will be written in the permit as this is a non-POTW facility. This approach is consistent with DEP's technical guidance no. 362-0400-001.

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.

WQM 7.0:

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

*	Discharge pH	7.0	(Default)
*	Discharge Temperature	20°C	(Default per 391-2000-013)
*	Stream pH	7.0	(Default per 391-2000-013)
*	Stream Temperature	25°C	(Default per 391-2000-013)

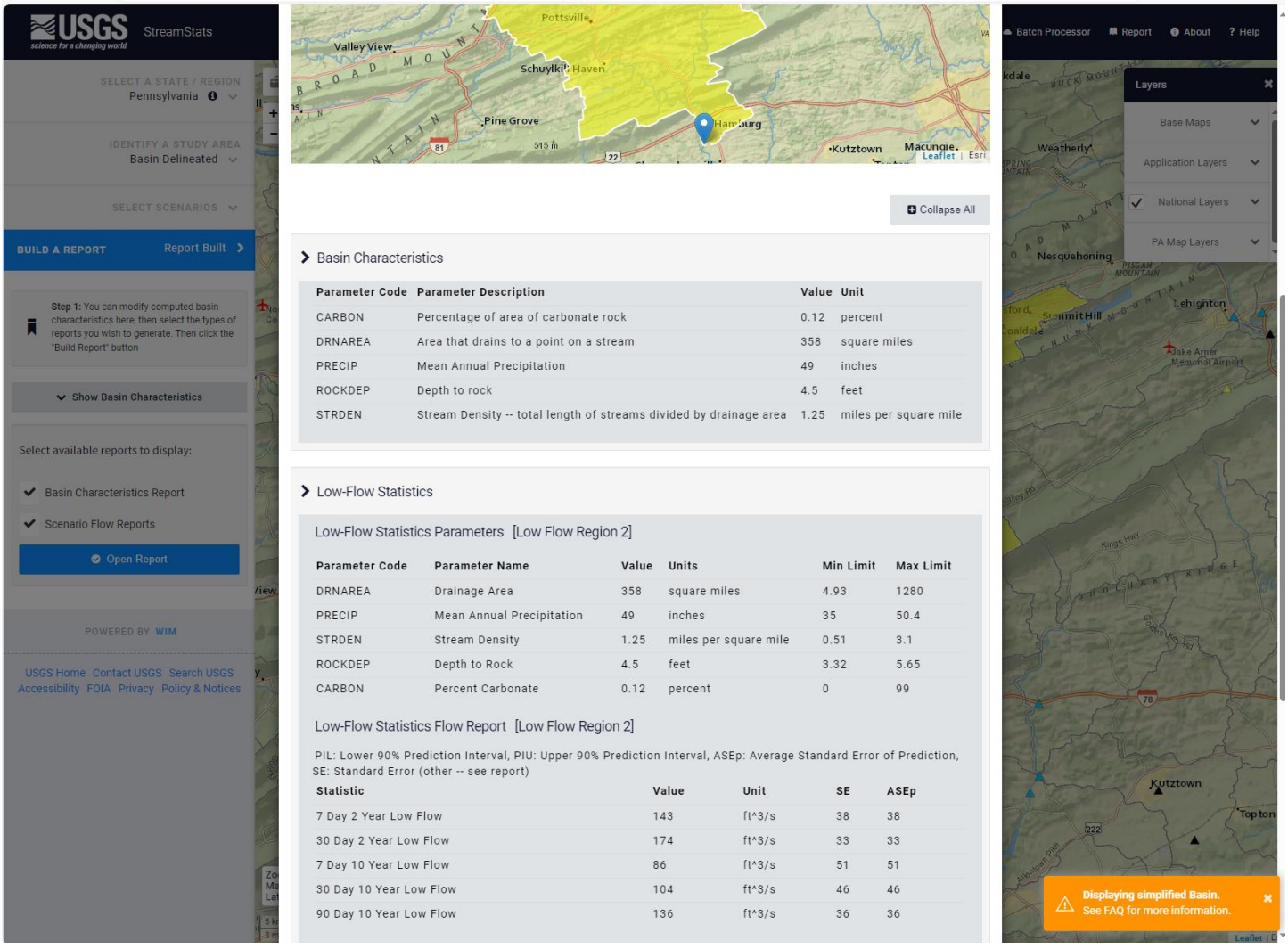
The following two nodes were used in modeling:

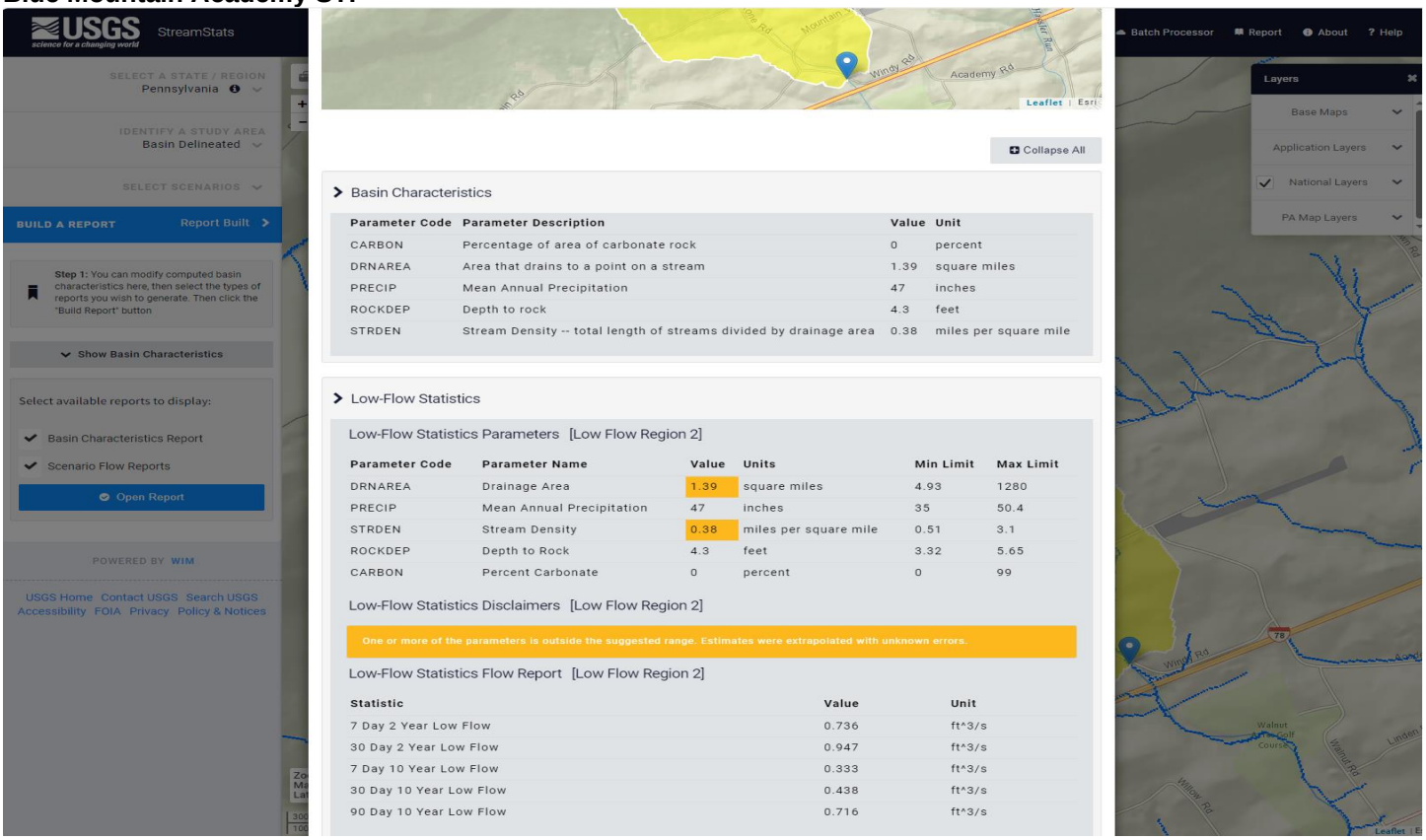
Node 1: Outfall 001 at UNT to Mill Creek (02190)

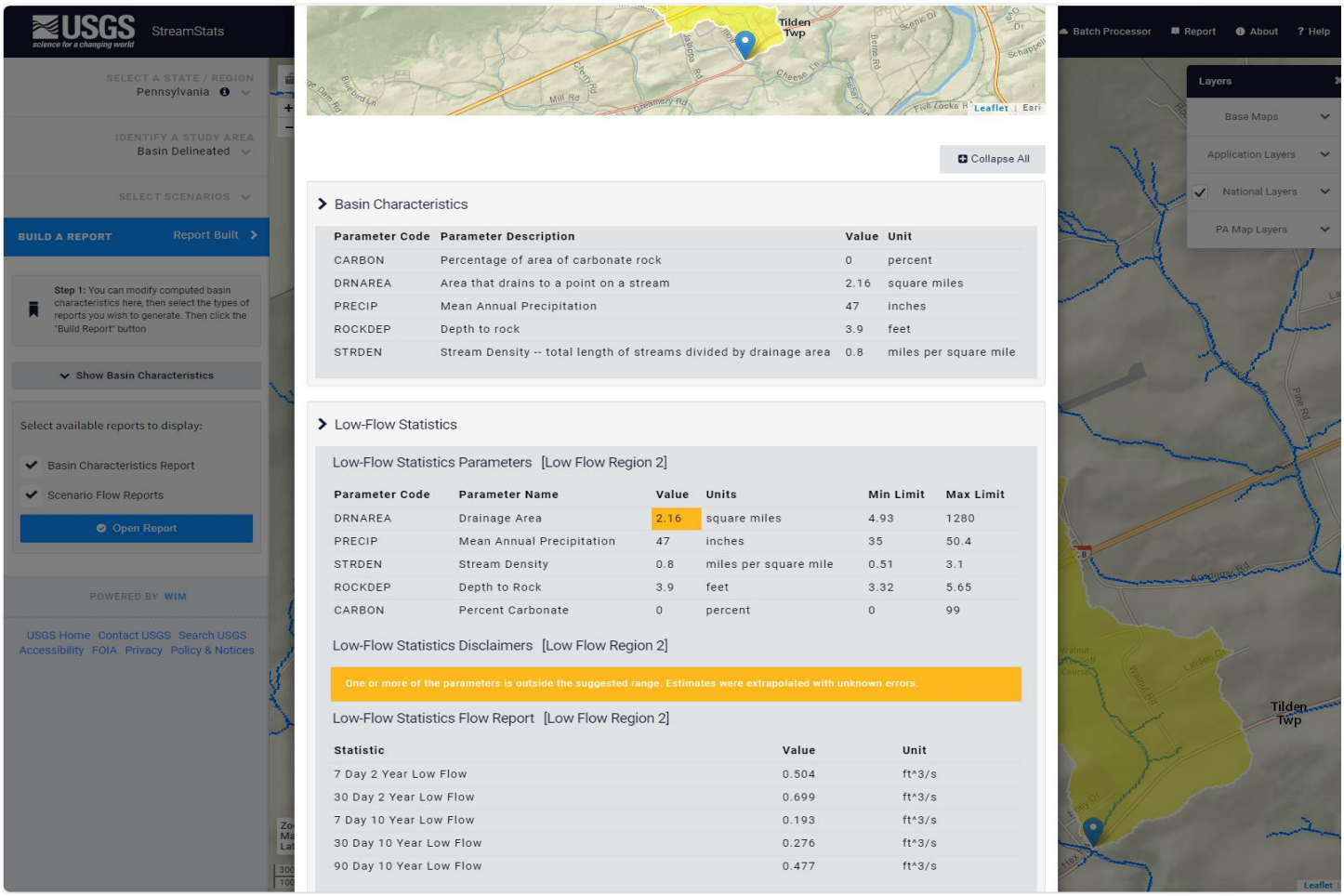
Elevation:	462.95 ft (USGS National Map)
Drainage Area:	1.39 mi^2 (USGS StreamStats)
River Mile Index:	1.30 (PA DEP eMapPA)
Low Flow Yield:	0.24 cfs/mi^2
Discharge Flow:	0.05 MGD

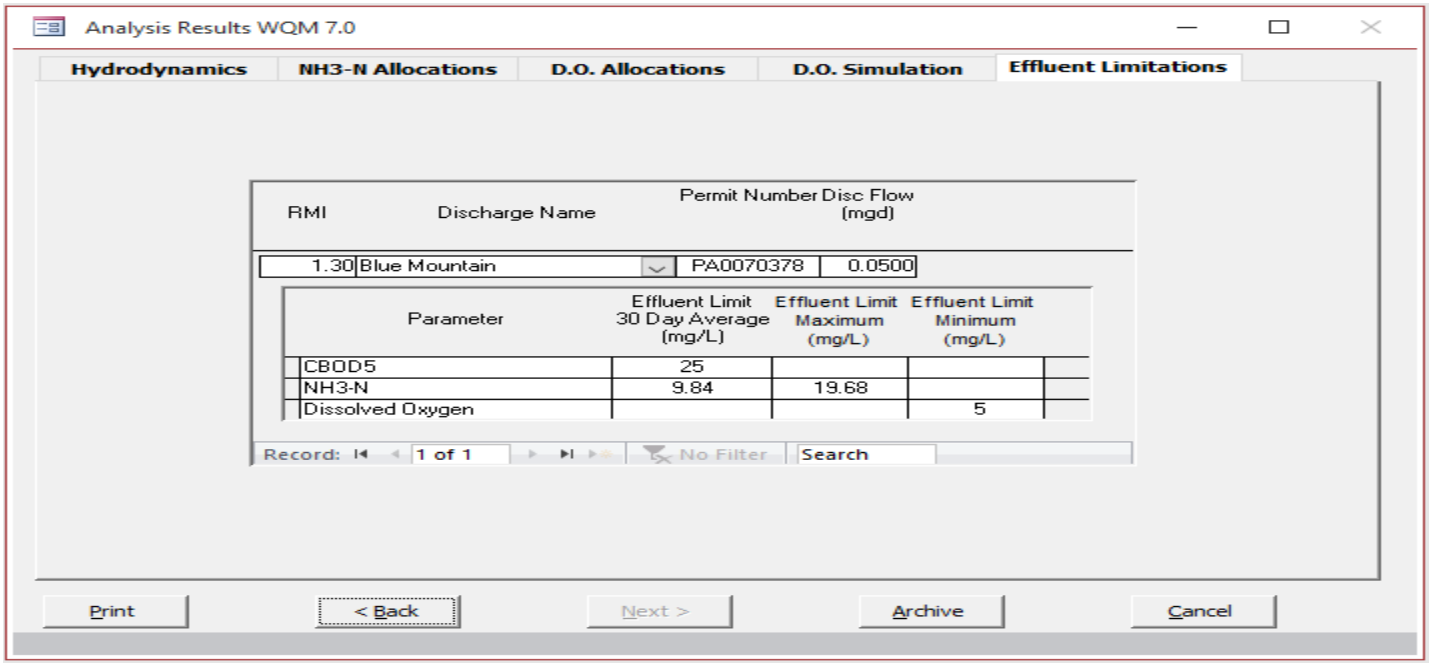
Node 2: At the confluence UNT to UNT to Mill Creek (02189)

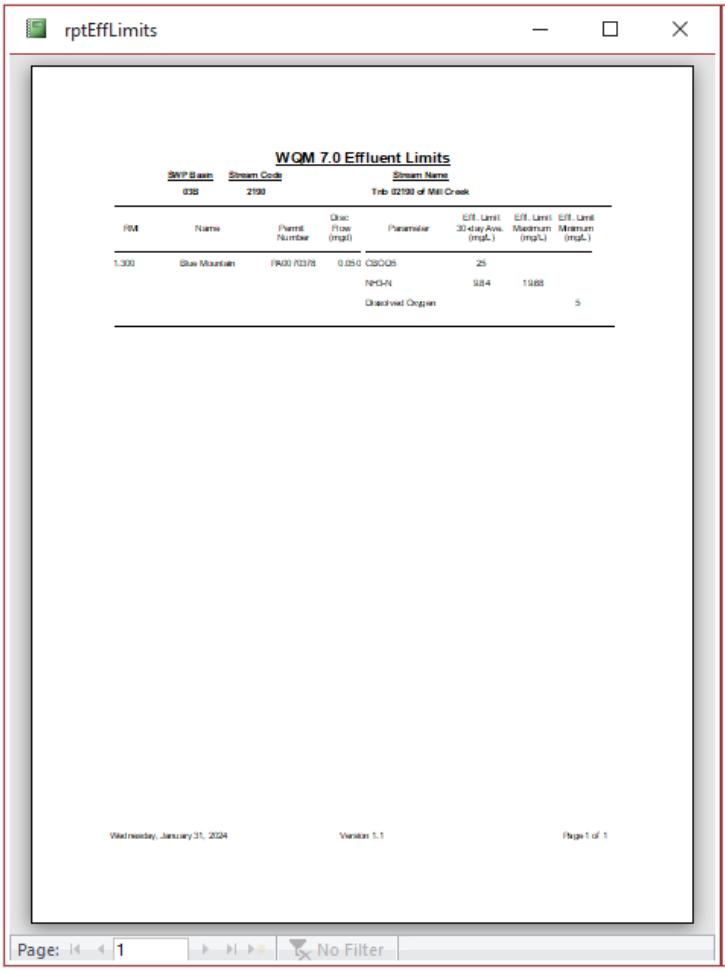
Elevation:	382.06 ft (USGS National Map)
Drainage Area:	2.16 mi^2 (USGS StreamStats)
River Mile Index:	0.001 (PA DEP eMapPA)
Low Flow Yield:	0.24 cfs/mi^2
Discharge Flow:	0.00 MGD




USGS StreamStats
Pennsylvania
Basin Delineated
BUILD A REPORT
Report Built
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Open Report
Windy Rd
Academy Rd
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 | 1.39 | square miles
PRECIP | Mean Annual Precipitation | 47 | inches
ROCKDEP | Depth to rock | 4.3 | feet
STRDEN | Stream Density -- total length of streams divided by drainage area | 0.38 | 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
DRNAREA | Drainage Area | 1.39 | square miles | 4.93 | 1280
PRECIP | Mean Annual Precipitation | 47 | inches | 35 | 50.4
STRDEN | Stream Density | 0.38 | miles per square mile | 0.51 | 3.1
ROCKDEP | Depth to Rock | 4.3 | feet | 3.32 | 5.65
CARBON | Percent Carbonate | 0 | percent | 0 | 99
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 | 0.736 | ft^3/s
30 Day 2 Year Low Flow | 0.947 | ft^3/s
7 Day 10 Year Low Flow | 0.333 | ft^3/s
30 Day 10 Year Low Flow | 0.438 | ft^3/s
90 Day 10 Year Low Flow | 0.716 | ft^3/s
Batch Processor
Report
About
Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers


USGS StreamStats
Pennsylvania
Basin Delineated
BUILD A REPORT
Report Built
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Open Report
Tilden Twp
Mill Rd
Cherry Rd
Jasper Rd
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 | 2.16 | square miles
PRECIP | Mean Annual Precipitation | 47 | inches
ROCKDEP | Depth to rock | 3.9 | feet
STRDEN | Stream Density -- total length of streams divided by drainage area | 0.8 | 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
DRNAREA | Drainage Area | 2.16 | square miles | 4.93 | 1280
PRECIP | Mean Annual Precipitation | 47 | inches | 35 | 50.4
STRDEN | Stream Density | 0.8 | miles per square mile | 0.51 | 3.1
ROCKDEP | Depth to Rock | 3.9 | feet | 3.32 | 5.65
CARBON | Percent Carbonate | 0 | percent | 0 | 99
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 | 0.504 | ft^3/s
30 Day 2 Year Low Flow | 0.699 | ft^3/s
7 Day 10 Year Low Flow | 0.193 | ft^3/s
30 Day 10 Year Low Flow | 0.276 | ft^3/s
90 Day 10 Year Low Flow | 0.477 | ft^3/s
Batch Processor
Report
About
Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
Tilden Twp


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)
1.30
Blue Mountain
PA0070378
0.0500
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
25
NH3-N
9.84
19.68
Dissolved Oxygen
5
Record: 1 of 1
No Filter
Search
Print
< Back
Next >
Archive
Cancel


rptEffLimits
WQM 7.0 Effluent Limits
SWP Basin
Stream Code
Stream Name
038
2190
Trib 02190 of Mill Creek
RMI
Name
Permit Number
Disc Flow (mgd)
Parameter
Eff. Limit 30-day Avg. (mg/L)
Eff. Limit Maximum (mg/L)
Eff. Limit Minimum (mg/L)
1.300
Blue Mountain
PA0070378
0.050
CBOD5
25
NH3-N
9.84
19.68
Dissolved Oxygen
5
Wednesday, January 31, 2024
Version 1.1
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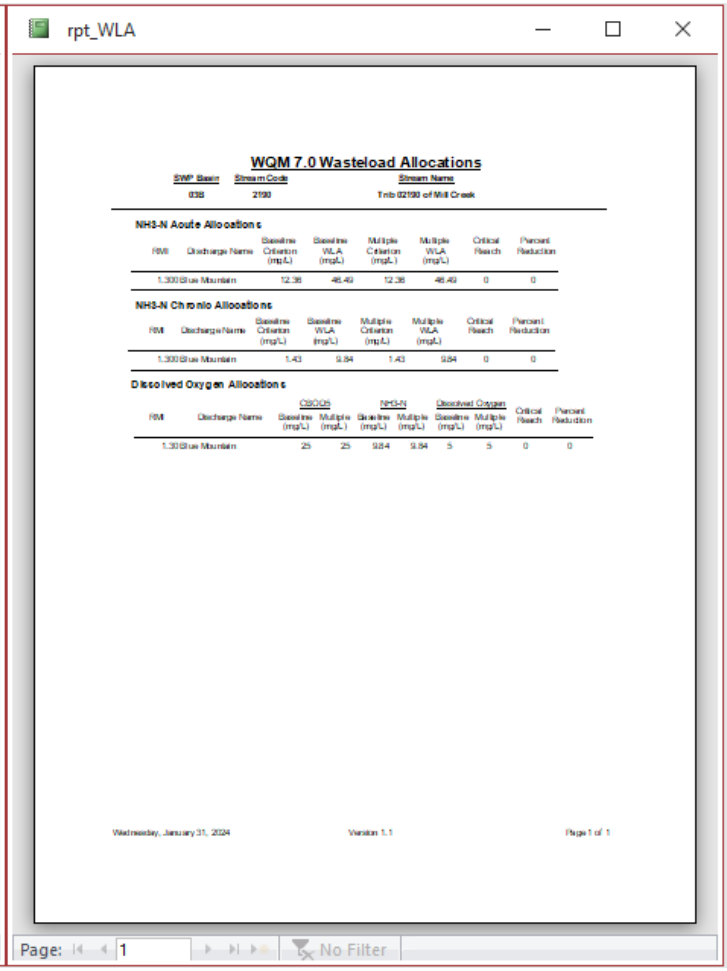
rpt_WLA
WQM 7.0 Wasteload Allocations
SWP Basin
Stream Code
Stream Name
038
2190
Trib 02190 of Mill Creek
NH3-N Acute Allocations
RMI
Discharge Name
Baseline Criterion (mg/L)
Baseline WLA (mg/L)
Multiple Criterion (mg/L)
Multiple WLA (mg/L)
Critical Reach
Percent Reduction
1.300
Blue Mountain
12.36
48.49
12.36
48.49
0
0
NH3-N Chronic Allocations
1.43
9.84
1.43
9.84
Dissolved Oxygen Allocations
CBOD5
NH3-N
Dissolved Oxygen
25
25
9.84
9.84
5
5
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rptDOSim

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
03B	21901	Trib 02190 of Mill Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.300	0.050	24.059	7.000
Reach Width (ft)	Reach Depth (ft)	Reach WQ Ratio	Reach Velocity (fps)
7.378	0.437	16.895	0.128
Reach CBOD5 (mg/L)	Reach Kc (1/days)	Reach NH3-N (mg/L)	Reach Kn (1/days)
6.33	0.930	0.25	0.957
Reach DO (mg/L)	Reach Kr (1/days)	Kr Equation	Reach DO Goal (mg/L)
7.833	27.837	Owens	6
Reach Travel Time (days)			
0.822			

Subreach Results

Travel time (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.082	5.90	1.74	7.86
0.124	5.51	1.64	7.86
0.167	5.13	1.55	7.86
0.249	4.79	1.48	7.86
0.311	4.47	1.37	7.86
0.373	4.17	1.30	7.86
0.436	3.89	1.22	7.86
0.498	3.62	1.15	7.86
0.560	3.38	1.08	7.86
0.622	3.15	1.02	7.86

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rptModelSpecs

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-1 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		

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rptHydro

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
03B	21901	Trib 02190 of Mill 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												
1.300	0.33	0.00	0.33	.0773	0.01179	.437	7.38	16.89	0.13	0.822	24.06	7.00
Q1-10 Flow												
1.300	0.21	0.00	0.21	.0773	0.01179	NA	NA	NA	0.11	0.755	23.87	7.00
Q30-10 Flow												
1.300	0.45	0.00	0.45	.0773	0.01179	NA	NA	NA	0.15	0.539	24.27	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
03B	21901	Trib 02190 of Mill Creek	1.300	482.95	1.39	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	0.240	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	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
Blue Mountain	PA0070378	0.0500	0.0500	0.0500	0.00	20.00	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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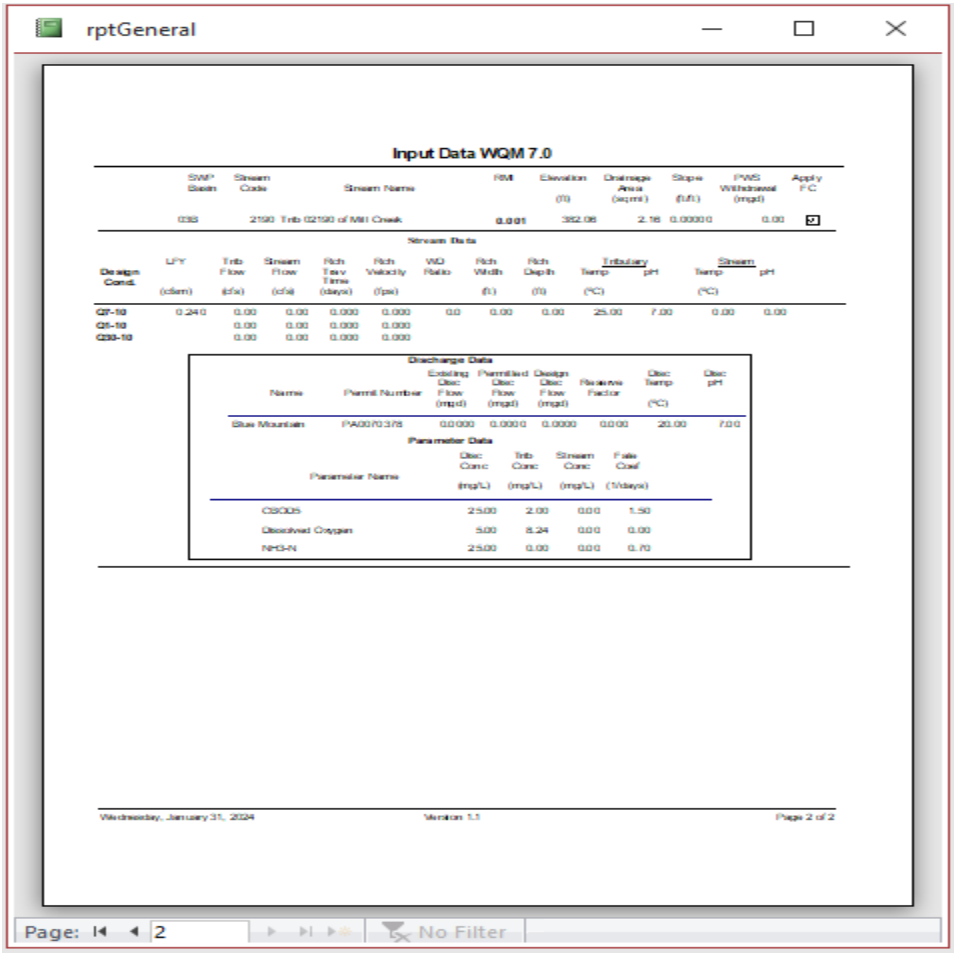
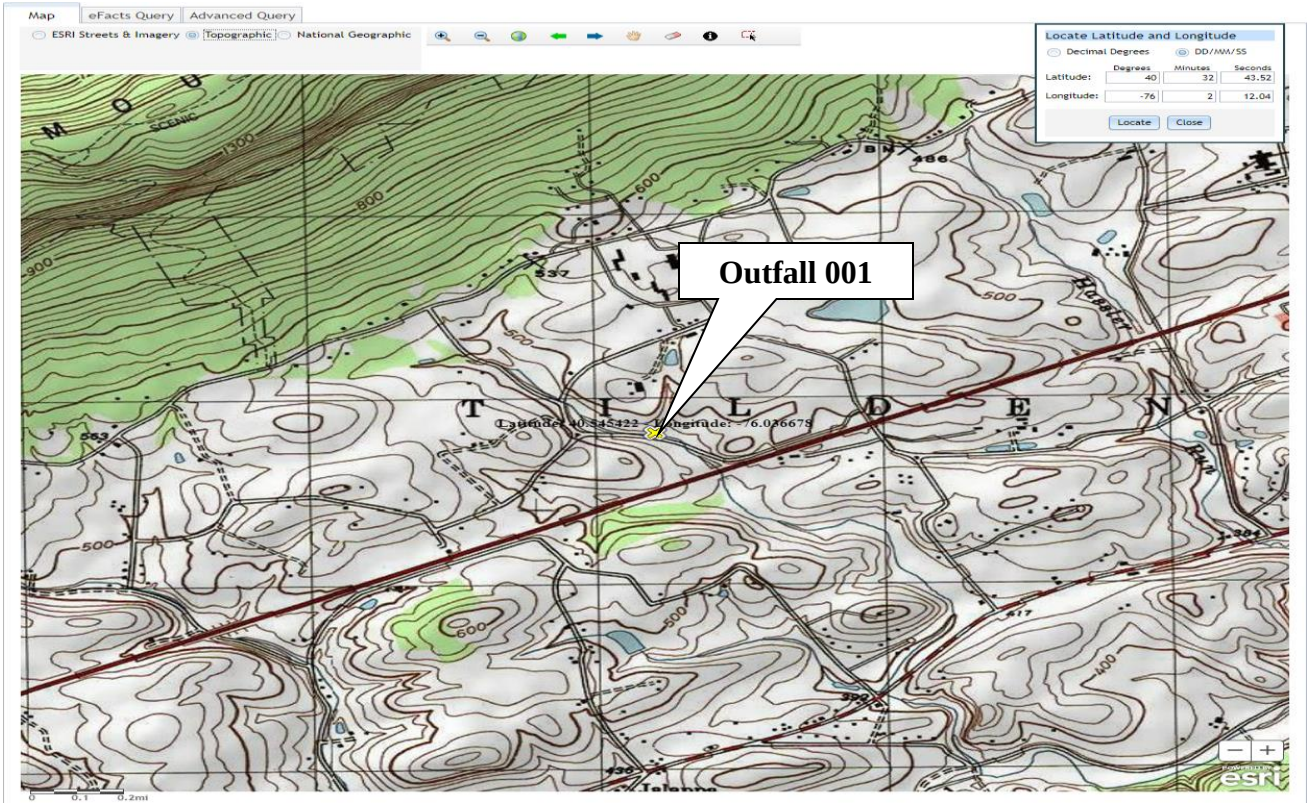

rptGeneral
Input Data WQM 7.0
Stream Data
Discharge Data
Parameter Data
Page: 2
No Filter


Map
eFacts Query
Advanced Query
ESRI Streets & Imagery
Topographic
National Geographic
Locate Latitude and Longitude
Decimal Degrees
DD/MM/SS
Latitude:
Longitude:
Locate
Close
Outfall 001
Latitude: 40.345422 - Longitude: -76.036678
TILDEN

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	Average Weekly	Minimum	Average Monthly	Maximum	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
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	24-Hr Composite
BOD5 Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	XXX	XXX	XXX	30	XXX	60	2/month	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000	XXX	XXX	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	9.0	XXX	18	2/month	24-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	20	XXX	40	2/month	24-Hr Composite

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	Average Weekly	Minimum	Average Monthly	Maximum	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
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	24-Hr Composite
BOD5 Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60.0	2/month	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1,000	XXX	XXX	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	9.0	XXX	18.0	2/month	24-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	20.0	XXX	40.0	2/month	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: SOP No. BCW-PMT-033
☒	Other: Delaware River Basin Commission