Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0030511**
Facility Type	**Non-Municipal**	APS ID	**276001**
Major / Minor	**Minor**	Authorization ID	**1487643**

Applicant and Facility Information

Applicant Name	**Bermudian Springs School District**	Facility Name	**Bermudian Springs High School**
Applicant Address	7335 Carlisle Pike	Facility Address	7335 Carlisle Pike
	York Springs, PA 17372-8807		York Springs, PA 17372-8807
Applicant Contact	Marlin Ensor	Facility Contact	Marlin Ensor
Applicant Phone	(717) 528-4113	Facility Phone	(717) 528-4113
Client ID	64940	Site ID	451521
Ch 94 Load Status	Not Overloaded	Municipality	Huntington Township
Connection Status		County	Adams
Date Application Received	June 6, 2024	EPA Waived?	Yes
Date Application Accepted	June 7, 2024	If No, Reason	

Purpose of Application: NPDES permit renewal.

Summary of Review

Keller Engineers, Inc., on behalf of Bermudian Springs School District, has applied to the Pennsylvania Department of Environmental Protection (DEP) for issuance of the NPDES permit. The permit was issued on February 24, 2020, became effective on March 1, 2020, and expires on February 28, 2025.

The average annual design flow and hydraulic design capacity is 0.03 MGD, and the organic loading capacity is 66.7 lbs BOD_5/day. The NPDES PA0030511 major amendment was issued on 4/8/2021 to replace the chlorine monitor & report requirement with UV light intensity (mW/cm^2) disinfection monitor & report requirement.

The original WQM Part II 0189403 was issued on September 28, 1989. The WQM Part II 0120404 was issued on November 13, 2020, as a project for, among other things, to replace chlorine disinfection with UV disinfection, with the following attributes to remain unchanged: average design flow and hydraulic capacity of 0.03 MGD with 66.7 lbs of organic BOD_5 per day.

Sludge use and disposal description and location(s): N/A because of sludge hauling, by Peck's Septic Service.

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	January 3, 2025
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)	0.03
Latitude	39º 58' 42.87"	Longitude	-77º 4' 52.88"
Quad Name	Hampton	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to North Branch Mud Run (WWF)	Stream Code	NA (Dry Stream to 08635)
NHD Com ID	57469385	RMI	0.58
Drainage Area	See comments below	Yield (cfs/mi^2)	See comments below
Q_{7-10} Flow (cfs)	See comments below	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-F	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Wrightsville Borough Municipal Authority, York County		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	28.51 miles	Distance from Outfall (mi)	Approximate 54.32 miles

Changes Since Last Permit Issuance:

Other Comments: No Stream code exists for the dry stream on which the discharge is located. The drainage area at the discharge point is 0.076 mi.^{2}. The length of the dry stream from the discharge point to its confluence with UNT 08635 is 0.58 mile.

Drainage Area
The discharge is to Unnamed Tributary 08635 to North Branch Mud Run at RMI 0.30 mile. A drainage area upstream of the discharge is estimated to be 2.68 mi.^{2}, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow
The nearby small watershed within the Conewago drainage basin (with an exit point on UNT 09045 just before its confluence with Conewago Creek) was chosen as a proper representative watershed. The Q_{7-10} is 0.26 cfs and the drainage area is 4.89 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):

$$\text{Low Flow Yield} = Q_{7-10gage} / \text{Drainage Area}_{gage} = 0.26 \text{ cfs} / 4.89 \text{ mi.}^2 = 0.05 \text{ cfs/mi.}^2$$
$$Q_{7-10discharge} = 0.05 \text{ cfs/mi.}^2 * \text{Drainage Area}_{discharge} = 0.05 \text{ cfs/mi.}^2 * 2.68 \text{ mi.}^2 = 0.13 \text{ cfs}$$
$$Q_{30-10} = 1.36 * Q_{7-10discharge} = 1.36 * 0.13 \text{ cfs} = 0.18 \text{ cfs}$$
$$Q_{1-10} = 0.64 * Q_{7-10discharge} = 0.64 * 0.13 \text{ cfs} = 0.08 \text{ cfs}$$

The resulting dilution ratio (under Q_{7-10} conditions) is $Q_{stream}/Q_{discharge}$ = 0.13 cfs/[0.03 MGD*(1.55 cfs/MGD)] = 2.8:1

Potable Water Supply Intake
The nearest downstream public water supply intake is the Wrightsville Borough Municipal Authority, York County intake on the Susquehanna River, approximately 54.32 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: Bermudian Springs Hs				
WQM Permit No.	**Issuance Date**			
0120404	11/13/2020			
0189403	9/28/1989			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Primary	Sedimentation Tanks	Ultraviolet	0.03
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.03	66.7	Not Overloaded		

Changes Since Last Permit Issuance:

Other Comments:

The WWTP train is as follows:

Comminutor / Bar Screen (1) ⇒ EQ Tank (1) ⇒ Aeration Tank (1) ⇒ Settling Tank (1) ⇒ Sand Filters (2) ⇒ UV Disinfection ⇒ Sludge Holding Tanks (2) ⇒ Discharge to Dry Stream

Compliance History	
Summary of DMRs:	DMRs reported last 12 months are summarized in the next page.
Summary of Inspections:	**1/25/2024**: Mr. Hoy, DEP WQS, conducted a compliance evaluation inspection. The discharge was clear. The field test results indicated in permit limits. There were no violations indicate during inspection. DEP's requests: 1. Filling in the "Municipality" and "Dry Tons applied/Disposed" beneficial use information on future sludge hauling supplemental reports. 2. The date, time, initials of collector, and volume of individual grab samples for an 8-hour composite sample must be recorded and maintained with other sampling records. DEP's recommendations: 1. Determining the sludge storage capacity. 2. The facility utilizes as electronic composite sampler to satisfy sampling requirements as outlined in Part A of NPDES Permit PA0030511. 3. Recording the date, time, temperature, and initials of collector when samples are collected from the sample refrigerator for transportation for lab analysis.
Other Comments:	There are no open violations associated with this facility or permittee.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from December 1, 2023 to November 30, 2024)

Parameter	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23
Flow (MGD) Average Monthly	0.01567	0.02361	0.01579	0.01635	0.00851	0.0103	0.01652	0.01796	0.02027	0.01556	0.01745	0.01669
Flow (MGD) Daily Maximum	0.02409	0.01934	0.02563	0.02711	0.02181	0.02183	0.02817	0.02548	0.05371	0.02623	0.02932	0.0293
pH (S.U.) Instantaneous Minimum	6.8	6.8	6.4	6.7	7.2	6.5	6.5	6.7	6.9	6.6	6.6	6.7
pH (S.U.) Instantaneous Maximum	7.1	7.1	7.0	7.6	7.5	7.3	7.1	7.2	7.3	7.2	7.3	7.1
DO (mg/L) Instantaneous Minimum	9.3	8.2	6.6	6.1	8.0	8.2	7.4	8.4	8.1	6.5	9.9	10.0
CBOD5 (mg/L) Average Monthly	< 2	< 2	< 2	< 2	< 2.0	< 2	< 2	< 3.0	< 3.0	< 2	< 4	< 3
TSS (mg/L) Average Monthly	4	2.0	3	6	11.0	4	2	1.0	2	1	1	2
Fecal Coliform (No./100 ml) Geometric Mean	18	8	3	2	< 11.0	5	7	< 1	13	1.0	4	< 11
Fecal Coliform (No./100 ml) Instantaneous Maximum	28	10	3	4	118	6	11	< 1	162	2.0	17	129
UV Intensity (mW/cm²) Instantaneous Minimum	4.6	4.7	5	5.9	8.1	4.4	5.4	5.3	5.0	4.4	3.5	5.3
Nitrate-Nitrite (lbs/day) Total Annual												264
Nitrate-Nitrite (mg/L) Annual Average												70.9
Total Nitrogen (lbs/day) Total Annual												264
Total Nitrogen (mg/L) Annual Average												70.9
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	1.2	< 0.1	< 0.1	< 0.2	< 0.1	< 0.1	< 0.1	< 3.1	< 0.1

TKN (lbs/day) Total Annual												< 2
TKN (mg/L) Annual Average												< 0.5
Total Phosphorus (lbs/day) Total Annual												26
Total Phosphorus (mg/L) Annual Average												7

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	Daily 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
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
$CBOD_5$	XXX	XXX	XXX	10	XXX	20	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	10	XXX	20	2/month	8-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
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6	2/month	8-Hr Composite
TKN	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Nitrate-Nitrite	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
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	8-Hr Composite

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.03
Latitude 39º 58' 42.87" **Longitude** -77º 4' 52.88"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

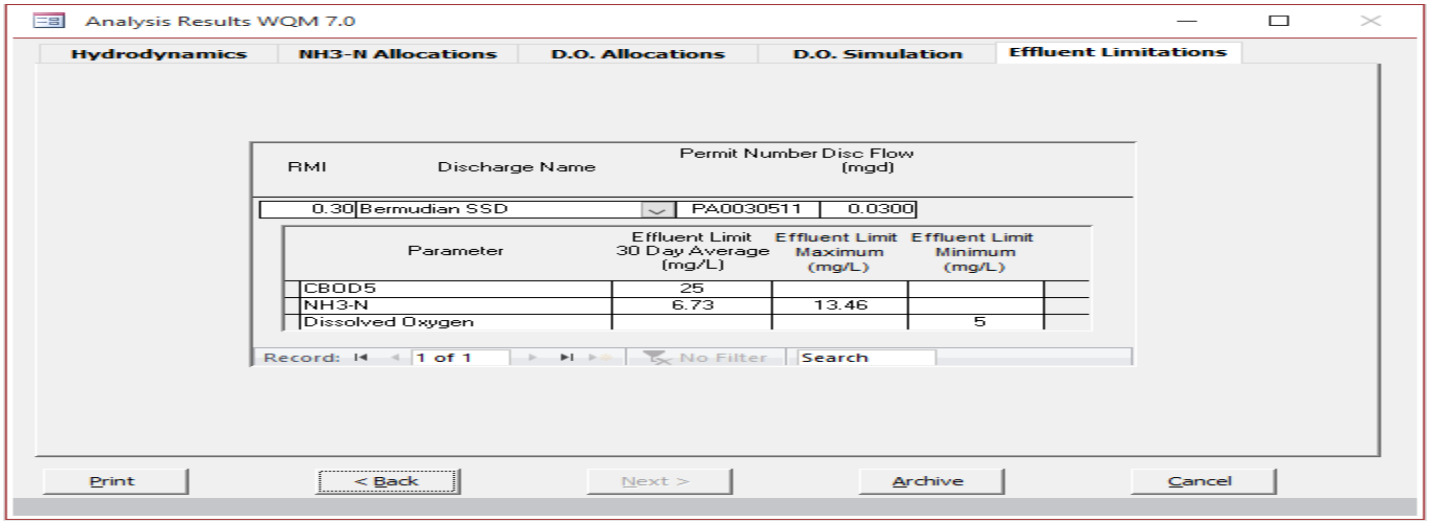
Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.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

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 = 25ºC (Default for WWF)
- 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 6.73 mg/L as a monthly average and 13.46 mg/L instantaneous maximum (IMAX) are necessary to protect the aquatic life from toxicity effects at the point of discharge. However, the existing limits of 3.0 mg/L monthly average & 6.0 mg/L IMAX are slightly high and will remain in the proposed permit. Per anti-backsliding policy, the existing winter average monthly limit of 9.0 mg/L & IMAX limit of 18.0 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 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 10.0 mg/L monthly average and 20.0 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.

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.

Total Suspended Solids (TSS):
The existing dry stream limits of 10.0 mg/L monthly average and 20.0 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.

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 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/year 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 (mW/cm^2) will remain in the proposed permit.

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.

The discharge of TN and TP from this facility is consistent with and covered under the Chesapeake Bay TMDL aggregate WLA for non-significant wastewater discharges. Therefore, a 1/year "Monitor & Report" for Nitrate-Nitrite as N, Total Kjeldahl Nitrogen, TN, and TP requirements will be added to 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.

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

303d Listed Streams:

eMap PA lists the dry stream as tentatively impaired at the discharge point for excessive algal growth and siltation due to agriculture. UNT 08635 also has a tentative impairment for the same items. A TMDL has not yet been developed.

Additional Consideration

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., UV light intensity, and pH; bi-monthly effluent 8-hr composite samples of $CBOD_5$, TSS, and Ammonia-Nitrogen; bi-monthly effluent grab samples of Fecal Coliform; annually effluent 8-hr composite samples of TP, Nitrate-Nitrite as N, and total Kjeldahl Nitrogen; 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 renewal permit monitoring frequencies will remain the same as those specified in the existing permit.

WQM 7.0 Data

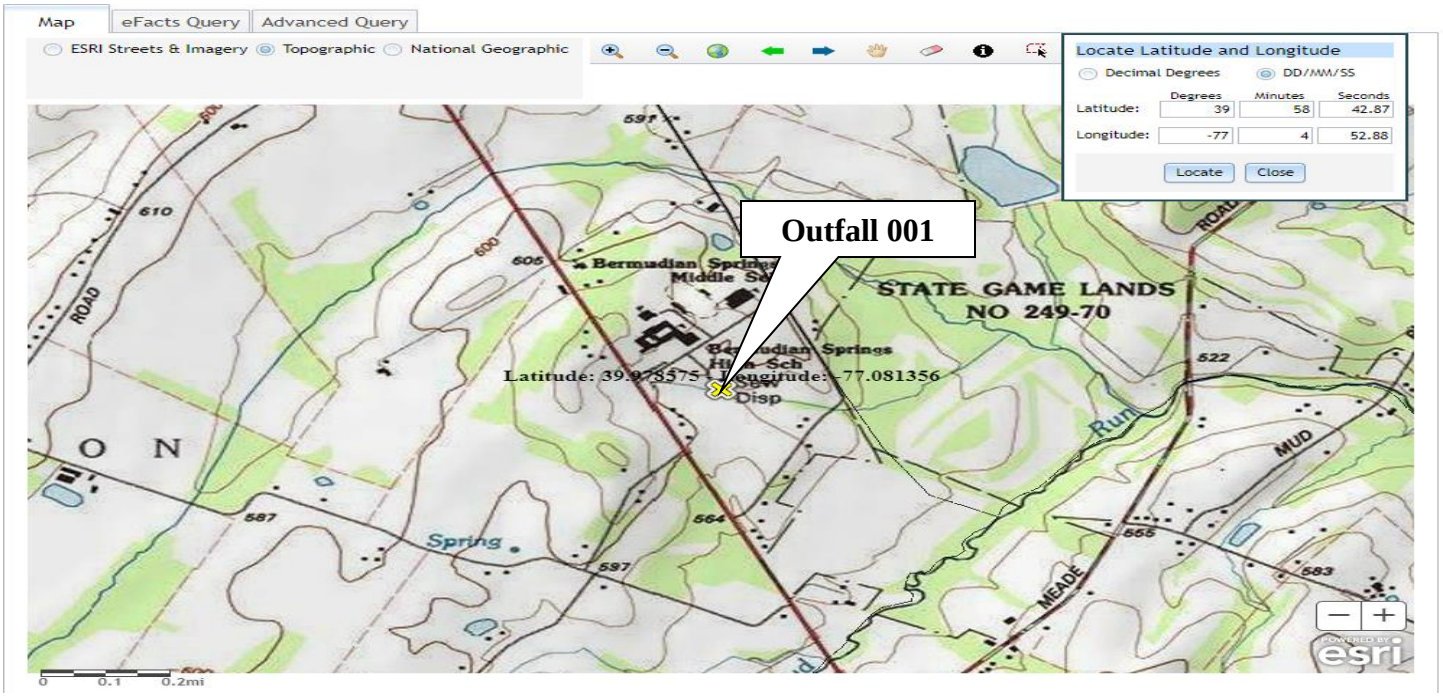
*	Discharge pH	=	7.0	(Default)
*	Discharge Temperature	=	25°C	(Default)
*	Stream pH	=	7.0	(Default)
*	Stream Temperature	=	25°C	(Default for WWF)
*	Background NH_3-N	=	0	(Default)

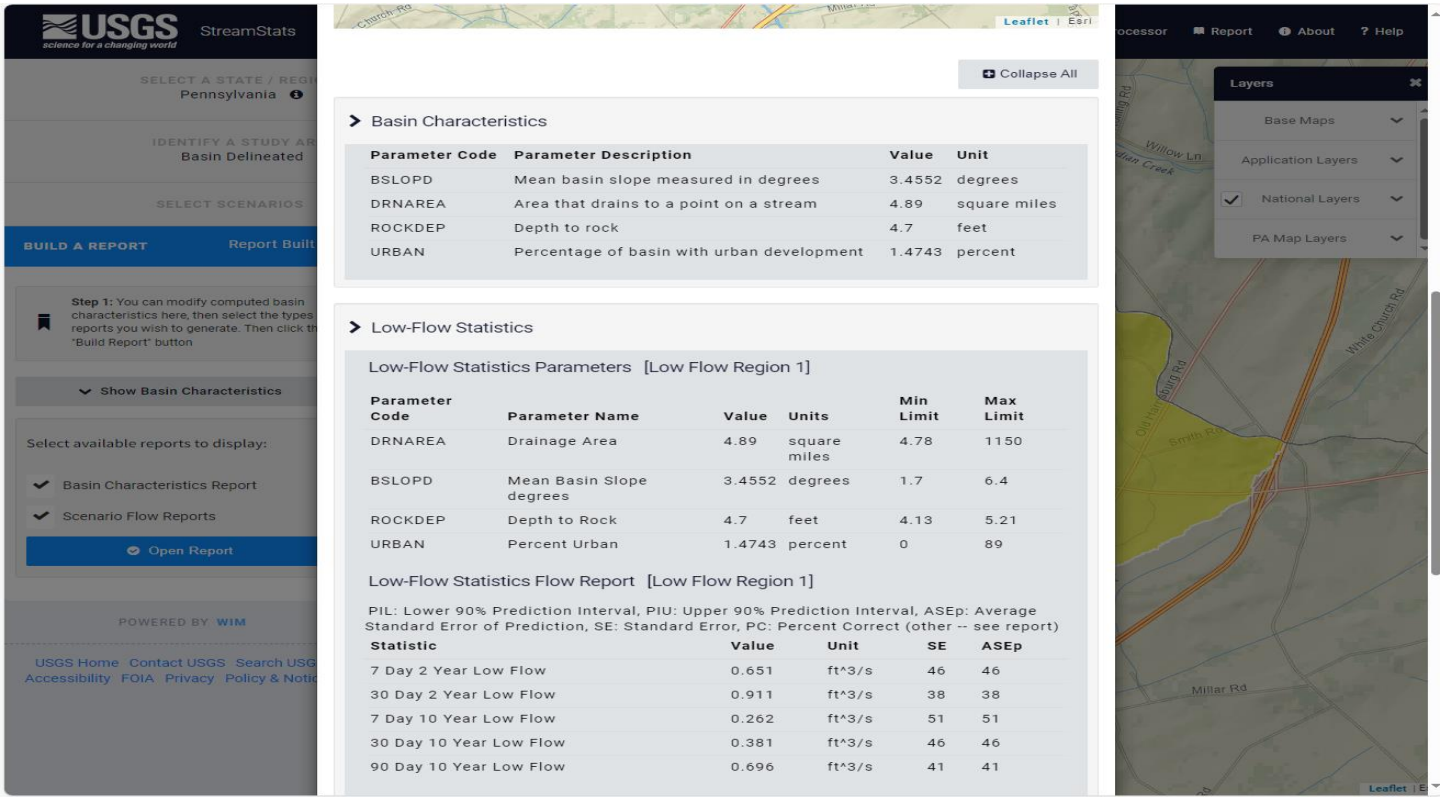
Node 1: Point of First Use on UNT Mud Run (08635) (0.58 mi downstream of Outfall 001)

Elevation:	528 ft (USGS National Map Viewer)
Drainage Area:	2.68 $mi.^2$ (USGS PA StreamStats)
River Mile Index:	0.30 (PA DEP eMapPA)
Low Flow Yield:	0.05 $cfs/mi.^2$
Discharge Flow:	0.03 MGD

Node 2: Just before confluence with Mud Run

Elevation:	517 ft (USGS National Map Viewer)
Drainage Area:	3.04 $mi.^2$ (USGS PA StreamStats)
River Mile Index:	0.001 (PA DEP eMapPA)
Low Flow Yield:	0.05 $cfs/mi.^2$
Discharge Flow:	0.000 MGD

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Report Built
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Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
BSLOPD | Mean basin slope measured in degrees | 3.4552 | degrees
DRNAREA | Area that drains to a point on a stream | 4.89 | square miles
ROCKDEP | Depth to rock | 4.7 | feet
URBAN | Percentage of basin with urban development | 1.4743 | percent
Low-Flow Statistics
Low-Flow Statistics Parameters [Low Flow Region 1]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
DRNAREA | Drainage Area | 4.89 | square miles | 4.78 | 1150
BSLOPD | Mean Basin Slope degrees | 3.4552 | degrees | 1.7 | 6.4
ROCKDEP | Depth to Rock | 4.7 | feet | 4.13 | 5.21
URBAN | Percent Urban | 1.4743 | percent | 0 | 89
Low-Flow Statistics Flow Report [Low Flow Region 1]
PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct (other -- see report)
Statistic | Value | Unit | SE | ASEp
7 Day 2 Year Low Flow | 0.651 | ft^3/s | 46 | 46
30 Day 2 Year Low Flow | 0.911 | ft^3/s | 38 | 38
7 Day 10 Year Low Flow | 0.262 | ft^3/s | 51 | 51
30 Day 10 Year Low Flow | 0.381 | ft^3/s | 46 | 46
90 Day 10 Year Low Flow | 0.696 | ft^3/s | 41 | 41
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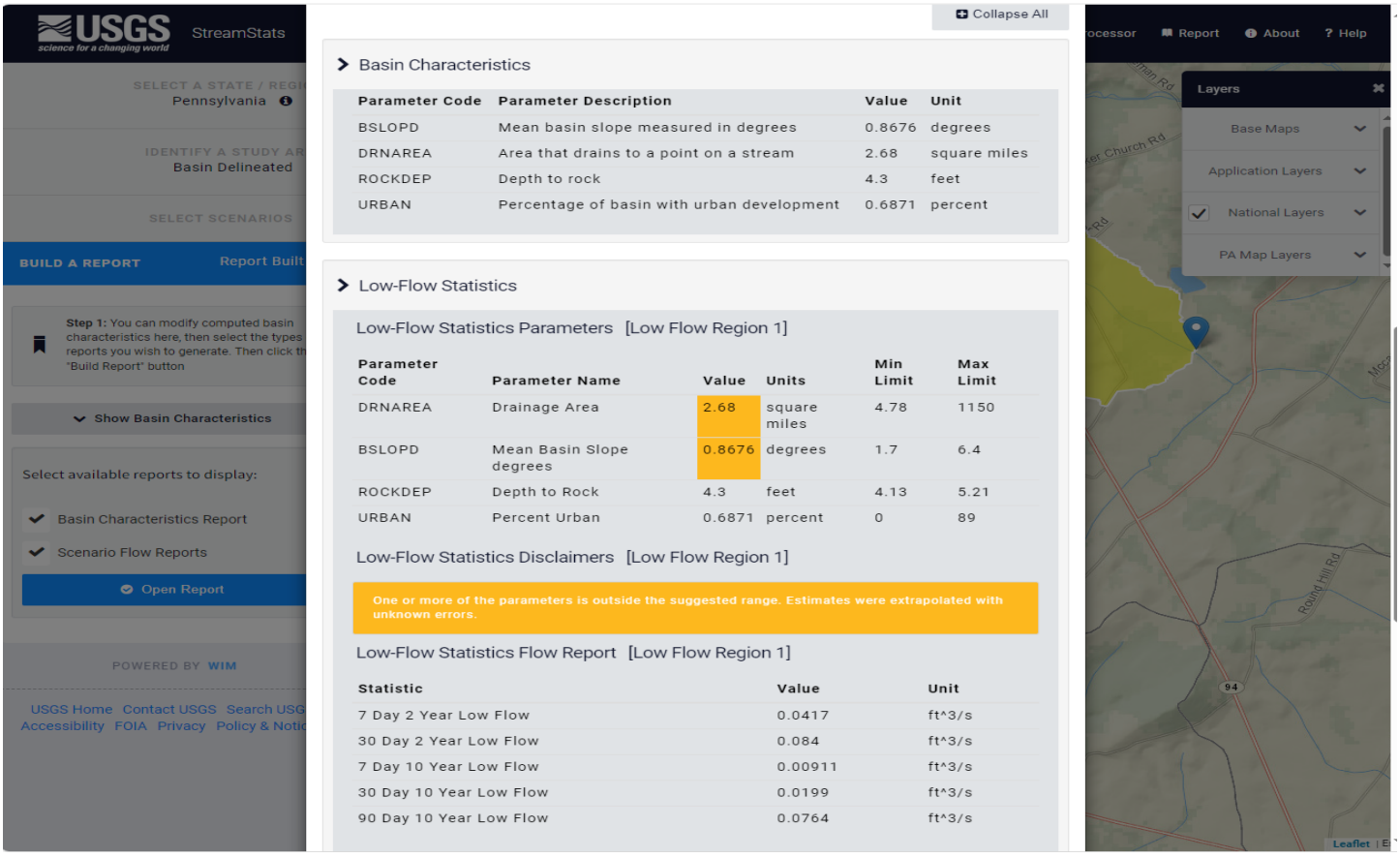
White Church Rd
Leaflet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Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
BSLOPD | Mean basin slope measured in degrees | 0.8676 | degrees
DRNAREA | Area that drains to a point on a stream | 2.68 | square miles
ROCKDEP | Depth to rock | 4.3 | feet
URBAN | Percentage of basin with urban development | 0.6871 | percent
Low-Flow Statistics
Low-Flow Statistics Parameters [Low Flow Region 1]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
DRNAREA | Drainage Area | 2.68 | square miles | 4.78 | 1150
BSLOPD | Mean Basin Slope degrees | 0.8676 | degrees | 1.7 | 6.4
ROCKDEP | Depth to Rock | 4.3 | feet | 4.13 | 5.21
URBAN | Percent Urban | 0.6871 | percent | 0 | 89
Low-Flow Statistics Disclaimers [Low Flow Region 1]
One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.
Low-Flow Statistics Flow Report [Low Flow Region 1]
Statistic | Value | Unit
7 Day 2 Year Low Flow | 0.0417 | ft^3/s
30 Day 2 Year Low Flow | 0.084 | ft^3/s
7 Day 10 Year Low Flow | 0.00911 | ft^3/s
30 Day 10 Year Low Flow | 0.0199 | ft^3/s
90 Day 10 Year Low Flow | 0.0764 | ft^3/s
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Round Hill Rd
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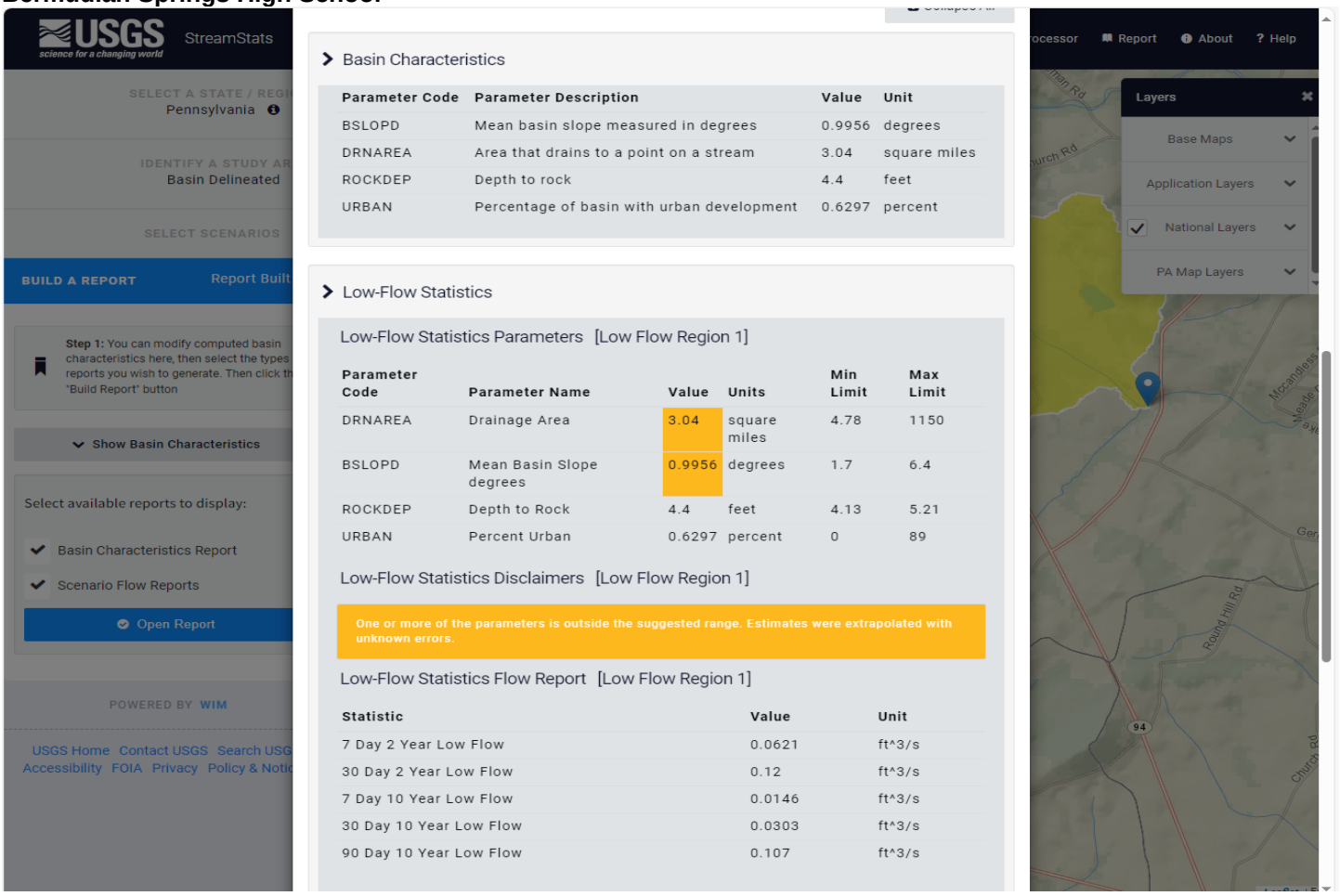
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Select available reports to display:
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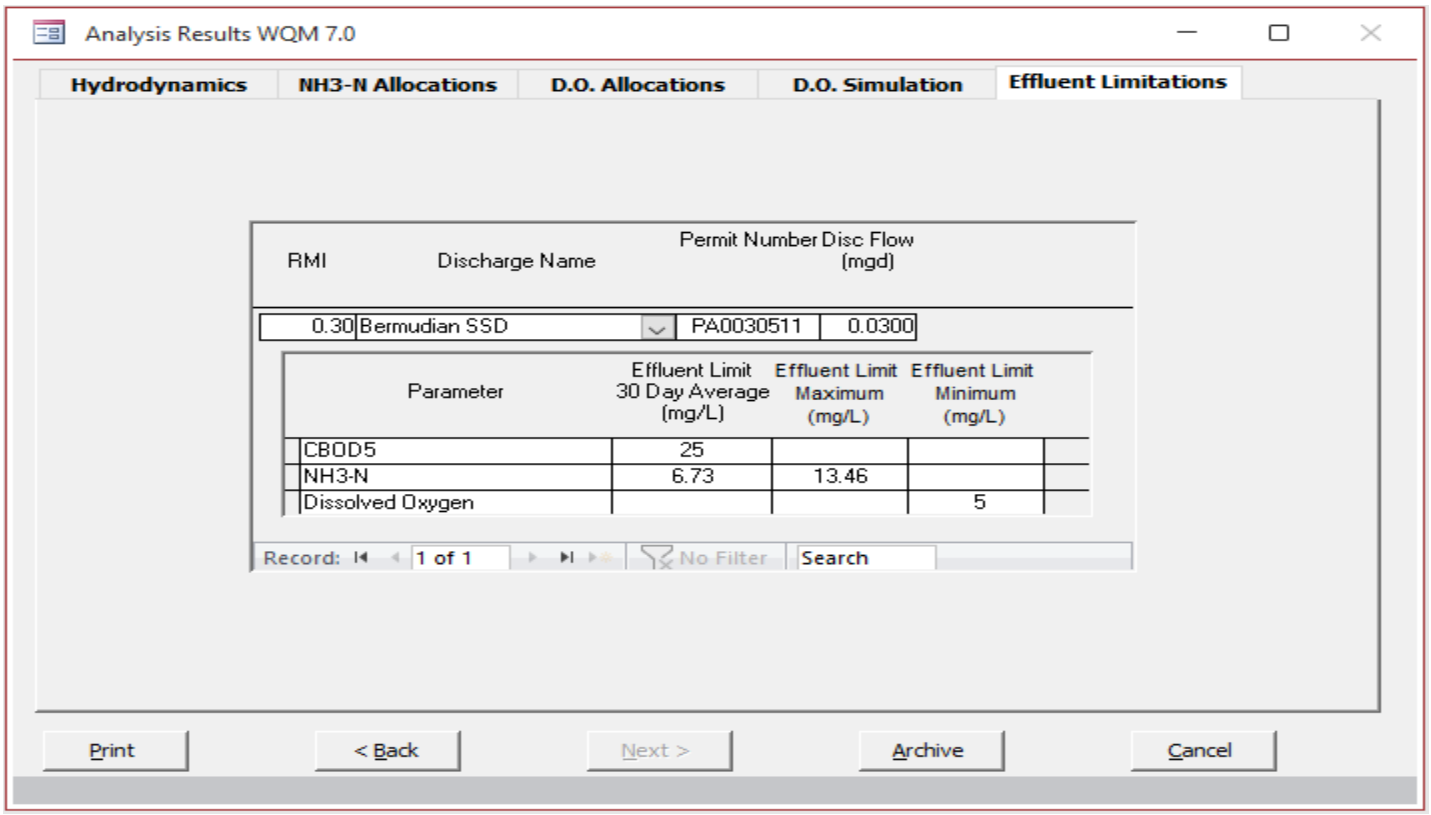
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
BSLOPD | Mean basin slope measured in degrees | 0.9956 | degrees
DRNAREA | Area that drains to a point on a stream | 3.04 | square miles
ROCKDEP | Depth to rock | 4.4 | feet
URBAN | Percentage of basin with urban development | 0.6297 | percent
Low-Flow Statistics
Low-Flow Statistics Parameters [Low Flow Region 1]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
DRNAREA | Drainage Area | 3.04 | square miles | 4.78 | 1150
BSLOPD | Mean Basin Slope degrees | 0.9956 | degrees | 1.7 | 6.4
ROCKDEP | Depth to Rock | 4.4 | feet | 4.13 | 5.21
URBAN | Percent Urban | 0.6297 | percent | 0 | 89
Low-Flow Statistics Disclaimers [Low Flow Region 1]
One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.
Low-Flow Statistics Flow Report [Low Flow Region 1]
Statistic | Value | Unit
7 Day 2 Year Low Flow | 0.0621 | ft^3/s
30 Day 2 Year Low Flow | 0.12 | ft^3/s
7 Day 10 Year Low Flow | 0.0146 | ft^3/s
30 Day 10 Year Low Flow | 0.0303 | ft^3/s
90 Day 10 Year Low Flow | 0.107 | ft^3/s
Report
About
Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
Round Hill Rd
94


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)
0.30
Bermudian SSD
PA0030511
0.0300
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
25
NH3-N
6.73
13.46
Dissolved Oxygen
5
Record: 1 of 1
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rptEffLimits

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07F	8635	Trib 08635 to Mud Run

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	Bermudian SSD	PA0030511	0.030	CBOD5	25		
				NH3-N	6.73	13.46	
				Dissolved Oxygen			5

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rpt_WLA

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07F	8635	Trib 08635 to Mud Run

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	Bermudian SSD	11.07	31.54	11.07	31.54	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
0.300	Bermudian SSD	1.37	6.73	1.37	6.73	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
0.30	Bermudian SSD	25	25	6.73	6.73	5	5	0	0

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rptDOSim

WQM 7.0 D.O. Simulation

SWP Basin	Stream Code	Stream Name
07F	8635	Trib 08635 to Mud Run

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.300	0.030	25.000	7.000
Reach Width (ft)	Reach Depth (ft)	Reach WD Ratio	Reach Velocity (fps)
7.016	0.386	18.179	0.067
Reach CBOD5 (mg/L)	Reach Kc (1/days)	Reach NH3-N (mg/L)	Reach Kn (1/days)
7.92	1.153	1.73	1.029
Reach DO (mg/L)	Reach Kr (1/days)	Kr Equation	Reach DO Goal (mg/L)
7.409	23.164	Owens	5
Reach Travel Time (days)			
0.274			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.027	7.61	1.68	7.36
0.055	7.31	1.64	7.35
0.082	7.03	1.59	7.36
0.110	6.75	1.55	7.39
0.137	6.49	1.50	7.41
0.165	6.24	1.46	7.44
0.192	5.99	1.42	7.48
0.219	5.76	1.38	7.51
0.247	5.53	1.34	7.54
0.274	5.32	1.31	7.54

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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
07F	06035	Trib 06035 to Mud Run

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												
0.300	0.13	0.00	0.13	.0464	0.00697	.386	7.02	18.18	0.07	0.274	25.00	7.00
Q1-10 Flow												
0.300	0.09	0.00	0.09	.0464	0.00697	NA	NA	NA	0.06	0.326	25.00	7.00
Q30-10 Flow												
0.300	0.18	0.00	0.18	.0464	0.00697	NA	NA	NA	0.08	0.240	25.00	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
07F	06035	Trib 06035 to Mud Run	0.300	524.00	2.68	0.00000	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	0.050	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
Bermudian SSD	PA0030511	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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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
07F	06035	Trib 06035 to Mud Run	0.300	524.00	2.68	0.00000	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	0.050	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
Bermudian SSD	PA0030511	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	Average Weekly	Daily 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
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
$CBOD_5$	XXX	XXX	XXX	10.0	XXX	20.0	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	10.0	XXX	20.0	2/month	8-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/year	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18.0	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6.0	2/month	8-Hr Composite
TKN	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Nitrate-Nitrite	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
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	8-Hr Composite

Compliance Sampling Location:

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: