pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0080209**
Facility Type	**Non-Municipal**	APS ID	**275426**
Major / Minor	**Minor**	Authorization ID	**1471978**

Applicant and Facility Information

Applicant Name	**Hoffman Homes Inc.**	Facility Name	**Hoffman Homes For Youth Inc.**
Applicant Address	815 Orphanage Road	Facility Address	815 Orphanage Road
	Littlestown, PA 17340-9329		Littlestown, PA 17340-9329
Applicant Contact	William Posner	Facility Contact	Derek Hemler
Applicant Phone	(717) 359-7148	Facility Phone	(717) 634-4017
Client ID	66334	Site ID	509940
Ch 94 Load Status	Not Overloaded	Municipality	Mount Joy Township
Connection Status		County	Adams
Date Application Received	February 3, 2024	EPA Waived?	Yes
Date Application Accepted	February 6, 2024	If No, Reason	

Purpose of Application: NPDES permit renewal.

Summary of Review

Hoffman Homes, Inc. (Authority/Permittee), applied to the Pennsylvania Department of Environmental Protection (DEP) for issuance of the NPDES permit. The permit was reissued on November 19, 2019 and became effective on December 1, 2019. The permit expires on November 30, 2024.

The average annual design flow and hydraulic design capacity is 0.02 MGD.

Sludge use and disposal description and location(s): N/A because sludge hauled by Smith's Sanitary 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	July 12, 2024
X		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	July 18, 2024

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.02
Latitude	39º 44' 47.55"	Longitude	-77º 10' 42.70"
Quad Name	Taneytown	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Lousy Run (WWF)	Stream Code	59042
NHD Com ID	53321146	RMI	3.95
Drainage Area	0.43 mi.^{2} (POFU: 0.78 mi.^{2})	Yield (cfs/mi^2)	See comments below
Q_{7-10} Flow (cfs)	See comments below	Q_{7-10} Basis	See comments below
Elevation (ft)	545 (POFU: 512)	Slope (ft/ft)	
Watershed No.	13-D	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	City of Frederick, MD		
PWS Waters	Monocacy River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	Approximate 35.0 miles

Changes Since Last Permit Issuance: none

Drainage Area
The discharge is to Unnamed Tributary 59042 to Lousy run at RMI 3.95 miles. A drainage area upstream of the discharge is estimated to be 0.43 sq.mi, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow
Since USGS PA StreamStats estimated the drainage area that is below the minimum value allowed by USGS's regression equations, the USGS gage station No. 59041 on Rock Creek watershed (at the PA/MD border) will be used to calculate the Q_{7-10} at the point of discharge using a low flow yield method. The Q_{7-10} here is 2.71 cfs and the drainage area is 63.5 mi^2 which results in a Q_{7-10} low flow yield of 0.043 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):

$$\text{Low Flow Yield} = Q_{7-10gage} / \text{Drainage Area}_{gage} = 2.71 \text{ cfs} / 63.5 \text{ mi}^2 = 0.043 \text{ cfs/mi}^2$$
$$Q_{7-10discharge} = 0.04 \text{ cfs/mi}^2 * \text{Drainage Area}_{discharge} = 0.043 \text{ cfs/sq.mi} * 0.78 \text{ mi}^2 = 0.034 \text{ cfs}$$
$$Q_{30-10} = 1.36 * Q_{7-10discharge} = 1.36 * 0.034 \text{ cfs} = 0.046 \text{ cfs}$$
$$Q_{1-10} = 0.64 * Q_{7-10discharge} = 0.64 * 0.034 \text{ cfs} = 0.022 \text{ cfs}$$

Point of First Use (POFU)
A point of first use conducted by DEP Water Pollutant Biologist in 1986 indicated that the Lousy Run is an intermittent stream at the facility's discharge point with the point of first use existing approximately 0.7 mile downstream. The drainage area for the point of first use was determined to be 0.78 mi^2 by the USGS StreamStats GIS application.

Potable Water Supply Intake
The nearest downstream public water supply intake is the City of Frederick intake on the Monocacy River, approximately 35 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: Hoffman Homes Inc.

WQM Permit No.	Issuance Date
0178403	
0178403 98-1	3/26/1999

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Extended Aeration With Solids Removal	Chlorine With Dechlorination	0.02

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.1	1.66	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: none

Other Comments:

The WWTP train is as follows:

The treatment process is as follows: Comminutor – Equalization Tank – Aeration Tanks (4) – Clarifiers (2) – Dosing Tank – Sand filter – Mixed media filter – Chlorine Contact – De-chlorination – Sludge Holding Tank – Outfall to Lousy Run.

A sludge holding tank is used for solids storage. An intermittent sand filter is used as a backup filter if necessary.

Chemical used:
Calcium hypochlorite tablets are used for disinfection.

Biosolids:
Solids are wasted to two sludge holding tanks and hauled-off of site by hauler Smith's Sanitary Septic Service. The total sewage sludge/biosolids production within the facility for the previous year was 0.93 dry tons.

Industrial/Commercial Users:
The permit application indicated there is no industrial or 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:	**9/21/21:** Mr. Betting, DEP WQS, conducted a compliance evaluation inspection. There were no violations noted during inspection. The field test results were within permit limits. Recommendations were to evaluate the function of dechlorination unit as it appears to be producing a film on the receiving stream and exploring options for an emergency power source. **6/20/2020**: Mr. Bettinger, DEP Environmental Trainee, conducted an administrative inspection. There were no violations noted during inspection.
Other Comments:	There were no violations against the permittee or applicant.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from June 1, 2023 to May 31, 2024)

Parameter	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23
Flow (MGD) Average Monthly	0.0014	0.003	0.004	0.004	0.01	0.008	0.004	0.004	0.003	0.003	0.003	0.003
Flow (MGD) Daily Maximum	0.003	0.022	0.011	0.008	0.028	0.023	0.009	0.011	0.006	0.008	0.006	0.006
pH (S.U.) Daily Minimum	7.04	6.61	7.18	7.15	6.88	7.06	7.06	6.75	6.87	6.90	6.99	6.57
pH (S.U.) Instantaneous Maximum	7.84	7.74	8.41	7.92	7.84	7.89	8.03	7.55	8.01	7.60	7.50	8.27
DO (mg/L) Daily Minimum	6.11	7.50	8.42	10.11	9.45	8.95	7.97	6.55	5.94	5.32	5.59	6.65
TRC (mg/L) Average Monthly	0.09	0.10	0.07	0.08	0.09	0.07	0.08	0.07	0.06	0.07	0.06	0.07
TRC (mg/L) Instantaneous Maximum	0.17	0.39	0.12	0.18	0.19	0.15	0.25	0.15	0.17	0.24	0.22	0.21
CBOD5 (mg/L) Average Monthly	< 2.40	< 2.40	< 2.40	2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40
TSS (mg/L) Average Monthly	1.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	1.0	5.0	2.0
Fecal Coliform (No./100 ml) Geometric Mean	4	< 3.0	2.0	3.0	< 3.0	4.0	4.0	2.0	< 1	< 1	< 1	5
Fecal Coliform (No./100 ml) Instantaneous Maximum	10	12.0	4.0	5.0	8.0	18.0	5.0	3.0	1	< 1	2	11
Nitrate-Nitrite (lbs/day) Daily Maximum						< 47						
Nitrate-Nitrite (mg/L) Daily Maximum						< 31.4						
Total Nitrogen (lbs/day) Daily Maximum						47						
Total Nitrogen (mg/L) Daily Maximum						31						
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.23	< 0.1	0.11	0.53	< 0.1	< 0.1	< 2.9	< 0.1	< 0.14	< 0.24

TKN (lbs/day) Daily Maximum						< 0.8						
TKN (mg/L) Daily Maximum						< 0.5						
Total Phosphorus (lbs/day) Daily Maximum						8						
Total Phosphorus (mg/L) Daily Maximum						5.5						

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.02
Latitude 39º 44' 47.55" **Longitude** -77º 10' 42.70"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

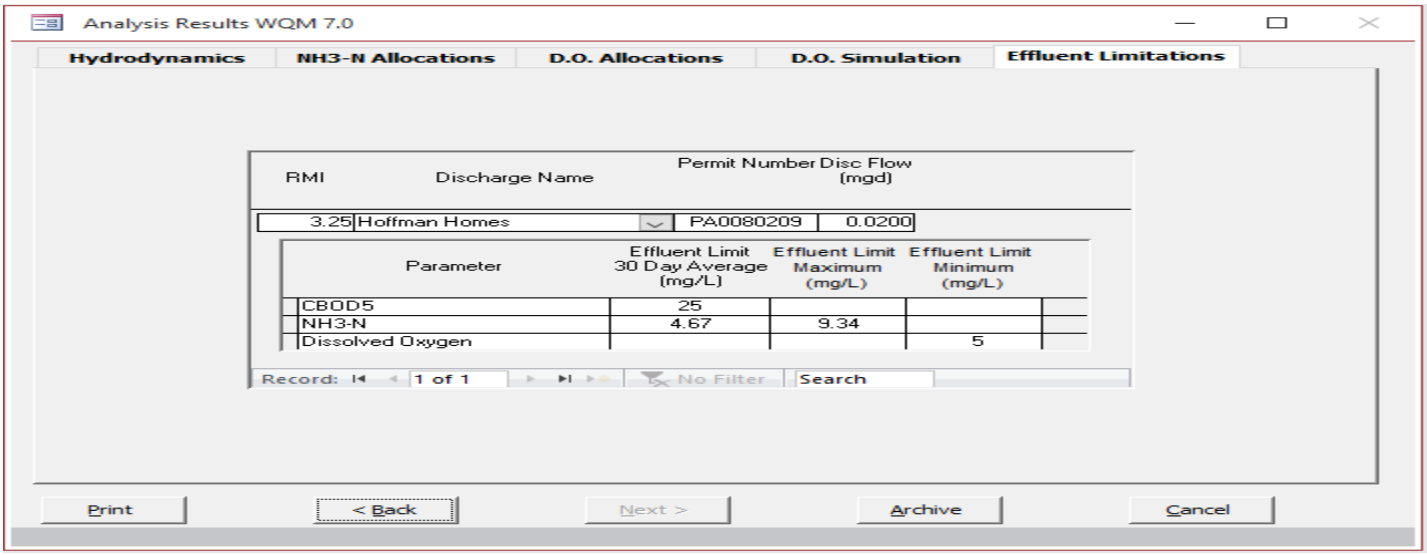
Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	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 20°C (Default per 391-2000-013)
- Stream pH 7.0 (Default per 391-2000-007)
- Stream Temperature 20°C (Default per 391-2000-013)



Regarding NH_3-N limits, the attached computer printout of the WQM 7.0 stream model (version 1.1) indicates that a limit of 4.67 mg/L as a monthly average and 9.34 mg/L instantaneous maximum (IMAX) are necessary to protect the aquatic life from toxicity effects at the point of discharge. However, the existing NH_3-N limit of 3.0 mg/L as monthly average and 6.0 mg/L as instantaneous maximum limit during summer are more stringent and will remain in the proposed permit. The winter season limits are calculated by multiplying summer limits by a factor of 3, and average monthly and IMAX limits are 9.0 mg/L and 18.0 mg/L, respectively. Minimum monitoring frequency will remain 2/month per 362-0400-001 Chapter 6 Page 10.

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. However, the existing permit 10.0 mg/L as AML, & 20.0 mg/L as IMAX will remain in the proposed permit. Recent DMRs and inspection reports show that the facility has typically been achieving concentrations below this limit. Minimum monitoring frequency will be 2/month.

Dissolved Oxygen (D.O.):
A minimum D.O. of 5.0 mg/L is required per 25 Pa. Code § 93.7. It is recommended that this limit be replaced in the proposed permit to ensure the protection of water quality standards. This approach is consistent with DEP's current Standard Operating Procedure (SOP) No. BCW-PMT-033, version 2.0 revised February 5, 2024, and has been applied to other point source dischargers throughout the state.

pH:
The effluent discharge pH should remain above 6.0 and below 9.0 standard units according to 25 Pa. Code § 95.2(1).

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 Suspended Solids (TSS):
The existing technology-based limits of 10.0 mg/L average monthly, and 20.0 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. Minimum monitoring frequency will be 2/month.

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 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.

Total Phosphorus:
The Rock Creek basin is designated as having nutrient-related problems. As per the previous protection report, it has been decided that phosphorus limits would not be necessary because the discharge is not to a perennial stream and the soil would absorb the phosphorus before a significant portion of it reached the point of first use. This approach is consistent with DEP's SOP No. BPNPSM-PMT-033 as well as the State regulation found in 25 Pa. Code § 96.5(c) which states the following: *"When it is determined that the discharge of phosphorus, alone or in combination with the discharge of other pollutants, contributes or threatens to impair existing or designated uses in a free-flowing surface water, phosphorus discharges from point source discharges shall be limited to an average monthly concentration of 2 mg/l. More stringent controls on point source discharges may be imposed, or may be otherwise adjusted as a result of a TMDL which has been developed*." Consequently, existing effluent limits will remain unchanged in the draft permit in accordance with 40 CFR §122.44(l)(1).

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

Toxics

This is a minor sewage facility receiving domestic wastewater only and the current application does not require sampling of toxic pollutants (or heavy metals) for those facilities with design flows less than 0.1 MGD. Therefore, no reasonable potential analysis for toxic pollutants has been performed for this permit renewal.

Chesapeake Bay Strategy:

According to DEP's Chesapeake Bay Phase II Watershed Implementation Plan (WIP) Wastewater Supplement, this facility is considered a phase 5 non-significant sewage discharger with design flow less than 0.2 MGD but greater than 0.002 MGD. In general, DEP will issue permits for all phase 5 facilities with monitoring and reporting for Total Nitrogen (TN) and Total Phosphorus (TP) throughout the permit term at a frequency no less than annually. Furthermore, DEP's SOP No. BPNPSM-PMT-033 states that in general, at a minimum, monitoring for TN and TP should be included in new and reissued permits for sewage discharges with design flows > 2,000 gpd. At this time, the Department is not requiring a total maximum annual nitrogen or phosphorus loading cap. TN and TP monitoring is already included in the existing permit and will remain in the renewal.

Total Residual Chlorine (TRC):

Based on the attached TRC Excel spreadsheet calculator, which uses the equations and calculations from the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (ID No. 391-2000-015), the facility's discharge must meet a monthly average limit of 0.169 mg/L and an instantaneous maximum limit of 0.55 mg/L. However, the existing permit limits of 0.12 mg/L Average monthly & 0.39 mg/L IMAX are more stringent and will remain in the proposed permit.

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.034	= Q stream (cfs)	0.5	= CV Daily
0.02	= 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 = 0.370	1.3.2.iii	WLA cfc = 0.353
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.138	5.1d	LTA_cfc = 0.205

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.169	AFC
		INST MAX LIMIT (mg/l) = 0.554	

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)**

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

Anti-Backsliding:
The proposed limits are at least as stringent as are in existing permit; therefore, anti-backsliding is not applicable

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.

303(d) Listed Streams:
The discharge from this facility is to a stream segment that is attaining its designated use(s).

WQM 7.0 Data:

WQM 7.0 MODEL INPUTS

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 391-2000-007)
*	Stream Temperature	20°C	(Default per 391-2000-013)

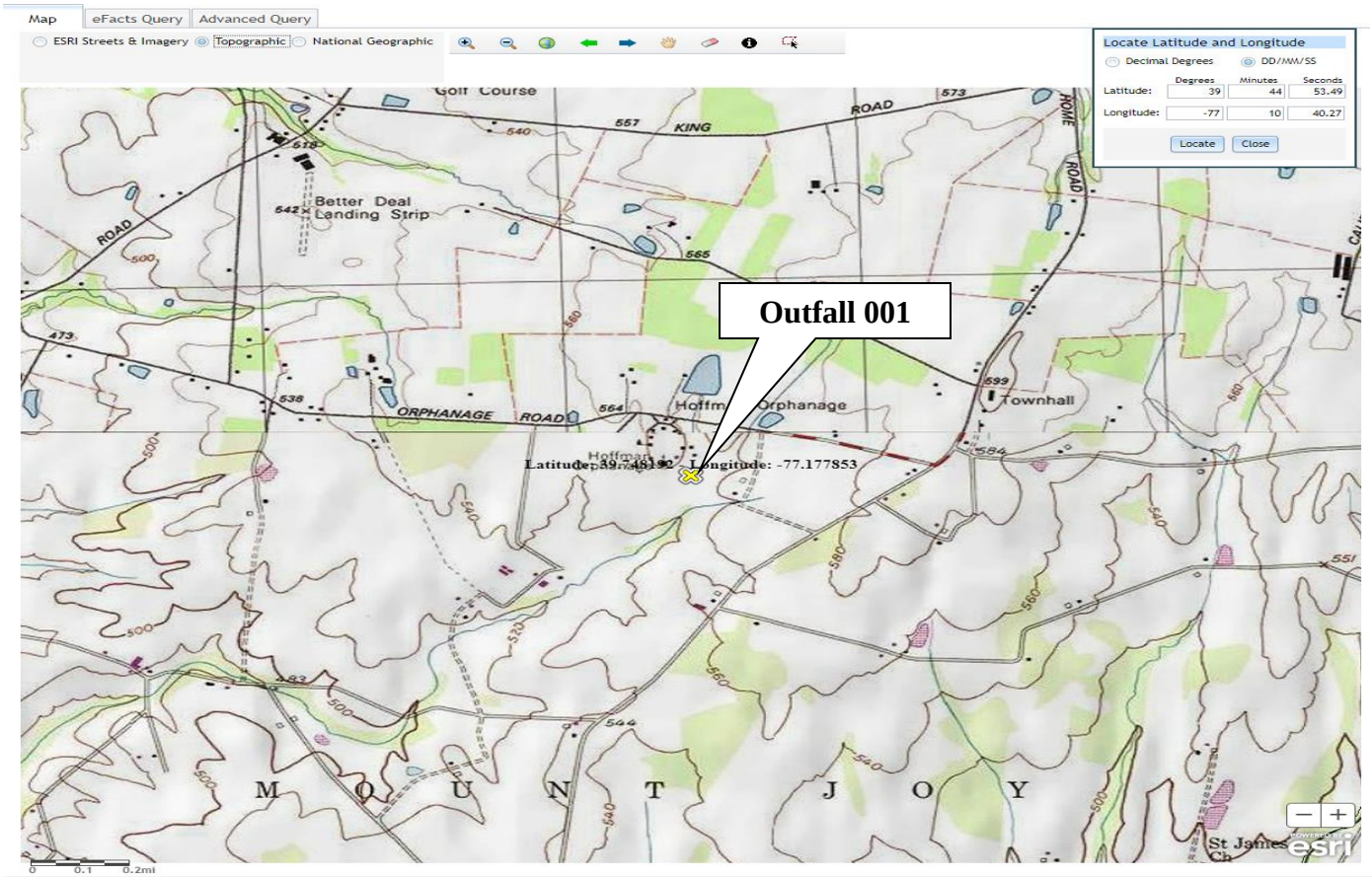
Two nodes were used for the WQM 7.0 model since there are no other WWTP discharges within close proximity.

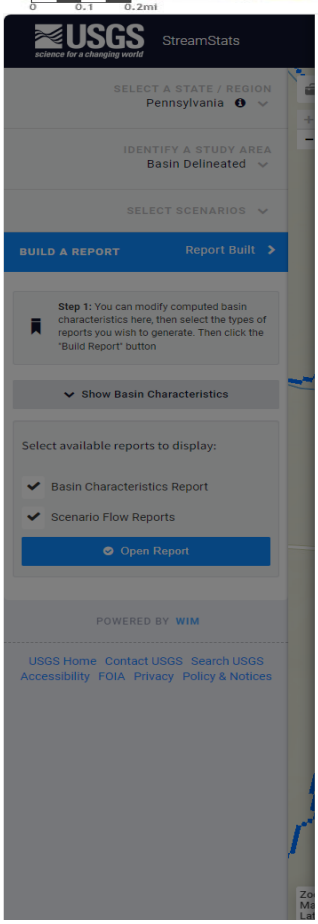
Node 1: Point of First Use on Lousy Run (059042)

Elevation:	512 ft (USGS National Map Viewer)
Drainage Area:	0.78 mi^2 (USGS PA StreamStats)
River Mile Index:	3.25 (PA DEP eMapPA)
Low Flow Yield:	0.043 cfs/mi^2
Discharge Flow:	0.02 MGD (NPDES PA0080209 Application)

Node 2: Just before confluence with UNT 59044

Elevation:	427 ft (USGS National Map Viewer)
Drainage Area:	2.21 mi^2 (USGS PA StreamStats)
River Mile Index:	1.26 (PA DEP eMapPA)
Low Flow Yield:	0.043 cfs/mi^2
Discharge Flow:	0.00 MGD





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	0.43	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	3.67	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

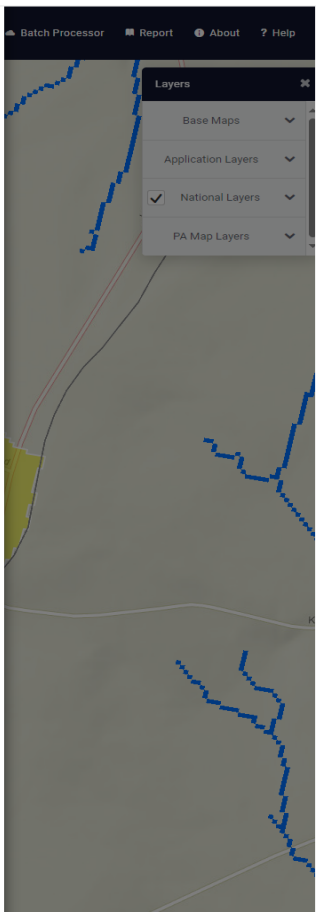
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.43	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	41	inches	35	50.4
STRDEN	Stream Density	3.67	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

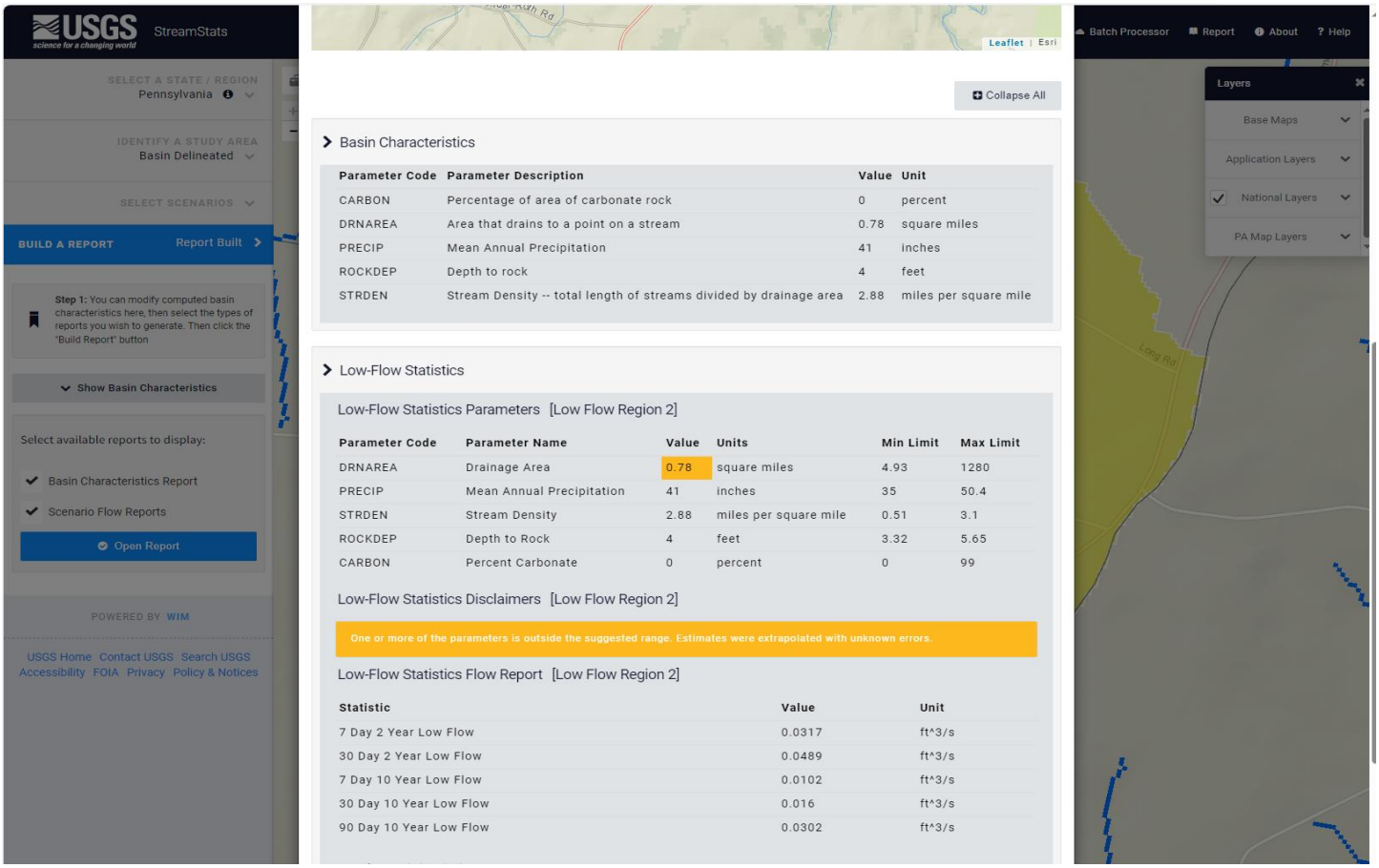
Low-Flow Statistics Disclaimers [Low Flow Region 2]

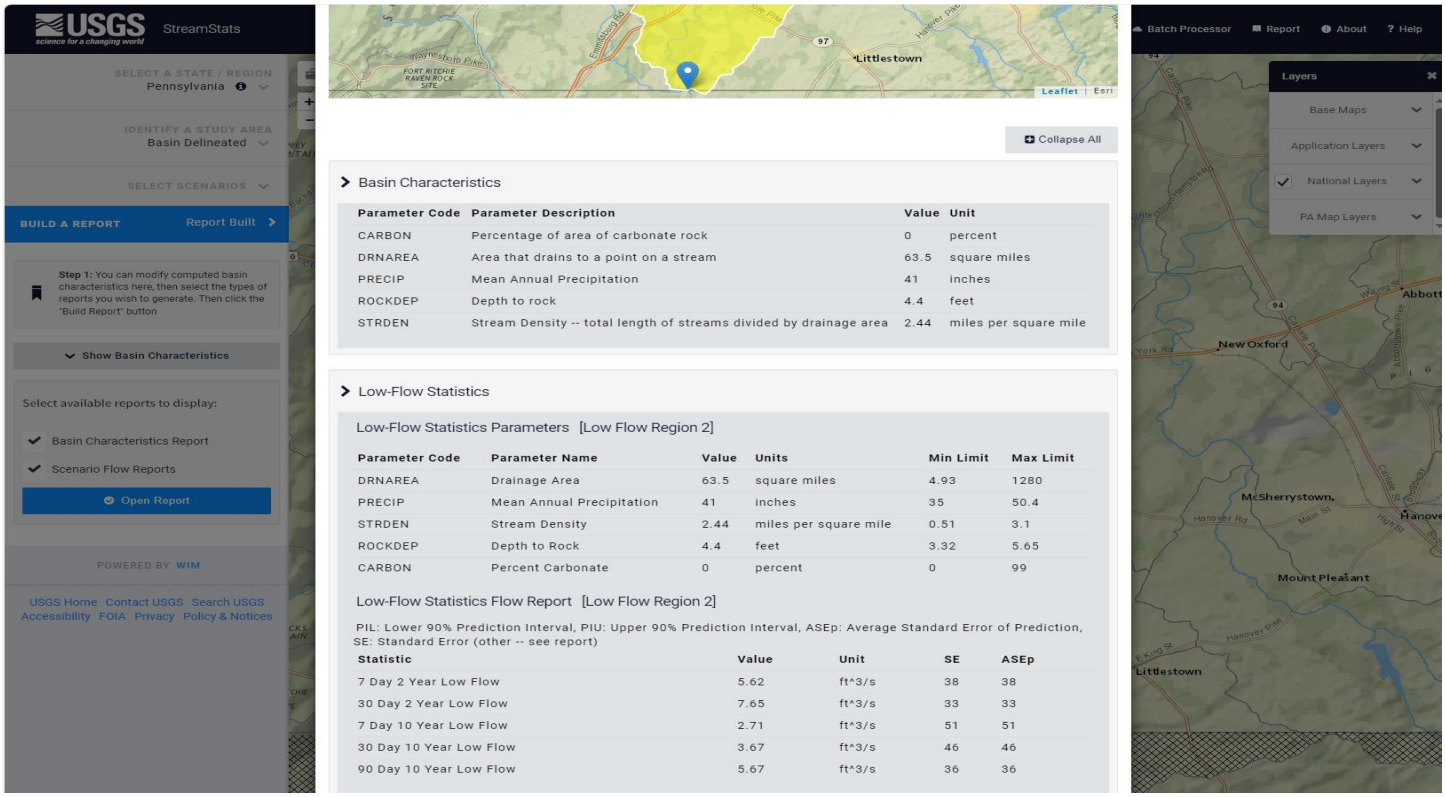
One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

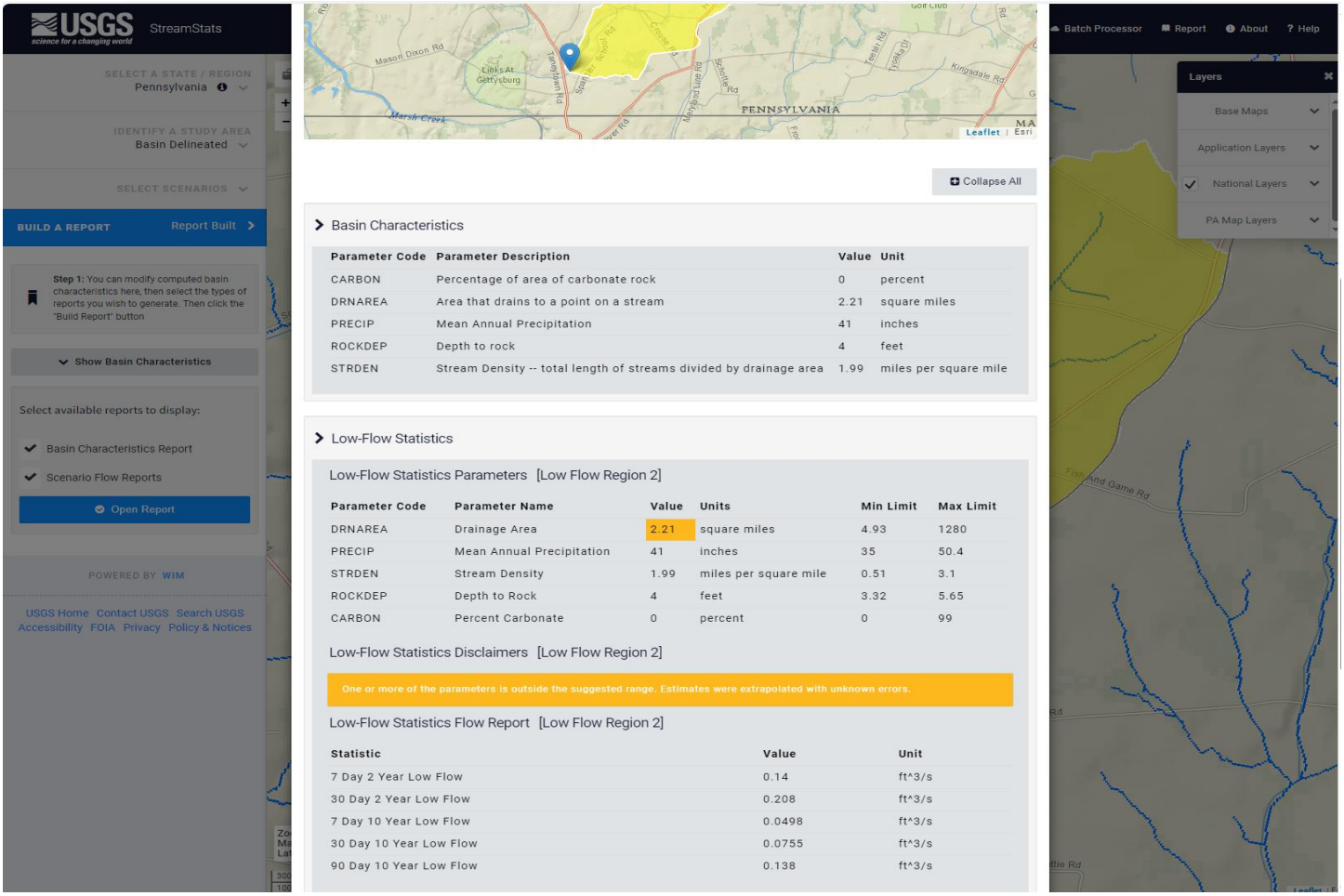
Low-Flow Statistics Flow Report [Low Flow Region 2]

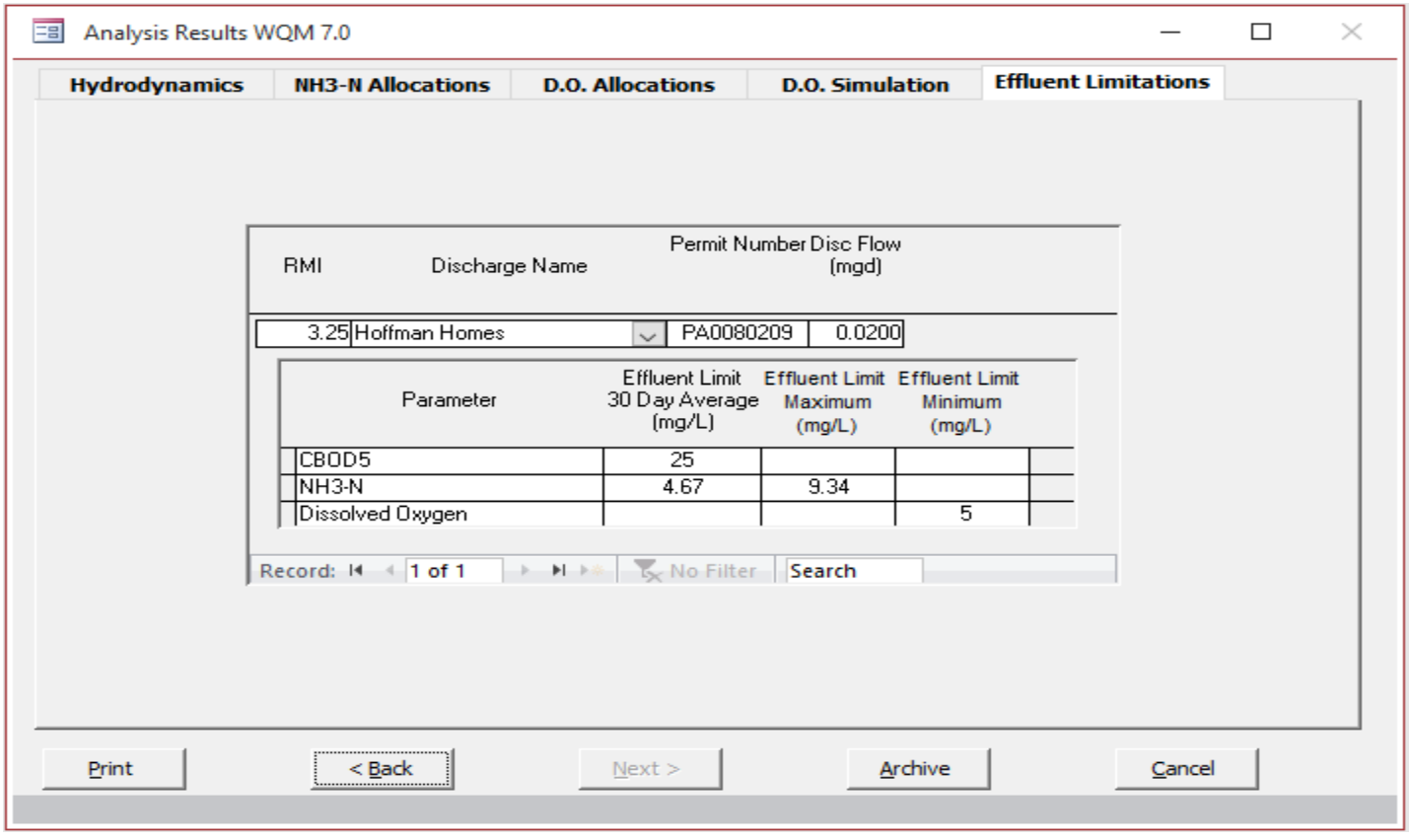
Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0132	ft^3/s
30 Day 2 Year Low Flow	0.0208	ft^3/s
7 Day 10 Year Low Flow	0.004	ft^3/s
30 Day 10 Year Low Flow	0.00641	ft^3/s
90 Day 10 Year Low Flow	0.0123	ft^3/s




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
Open Report
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
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 | 0.78 | 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 | 2.88 | 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 | 0.78 | square miles | 4.93 | 1280
PRECIP | Mean Annual Precipitation | 41 | inches | 35 | 50.4
STRDEN | Stream Density | 2.88 | miles per square mile | 0.51 | 3.1
ROCKDEP | Depth to Rock | 4 | 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 | 0.0317 | ft^3/s
30 Day 2 Year Low Flow | 0.0489 | ft^3/s
7 Day 10 Year Low Flow | 0.0102 | ft^3/s
30 Day 10 Year Low Flow | 0.016 | ft^3/s
90 Day 10 Year Low Flow | 0.0302 | ft^3/s
Batch Processor
Report
About
Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers


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
Open Report
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
Littlestown
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 | 63.5 | square miles
PRECIP | Mean Annual Precipitation | 41 | inches
ROCKDEP | Depth to rock | 4.4 | feet
STRDEN | Stream Density -- total length of streams divided by drainage area | 2.44 | 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 | 63.5 | square miles | 4.93 | 1280
PRECIP | Mean Annual Precipitation | 41 | inches | 35 | 50.4
STRDEN | Stream Density | 2.44 | miles per square mile | 0.51 | 3.1
ROCKDEP | Depth to Rock | 4.4 | feet | 3.32 | 5.65
CARBON | Percent Carbonate | 0 | percent | 0 | 99
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 (other -- see report)
Statistic | Value | Unit | SE | ASEp
7 Day 2 Year Low Flow | 5.62 | ft^3/s | 38 | 38
30 Day 2 Year Low Flow | 7.65 | ft^3/s | 33 | 33
7 Day 10 Year Low Flow | 2.71 | ft^3/s | 51 | 51
30 Day 10 Year Low Flow | 3.67 | ft^3/s | 46 | 46
90 Day 10 Year Low Flow | 5.67 | ft^3/s | 36 | 36
Batch Processor
Report
About
Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
New Oxford
McSherrystown
Mount Pleasant
Littlestown


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
Open Report
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
PENNSYLVANIA
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 | 2.21 | 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 | 1.99 | 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 | 2.21 | square miles | 4.93 | 1280
PRECIP | Mean Annual Precipitation | 41 | inches | 35 | 50.4
STRDEN | Stream Density | 1.99 | miles per square mile | 0.51 | 3.1
ROCKDEP | Depth to Rock | 4 | 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 | 0.14 | ft^3/s
30 Day 2 Year Low Flow | 0.208 | ft^3/s
7 Day 10 Year Low Flow | 0.0498 | ft^3/s
30 Day 10 Year Low Flow | 0.0755 | ft^3/s
90 Day 10 Year Low Flow | 0.138 | ft^3/s
Batch Processor
Report
About
Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers


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)
3.25
Hoffman Homes
PA0080209
0.0200
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
25
NH3-N
4.67
9.34
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
13D	59042	LOUSY 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)
3.250	Hoffman Homes	PA0080209	0.020	CBOD5	25		
				NH3-N	4.67	9.34	
				Dissolved Oxygen			5

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rpt_WLA

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
13D	59042	LOUSY 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
3.250	Hoffman Homes	16.76	28.39	16.76	28.39	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
3.250	Hoffman Homes	1.89	4.67	1.89	4.67	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
3.25	Hoffman Homes	25	25	4.67	4.67	5	5	0	0

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rptDOSim

WQM 7.0 D.O. Simulation

SWP Basin	Stream Code	Stream Name
13D	59042	LOUSY RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
3.250	0.020	20.000	7.000
Reach Width (ft)	Reach Depth (ft)	Reach W/D Ratio	Reach Velocity (fps)
3.975	0.326	12.186	0.050
Reach CBOD5 (mg/L)	Reach Kc (1/days)	Reach NH3-N (mg/L)	Reach Kn (1/days)
13.04	0.767	2.24	0.700
Reach DO (mg/L)	Reach Kr (1/days)	Kr Equation	Reach DO Goal (mg/L)
6.667	23.098	Owens	5
Reach Travel Time (days)			
2.445			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.244	10.81	1.89	8.24
0.489	8.96	1.59	8.24
0.733	7.43	1.34	8.24
0.978	6.16	1.13	8.24
1.222	5.11	0.95	8.24
1.467	4.23	0.80	8.24
1.711	3.51	0.68	8.24
1.956	2.91	0.57	8.24
2.200	2.41	0.48	8.24
2.445	2.00	0.40	8.24

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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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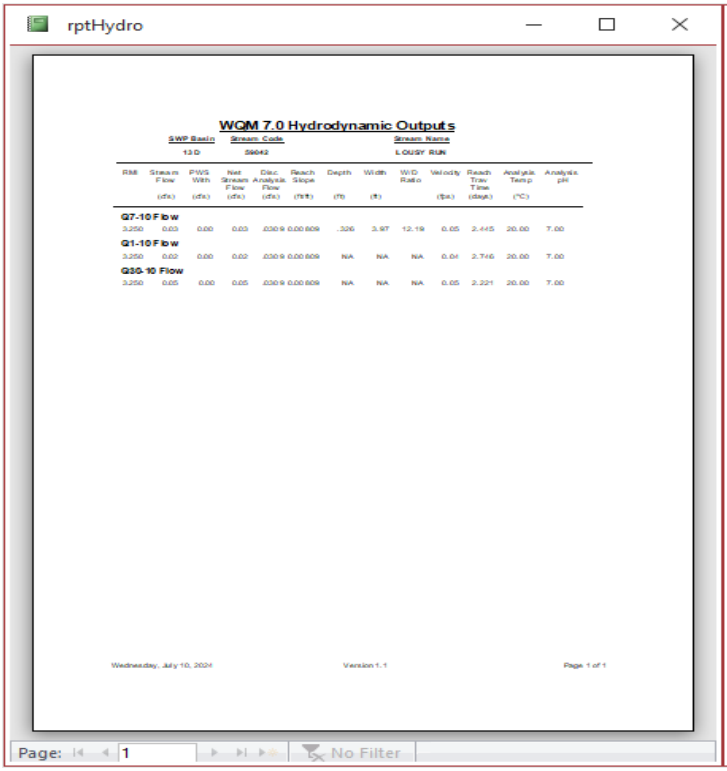
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WQM 7.0 Hydrodynamic Outputs
SWP Basin
Stream Code
Stream Name
13D
59042
LOUSY RUN
RMI
Stream Flow
PWS With
Net Stream Flow
Disc Analysis Flow
Reach Slope
Depth
Width
W/D Ratio
Velocity
Reach Trav Time
Analysis Temp
Analysis pH
Q7-10 Flow
3.250 0.03 0.00 0.03 .0309 0.00809 .326 3.97 12.19 0.05 2.445 20.00 7.00
Q1-10 Flow
3.250 0.02 0.00 0.02 .0309 0.00809 NA NA NA 0.04 2.746 20.00 7.00
Q30-10 Flow
3.250 0.05 0.00 0.05 .0309 0.00809 NA NA NA 0.05 2.221 20.00 7.00
Wednesday, July 10, 2024
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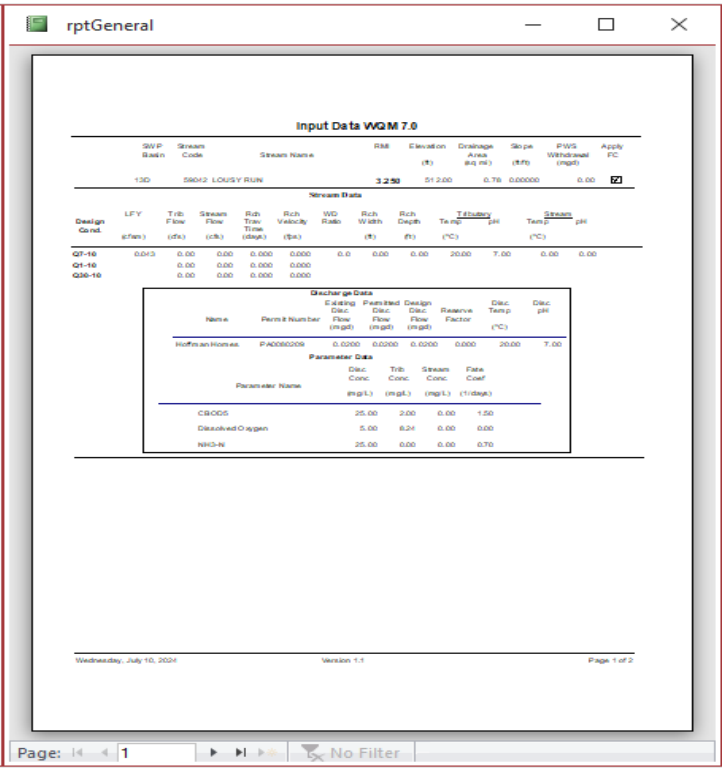
rptGeneral
Input Data WQM 7.0
SWP Basin
Stream Code
Stream Name
RMI
Elevation (ft)
Drainage Area (sq mi)
Slope (ft/ft)
PWS Withdrawal (mgd)
Apply FC
13D
59042 LOUSY RUN
3.250
512.00
0.78
0.00000
0.00
Stream Data
Design Cond.
LFY (cfsm)
Trib Flow (cfs)
Stream Flow (cfs)
Rch Trav Time (days)
Rch Velocity (fps)
WD Ratio
Rch Width (ft)
Rch Depth (ft)
Tributary Temp (°C)
Tributary pH
Stream Temp (°C)
Stream pH
Q7-10 0.043 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
Hoffman Homes
PA0080209
0.0200 0.0200 0.0200 0.000 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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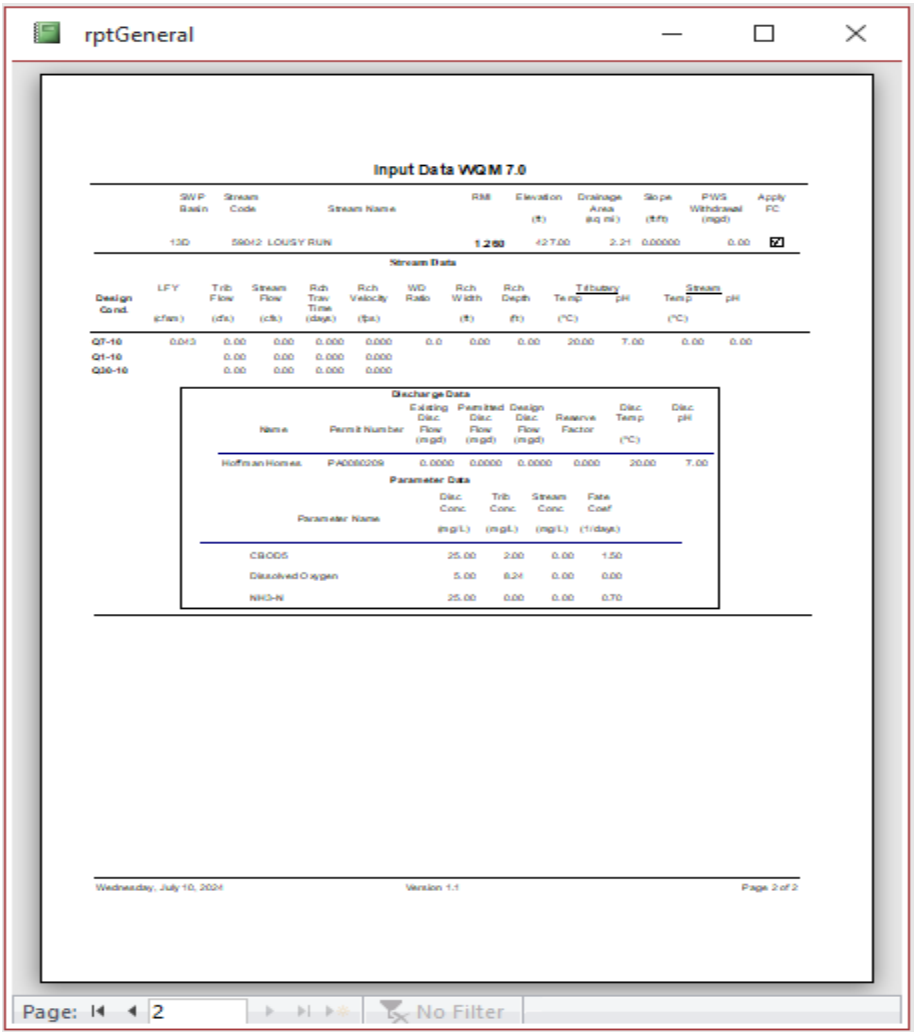
rptGeneral
Input Data WQM 7.0
SWP Basin
Stream Code
Stream Name
RMI
Elevation (ft)
Drainage Area (sq mi)
Slope (ft/ft)
PWS Withdrawal (mgd)
Apply FC
13D
59042 LOUSY RUN
1.250
427.00
2.21
0.00000
0.00
Stream Data
Design Cond.
LFY (cfsm)
Trib Flow (cfs)
Stream Flow (cfs)
Rch Trav Time (days)
Rch Velocity (fps)
WD Ratio
Rch Width (ft)
Rch Depth (ft)
Tributary Temp (°C)
Tributary pH
Stream Temp (°C)
Stream pH
Q7-10 0.043 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
Hoffman Homes
PA0080209
0.0000 0.0000 0.0000 0.000 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
Wednesday, July 10, 2024
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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
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.12	XXX	0.39	1/day	Grab
$CBOD_5$	XXX	XXX	XXX	10.0	XXX	20	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	10.0	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	24-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6	2/month	24-Hr Composite
TKN	XXX	Report Daily Max	XXX	Report Daily Max	XXX	XXX	1/year	24-Hr Composite
Nitrate-Nitrite	XXX	Report Daily Max	XXX	Report Daily Max	XXX	XXX	1/year	24-Hr Composite
Total Nitrogen	XXX	Report Daily Max	XXX	Report Daily Max	XXX	XXX	1/year	Calculation
Total Phosphorus	XXX	Report Daily Max	XXX	Report Daily Max	XXX	XXX	1/year	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
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.12	XXX	0.39	1/day	Grab
$CBOD_5$	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	24-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6.0	2/month	24-Hr Composite
TKN	XXX	Report Daily Max	XXX	Report Daily Max	XXX	XXX	1/year	24-Hr Composite
Nitrate-Nitrite	XXX	Report Daily Max	XXX	Report Daily Max	XXX	XXX	1/year	24-Hr Composite
Total Nitrogen	XXX	Report Daily Max	XXX	Report Daily Max	XXX	XXX	1/year	Calculation
Total Phosphorus	XXX	Report Daily Max	XXX	Report Daily Max	XXX	XXX	1/year	24-Hr Composite

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: