pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0082465**
Wastewater Type	**Non-Municipal**	APS ID	**729228**
Facility Type	**Minor**	Authorization ID	**1430850**

Applicant, Facility and Project Information

Applicant Name	**Susquehanna Conference UMC**	Facility Name	**Camp Penn**
Applicant Address	303 Mulberry Drive SUSUMC Camping Office Mechanicsburg, PA 17050	Facility Address	8005 Old Forge Road Waynesboro, PA 17268
Applicant Contact	Samuel Richardson	Facility Contact	Samuel Richardson
Applicant Phone	(717) 762-2693	Facility Phone	(814) 558-4817
Client ID	282776	Site ID	252295
Ch. 94 Load Status	Not Overloaded	Municipality	Quincy Township
Connection Status	No Limitations	County	Franklin
Date Application Received	March 7, 2023	EPA Waived	Yes
Date Application Accepted	March 16, 2023	If No, Reason	
Project Description	NPDES renewal.		

Summary of Review

The above referenced applicant has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on August 30, 2018 and became effective on September 1, 2018. The permit expired on August 31, 2023.

The purpose of this Fact Sheet is to present the basis of information used for establishing the proposed NPDES permit effluent limitations. The Fact Sheet includes the following information:

1. Applicant and General Information
2. Treatment Facility Summary
3. Facility NPDES Compliance History
4. Discharge, Receiving Waters and Water Supply Information
5. Overview of Presiding Water Quality Standards
6. NPDES Parameter Details

The subject facility is a 0.0132 MGD treatment facility. The applicant does not anticipate any proposed upgrades to the treatment facility in the next five years. The NPDES application has been processed as a Minor Sewage Facility due to the type of sewage and the design flow rate for the facility. The facility experiences heavier flows during the warmer months when camp activities occur regularly.

The applicant disclosed the Act 14 requirement to Franklin County and Quincy Township and the notice was received by the parties on March 6, 2023. A planning approval letter was not necessary as the facility is neither new or expanding.

The proposed permit will expire five (5) years from the effective date.

Approve	Deny	Signatures	Date
X		Steven C. Roselle, P.E. / Environmental Engineer	February 15, 2024
X		*Daniel W. Martin* Daniel W. Martin, P.E. / Environmental Engineer Manager	February 16, 2024

Summary of Review
Based on the review in this report, it is recommended that the permit be drafted. DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the Pennsylvania Bulletin in accordance with 25 Pa. Code § 92a.82. Upon publication in the Pennsylvania Bulletin, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the Pennsylvania Bulletin at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge. Any additional information or public review of documents associated with the discharge or facility may be available at PA DEP Southcentral Regional Office (SCRO), 909 Elmerton Avenue, Harrisburg, PA 17110. To make an appointment for file review, contact the SCRO File Review Coordinator at 717.705.4700.

1.0 Applicant

1.1 General Information

This fact sheet augments and summarizes PA Department of Environmental Protection's review for the NPDES renewal for the following subject facility.

Facility Name:	Camp Penn
NPDESPermit #	PA0082465
Contact:	Samuel Richardson Applicant Ph. (717) 762-2693 Facility Ph.(814) 558-4817 srichardson@susumc.org
Legal Address:	Susquehanna Conference UMC SUSUMC Camping Office 303 Mulberry Dr. Mechanicsburg, PA 17050

The off-site laboratory used for the analysis of the parameters was Franklin Analytical, Inc. (419) Limekiln Drive, Chambersburg, PA 17201.

2.0 Treatment Facility Summary

2.1.1 Site location

A topographical and an aerial map of the facility are depicted as Figure 1 and Figure 2, respectively.

Figure 1: Topographical Map

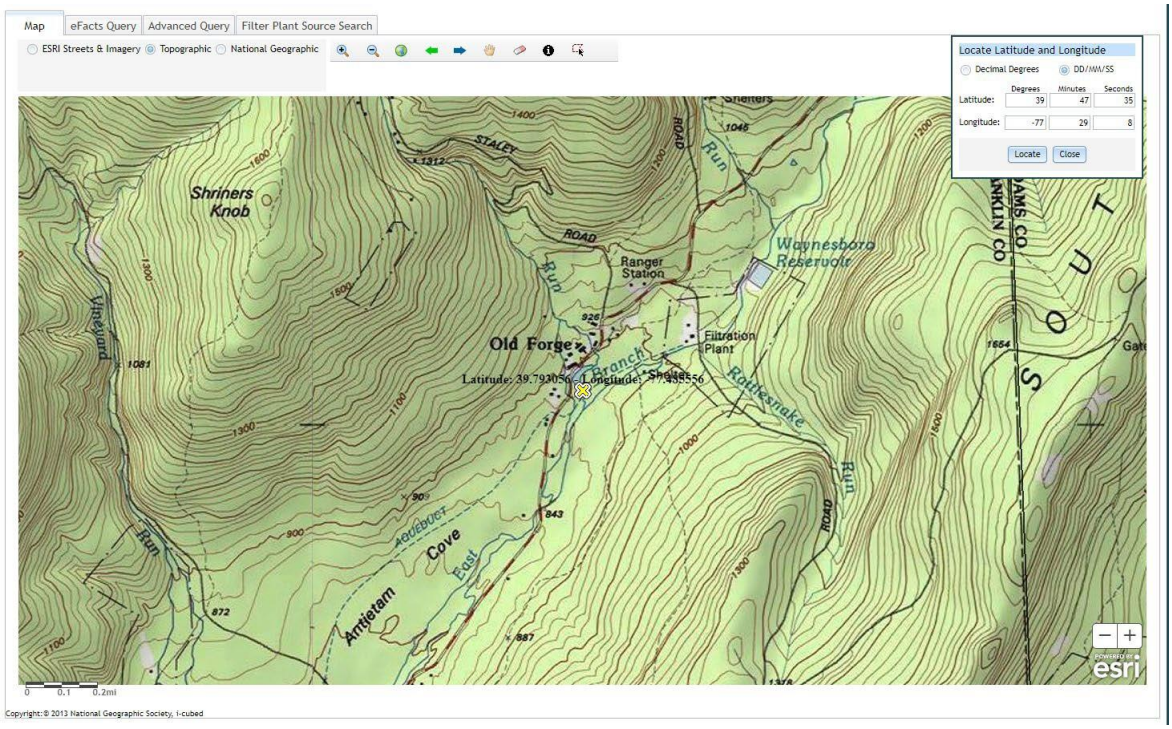
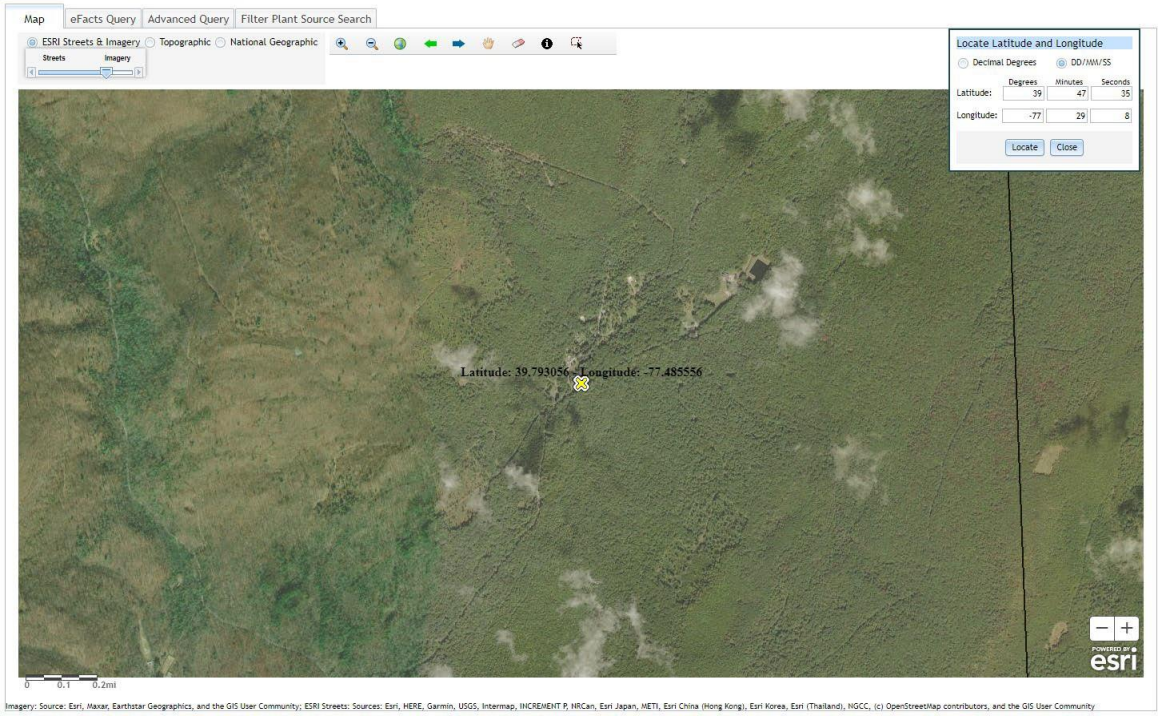


Figure 2: Aerial Map



2.2 Description of Wastewater Treatment Process

The on-site wastewater treatment facility serves sanitary wastewater generated from Camp Penn. This is a seasonal camp site which typically operates from June through August but may be open during April, May, September and October to facilitate conferences and meetings. The facility consists of holding/septic tanks (3) in series followed by a 10,000-gallon dosing tank, two (2) 56'x56' sand filter beds, a 4,200-gallon chlorine contact tank and an outfall structure. Liquid sodium hypochlorite is added for disinfection. The facility is designed for 0.0132 MGD (13,200 GPD), and typically treats about 8,000 GPD of sanitary wastewater during "peak" time of each year. The treatment process is summarized in the table below:

Treatment Facility Summary				
Treatment Facility Name: Camp Penn Susquehanna Conference UMC				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Septic Tank Sand Filter	Sodium Hypochlorite	0.0132
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.0132	N/A	Not Overloaded	N/A	Other WWTP

2.3 Operational Considerations- Chemical Additives

Chemical additives are chemical products introduced into a waste stream used for cleaning, disinfecting, or maintenance and which may be detected in effluent discharged to waters of the Commonwealth. Chemicals excluded are those used for neutralization of waste streams, the production of goods, and treatment of wastewater.

The subject facility utilizes chlorine tablets for disinfection as part of its treatment process.

2.4 Existing NPDES Permits Limits and Facility Outfall Information

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001 , **Latitude** 39° 47' 35.00" , **Longitude** 77° 29' 8.00" , **River Mile Index** 0.11 , **Stream Code** 59330

Receiving Waters: Trucker Run

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **September 1, 2018** through **August 31, 2023**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

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	1/week	Estimate
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/week	Grab
Dissolved Oxygen	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/week	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/week	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	25	XXX	50	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	30	XXX	60	2/month	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Nitrate-Nitrite as N Jun 1 - Aug 31	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/month	Grab
Total Nitrogen Jun 1 - Aug 31	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/month	Calculation
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Total Kjeldahl Nitrogen Jun 1 - Aug 31	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/month	Grab

Outfall 001 , Continued (from September 1, 2018 through August 31, 2023)

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		
Total Phosphorus Jun 1 - Aug 31	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/month	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

3.0 Facility NPDES Compliance History

3.1 Summary of Inspections

A summary of recent inspections during the existing permit review cycle is as follows.

06/23/2020 – DEP Inspection

- In attendance was DEP Inspector, Brandon Bettinger (Water Quality Specialist)
- Covid-19 plant check inspection occurred at 1005 hours.
- Gordon Cruickshanks (Certified Operator) was contacted via phone call.
- Gordon Cruickshanks stated that there are no staffing issues related to Covid-19 at Camp Penn.
- Facility is operating normally.
- No bypasses or storm mode entries have occurred recently.

- All treatment units are operable.
- Spare parts are kept on site.
- Sampling is being performed as usual. No sampling/analysis issues reported.
- No SSOs or other emergencies reported.

07/28/2022 – DEP Inspection

A compliance evaluation inspection was conducted at 1000 hours. In attendance from DEP were Cody Hoy (Environmental Trainee) and Brandon Bettinger (Water Quality Specialist). The DEP inspectors were met by Sam Richardson (Certified Operator/Owner).

A pH 10 calibration buffer was found to have expired in February 2022. The Department recommended replacing the buffer. A visual alarm was observed to work on the interior of the sewage treatment plant room but not on the exterior. The Department recommended replacing the exterior bulb and ensuring the exterior visual alarm works properly.

A document review was conducted on site of the August 2021 DMR, lab analysis results, and the daily effluent monitoring supplemental report. Mr. Richardson stated that calibration records are not kept on site and are held by Gordon Cruickshanks. The Department recommends keeping calibration records on site. Records of pumping and measurement of the depth of septage and scum was not observed. The Department recommends keeping documentation of septage pumping and measurement records on site.

Outfall 001 was observed to be clear both upstream and downstream.

3.2 Summary of Non-Compliances

The following non-compliances were identified during the Field Inspection of 07/28/2022:

1. MRR-40: Are pH buffers and other reagent standards current?
   Notes: pH 10 buffer had expired February 2022.

2. MRR-41: Are sampling, calibration, laboratory results, chain-of-custody and other required records readily available for review and complete?
   Notes: Calibration sheets are held with Gordon Cruickshanks.

An NPDES non-compliance was received for CBOD5 in July 2022, with a reported violation value of 32.7 mg/l compared to the NPDES limit of 25 mg/l. This is considered an anomaly and is inconsistent with historical data.

Twelve (12) additional non-compliances during this permit cycle are identified as follows:

NC ID	Non-Compliance Type	Monitoring Begin Date	Monitoring End Date	Sampling Point	Parameter	External Comments
174591	Violation of permit schedule	8/1/2022	8/31/2022			8-30-22 no Nitrate or Nitrite reported due to laboratory error. Submitted to laboratory for testing, but lab did not return results. I reached out to the laboratory after receiving initial report, but laboratory did not have results for report.
124664	Late DMR Submission	9/1/2020	9/30/2020			
111997	Late DMR Submission	3/1/2020	3/31/2020			
92603	Use of NODI Code E or FF	6/1/2019	6/30/2019	Final Effluent (001)	Total Kjeldahl Nitrogen	
92602	Use of NODI Code E or FF	6/1/2019	6/30/2019	Final Effluent (001)	Total Nitrogen	
92601	Use of NODI Code E or FF	6/1/2019	6/30/2019	Final Effluent (001)	Total Phosphorus	
92600	Use of NODI Code E or FF	6/1/2019	6/30/2019	Final Effluent (001)	Nitrate-Nitrite as N	
92599	Use of NODI Code E or FF	6/1/2019	6/30/2019	Final Effluent (001)	Total Kjeldahl Nitrogen	
92598	Use of NODI Code E or FF	6/1/2019	6/30/2019	Final Effluent (001)	Total Nitrogen	
92597	Use of NODI Code E or FF	6/1/2019	6/30/2019	Final Effluent (001)	Total Phosphorus	
92596	Use of NODI Code E or FF	6/1/2019	6/30/2019	Final Effluent (001)	Nitrate-Nitrite as N	
92595	Sample collection less frequent than required	6/1/2019	6/30/2019	Final Effluent (001)	Ammonia-Nitrogen	

DEP's database revealed that there is no open violation associated with this facility or permittee at this time.

3.3 Summary of DMR Data for Outfall 001 Available for Previous 2 Years:

Parameter	JUN-22	JUL-22	AUG-22	JUN-23	JUL-23	AUG-23
Flow (MGD) Average Monthly	0.009	0.009	0.007	0.0085	0.0075	0.0075
Flow (MGD) Daily Maximum	0.01	0.01	0.008	0.009	0.0085	0.008
pH (S.U.) Minimum	7.2	7.12	7.37	7.02	7.39	7.45
pH (S.U.) Maximum	7.4	7.22	7.55	7.2	7.48	7.55
DO (mg/L) Minimum	7	5	6	7	6	7
TRC (mg/L) Average Monthly	0.3	0.27	<.1	0.38	0.36	0.17
TRC (mg/L) Instantaneous Maximum	0.4	0.4	0.1	0.7	0.8	0.3
CBOD5 (mg/L) Average Monthly	<4.48	32.7	2.3	<2	12.9	7.2
TSS (mg/L) Average Monthly	9	11	4	13	8	<5
Fecal Coliform (CFU/100 ml) Geometric Mean	5	11	18	2	<2	41
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	12	11	30	4	6	106
Nitrate-Nitrite as N Jun 1 - Aug 31 (mg/L)	<6.75	24.6	<21.6	5.92	26.62	17.61
Total Nitrogen Jun 1 - Aug 31 (mg/L)	<8.98	33.84	<25.22	8.206	27.82	18.75
Ammonia-Nitrogen (mg/L)	<.5	2.3	1.4	<0.7	1	<.6
Total Kjeldahl Nitrogen Jun 1 - Aug 31 (mg/L)	2.59	6.98	3.18	1.43	0.8247	<0.5
Total Phosphorus Jun 1 - Aug 31 (mg/L)	1.62	2.76	1.9	2.04	2.02	2.33

A review of samples analyzed for each DMR parameter indicate that facility was able to meet its NPDES Permit consistently except for the exceedance of CBOD5 in July 2022, noted in 3.2.

4.0 Discharge, Receiving Waters and Water Supply Information

4.1 Receiving Waters

The discharge is to Trucker Run at RMI 0.11. A drainage area upstream of the discharge is estimated to be 1.77 sq.mi., according to USGS StreamStats available at https://streamstats.usgs.gov/ss/. The sequence of receiving streams that the Trucker Run discharges into are East Branch of Antietam Creek, and the Potomac River which eventually drains into the Chesapeake Bay.

4.2 Public Water Supply (PWS) Intake

According to previous fact sheets prepared in 2011, and 2018, the nearest downstream public water supply is for Brunswick Mayor and Council located at Brunswick, MD on the Potomac River. Alternately, DEP often selects the interstate border conservatively as the water supply intake and evaluates the impact based on its distance from the point of discharge. The discharge is located approximately 10 miles upstream of the PA-MD border. Considering the distance and nature, the discharge is not expected to significantly impact the water supply.

4.3 Class A Wild Trout Streams

The receiving stream, Trucker Run, is a tributary of East Branch Antietam Creek. 25 Pa Code §93.9z lists the entire basin of the East Branch Antietam Creek from source to Vineyard Run as High Quality-Cold Water Fishes designated surface water. No existing uses have been determined at the segment where the discharge is located. Although East Branch Antietam Creek where Trucker Run flows into is recognized a natural trout reproduction segment, it is not designated as a Class A Wild Trout stream segment (i.e., further upstream of the East Branch Antietam Creek however is a Class A Wild Trout stream). Therefore, no Class A Wild Trout Fishery is impacted by this discharge. The discharge is located in a stream segment listed as attaining uses. In accordance with 25 Pa Code §93.4a(c), all permit requirements will be developed for the upcoming permit renewal to ensure that the water quality of Trucker Run will be maintained and protected.

4.4 Low Flow Stream Conditions

Water quality modeling estimates are based upon conservative data inputs. The data are typically estimated using either a stream gauge or through USGS web based StreamStats program. The NPDES effluent limits are based upon the combined flows from both the stream and the facility discharge.

A conservative approach to estimate the impact of the facility discharge using values which minimize the total combined volume of the stream and the facility discharge. The volumetric flow rate for the stream is based upon the seven-day, 10-year low flow (Q710) which is the lowest estimated flow rate of the stream during a 7 consecutive day period that occurs once in 10 -year time period. The facility discharge is based upon a known design capacity of the subject facility

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0132
Latitude	39º 47' 35"	Longitude	-77º 29' 8"
Quad Name	Iron Springs	Quad Code	2026
Wastewater Description:	Sewage Effluent		

Receiving Waters	Trucker Run	Stream Code	59330
NHD Com ID	49469136	RMI	0.11
Drainage Area	1.77	Yield (cfs/mi^2)	0.25
Q7-10 Flow (cfs)	0.443	Q7-10 Basis	USGS gage no. 01619000
Elevation (ft)	855	Slope (ft/ft)	
Watershed No.	13-C	Chapter 93 Class.	HQ-CWF
Existing Use	None	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Name		

Nearest Downstream Public Water Supply Intake	PA-MD Border		
PWS Waters	Antietam Creek	Flow at Intake (cfs)	Unknown
PWS RMI	0.0	Distance from Outfall (mi)	~ 10

Note

Streamflow: Previously USGS gage no. 01619000 on Antietam Creek at Rock Forge, MD was used to estimate the Q7-10 flow. While the distance from this gage station to the point of discharge is far enough that correlation with this gage station may not be precise, it is still acceptable to use. This is due to the fact that USGS StreamStats provided the drainage area of 1.77 sq.mi. that is below the minimum drainage area value allowed to be used in USGS's regression equations to produce the accurate Q7-10. Based on low-flow statistical computations, USGS StreamStats also confirmed that "one or more of the parameters is outside the suggested range and estimates were extrapolated with unknown errors". Consequently, the Q7-10 flow has been estimated using a low-flow yield method with USGS gage no. 01619000.

Low Flow Yield = $Q7\text{-}10_{gage}$ / $Drainage\ Area_{gage}$ = 23.4 cfs / 93.5 sq.mi. = 0.25 cfs/sq.mi.

$Q7\text{-}10_{site}$ = Low Flow Yield * $Drainage\ Area_{site}$ = 0.25 cfs/sq.mi. * 1.77 sq.mi. = 0.443 cfs

Q1-10/Q7-10 = 22.5 cfs/23.4 cfs = 0.96; Q30-10/Q7-10 = 25.9 cfs / 23.4 cfs = 1.11

5.0: **Overview of Presiding Water Quality Standards**

5.1 General

There are six (6) broadly based policies which determine the effluent performance limits for the NPDES permit. The policies are technology based effluent limits (TBEL), water quality-based effluent limits (WQBEL), a whole effluent toxicity (WET), antidegradation, anti-backsliding and total maximum daily loading (TMDL).

The effluent performance limitations enforced are the selected permit limits that are most protective to the designated use of the receiving waters. An overview of each of the policies that are applicable to the subject facility is presented in Section 6.

A file review revealed that the design of the on-site wastewater treatment facility was originally proposed in late 1960s. It is not clear when the stream designation occurred. The NPDES permit was first issued in 1990. It appears however the facility was installed prior to the HQ-CWF stream designation for Trucker Run as all permit requirements in the 1990 NPDES permit does not reflect the current HQ-CWF stream discharge requirements. This information has been considered in developing permit requirements.

5.2 Technology-Based Limitations (TBEL)

TBEL treatment requirements under 40 CFR section 301(b) of the Federal Water Pollution Control Act (aka as the "Clean Water Act", "Act" or "CWA") represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act). Available TBEL requirements for the state of Pennsylvania are itemized in PA Code 25, Chapter 92a.47.

The presiding sources for the basis for the effluent limitations are governed by either federal or state regulation. The reference sources for each of the parameters is itemized in the tables. The following technology-based limitations apply, subject to water quality analysis and best professional judgement (BPJ) where applicable:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
CBOD5	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)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

5.3 Water Quality-Based Limitations

CBOD5, NH3-N and Dissolved Oxygen (DO)

Water Quality Modeling (WQM) 7.0 version 1 is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD5, NH3-N and DO. DEP's guidance no. 391-2000-007 provides the technical methods contained in WQM 7.0 for conducting wasteload allocation and for determining recommended NPDES effluent limits for point source discharges. The model output indicates that existing limits for CBOD5 are still adequate. The existing permit does not contain effluent limits or monitoring requirements for NH3-N as DEP previously determined that WQBEL for NH3-N was not needed. However, DEP's SOP no. BPNPSM-PMT-033 recommends a monitoring requirement for NH3-N if WQM modeling results indicates that an average monthly limit of 25 mg/L is acceptable. Therefore, the current year-round twice monthly monitoring requirement for NH3-N will be included in the draft permit.

Total Residual Chlorine (TRC)

Since chlorine is used for disinfection and the current permit contains permit requirements for Total Residual Chlorine (TRC), DEP's TRC_Evaluation worksheet is utilized to determine if existing effluent limits of 0.5 mg/L (average monthly) and 1.6 mg/L (IMAX) are still adequate. The worksheet indicated that these existing effluent limits are still acceptable. No change is therefore recommended.

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.

5.4 Whole Effluent Toxicity (WET)

The facility is not subject to WET.

5.5 Anti-Degradation Requirement

Chapter 93.4a of the PA regulations requires that surface water of the Commonwealth of Pennsylvania may not be degraded below levels that protect the existing uses. The regulations specifically state that *Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected*. Antidegradation requirements are implemented through DEP's guidance manual entitled Water Quality Antidegradation Implementation Guidance (Document #391-0300-02).

The policy requires DEP to protect the existing uses of all surface waters and the existing quality of High Quality (HQ) and Exceptional Value (EV) Waters. Existing uses are protected when DEP makes a final decision on any permit or approval for an activity that may affect a protected use. Existing uses are protected based upon DEP's evaluation of the best available information (which satisfies DEP protocols and Quality Assurance/Quality Control (QA/QC) procedures) that indicates the protected use of the waterbody.

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.

5.6 Anti-Backsliding

Anti-backsliding is a federal regulation which prohibits a permit from being renewed, reissued, or modified containing effluent limitations which are less stringent than the comparable effluent limitations in the previous permit (40 CFR 122.l.1 and 40 CFR 122.l.2). A review of the existing permit limitations with the proposed permit limitations confirm that the facility is consistent with anti-backsliding requirements. The facility has proposed effluent limitations that are as stringent as the existing permit.

5.7 Total Maximum Daily Loading (TMDL)

5.7.1 TMDL

The goal of the CWA, which governs water pollution, is to ensure that all of the Nation's waters are clean and healthy enough to support aquatic life and recreation. To achieve this goal, the CWA created programs designed to regulate and reduce the amount of pollution entering United States waters. Section 303(d) of the CWA requires states to assess their waterbodies to identify those not meeting water quality standards. If a waterbody is not meeting standards, it is listed as impaired and reported to the U.S. Environmental Protection Agency. The state then develops a plan to clean up the impaired waterbody. This plan includes the development of a Total Maximum Daily Load (TMDL) for the pollutant(s) that were found to be the cause of the water quality violations. A TMDL calculates the maximum amount of a specific pollutant that a waterbody can receive and still meet water quality standards.

A TMDL for a given pollutant and waterbody is composed of the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background levels. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody. The TMDL components are illustrated using the following equation:

$$TMDL = \Sigma WLAs + \Sigma LAs + MOS$$

Pennsylvania has committed to restoring all impaired waters by developing TMDLs and TMDL alternatives for all impaired waterbodies. The TMDL serves as the starting point or planning tool for restoring water quality.

5.7.1.1 Local TMDL

The subject facility does not discharge into a local TMDL

5.7.1.2 Chesapeake Bay TMDL Requirement

The Chesapeake Bay Watershed is a large ecosystem that encompasses approximately 64,000 square miles in Maryland, Delaware, Virginia, West Virginia, Pennsylvania, New York and the District of Columbia. An ecosystem is composed of interrelated parts that interact with each other to form a whole. All of the plants and animals in an ecosystem depend on each other in some way. Every living thing needs a healthy ecosystem to survive. Human activities affect the Chesapeake Bay ecosystem by adding pollution, using resources and changing the character of the land.

Most of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the Clean Water Act, 33 U.S.C. § 1313(d). While the Chesapeake Bay is outside the boundaries of Pennsylvania, more than half of the State lies within the watershed. Two major rivers in Pennsylvania are part of the Chesapeake Bay Watershed. They are (a) the Susquehanna River and (b) the Potomac River. These two rivers total 40 percent of the entire Chesapeake Bay watershed

The overall management approach needed for reducing nitrogen, phosphorus and sediment are provided in the Bay TMDL document and the Phase I, II, and III WIPs which is described in the Bay TMDL document and Executive Order 13508.

The Bay TMDL is a comprehensive pollution reduction effort in the Chesapeake Bay watershed identifying the necessary pollution reductions of nitrogen, phosphorus and sediment across the seven Bay watershed jurisdictions of Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia to meet applicable water quality standards in the Bay and its tidal waters.

The Watershed Implementation Plans (WIPs) provides objectives for how the jurisdictions in partnership with federal and local governments will achieve the Bay TMDL's nutrient and sediment allocations.

Phase 3 WIP provides an update on Chesapeake Bay TMDL implementation activities for point sources and DEP's current implementation strategy for wastewater.

The Chesapeake Bay TMDL (Appendix Q) categorizes point sources into four sectors:

- Sector A- significant sewage dischargers;
- Sector B- significant industrial waste (IW) dischargers;
- Sector C- non-significant dischargers (both sewage and IW facilities); and
- Sector D- combined sewer overflows (CSOs).

All sectors contain a listing of individual facilities with NPDES permits that were believed to be discharging at the time the TMDL was published (2010). All sectors with the exception of the non-significant dischargers have individual wasteload allocations (WLAs) for TN and TP assigned to specific facilities. Non-significant dischargers have a bulk or aggregate allocation for TN and TP based on the facilities in that sector that were believed to be discharging at that time and their estimated nutrient loads.

Cap Loads will be established in permits as Net Annual TN and TP loads (lbs/yr) that apply during the period of October 1 – September 30. For facilities that have received Cap Loads in any other form, the Cap Loads will be modified accordingly when the permits are renewed.

Offsets have been incorporated into Cap Loads in several permits issued to date. From this point forward, permits will be issued with the WLAs as Cap Loads and will identify Offsets separately to facilitate nutrient trading activities and compliance with the TMDL.

The receiving waters is listed in the 2022 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a as a Sector C discharger. The supplement defines Sector C as a non-significant dischargers include sewage facilities (Phase 4 facilities: ≥ 0.2 MGD and < 0.4 MGD and Phase 5 facilities: > 0.002 MGD and < 0.2 MGD), small flow/single residence sewage treatment facilities (≤ 0.002 MGD), and non- significant IW facilities, all of which may be covered by statewide General Permits or may have individual NPDES permits.

At this time, there are approximately 850 Phase 4 and 5 sewage facilities, approximately 715 small flow sewage treatment facilities covered by a statewide General Permit, and approximately 300 non-significant IW facilities.

For Phase 5 sewage facilities with individual permits (average annual design flow on August 29, 2005 > 0.002 MGD and < 0.2 MGD), DEP will issue individual permits with monitoring and reporting for TN and TP throughout the permit term at a frequency no less than annually, unless 1) the facility has already conducted at least two years of nutrient monitoring and 2) a summary of the monitoring results are included in the next permit's fact sheet. If, however, Phase 5 facilities choose to expand, the renewed or amended permits will contain Cap Loads based on the lesser of a) existing TN/TP concentrations at current design average annual flow or b) 7,306 lbs/yr TN and 974 lbs/yr TP.

If no data are available to determine existing concentrations for expanding Phase 4 or 5 facilities, default concentrations of 25 mg/l TN and 4 mg/l TP may be used (these are the average estimated concentrations of all non-significant sewage facilities).

DEP will not issue permits to existing Phase 4 and 5 facilities containing Cap Loads unless it is done on a broad scale or unless the facilities are expanding.

For new Phase 4 and 5 sewage discharges, in general DEP will issue new permits containing Cap Loads of "0" and new facilities will be expected to purchase credits and/or apply offsets to achieve compliance, with the exception of small flow and single residence facilities.

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 Nitrogen Species and Total Phosphorus (TP) throughout the permit term at a frequency no less than annually. In order to build more robust and accurate nutrient data for the Chesapeake Bay TMDL, it is recommended to include present nutrient monitoring requirements in the draft permit. Since the facility is a seasonal discharger, 1/month only during June through August will still generate ample data for further evaluation.

5.8 Best Professional Judgment (BPJ) Limitations

Dissolved Oxygen
A minimum of 5.0 mg/L for DO is an existing effluent limit and is a water quality criterion for cold water fishery waters taken directly from 25 Pa. Code § 93.7(a). The effluent limit will remain unchanged in the draft permit to ensure that the discharge does not violate the water quality standards. This approach is consistent with DEP's SOP and the similar requirement has also been assigned to other sewage facilities throughout the state.

5.9 Additional Considerations

Flow Monitoring
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii).
is a seasonal discharger, 1/month only during June through August will still generate ample data for further evaluation.

Monitoring Frequencies and Sample Types
All minimum monitoring frequencies and sample types remain unchanged in the draft permit.

6.0 NPDES Parameter Details

The basis for the proposed sampling and their monitoring frequency that will appear in the permit for each individual parameter. The final limits are the more stringent of technology based effluent treatment (TBEL) requirements, water quality based (WQBEL) limits, TMDL, antidegradation, anti-degradation, or WET.

6.1.1 Implementation of Regulation- Chapter 92a.61

Chapter 92a.61 provides provisions to DEP to monitor for pollutants that may have an impact on the quality of waters of the Commonwealth. Based upon DEP policy directives issued on March 22, 2021 and in conjunction with EPA's 2017 Triennial Review, monitoring for E. Coli shall be required.

6.1.2 Summary of Changes from Existing Permit to Proposed Permit

A summary of how the proposed NPDES permit differs from the existing NPDES permit is summarized as follows.

Changes in Permit Monitoring or Effluent Quality

Parameter	Existing Permit	Draft Permit
E. Coli	No monitoring or effluent limits	Due to the EPA Triennial review, monitoring shall be required 1x/yr

6.2 Proposed NPDES Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit in the table below, 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" (362-0400-001), 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	1/week	Estimate
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/week	Grab
Dissolved Oxygen	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/week	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/week	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	25	XXX	50	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	30	XXX	60	2/month	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No. /100 ml)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Nitrate-Nitrite as N Jun 1 - Aug 31	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/month	Grab
Total Nitrogen Jun 1 - Aug 31	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/month	Calculation
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Total Kjeldahl Nitrogen Jun 1 - Aug 31	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/month	Grab
Total Phosphorus Jun 1 - Aug 31	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/month	Grab

Compliance Sampling Location: Outfall 001

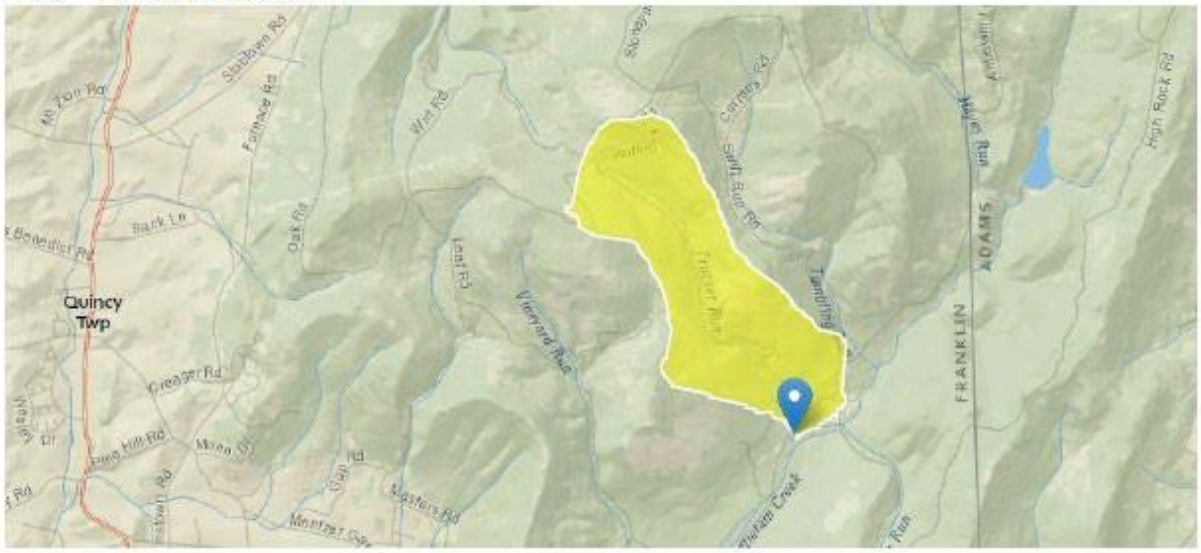
Tools and References Used to Develop Permit	
X	WQM for Windows Model (see Attachment)
X	TRC Model Spreadsheet (see Attachment)
X	Temperature Model Spreadsheet (see Attachment)
	Toxics Screening Analysis Spreadsheet (see Attachment)
	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
	Pennsylvania CSO Policy, 385-2000-011, 9/08.
	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 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, 391-2000-019, 10/97.
	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 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, 391-2000-022, 3/1999.
	Design Stream Flows, 391-2000-023, 9/98.
	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
X	SOP:
	Other:

Attachment A

Stream Stats/Gauge Data

Camp Penn Susquehanna Conference of U.M. Church StreamStats Report

Region ID: PA
Workspace ID: PA20231204202640246000
Clicked Point (Latitude, Longitude): 39.79406, -77.48524
Time: 2023-12-04 15:27:00 -0500



PA0082465

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	6.23	percent
DRNAREA	Area that drains to a point on a stream	1.77	square miles
PRECIP	Mean Annual Precipitation	44	inches
ROCKDEP	Depth to rock	5	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.28	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	1.77	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	44	inches	35	50.4
STRDEN	Stream Density	1.28	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	5	feet	3.32	5.65
CARBON	Percent Carbonate	6.23	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.

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	0.354	ft^3/s
30 Day 2 Year Low Flow	0.456	ft^3/s
7 Day 10 Year Low Flow	0.178	ft^3/s
30 Day 10 Year Low Flow	0.223	ft^3/s
90 Day 10 Year Low Flow	0.329	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.19.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.3.2

Attachment B

WQM 7.0 Modeling Output Values

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
13C	59330	TRUCKER RUN	0.110	855.00	1.77	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	0.250	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
Camp Penn	PA0082465	0.0132	0.0132	0.0132	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

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
13C	59330	TRUCKER RUN	0.000	845.00	1.79	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	0.250	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
		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	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
13C	59330	TRUCKER RUN

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.110	0.44	0.00	0.44	.0204	0.01722	.448	7.75	17.32	0.13	0.050	20.22	7.00
Q1-10 Flow												
0.110	0.42	0.00	0.42	.0204	0.01722	NA	NA	NA	0.13	0.052	20.23	7.00
Q30-10 Flow												
0.110	0.49	0.00	0.49	.0204	0.01722	NA	NA	NA	0.14	0.048	20.20	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows Use	☐
		Inputted W/D Ratio	☐
WLA Method	EMPR	Use Inputted Reach Travel Times	☐
Q1-10/Q7-10 Ratio	0.96		
Q30-10/Q7-10 Ratio	1.11	Temperature Adjust Kr Use	☑
D.O. Saturation	90.00%	Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
13C	59330	TRUCKER 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
0.110	Camp Penn	16.44	50	16.44	50	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
0.110	Camp Penn	1.86	25	1.86	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.11	Camp Penn	25	25	25	25	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
13C	59330	TRUCKER RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.110	0.013	20.221	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
7.754	0.448	17.323	0.133
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.01	0.536	1.10	0.712
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.097	25.028	Owens	5

Reach Travel Time (days)
0.050

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.005	3.01	1.10	8.19
0.010	3.00	1.09	8.21
0.015	2.99	1.09	8.21
0.020	2.98	1.09	8.21
0.025	2.97	1.08	8.21
0.030	2.97	1.08	8.21
0.035	2.96	1.08	8.21
0.040	2.95	1.07	8.21
0.045	2.94	1.07	8.21
0.050	2.93	1.06	8.21

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
13C	59330	TRUCKER RUN

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.110	Camp Penn	PA0082465	0.013	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

Attachment C

TRC Evaluation

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.375	= Q stream (cfs)	0.5	= CV Daily
0.0132	= 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 = 5.877	1.3.2.iii	WLA cfc = 5.722
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 2.190	5.1d	LTA_cfc = 3.327

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)