pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0112704**
Facility Type	**Non-Municipal**	APS ID	**1040449**
Major / Minor	**Minor**	Authorization ID	**1357188**

Applicant and Facility Information

Applicant Name	**Susquehanna Valley RV**	Facility Name	**Susquehanna Valley RV**
Applicant Address	236 Montour Boulevard	Facility Address	560 Montour Boulevard
	Bloomsburg, PA 17815-8578		Bloomsburg, PA 17815-8587
Applicant Contact	Wayne Brouse	Facility Contact	Alec Engelman
Applicant Phone	570-389-9900	Facility Phone	570-238-2465
Client ID	318023	Site ID	254730
Ch 94 Load Status	Not Overloaded	Municipality	Montour Township
Connection Status	N/A	County	Columbia
Date Application Received	June 03, 2021	EPA Waived?	Yes
Date Application Accepted	July 08, 2021	If No, Reason	N/A
Purpose of Application	Renewal of NPDES permit		

Summary of Review

INTRODUCTION

The owner of Susquehanna Valley RV has applied to renew the existing NPDES permit which authorizes the discharge of treated domestic wastewater from the wastewater treatment facility (WWTF).

APPLICATION

The owner and Client Contact, Wayne Browse, submitted the *NPDES Application for Individual Permit to Discharge Sewage Effluent from Small Flow Treatment Facilities* (DEP #3800-PM-BCW0018b). This application was received by the Department on June 03, 2021 and considered administratively complete on July 08, 2021. Browse's additional contact information is (email) r.folk@susqrv.com. The site contact is Alec Engelman, Certified Operator with Phoenix Water and Wastewater Operations of Milton, PA. His additional contact information is (FAX) 570-246-4484 and (email) aengleman@phoenixwawo.com. The submitted application is not the proper application. Because of the design flow (0.008 MGD), the Department classifies this facility as *Minor Sewage Facility < 0.05 MGD*.

PUBLIC PARTICIPATION

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.

The case-file, permit application package and draft permit will be available for public review at Department's Northcentral Regional Office. The address for this office is 208 West Third Street, Suite 101, Williamsport, PA 17701. An appointment can be made to review these materials during the comment period by calling the file coordinator at 570-327-3636.

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Approve	Deny	Signatures	Date
X		Jeffrey J. Gocek, EIT — Project Manager	09/19/2022
X		Nicholas W. Hartranft, PE — Environmental Engineer Manager	09/19/2022

DISCHARGE, RECEIVING WATERS AND WATER SUPPLY INFORMATION

Outfall No.	001	Design Flow (MGD)	0.008
Latitude	40º 58' 22.69"	Longitude	-76º 31' 7.80"
Quad Name	Danville	Quad Code	40076
Wastewater Description:	Sewage Effluent		
Receiving Waters	Montour Run (CWF)	Stream Code	27624
NHD Com ID	133506951	RMI	2.94
Drainage Area	1.56	Yield (cfs/mi^2)	0.1869
Q_{7-10} Flow (cfs)	0.292	Q_{7-10} Basis	USGS Gage #01442500
Elevation (ft)	590	Slope (ft/ft)	N/A
Watershed No.	5-C	Chapter 93 Class.	CWF
Existing Use	None	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	Siltation		
Source(s) of Impairment	Crop Production (Crop Land or Dry Land)		
TMDL Status	Final	Name	Montour Run Watershed TMDL
Nearest Downstream Public Water Supply Intake	Danville Municipal Water Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	1,120
PWS RMI	138.06	Distance from Outfall (mi)	10

$Q_{7,10}$ DETERMINATION

The $Q_{7,10}$ is the lowest seven consecutive days of flow in a 10-year period and is used for modeling wastewater treatment plant discharges. 25 PA § 96.1 defines $Q_{7,10}$ as "the actual or estimated lowest seven consecutive day average flow that occurs once in 10 years for a stream with unregulated flow or the estimated minimum flow for a stream with regulated flow".

Basin characteristics, for a watershed based on the discharge location, were obtained from the USGS StreamStats webpage. Based on those characteristics, an appropriate reference gage was selected utilizing the *USGS Pennsylvania Baseline Streamflow Estimator* (BaSE). This reference gage is USGS # 01442500 (Brodhead Creek at Minisink Hills, PA). $Q_{7,10}$ flow for that gage and drainage area were obtained from *Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania* (USGS Open Files Report 2011-1070). Knowing the drainage area at the discharge (1.56 mi2) and both the drainage area (259 mi2) and $Q_{7,10}$ (48.4 CFS) at the reference gage, the $Q_{7,10}$ at the discharge was calculated to be 0.292 CFS.

See Attachment 01 for the $Q_{7,10}$ determination.

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FACILITY BACKGROUND

This WWTP was originally constructed in 1986 to serve a 60 room Stone Castle Motel and a residence. The (original) hydraulic design flow is 8,163 gallons per day (GPD). The existing WWTP is a Norweco model ST-150 package plant which consists of a bar screen, an aeration tank, two clarifiers, an erosion chlorinator, a chlorine contact tank and a sludge holding tank.

See Attachment 02 for a map of the WWTF.

The system now serves the RV sales location and the adjacent intermittent use private club, formerly the Mustang Sally's Gentlemen's Club. From historical planning documents, the proposed site usage will include three toilet facilities at Susquehanna RV and five toilet facilities at the adjacent commercial establishment. With an allowed 400 gallons per restroom, as defined in 25 PA § 73.17, this facility utilizes no more than 3,200 GPD of the available 8,163 GPD of the WWTP hydraulic capacity. There is no change in planned or permitted capacity incorporated into this renewal.

Treatment characteristics are as follows:

Waste Type	Degree of Treatment	Process Type	Disinfection	Annual Average Design Flow (MGD)
Sewage	Secondary	Extended Aeration	No Disinfection	0.008
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.0082	25.05	Not Overloaded	Storage	Hauled Away

The above design was approved by Water Quality Management (WQM) permit #1986404, issued December 11, 1986 to Clyde Yohey (former owner of the Stone Castle Motel). This permit, along with the NPDES, was transferred to Wayne Brouse on May 18, 2015.

COMPLIANCE HISTORY

The WMS Query "Open Violations by Client" revealed no unresolved violations for Susquehanna RV.

The most recent Department inspection, a compliance evaluation inspection (CEI), was conducted February 24, 2022. All required treatment units appeared to be operational and online. No discharge was occurring. No problems were noted in the receiving stream. No violations were documented in the report.

The following effluent limitation exceedance occurred between August 2021 through June 2022.

Parameter	Date	SBC	DMR Value	Units	Limit Value
Fecal Coliform	06/30/22	IMAX	2419.6	No./100 ml	1000

The following Discharge Monitoring Report (DMR) data is from July 2021 to June 2022.

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Parameter	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21
Flow (MGD) Average Monthly	0.0003	0.0002	0.0005	0.0006	0.0004	0.0001	0.0003	0.0004	0.0008	0.0007	0.0005	0.0006
pH (S.U.) Minimum	6.54	6.73	6.51	6.6	6.9	6.9	6.9	6.8	6.8	6.9	6.9	6.9
pH (S.U.) Instantaneous Maximum	6.95	6.97	6.96	7.0	7.0	7.1	7.0	7.0	7.0	7.0	7.0	7.0
TRC (mg/L) Average Monthly	0.30	< 0.1	0.30	0.50	0.40	0.50	0.43	0.40	0.31	0.34	0.24	0.2
TRC (mg/L) Instantaneous Maximum	1.51	0.90	0.99	1.44	1.05	1.52	1.44	1.44	1.13	1.17	1.06	0.73
CBOD5 (mg/L) Average Monthly	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 9.2	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
CBOD5 (mg/L) Instantaneous Maximum	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	12.4	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
TSS (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10.0	< 17.0	< 13.0	6.0	< 5.0	10.0	12
TSS (mg/L) Instantaneous Maximum	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	14.2	28.0	20.3	6.2	< 5.0	10.6	13
Fecal Coliform (No./100 ml) Geometric Mean	< 49	< 1	< 32	< 49	< 25	48	1706	180	10	< 17	56	3
Fecal Coliform (No./100 ml) Instantaneous Maximum	2419.6	< 1	1046.2	2419.6	648.8	360.9	2419.6	2419.6	25.6	275.5	74.8	5.2
Total Nitrogen (lbs/day) Average Monthly							0.04					
Total Nitrogen (mg/L) Average Monthly							25.69					
Ammonia (mg/L) Average Monthly	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.1	< 0.01	1.0	< 0.2	< 0.2	< 1.0
Ammonia (mg/L) Instantaneous Maximum	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.60	< 0.02	0.733	< 0.2	< 0.2	0.817
Total Phosphorus (lbs/day) Average Monthly							0.005					
Total Phosphorus (mg/L) Average Monthly							3.05					

EXISTING LIMITATIONS

The following limitations were established at the issuance on November 23, 2016.

Discharge Parameter	Mass Limits (lb/day)		Concentration Limits (mg/L unless noted)				Monitoring Requirements	
	Monthly Average	Weekly Average	Minimum	Monthly Average	Weekly Average	Instant. Maximum	Minimum Measurement Frequency	Required Sample Type
Flow	Report						1/Week	Metered
pH			6.0			9.0	5/Week	Grab
Total Residual Chlorine				0.5		1.6	5/Week	Grab
$CBOD_5$				25		50	2/Month	Grab
Total Suspended Solids				30		60	2/Month	Grab
Fecal Coliform (No./mL) 05/01 – 09/30				200 Geo Mean		1,000	2/Month	Grab
Fecal Coliform (No./mL) 10/01 – 04/30				2,000 Geo Mean		10,000	2/Month	Grab
Ammonia-Nitrogen 05/01-10/31				6.0		12	2/Month	Grab
Ammonia-Nitrogen 11/01-04/30				18		36	2/Month	Grab
Total Nitrogen	Report			Report			1/Year	Grab
Total Phosphorus	Report			Report			1/Year	Grab

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DEVELOPMENT OF EFFLUENT LIMITATIONS

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)

Total Residual Chlorine

The Department's TRC Evaluation spreadsheet is an Excel spreadsheet which determines acute and chronic wasteload allocations (WLAs) for Total Residual Chlorine (TRC) based on data supplied by the user, and then compares the WLAs to the technology-based average monthly limit using procedures described in the EPA Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001).

The TRC Evaluation spreadsheet determined that the technology-based effluent limit (TBEL) of 0.5 mg/L, specified in 25 PA § 92a.47(a)(8), is more stringent than the water quality-based effluent limit (WQBEL) for this discharge.

See Attachment 03 for the TRC spreadsheet output.

Water Quality-Based Limitations

$CBOD_5$, NH_3-N and DO

WQM 7.0 for Windows (WQM 7.0) is a DEP computer model used to determine wasteload allocations (WLAs) and effluent limitations for Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), Ammonia-Nitrogen (NH_3-N) and Dissolved Oxygen (DO) for single and multiple point source discharge scenarios. This model simulates two basic processes. The NH3-N module simulates the mixing and degradation of NH3-N in the stream and compares calculated instream NH3-N concentrations to the water quality criteria. The DO module simulates mixing and consumption of DO in the stream due to degradation of CBOD5 and NH3-N and compares the calculated instream DO concentrations to the water quality criteria. The model then determines the highest pollutant loading the stream can assimilate and still meet water quality criteria under design conditions.

Modeling was performed using the existing effluent limitations for $CBOD_5$ and NH_3-N as model inputs. The model recommended the following limitations:

Parameter	Effluent Limitations (mg/L)		
	30 Day Average	Maximum	Minimum
$CBOD_5$	25		
NH_3-N	6.0	12	
DO			3.0

The model output indicates that the existing effluent limitations are protective.

See Attachment 04 for the WQM 7.0 model output.

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Best Professional Judgment (BPJ) Limitations

In the absence of applicable effluent guidelines for the discharge or pollutant, permit writers must identify and/or develop needed technology-based effluent limitations (TBELs) TBELs on a case-by-case basis, in accordance with the statutory factors specified in the Clean Water Act.

No BPJ limitations have been proposed.

Anti-Backsliding

In order to comply with 40 CFR § 122.44(l)(1) (anti-backsliding requirements), the Department must issue a renewed permit with limitations as stringent as that the of the previous permit.

No less stringent limitations have been proposed.

DEVELOPMENT OF EFFLENT MONITORING

Dissolved Oxygen

This permit will require a monitoring requirement for Dissolved Oxygen (DO), to ensure that the effluent is well oxygenated at the point of discharge and the instream DO criteria is not violated.

E.coli

The Department is requiring the monitoring of Eschericia coli (E. coli), a pathogenic bacterium normally found in the intestines of healthy people and animals which is used as a fecal contamination indicator in freshwater ecosystems. Section 303(c)(1) of the Clean Water Act requires that Pennsylvania periodically review and revise water quality standards, if necessary. The 2017 triennial review final form rulemaking, published in 2020, has revised the Chapter 93 water quality standards regulations for bacteria to include E. coli. To further characterize fecal contamination of surface waters during the swimming season, the Department is requiring annual reporting of effluent E. coli effluent values. In accordance with 25 PA § 92a.61, the Department may impose reasonable monitoring requirements on pollutants which could have impact on the quality of the Commonwealth's waters or the quality of waters in other states.

REMOVAL OF EFFLUENT MONITORING

Chesapeake Bay TMDL for Nutrients and Sediment

Despite 25 years of extensive restoration efforts, the Chesapeake Bay Total Maximum Daily Load (TMDL) was prompted by insufficient progress and continued poor water quality in the Chesapeake Bay and its tidal tributaries. This TMDL, required by the Clean Water Act, is the largest ever developed by the Environmental Protection Agency (EPA). This document identifies the necessary pollution reductions of nitrogen, phosphorus and sediment across Delaware, Maryland, New York, Virginia, West Virginia, District of Columbia and Pennsylvania. It also sets pollution limits necessary to meet applicable water quality standards in the Bay, tidal rivers and embayments.

Pennsylvania explains how and when it will meet its pollution allocations in its Watershed Implementation Plan (WIP), which is incorporated into the TMDL. Pennsylvania's permitting strategy for significant dischargers has been outlined in the Phase I WIP and incorporated in the Phase III WIP by reference and imposes Total Nitrogen (TN) and Total Phosphorus (TP) cap loads on the significant dischargers.

Because the design of this facility is less than 0.2 MGD, the Department considers this an existing Phase 5 sewage facility for the purposes of implementing the Chesapeake Bay TMDL. This system has a design flow of 0.008 MGD. According to the Department's Wastewater Supplement to Phase III WIP (last revised July 29, 2022), renewed Phase 5 facilities are required to contain monitoring and reporting for TN and TP throughout the permit term at a frequency of no less than annually unless the facility has already conducted at least two years of nutrient monitoring.

Nutrient data was collected during the previous permit term. That data is summarized below.

Year	TN (mg/L)	TP (mg/L)	TN (lb/day)	TP (lb/day)
2019	24.1	2.56	0.08	0.009
2020	< 15.7	1.64	0.05	0.005
2021	25.69	3.05	0.04	0.005

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RECEIVING STREAM

Characteristics

The receiving stream is Montour Run, a tributary to Fishing Creek and the Susquehanna River. Montour Run, according to 25 PA § 93.9K, Montour Run is protected for Cold Water Fishes (CWF) and Migratory Fishes (MF). These are the streams Designated Uses, which is defined in 25 PA § 93.1 as "those uses specified in §§ 93.9a – 93.9z for each waterbody or segment whether or not the use is being attained". Designated uses are regulations promulgated by the Environmental Quality Board (EQB) throughout the rulemaking process. This stream currently has no Existing Use, which is defined in 25 PA § 93.1 as "those uses actually attained in the waterbody on or after November 28, 1975 whether or not they are included in the water quality standards".

Montour Run, identified by Department stream code 27624, is in Drainage Basin K (Chapter 93) and State Water Plan watershed 5C (Fishing Creek).

Impairment

A Total Maximum Daily Load (TMDL) for the Montour Run watershed was prepared by the Department and approved by EPA in 2013. The entire watershed is approximately 4.7 square miles and all stream segments are listed on the Department's 2002 303(d) list. These streams are listed as impaired for aquatic life (use) by siltation (cause) emanating from agricultural practices (source) and road runoff (source). Using the Quaker Run watershed as a reference watershed, the TMDL determined that a total sediment load reduction of 28.2%, or 11,638 pounds per day, is required to protect the stream's aquatic life. Because the sources of the impairment were listed as agricultural and road runoff, no point sources were considered in the TMDL and therefore no wasteload allocation (WLA) restrictions were assigned to this facility.

ADDITIONAL CONSIDERATIONS

Limit Multipliers

The instantaneous maximum (IMAX) limitations for $CBOD_5$ and TSS are based on the 2.0 sewage multiplier (of the monthly average limit), as specified in the Department's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (#362-0400-001).

The winter ammonia-nitrogen limit is based on a multiplier of 3.0 (of the monthly average summer limit), as specified in the Department's *Implementation Guidance of Section 93.7 Ammonia Criteria* (#391-2000-013).

Sample Frequencies and Types

The existing sample type and minimum measurement frequencies for Flow, $CBOD_5$, TSS, Fecal Coliforms, and Ammnonia-Nitrogen are in accordance with the Department's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (#362-0400-001).

Since the business now operates on Saturdays, the Department has changed the frequency of the required sampling for pH and Total Residual Chlorine (TRC) to "daily when discharging".

Standard Operating Procedures (SOPs)

The review of this permit application was in accordance with the Department's SOP for New and Reissuance Sewage Individual NPDES Permit Applications (unnumbered) and SOP for Establishing Effluent Limitations for Individual Sewage Permits (SOP #BPNPSM-PMT-033).

Special Permit Conditions (Part C)

Stormwater Prohibition
Approvals
Proper Waste Disposal
Municipal Treatment Availability

CONTINUED on the next page.

Supplemental Discharge Monitoring Reports

Daily Effluent Monitoring Form
Non-Compliance Reporting Form
Lab Accreditation Form

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.

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

Discharge Parameter	Mass Limits (lb/day)		Concentration Limits (mg/L unless noted)				Monitoring Requirements	
	Monthly Average	Weekly Average	Minimum	Monthly Average	Weekly Average	Instant. Maximum	Minimum Measurement Frequency	Required Sample Type
Flow	Report						1/Week	Metered
pH			6.0			9.0	Daily When Discharging	Grab
Total Residual Chlorine				0.5		1.6	Daily When Discharging	Grab
$CBOD_5$				25		50	2/Month	Grab
E.Coli						Report	1/Year	Grab
Total Suspended Solids				30		60	2/Month	Grab
Fecal Coliform (No./100mL) 05/01 – 09/30				200 Geo Mean		1,000	2/Month	Grab
Fecal Coliform (No./100mL) 10/01 – 04/30				2,000 Geo Mean		10,000	2/Month	Grab
Ammonia-Nitrogen 05/01-10/31				6.0		12	2/Month	Grab
Ammonia-Nitrogen 11/01-04/30				18		36	2/Month	Grab

END of Fact Sheet.

ATTACHMENT 01

Q_{7-10} Analysis	
Facility:	Susquehanna RV
Outfall:	001
NPDES Permit No.:	PA0112704
RMI at Outfall:	2.94

Reference Stream Gage Information	
Stream Name	Montour Run
Reference Gage	1442500
Station Name	Brodhead Creek at Minisink Hills, PA
Gage Drainage Area (sq. mi.)	259
Q_{7-10} at gage (cfs)	48.4
Yield Ratio (cfs/mi^2)	0.1869

Q_{7-10} at Outfall	
Drainage Area at site (sq. mi.)	1.56
Q_{7-10} at discharge site (cfs)	0.292
Q_{7-10} at discharge site (mgd)	0.1884

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s; cubic feet per second; —, statistic not computed; <, less than]

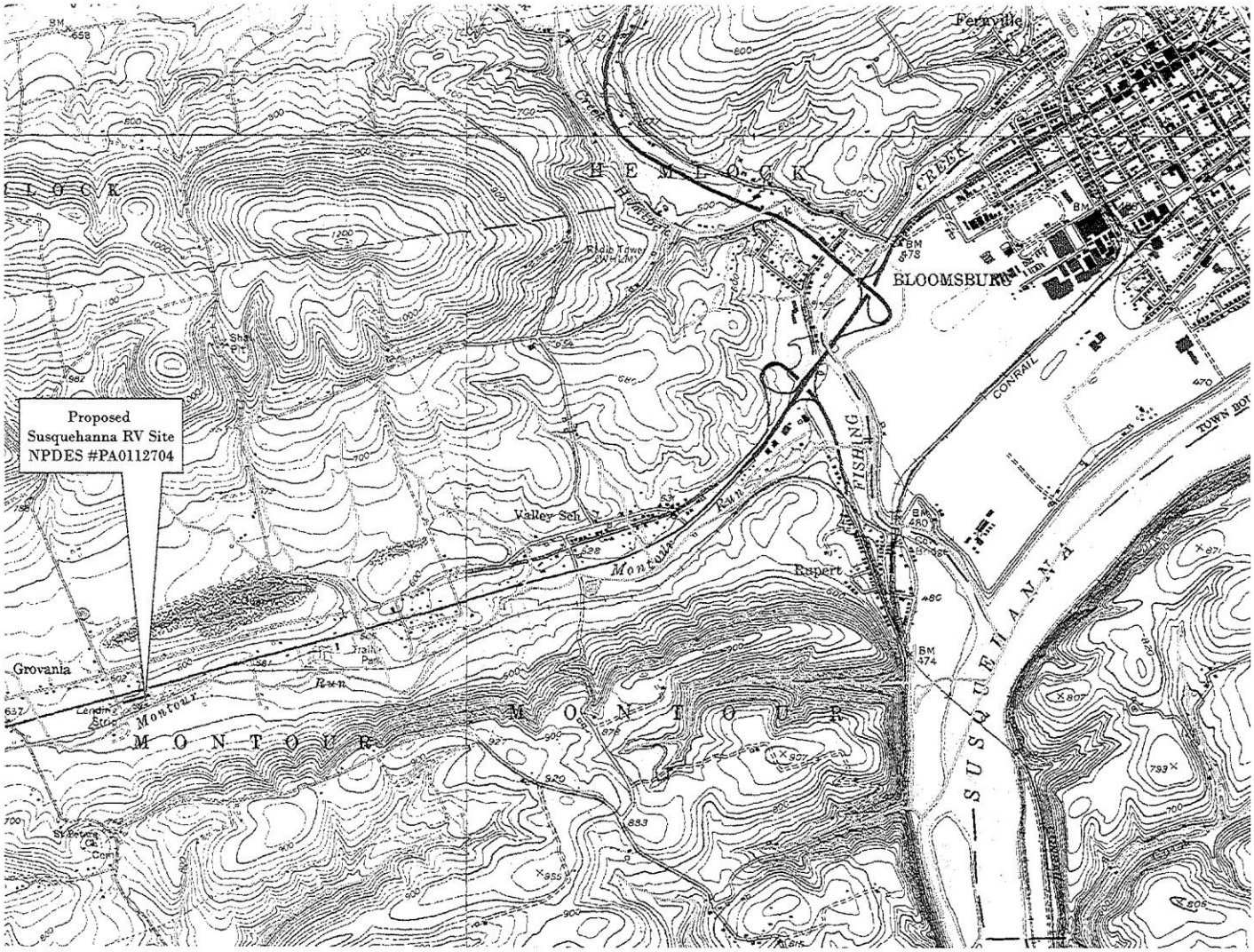
Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft³/s)	7-day, 10-year (ft³/s)	7-day, 2-year (ft³/s)	30-day, 10-year (ft³/s)	30-day, 2-year (ft³/s)	90-day, 10-year (ft³/s)
01434021	1992–2008	17	.1	.1	.2	.1	.3	.3
01434025	1985–2008	24	.3	.4	1.0	.6	1.5	1.2
01434498	1993–2008	16	7.0	7.4	15.2	9.4	19.5	15.2
01435000	1939–2008	67	12.2	13.5	24.9	17.3	31.8	25.4
01436000	[2]1955–2008	54	1.0	1.9	8.1	3.8	8.6	4.6
01436000	[3]1943–1953	11	18.3	19.9	33.6	25.2	43.4	42.2
01436500	[2]1955–1993	34	11.6	13.7	20.4	16.9	26.4	24.3
01436500	[3]1939–1953	15	20.4	22.0	37.4	29.1	49.2	44.4
01436690	1994–2008	15	30.4	35.0	61.5	44.1	82.4	58.9
01437500	[2]1955–2008	54	47.4	54.6	87.6	72.3	112	98.8
01437500	[3]1939–1953	15	37.2	44.7	76.0	57.2	98.8	84.6
01438500	1941–2008	68	648	887	1,460	1,050	1,700	1,310
01439500	1910–2008	99	6.6	7.5	18.6	10.3	26.4	17.5
01440000	1925–2008	84	6.6	7.4	13.2	9.2	17.0	12.8
01440200	1966–1995	30	1,030	1,200	1,830	1,440	2,110	1,660
01440400	1959–2008	50	6.9	7.4	13.5	9.1	18.1	12.3
01441000	1913–1938	26	13.3	16.2	24.3	19.1	29.8	23.3
01442500	1952–2008	57	44.7	48.4	80.6	57.0	100	73.6
01443280	1994–2008	15	2.0	2.6	6.9	3.0	8.1	4.4
01443500	1923–2008	84	11.6	16.2	28.3	20.3	36.8	26.8
01443900	1968–2008	41	.2	.6	1.0	.9	1.4	1.1
01445000	1941–2008	27	1.9	2.1	5.3	2.8	7.2	4.8
01445500	1923–2008	86	18.2	19.5	33.5	22.0	39.0	27.2
01446000	1924–2008	42	1.9	2.1	5.1	2.6	6.8	4.2
01446500	1924–2008	85	864	1,080	1,740	1,260	2,020	1,580
01446600	1963–1978	16	.1	.1	.7	.2	1.1	.4
01447500	1945–2008	64	11.8	13.1	24.8	16.5	33.1	24.5
01447680	[2]1971–2008	38	3.2	3.6	7.6	4.9	10.6	8.1
01447720	[3]1963–1985	23	—	28	43.3	34.1	58.8	43.2
01447720	[2]1987–2008	22	26.0	28.9	49.2	37.3	68.2	51.8
01447800	1959–2008	50	39.5	46.8	81.4	62.4	124	94.1
01448000	1918–1959	41	49.0	66.7	108	79.0	136	116
01448500	1950–1996	47	.4	.4	.8	.5	1.0	.7
01449000	1984–2008	25	135	148	237	180	315	236
01449360	1968–2008	41	14.4	15.1	23.7	17.3	27.7	21.7
01449800	1969–2008	40	14.2	16.5	31.0	19.9	38.1	29.4
01450500	1941–2008	68	15.1	17.0	29.3	20.0	35.6	26.7
01451000	[2]1962–2008	47	185	203	337	252	430	322
01451000	[3]1948–1960	13	203	213	311	253	391	343
01451500	1947–2008	62	27.6	28.8	43.4	32.0	48.1	35.4
01451650	1988–2008	21	29.8	36.2	52.7	41.9	60.7	50.0
01451800	1967–2008	42	1.7	2.2	7.0	3.7	11.0	7.5
01452000	1946–2008	63	3.0	3.0	12.0	4.4	13.9	7.6
01452500	1950–2008	59	12.1	13.2	22.9	14.8	25.9	16.8
01453000	[2]1929–2008	81	340	371	579	439	702	546

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
01439500	Bush Kill at Shoemakers, Pa.	41.088	-75.038	117	N
01440000	Flat Brook near Flatbrookville, N.J.	41.106	-74.953	64.0	N
01440200	Delaware River near Delaware Water Gap, Pa.	41.013	-75.086	3,850	Y
01440400	Brodhead Creek near Analomink, Pa.	41.085	-75.215	65.9	N
01441000	McMichael Creek near Stroudsburg, Pa.	40.979	-75.201	65.3	N
01442500	Brodhead Creek at Minisink Hills, Pa.	40.999	-75.143	259	N
01443280	East Branch Paulins Kill near Lafayette, N.J.	41.076	-74.695	13.0	N
01443500	Paulins Kill at Blairstown, N.J.	40.981	-74.953	126	N
01443900	Yards Creek near Blairstown, N.J.	40.981	-75.039	5.34	N
01445000	Pequest River at Huntsville, N.J.	40.981	-74.776	31.0	N
01445500	Pequest River at Pequest, N.J.	40.831	-74.978	106	N
01446000	Beaver Brook near Belvidere, N.J.	40.843	-75.046	36.7	N
01446500	Delaware River at Belvidere, N.J.	40.826	-75.083	4,535	Y
01446600	Martins Creek near East Bangor, Pa.	40.900	-75.202	10.4	N
01447500	Lehigh River at Stoddartsville, Pa.	41.130	-75.625	91.7	N
01447680	Tunkhannock Creek near Long Pond, Pa.	41.065	-75.522	20.0	LF
01447720	Tobyhanna Creek near Blakeslee, Pa.	41.085	-75.605	118	LF
01447800	Lehigh River below Francis E Walter Res near White Haven, Pa.	41.105	-75.732	290	Y
01448000	Lehigh River at Tannery, Pa.	41.040	-75.761	322	N
01448500	Dilldown Creek near Long Pond, Pa.	41.036	-75.543	2.39	N
01449000	Lehigh River at Lehighton, Pa.	40.829	-75.705	591	Y
01449360	Pohopoco Creek at Kresgeville, Pa.	40.898	-75.502	49.9	N
01449800	Pohopoco Creek below Beltzville Dam near Parryville, Pa.	40.846	-75.646	96.4	Y
01450500	Aquashicola Creek at Palmerton, Pa.	40.806	-75.598	76.7	N
01451000	Lehigh River at Walnutport, Pa.	40.757	-75.603	889	Y
01451500	Little Lehigh Creek near Allentown, Pa.	40.582	-75.483	80.8	N
01451650	Little Lehigh Creek at Tenth St. Br. at Allentown, Pa.	40.596	-75.474	98.2	N
01451800	Jordan Creek near Schnecksville, Pa.	40.662	-75.627	53.0	N
01452000	Jordan Creek at Allentown, Pa.	40.623	-75.482	75.8	N
01452500	Monocacy Creek at Bethlehem, Pa.	40.641	-75.379	44.5	N
01453000	Lehigh River at Bethlehem, Pa.	40.615	-75.379	1,279	Y
01454700	Lehigh River at Glendon, Pa.	40.669	-75.236	1,359	Y
01455160	Brass Castle Creek near Washington, N.J.	40.765	-75.018	2.34	N
01455500	Musconetcong River at outlet of Lake Hopatcong, N.J.	40.917	-74.666	25.3	N
01457000	Musconetcong River near Bloomsbury, N.J.	40.672	-75.061	141	N
01459500	Tohickon Creek near Pipersville, Pa.	40.434	-75.117	97.4	Y
01463500	Delaware River at Trenton, N.J.	40.222	-74.778	6,780	Y
01463620	Assunpink Creek near Clarksville, N.J.	40.270	-74.672	34.3	N
01464000	Assunpink Creek at Trenton, N.J.	40.224	-74.749	90.6	N
01464500	Crosswicks Creek at Extonville, N.J.	40.137	-74.6	81.5	N
01464645	NB Neshaminy Creek bl Lake Galena nr New Britain, Pa.	40.312	-75.207	16.2	Y
01464720	NB Neshaminy Creek at Chalfont, Pa.	40.288	-75.204	31.5	Y
01465000	Neshaminy Creek at Rushland, Pa.	40.255	-75.033	134	N
01465500	Neshaminy Creek near Langhorne, Pa.	40.174	-74.957	210	N
01465770	Poquessing Creek at Trevose Road, Phila., Pa.	40.132	-74.994	5.08	N

ATTACHMENT 02


Proposed
Susquehanna RV Site
NPDES #PA0112704
Pennville
BLOOMSBURG
CREEK
CONRAIL
FISHING
Valley Sch
Montour Run
Rupert
Grovania
Trail Park
Lending Stone
MONTOUR
HEMLOCK
SUSQUEHANNA

ATTACHMENT 03

TRC_CALC.xls

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.29	= Q stream (cfs)	0.5	= CV Daily
0.008	= 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 = 7.494	1.3.2.iii	WLA cfc = 7.298
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 2.792	5.1d	LTA_cfc = 4.243

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)**

ATTACHMENT 04

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
05C	27624	MONTOUR RUN	**2.940**	590.00	1.56	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	0.100	0.00	0.29	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
Susq Valley RV	PA0112704	0.0080	0.0080	0.0080	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	6.00	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
05C	27624	MONTOUR RUN	**0.960**	501.00	4.31	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	0.100	0.00	0.81	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
05C	27624	MONTOUR 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												
2.940	0.29	0.00	0.29	.0124	0.00851	.416	7.14	17.16	0.10	1.187	20.20	7.00
Q1-10 Flow												
2.940	0.19	0.00	0.19	.0124	0.00851	NA	NA	NA	0.08	1.505	20.31	7.00
Q30-10 Flow												
2.940	0.39	0.00	0.39	.0124	0.00851	NA	NA	NA	0.12	1.006	20.15	7.00

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	6		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
05C	27624	MONTOUR 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
2.940	Susq Valley RV	16.33	12	16.33	12	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
2.940	Susq Valley RV	1.87	6	1.87	6	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)		
2.94	Susq Valley RV	25	25	6	6	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
05C	27624	MONTOUR RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.940	0.008	20.205	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
7.135	0.416	17.159	0.102
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.94	0.286	0.25	0.711
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.028	23.937	Owens	6
Reach Travel Time (days)			
1.187			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.119	2.84	0.23	8.21
0.237	2.75	0.21	8.21
0.356	2.65	0.19	8.21
0.475	2.56	0.18	8.21
0.594	2.48	0.16	8.21
0.712	2.39	0.15	8.21
0.831	2.31	0.14	8.21
0.950	2.24	0.12	8.21
1.069	2.16	0.11	8.21
1.187	2.09	0.11	8.21

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
05C	27624	MONTOUR 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)
2.940	Susq Valley RV	PA0112704	0.008	CBOD5	25		
				NH3-N	6	12	
				Dissolved Oxygen			3