pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0030694**
Wastewater Type	**Sewage**	APS ID	**1023019**
Facility Type	**MISF1**	Authorization ID	**1326565**

NPDES PERMIT FACT SHEET
INDIVIDUAL SFTF/SRSTP

Applicant, Facility and Project Information

Applicant Name	**Exco Resources (PA) LLC**	Facility Name	**Camp Henry Kaufmann STP**
Applicant Address	13448 State Route 422 Suite 1	Facility Address	Girl Scout Camp Road
	Kittanning, PA 16201-3620		Bolivar, PA 15923
Applicant Contact	Cary Cannon	Facility Contact	Barry Graham
Applicant Phone	(972) 201-0658	Facility Phone	(814) 761-0985
Client ID	285505	Site ID	715612
SIC Code	4911	Municipality	Fairfield Township
SIC Description	Trans. & Utilities - Electric Services	County	Westmoreland
Date Application Received	September 9, 2020	WQM Required	Existing
Date Application Accepted		WQM App. No.	

Project Description: Permit renewal of Individual NPDES permit.

Summary of Review

On September 9, 2020, the Department received an NPDES Permit Renewal Application from EXCO Resources PA, LLC for the Camp Henry Kaufmann STP property located in Fairfield Township, Westmoreland County.

The facility's treatment system is authorized by Water Quality Management (WQM) Part II Permit 462S121 originally issued on February 27, 1963. The WQM Part II Permit was then amended on August 19, 2002 to install an aerobic digester and a tablet chlorinator to replace the chemical feed system. The WQM Permit was also transferred twice. On October 25, 2004 and then again on May 19, 2009 to EXCO Resources PA LLC. The existing treatment system is a Minor Sewage Facility <0.05 MGD consisting of comminutor, aerobic digester, final clarification, and tablet chlorination.

The receiving stream is Snyders Run, which is classified by Chapter 93 as Trout Stocking (TSF) located in watershed 18-D.

To establish the renewal effluent limitations, the Water Quality Based Effluent Limitations (WQBEL) are compared to the minimum technology based and BPJ standards for individual sewage permits. The most stringent of those limitations are imposed on the renewal permit as per the SOP-Establishing Effluent Limitations for Individual Sewage Permits.

WQM 7.0 and TRC spreadsheet modeling results are enclosed.

The Department inspected the treatment system on May 02, 2018 by Kristin Gearhart with no violations.

The Act – 14 PL 834 Municipal Notification were provided by the August 31, 2020 letters and no comments were received.

Approve	Deny	Signatures	Date
X		Curtis Holes, P.E. / Environmental Engineering Specialist	June 15, 2021
X		James Vanek James Vanek, P.E. / Environmental Engineer Manager	June 16, 2021

Summary of Review
An Operations Compliance Check Summary Report was completed. It is recommended that a draft permit be published for public comment in response to this application.   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.

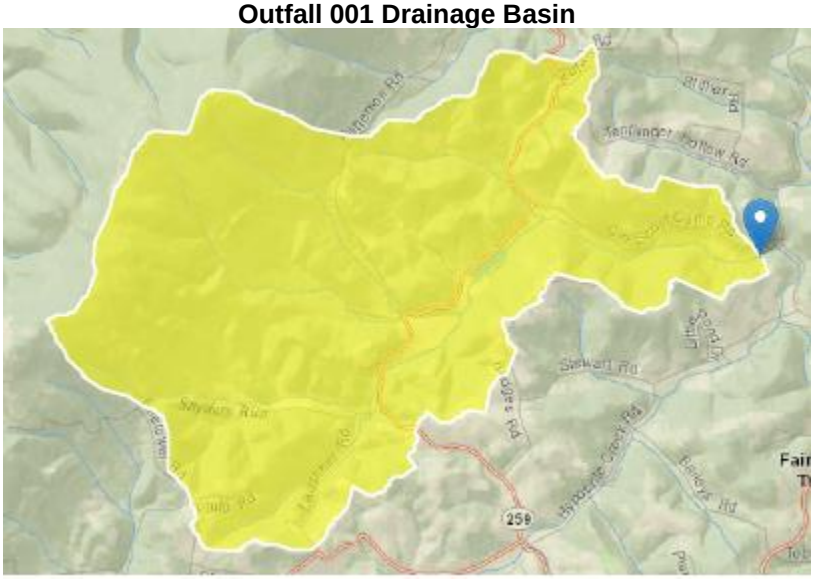
Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0216
Latitude	40º 20' 21.13"	Longitude	-79º 08' 40.99"
Quad Name	Wilpen	Quad Code	1612
Wastewater Description:	Treated Sewage Effluent		
Receiving Waters	Snyders Run (TSF)	Stream Code	44815
NHD Com ID	123725767	RMI	0.14
Drainage Area	7.94	Yield (cfs/mi^2)	0.0535
Q_{7-10} Flow (cfs)	0.425	Q_{7-10} Basis	StreamStats
Elevation (ft)	1105	Slope (ft/ft)	
Watershed No.	18-D	Chapter 93 Class.	TSF
Existing Use	**Aquatic Life**	Existing Use Qualifier	
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	SILTATION		
Source(s) of Impairment	AGRICULTURE		
TMDL Status	Final – 1/29/2010	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Saltsburg Municipal Waterworks (0.602 MGD)		
PWS Waters	Conemaugh River	Flow at Intake (cfs)	124
PWS RMI	0.5	Distance from Outfall (mi)	34.5

Changes Since Last Permit Issuance:

Other Comments:

Outfall 001 Drainage Basin



Treatment Facility Summary

Treatment Facility Name: Camp Henry Kaufmann STP

WQM Permit No.	Issuance Date
462S121	February 27, 1963
462S121 A-1	August 19, 2002
462S121 T-1	October 25, 2004
462S121 T-2	May 19, 2009

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with Ammonia Reduction	Aerobic Digester	Chlorine with Dechlorination	

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0216		Not Overloaded	Dewatering	Other WWTP

Changes Since Last Permit Issuance:

Other Comments:

Compliance History

Facility: Camp Henry Kaufmann

NPDES Permit No.: PA0030694

Compliance Review Period: 03/2016 – 03/2021

Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
2826434	05/02/2018	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted

Violation Summary:

No violations

Open Violations by Client ID:

No CW violations for client ID 285505

Enforcement Summary:

No enforcements

DMR Violation Summary:

No DMR violations

Compliance Status:

Permittee is in Clean Water compliance.

Completed by: John Murphy

Completed date: 3/16/2021

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.0216
Latitude 40º 20' 21.13" **Longitude** -79º 08' 40.99"
Wastewater Description: Treated 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)
	50	IMAX	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	60	IMAX	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

The most recent water quality modeling for the facility was completed in 2004. The Q_{7-10} used in the 2004 modeling was determined by using a known watershed (Little Yellow Creek near Strongstown, PA similar to the facility's watershed and ratio the known Q_{7-10} based on drainage areas (known watershed drainage area divided by facility's watershed drainage area). The Q_{7-10} used in 2004 was 0.216 cfs. Evaluating the water quality models, USGS StreamStats was used to calculate the Q_{7-10} of 0.425 cfs.

The following limitations were determined through water quality modeling (output files attached):

Parameter	Limit (mg/l)	SBC	Model
TRC	0.5	Average Monthly	TRC_CALC

Comments:
WQM 7.0 Modeling confirmed Technology-Based Limitations and Best Professional Judgment Limitations for $CBOD_5$, Ammonia and DO.

In-stream and discharge chlorine demand of 0.3 $^{mg}/_{L}$ and 0.0 $^{mg}/_{L}$ respectively are to be used as default values in the TRC spreadsheet model to calculate water quality-based TRC limits unless site-specific data supporting different values have been collected in accordance with the Implementation Guidance Total Residual Chlorine Regulation. A TRC limit of 0.5 $^{mg}/_{L}$ as an average monthly limit, which confirms the technology-based limitation.

Best Professional Judgment (BPJ) Limitations

Comments:
A minimum DO limit of 4.0 $^{mg}/_{L}$ per Pa Code Chapter 93 and BPJ. The WQM 7.0 Modeling confirmed the BPJ limitation of DO.

For existing sewage discharges, if WQM 7.0 Modeling results for summer indicates that an average monthly limit of 25 $^{mg}/_{L}$ is acceptable, the minimum requirement for Ammonia-Nitrogen is year-round Monitor and Report. The Ammonia-Nitrogen

monitoring requirement imposed will be Monitor are Report year-round. This change accounts for the updated method of calculating Q_{7-10} by using USGS StreamStats.

Sewage discharges with design flows > 2,000 GPD are required to monitor for Total Nitrogen and Total Phosphorus in new and reissued permits. Monitor and Report requirements for Total Nitrogen and Total Phosphorus with a once per year sampling frequency is imposed.

Additional Comments:

Monitoring frequencies for the proposed effluent limits are based upon Table 6-3 Self-Monitoring Requirements for Sewage Dischargers of the DEP's Technical Guidance for the Development and Specification of Effluent Limitations.

Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 **(l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.**

The renewal permit is developed using USGS StreamStats to calculate the stream Q_{7-10} and using WQM 7.0 for water quality modeling. The new water quality modeling and the new Q_{7-10} using USGS StreamStats to calculate the stream Q_{7-10}, indicated that 25 $^{mg}/_{L}$ is acceptable, this qualifies the facility's Ammonia-Nitrogen monitoring requirement of year-round Monitor and Report. This new information has determined that the minimum requirement for Ammonia-Nitrogen monitoring imposed is Monitor and Report year-round is sufficient.

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" (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	Instant. Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	0.0216 Annl Avg	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	5/week	Grab
DO	XXX	XXX	4.0	XXX	XXX	XXX	5/week	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	5/week	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	2/month	Grab
Fecal Coliform (No./100 ml) (5/1 – 9/30)	XXX	XXX	XXX	200 Geo Mean	XXX	1,000 Geo Mean	2/month	Grab
Fecal Coliform (No./100 ml) (10/1 – 4/30)	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000 Geo Mean	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	XXX	Report Daily Max	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	XXX	Report Daily Max	1/year	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	Report	2/month	Grab

Compliance Sampling Location: Outfall 001

TRC Model

USGS StreamStats Model Output

WQM 7.0 Model Output

TRC Model

TRC EVALUATION

0.425	= Q stream (cfs)	0.5	= CV Daily
0.0216	= 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)
	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	**1.3.2.iii**	WLA afc = 4.076	**1.3.2.iii**	WLA cfc = 3.967
PENTOXSD TRG	**5.1a**	LTAMULT afc = 0.373	**5.1c**	LTAMULT cfc = 0.581
PENTOXSD TRG	**5.1b**	LTA_afc= 1.519	**5.1d**	LTA_cfc = 2.306

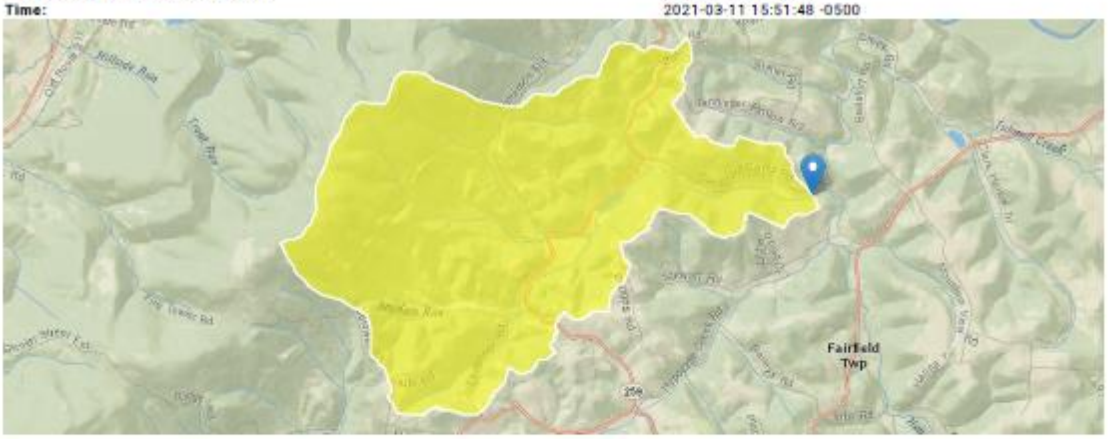
Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

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)**

USGS StreamStats Model Output

StreamStats Report - Camp Henry Kaufmann Outfall 001

Region ID:	PA
Workspace ID:	PA20210311205132373000
Clicked Point (Latitude, Longitude):	40.34849, -79.14330
Time:	2021-03-11 15:51:48 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	7.94	square miles
STORAGE	Percentage of area of storage (lakes ponds reservoirs wetlands)	0.17	percent
ELEV	Mean Basin Elevation	1542	feet
PRECIP	Mean Annual Precipitation	45	inches
FOREST	Percentage of area covered by forest	95.1252	percent
URBAN	Percentage of basin with urban development	0.0282	percent
CARBON	Percentage of area of carbonate rock	0	percent

Peak-Flow Statistics Parameters[Peak Flow Region 2 SIR 2019 5049]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	7.94	square miles	0.92	1160
STORAGE	Percent Storage	0.17	percent	0	8.9

Peak-Flow Statistics Flow Report[Peak Flow Region 2 SIR 2019 5049]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
50_percent_AEP_flood	360	ft^3/s	26.1
20_percent_AEP_flood	582	ft^3/s	27
10_percent_AEP_flood	756	ft^3/s	28.9
4_percent_AEP_flood	1010	ft^3/s	31.6
2_percent_AEP_flood	1220	ft^3/s	34.8
1_percent_AEP_flood	1450	ft^3/s	37.8
0_5_percent_AEP_flood	1700	ft^3/s	41.6
0_2_percent_AEP_flood	2080	ft^3/s	46.1

Peak-Flow Statistics Citations

https://streamstats.usgs.gov/ss/ 3/11/2021

Roland, M.A., and Stuckey, M.H.,2019, Development of regression equations for the estimation of flood flows at ungaged streams in Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2019–5094, 36 p. (https:// doi.org/10.3133/sir20195094)

Low-Flow Statistics Parameters[Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	7.94	square miles	2.33	1720
ELEV	Mean Basin Elevation	1542	feet	898	2700
PRECIP	Mean Annual Precipitation	45	inches	38.7	47.9

Low-Flow Statistics Flow Report[Low Flow Region 3]

PII: Prediction Interval-Lower, Piu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	0.919	ft^3/s	43	43
30 Day 2 Year Low Flow	1.33	ft^3/s	38	38
7 Day 10 Year Low Flow	0.425	ft^3/s	54	54
30 Day 10 Year Low Flow	0.589	ft^3/s	49	49
90 Day 10 Year Low Flow	0.86	ft^3/s	41	41

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/)

Annual Flow Statistics Parameters[Statewide Mean and Base Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	7.94	square miles	2.26	1720
ELEV	Mean Basin Elevation	1542	feet	130	2700
PRECIP	Mean Annual Precipitation	45	inches	33.1	50.4
FOREST	Percent Forest	95.1252	percent	5.1	100
URBAN	Percent Urban	0.0282	percent	0	89

Annual Flow Statistics Flow Report[Statewide Mean and Base Flow]

PII: Prediction Interval-Lower, Piu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
Mean Annual Flow	14.7	ft^3/s	12	12

Annual 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/)

General Flow Statistics Parameters[Statewide Mean and Base Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	7.94	square miles	2.26	1720
PRECIP	Mean Annual Precipitation	45	inches	33.1	50.4
CARBON	Percent Carbonate	0	percent	0	99
FOREST	Percent Forest	95.1252	percent	5.1	100
URBAN	Percent Urban	0.0282	percent	0	89

General Flow Statistics Flow Report[Statewide Mean and Base Flow]

PII: Prediction Interval-Lower, Piu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
Harmonic Mean Streamflow	3.56	ft^3/s	38	38

General 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/)

Base Flow Statistics Parameters[statewide Mean and Base Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	7.94	square miles	2.26	1720
PRECIP	Mean Annual Precipitation	45	inches	33.1	50.4
CARBON	Percent Carbonate	0	percent	0	99
FOREST	Percent Forest	95.1252	percent	5.1	100
URBAN	Percent Urban	0.0282	percent	0	89

Base Flow Statistics Flow Report[statewide Mean and Base Flow]

PII: Prediction Interval-Lower, Piu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
Base Flow 10 Year Recurrence Interval	6.44	ft^3/s	21	21
Base Flow 25 Year Recurrence Interval	5.79	ft^3/s	21	21
Base Flow 50 Year Recurrence Interval	5.42	ft^3/s	23	23

Base 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/)

Bankfull Statistics Parameters[statewide Bankfull Noncarbonate 2018 5066]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	7.94	square miles	2.62	207
CARBON	Percent Carbonate	0	percent		

Bankfull Statistics Flow Report[statewide Bankfull Noncarbonate 2018 5066]

PII: Prediction Interval-Lower, Piu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE
Bankfull Area	64	ft^2	64
Bankfull Streamflow	276	ft^3/s	74
Bankfull Width	37	ft	59
Bankfull Depth	1.77	ft	56

Bankfull Statistics Citations

Clune, J.W., Chaplin, J.J., and White, K.E.,2018, Comparison of regression relations of bankfull discharge and channel geometry for the glaciated and nonglaciated settings of Pennsylvania and southern New York: U.S. Geological Survey Scientific Investigations Report 2018 -5066, 20 p. (https://doi.org/10.3133/sir20185066)

Application Version: 4.4.0

WQM 7.0 Model Output

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
18D	44815	SNYDERS RUN	0.140	1105.00	7.94	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	0.054	0.43	0.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Camp Henry	PA0030694	0.0216	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	4.00	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
18D	44815	SNYDERS RUN	0.000	1104.00	8.00	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	0.054	0.43	0.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	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
18D	44815	SNYDERS 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												
0.140	0.43	0.00	0.43	.0334	0.00135	.475	12.5	26.32	0.08	0.111	24.64	7.00
Q1-10 Flow												
0.140	0.27	0.00	0.27	.0334	0.00135	NA	NA	NA	0.06	0.139	24.45	7.00
Q30-10 Flow												
0.140	0.58	0.00	0.58	.0334	0.00135	NA	NA	NA	0.09	0.094	24.73	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
18D	44815	SNYDERS 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
0.140	Camp Henry	11.59	50	11.59	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
0.140	Camp Henry	1.39	25	1.39	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)		
0.14	Camp Henry	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18D	44815	SNYDERS RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.140	0.022	24.636	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
12.501	0.475	26.318	0.077
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.68	0.705	1.82	1.000
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.934	17.261	Owens	6
Reach Travel Time (days)			
0.111			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.011	3.64	1.80	7.59
0.022	3.61	1.78	7.59
0.033	3.57	1.76	7.59
0.044	3.54	1.74	7.59
0.055	3.50	1.72	7.59
0.066	3.47	1.71	7.59
0.078	3.44	1.69	7.59
0.089	3.40	1.67	7.59
0.100	3.37	1.65	7.59
0.111	3.34	1.63	7.59

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18D	44815	SNYDERS 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)
0.140	Camp Henry	PA0030694	0.022	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

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
18D	44815	SNYDERS RUN	0.140	1105.00	7.94	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	0.054	0.43	0.00	0.000	0.000	10.0	0.00	0.00	5.00	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 Henry	PA0030694	0.0216	0.0000	0.0000	0.000	15.00	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	4.00	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
18D	44815	SNYDERS RUN	0.000	1104.00	8.00	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	0.054	0.43	0.00	0.000	0.000	10.0	0.00	0.00	5.00	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	0.00	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
18D	44815	SNYDERS 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												
0.140	0.43	0.00	0.43	.0334	0.00135	.475	12.5	26.32	0.08	0.111	5.73	7.00
Q1-10 Flow												
0.140	0.27	0.00	0.27	.0334	0.00135	NA	NA	NA	0.06	0.139	6.09	7.00
Q30-10 Flow												
0.140	0.58	0.00	0.58	.0334	0.00135	NA	NA	NA	0.09	0.094	5.55	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
18D	44815	SNYDERS 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
0.140	Camp Henry	24.1	50	24.1	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
0.140	Camp Henry	4.36	25	4.36	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)		
0.14	Camp Henry	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18D	44815	SNYDERS RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.140	0.022	5.729	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
12.501	0.475	26.318	0.077
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.68	0.727	1.82	0.233
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.934	11.024	Owens	6
Reach Travel Time (days)			
0.111			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.011	3.66	1.82	8.24
0.022	3.65	1.81	8.24
0.033	3.63	1.81	8.24
0.044	3.62	1.80	8.24
0.055	3.60	1.80	8.24
0.066	3.59	1.79	8.24
0.078	3.57	1.79	8.24
0.089	3.56	1.79	8.24
0.100	3.54	1.78	8.24
0.111	3.53	1.78	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18D	44815	SNYDERS 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)
0.140	Camp Henry	PA0030694	0.022	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4