Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0024864**
Facility Type	**Municipal**	APS ID	**1116578**
Major / Minor	**Minor**	Authorization ID	**1490028**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Municipal Authority of Westmoreland County**	Facility Name	**Ligonier WPCP**
Applicant Address	124 Park & Pool Road	Facility Address	2132 Sr 30 E
	New Stanton, PA 15672		Ligonier, PA 15658
Applicant Contact	Norman Stout	Facility Contact	
Applicant Phone	(724) 755-5800	Facility Phone	
Client ID	64197	Site ID	250822
Ch 94 Load Status	Not Overloaded	Municipality	Ligonier Borough
Connection Status	Self Imposed Connection Prohibition	County	Westmoreland
Date Application Received	June 21, 2024	EPA Waived?	Yes
Date Application Accepted	June 22, 2024	If No, Reason	

Purpose of Application: Renewal application to discharge treated sewage.

Summary of Review

This review is in response to a renewal application received on June 21, 2024. The Municipal Authority of Westmoreland County owns and operates the Ligonier wastewater treatment plant in Ligonier Borough, Westmoreland County. Sewage from Ligonier Borough and Ligonier Township is collected and treated with screening, grit removal, sequencing batch reactor extended aeration, and UV disinfection. Sludges are aerobically digested, dewatered with a belt filter press, and trucked to a landfill. This plant also receives solids from the Avonmore sewage plant and the Hutchinson sewage plant. Final disposal of sludge is at the Republic Services landfill in Scottdale, Westmoreland County.

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.

Approve	Deny	Signatures	Date
X		James Vanek James Vanek, P.E. / Environmental Engineer	March 21, 2025
X		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	August 25, 2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.9
Latitude	40º 14' 53.47"	Longitude	-79º 14' 58.98"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Mill Creek (CWF)	Stream Code	43675
NHD Com ID	125294222	RMI	0.2
Drainage Area	33 mi^2	Yield (cfs/mi^2)	0.06
Q_{7-10} Flow (cfs)	2	Q_{7-10} Basis	USGS Stream Stats
Elevation (ft)	1005	Slope (ft/ft)	0.0015
Watershed No.	18-C	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Buffalo Township Water Authority		
PWS Waters	Allegheny River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	> 50

Changes Since Last Permit Issuance: none

Treatment Facility Summary

Treatment Facility Name: Ligonier WPCP

WQM Permit No.	Issuance Date
461S038	4/20/2017
461S038	6/30/1961

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia Reduction	Sequencing Batch Reactor	Ultraviolet	0.9
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.9	1080	Not Overloaded	Aerobic Digestion	Landfill

Changes Since Last Permit Issuance: none

Other Comments:

Compliance History

DMR Data for Outfall 001 (from February 1, 2024 to January 31, 2025)

Parameter	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24
Flow (MGD) Average Monthly	0.429	0.494	0.422	0.281	0.315	0.342	0.309	0.354	0.531	1.011	0.613	0.527
Flow (MGD) Daily Maximum	1.543	1.127	1.109	0.346	0.74	0.943	0.622	0.517	0.906	3.758	1.551	1.865
pH (S.U.) Instantaneous Minimum	6.9	7.0	6.9	6.9	7.0	7.0	7.0	7.0	6.9	7.0	7.0	7.0
pH (S.U.) Instantaneous Maximum	7.2	7.2	7.2	7.3	7.2	7.2	7.4	7.2	7.3	7.3	7.3	7.3
DO (mg/L) Instantaneous Minimum	7.0	6.8	6.4	6.5	5.9	6.2	6.0	6.0	5.8	5.4	7.4	6.1
CBOD5 (lbs/day) Average Monthly	< 10.7	< 10	< 5	< 7	6	< 8	< 5	< 10	21	< 68	< 12	< 19
CBOD5 (lbs/day) Weekly Average	16.6	< 19	< 10	10	8	14	13	12	27	300	21	45
CBOD5 (mg/L) Average Monthly	< 3.2	< 2.0	< 1.6	< 2.6	2.5	< 3.1	< 1.7	< 2.9	4.6	< 3.8	< 2.3	< 3.1
CBOD5 (mg/L) Weekly Average	4.8	< 2.0	< 2.0	3.9	3.0	5.0	3.9	3.9	5.6	9.6	2.8	4.4
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	427	555	557	448	383	465	463	614	584	384	403	718
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	489	690	838	575	595	542	664	811	951	626	555	1526
BOD5 (mg/L) Raw Sewage Influent Average Monthly	131	124	160	174	151	175	168	178	126	77	84	123
TSS (lbs/day) Average Monthly	< 16.4	< 26	< 18	< 13	< 13	< 13	< 12	< 17	< 23	< 156	< 25	< 32

TSS (lbs/day) Raw Sewage Influent Average Monthly	364	354	358	334	368	305	297	410	453	316	356	478
TSS (lbs/day) Raw Sewage Influent Daily Maximum	389	470	562	550	499	384	544	681	725	494	506	1120
TSS (lbs/day) Weekly Average	< 17.3	< 47	< 26	< 14	< 13	< 14	< 16	< 22	< 28	690	< 37	< 78
TSS (mg/L) Average Monthly	< 5	< 5	< 5	< 5	< 5	< 5	< 4	< 5	< 5	< 8	< 5	< 5
TSS (mg/L) Raw Sewage Influent Average Monthly	112	77	109	129	147	116	107	117	98	58	72	78
TSS (mg/L) Weekly Average	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	22	< 5	< 5
Fecal Coliform (No./100 ml) Geometric Mean	< 5	< 5	< 5	< 7	< 8	< 8	< 5	< 5	< 5	< 19	< 5	< 5
Fecal Coliform (No./100 ml) Instantaneous Maximum	5	< 5	5	26	37	26	< 5	< 5	< 5	3635	< 5	< 5
UV Transmittance (%) Daily Minimum	77.5	79.8	77.4	76.2	71.7	73.6	68.4	73.1	66.9	59.6	75.7	80.6
UV Transmittance (%) Average Monthly	81	83.4	81.5	79.3	77.5	78.8	77.5	80.8	82.5	83.6	87.9	85.5
Total Nitrogen (mg/L) Daily Maximum		6.02										
Ammonia (lbs/day) Average Monthly	< 1.0	< 1	< 1	< 0.4	0.8	< 0.5	< 1	0.5	1	< 7	< 3	< 3
Ammonia (mg/L) Average Monthly	< 0.3	< 0.2	< 0.3	< 0.1	0.3	< 0.2	< 0.4	0.2	0.3	< 0.4	< 0.6	< 0.4
Total Phosphorus (mg/L) Daily Maximum		1.50										
Total Aluminum (mg/L) Daily Maximum		0.013										
Total Iron (mg/L) Daily Maximum		0.0515										

Total Manganese (mg/L) Daily Maximum		0.008										

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.9
Latitude 40º 14' 53.00" **Longitude** -79º 14' 59.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
NH_3N	5.0	Average Monthly	WQM 7.0
$CBOD_5$	15.0	Average Monthly	WQM 7.0
Dissolved oxygen	5.0	Instantaneous Minimum	WQM 7.0

Comments: These limits are the same as the WQ limits from the previous permit.

The WQM 7.0 model is run for Outfall 001 to determine whether WQBELs are necessary for $CBOD_5$, ammonia-nitrogen, and/or dissolved oxygen. The model results are enclosed at the end of this report.

DEP's modeling for sewage discharges is a conditional two-step process. First, a discharge is modeled for the summer period (May through October) using warm temperatures for the discharge and the receiving stream. Modeling for the summer period is done first because allowable ammonia-nitrogen concentrations in a discharge are lower at higher temperatures (i.e., warm temperatures are more likely to result in critical loading conditions). Reduced dissolved oxygen levels also appear to increase ammonia toxicity and the maximum concentration of dissolved oxygen in water is lower at higher temperatures. The second step is to evaluate WQBELs for the winter period, but only if modeling shows that WQBELs are needed for the summer period.

For the summer period, pursuant to DEP's "Implementation Guidance of Section 93.7 Ammonia Criteria" [Doc. No. 391-2000-013] (Ammonia Guidance) and in the absence of site-specific data, the discharge temperature is assumed to be 20°C and the design stream temperature and pH are assumed to be 20°C and 7.0 s.u., respectively, based on the recommendations for cold water fisheries. Input discharge concentrations for $CBOD_5$ and Ammonia-Nitrogen are the average monthly limits expected from secondary treatment (25 mg/L and 25 mg/L, respectively). The input discharge

concentration for dissolved oxygen is 3.0 mg/L. The background dissolved oxygen concentration of Mill Creek at 20°C is assumed to be 8.24 mg/L.

The modeling showed that the dissolved oxygen had not fully recovered at the confluence of Mill Creek and Loyalhanna Creek. So another evaluation was done taking the combined flow of Mill Creek and the Ligonier sewage plant's flow with the dissolved oxygen, $CBOD_5$, and NH_3N concentrations from the DO simulation of the Mill Creek evaluation. The DO simulation for the Loyalhanna shows the DO recovering so the proposed limits achieve water quality standards.

Best Professional Judgment (BPJ) Limitations

Dissolved oxygen will be limited at 4.0 mg/l as an instantaneous minimum.

Anti-Backsliding

The dissolved oxygen limit will remain at 5.0 mg/l as an instantaneous maximum due to anti-backsliding.

Mass Loadings

Per Department SOP "Establishing Effluent Limitations for Individual Sewage Permits" (BCW-PMT-033), mass loading limits will be established for POTWs for $CBOD_5$, TSS, ammonia nitrogen. Average monthly mass loading limits will be established for $CBOD_5$, TSS, and ammonia nitrogen. Average weekly mass loading limits will be established for $CBOD_5$ and TSS. Mass loading limits will be calculated according to the formula below:

$$average\ annual\ design\ flow\ (MGD) \times concentration\ limit\ \left(\frac{mg}{L}\right) \times 8.34\ (converstion\ factor) = mass\ loading\ limit\ (\frac{lbs}{day})$$

The following mass loading limitations were calculated:

Parameter	Average Monthly (lbs/day)	Average Weekly (lbs/day)
$CBOD_5$	**188**	**282**
$CBOD_5$	**113**	**169**
TSS	**225**	**338**
NH_3N	**38**	**-**
NH_3N	**113**	**-**

TMDL Kiskiminetas Watershed

There is a TMDL for metals in the Kiskiminetas River watershed. The contribution for metals from a sewage plant is expected to be less than water quality criteria and therefore not contributing to stream impairment. Annual monitoring is imposed for plants rated larger than 0.499 mgd. Monitoring for aluminum, iron and manganese is required to ensure there are no impacts on the quality of the receiving stream.

TN and TP Montoring

Nutrient monitoring is required to establish the nutrient load from the wastewater treatment facility and the impacts that load may have on the quality of the receiving stream(s). Sewage discharges with design flows > 2,000 gpd require monitoring, at a minimum, for Total Nitrogen and Total Phosphorus in new and reissued permits. Annual monitoring has been imposed.

Monitoring Frequency Considerations

For pH, Dissolved Oxygen (DO), UV transmittance, and Total Residual Chlorine (TRC), a monitoring frequency of 1/day has been imposed. The daily monitoring frequencies are consistent with current policy and Table 6-3 of DEP's Technical Guidance for the Development and Specification of Effluent Limitations.

Influent Monitoring

For POTWs with design flows greater than 2,000 GPD influent BOD_5 and TSS monitoring must be established in the permit, and the monitoring should be consistent with the same frequency and sample type as is used for other effluent parameters.

Sample Types

For new or expanding facilities with design flows ≥ 0.1 MGD and < 1.0 MGD, 8-hour composite sampling will be used for conventional and toxic pollutants except where grab sampling is appropriate (e.g., TRC, Fecal Coliform, pH, DO, etc.) and unless site-specific justification is provided in the fact sheet for a deviation.

Industrial Customers

The renewal application has a comprehensive list of commercial and industrial customers. No major industrial users contribute to the sewage plant. However, pretreatment program implementation language has been added to Part C of the permit. The EPA believes that pretreatment program implementation is necessary for each sewage plant owned by MAWC even though the sewage flow at the plant is beneath the 5 MGD threshold for being required to develop a pretreatment program.

Disinfection

Where ultraviolet (UV) disinfection is used, TRC limits are not applicable, but the limits table in Part A will generally contain, at a minimum, routine monitoring of UV transmittance (%), UV dosage (µWs/cm2 or mWs/cm2 or mjoules/cm^2) or UV intensity (µW/cm2 or mW/cm2) at the same monitoring frequency that would be used for TRC.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	188	282	XXX	25.0	40.0	50	1/week	8-Hr Composite
CBOD5 May 1 - Oct 31	113	169	XXX	15.0	22.5	30	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	225	338	XXX	30	45	60	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
UV Transmittance (%)	XXX	XXX	Report	Report	XXX	XXX	1/day	Measured

Outfall 001 , Continued (from 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	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Ammonia Nov 1 - Apr 30	113	XXX	XXX	15.0	XXX	30	1/week	8-Hr Composite
Ammonia May 1 - Oct 31	38	XXX	XXX	5.0	XXX	10	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Total Aluminum	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Total Iron	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Total Manganese	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite

Compliance Sampling Location: outfall 001

Other Comments:

USGS STREAM STATS

StreamStats Report

Region ID: PA
Workspace ID: PA20250319125033145000
Clicked Point (Latitude, Longitude): 40.24863, -79.24717
Time: 2025-03-19 08:50:57 -0400

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	0	percent
DRNAREA	Area that drains to a point on a stream	33	square miles
ELEV	Mean Basin Elevation	1715	feet
FOREST	Percentage of area covered by forest	67.7065	percent
PRECIP	Mean Annual Precipitation	44	inches
STORAGE	Percentage of area of storage (lakes ponds reservoirs wetlands)	0.13	percent
URBAN	Percentage of basin with urban development	4.7036	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	33	square miles	2.33	1720

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ELEV	Mean Basin Elevation	1715	feet	898	2700
PRECIP	Mean Annual Precipitation	44	inches	38.7	47.9

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

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	4.05	ft^3/s	43	43
30 Day 2 Year Low Flow	5.65	ft^3/s	38	38
7 Day 10 Year Low Flow	1.97	ft^3/s	54	54
30 Day 10 Year Low Flow	2.62	ft^3/s	49	49
90 Day 10 Year Low Flow	3.78	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

Annual Flow Statistics Parameters [Statewide Mean and Base Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	33	square miles	2.26	1720
ELEV	Mean Basin Elevation	1715	feet	130	2700
FOREST	Percent Forest	67.7065	percent	5.1	100
PRECIP	Mean Annual Precipitation	44	inches	33.1	50.4
URBAN	Percent Urban	4.7036	percent	0	89

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

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
Mean Annual Flow	57.6	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/)

Base Flow Statistics

Base Flow Statistics Parameters [Statewide Mean and Base Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	0	percent	0	99
DRNAREA	Drainage Area	33	square miles	2.26	1720
FOREST	Percent Forest	67.7065	percent	5.1	100
PRECIP	Mean Annual Precipitation	44	inches	33.1	50.4
URBAN	Percent Urban	4.7036	percent	0	89

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

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
Base Flow 10 Year Recurrence Interval	21	ft^3/s	21	21
Base Flow 25 Year Recurrence Interval	18.7	ft^3/s	21	21
Base Flow 50 Year Recurrence Interval	17.4	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/)

Peak-Flow Statistics

Peak-Flow Statistics Parameters [Peak Flow Region 2 SIR 2019 5094]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	33	square miles	0.92	1160
STORAGE	Percent Storage	0.13	percent	0	8.9

Peak-Flow Statistics Flow Report [Peak Flow Region 2 SIR 2019 5094]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	ASEp
50-percent AEP flood	1200	ft^3/s	26.1
20-percent AEP flood	1900	ft^3/s	27
10-percent AEP flood	2460	ft^3/s	28.9
4-percent AEP flood	3260	ft^3/s	31.6
2-percent AEP flood	3930	ft^3/s	34.8

Statistic	Value	Unit	ASEp
1-percent AEP flood	4660	ft^3/s	37.8
0.5-percent AEP flood	5470	ft^3/s	41.6
0.2-percent AEP flood	6680	ft^3/s	46.1

Peak-Flow Statistics Citations

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)

Application Version: 4.28.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

WQM 7.0 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
18C	43675	MILL CREEK	**0.200**	1005.00	33.00	0.00150	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	0.062	0.00	0.00	0.000	0.234	10.0	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
MAWC Ligonier	PA0024864	0.9000	0.9000	0.9000	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	3.00	8.24	0.00	0.00
NH3-N	25.00	0.10	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
18C	43675	MILL CREEK	**0.100**	1003.20	36.00	0.00150	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	0.062	0.00	0.00	0.000	0.234	10.0	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	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

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
18C	43255	LOYALHANNA CREEK	**37.040**	1003.20	98.00	0.00120	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	0.070	0.00	0.00	0.000	0.000	10.0	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
end of reach 1	PA0024864	2.2000	2.2000	2.2000	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	7.19	0.00	0.00	1.50
Dissolved Oxygen	6.02	8.24	0.00	0.00
NH3-N	1.87	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
18C	43255	LOYALHANNA CREEK	**36.040**	996.00	110.00	0.00120	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	0.070	0.00	0.00	0.000	0.000	10.0	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

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
18C	43255	LOYALHANNA CREEK	**34.040**	984.00	150.00	0.00150	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	0.070	0.00	0.00	0.000	0.000	10.0	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