Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0238601**
Facility Type	**Non-Municipal**	APS ID	**1103788**
Major / Minor	**Minor**	Authorization ID	**1467346**

Applicant and Facility Information

Applicant Name	**Sutton MHP Inc.**	Facility Name	**Sutton MHP**
Applicant Address	129 Elgie Drive	Facility Address	Mcgregor Road
	Butler, PA 16001-9691		Butler, PA 16001
Applicant Contact	Kevin Kniess	Facility Contact	Kevin Kniess
Applicant Phone	(724) 290-7363	Facility Phone	(724) 290-7363
Client ID	159050	Site ID	537156
Ch 94 Load Status	Not Overloaded	Municipality	Clay Township
Connection Status	No Limitations	County	Butler
Date Application Received	December 21, 2023	EPA Waived?	Yes
Date Application Accepted	December 21, 2023	If No, Reason	

Purpose of Application: NPDES Permit Renewal.

Summary of Review

Sutton MHP Inc. has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was June 20, 2019 and became effective on July 1, 2019. The permit expired on June 30, 2024 but the terns and conditions have been extended since that time.

Based on the review, it is recommended that the permit be drafted.

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Approve	Deny	Signatures	Date
X		*Jinsu Kim* Jinsu Kim / Environmental Engineering Specialist	September 22, 2025
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	September 24, 2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.0125
Latitude	40º 59' 38.08"	Longitude	-79º 56' 31.68"
Quad Name	Mt Chestnut	Quad Code	1106
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Glade Run	Stream Code	
NHD Com ID	126221141	RMI	0.2200
Drainage Area	0.07	Yield (cfs/mi^2)	0
Q_{7-10} Flow (cfs)	0	Q_{7-10} Basis	Dry stream
Elevation (ft)	1316.03	Slope (ft/ft)	
Watershed No.	20-C	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	METALS, SILTATION		
Source(s) of Impairment	ACID MINE DRAINAGE, ACID MINE DRAINAGE		
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	PA American Water		
PWS Waters	Connoquenessing Creek	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	40

Comments: The discharge is to a dry stream and the watershed is impaired for metals and siltation as a result of acid mine drainage. The fact sheet developed for the last permit renewal shows the nearest downstream public water supply intake is PA American Water located on Connoquenessing Creek approximately 40 miles from the discharge. Given the nature and distance, the discharge is not expected to impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: Sutton MHP				
WQM Permit No.	**Issuance Date**			
1002402	06/10/2002			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Ammonia Reduction	Extended Aeration	Chlorine With Dechlorination	0.012563
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.012563	28.5	Not Overloaded	Aerobic Digestion	

The facility is utilizing an extended aeration activated sludge treatment process consisting of comminutor with equalization tank, extended aeration treatment units (2), final clarifier, chlorine contact tank and outfall structure. Chlorine tablets are used for disinfection and dechlorination tablets are used for dechlorination.

Compliance History	
Summary of DMRs:	A summary of past 12-month DMR data is presented on the next page.
Summary of Inspections:	11/17/2021: DEP conducted a routine inspection; no significant violations were identified at the time of inspection.
Other Comments:	Since the last permit reissuance, the facility had a number of permit violations particularly associated with effluent violations. These violations are shown on page 5 of this fact sheet. DEP's database shows there is no open violation associated with this facility or permittee.

Effluent Data

DMR Data for Outfall 001 (from August 1, 2024 to July 31, 2025)

Parameter	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24
Flow (MGD) Average Monthly	0.006	0.0054	0.0049	0.0049	0.0069	0.0065	0.0078	0.0058	0.0052	0.0049	0.0043	0.0041
Flow (MGD) Daily Maximum	0.0074	0.0069	0.006	0.0064	0.0118	0.0096	0.0121	0.0086	0.0081	0.0061	0.0054	0.005
pH (S.U.) Instantaneous Minimum	7.3	7.4	7.0	6.9	6.9	7.0	6.8	6.5	6.5	6.5	6.6	7.1
pH (S.U.) Instantaneous Maximum	7.6	8.6	7.6	7.6	7.5	7.9	7.5	7.7	7.6	7.4	7.4	7.5
DO (mg/L) Daily Minimum	4.06	4.07	4.08	4.9	4.75	6.64	6.59	5.72	4.5	4.61	4.8	4.08
TRC (mg/L) Average Monthly	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3
CBOD5 (mg/L) Average Monthly	< 3.0	12.0	< 3.0	4.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
TSS (mg/L) Average Monthly	< 3.0	14.0	< 3.0	6.0	13.0	12.0	19.0	25.0	< 3.0	3.0	< 4.0	< 3.0
Fecal Coliform (No./100 ml) Geometric Mean	< 3	< 26	< 4	< 1	1	3	11	11	4	10	11	< 3
Total Nitrogen (mg/L) Average Quarterly		7.75			21.6			51.3			22.8	
Ammonia (mg/L) Average Monthly	1.4	6.0	5.0	2.0	< 0.1	0.22	< 0.2	0.23	0.12	< 0.1	0.09	0.13
Total Phosphorus (mg/L) Average Quarterly		1.75			2.43			3.36			3.17	

Compliance History

Date	Description	Parameters	Results	Limits	Units	SBC
9/9/2019	Violation of permit condition	Dissolved Oxygen	3.99	4	mg/L	Daily Minimum
5/9/2020	Violation of permit condition	Ammonia-Nitrogen	13	9	mg/L	Average Monthly
6/5/2020	Violation of permit condition	Ammonia-Nitrogen	7	3	mg/L	Average Monthly
6/5/2020	Violation of permit condition	Total Suspended Solids	49	30	mg/L	Average Monthly
7/10/2020	Violation of permit condition	Ammonia-Nitrogen	10	3	mg/L	Average Monthly
7/10/2020	Violation of permit condition	Total Residual Chlorine (TRC)	0.5	0.4	mg/L	Average Monthly
8/7/2020	Violation of permit condition	pH	5.8	6	S.U.	Instantaneous Minimum
8/7/2020	Violation of permit condition	Total Residual Chlorine (TRC)	0.5	0.4	mg/L	Average Monthly
9/10/2020	Violation of permit condition	Dissolved Oxygen	3.58	4	mg/L	Daily Minimum
9/10/2020	Violation of permit condition	Total Suspended Solids	< 49.0	30	mg/L	Average Monthly
12/2/2020	Violation of permit condition	Total Suspended Solids	35	30	mg/L	Average Monthly
3/10/2021	Violation of permit condition	Total Suspended Solids	38	30	mg/L	Average Monthly
10/7/2021	Violation of permit condition	Fecal Coliform	366	200	No./100 ml	Geometric Mean
3/16/2022	Violation of permit condition	Carbonaceous Biochemical Oxygen Demand (CBOD5)	35	25	mg/L	Average Monthly
6/10/2023	Violation of permit condition	Total Suspended Solids	43	30	mg/L	Average Monthly
6/6/2025	Violation of permit condition	Ammonia-Nitrogen	5	3	mg/L	Average Monthly
7/8/2025	Violation of permit condition	Ammonia-Nitrogen	6	3	mg/L	Average Monthly

Existing Effluent Limits and Monitoring Requirements

A table below summarizes effluent limits and monitoring requirements specified in the current permit:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	4/week	Grab
Dissolved Oxygen	XXX	XXX	4.0	XXX	XXX	XXX	4/week	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.4	XXX	0.9	4/week	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	25.0	XXX	50	2/month	8-Hr Composite
Total Suspended Solids	XXX	XXX	XXX	30.0	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18	2/month	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .0125
Latitude 40º 59' 36.00" **Longitude** -79º 56' 4.00"
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

CBOD5, NH3-N and Dissolved Oxygen (DO)
WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD5, NH3-N and DO. DEP's technical guidance no. 391-2000-007 describes the technical methods contained in the model for conducting wasteload allocation analyses and for determining recommended limits for point source discharges. Due to the very low-flow conditions expected in the receiving stream, the entire watershed of this receiving stream has been evaluated (Glade Run Watershed). The model output indicated that all existing effluent limits are still protective of water quality. No change is therefore recommended.

Total Residual Chlorine
Since chlorine is used, DEP's TRC_CALC spreadsheet has been utilized; and the spreadsheet output shows that the existing effluent limit is still protective of water quality. No change is therefore recommended.

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

Best Professional Judgment (BPJ) Limitations

Dissolved Oxygen
A minimum of 4.0 mg/L for DO is an existing effluent limit and will remain unchanged in the permit to ensure that the facility continues to protect all aquatic life. This approach is consistent with DEP's SOP no. BPNPSM-PMT-033.

Additional Considerations

Flow Monitoring
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii).

E. Coli Monitoring Requirement
DEP's SOP no. BPNPSM-PMT-033 recommends a quarterly routine monitoring of E. Coli for all sewage facilities that have design flow less than 0.1 MGD but greater than 0.05 MGD. A quarterly monitoring for E. Coli will therefore be included in the permit.

Total Nitrogen & Total Phosphorus
A continuation of nutrient monitoring is recommended. This approach is consistent with DEP's SOP no. BPNPSM-PMT-033. Since the facility has performed nutrient monitoring previously and the stream segment where the discharge is located at is not impaired for nutrients, a quarterly sampling of nutrients is still acceptable.

Monitoring Frequency and Sample Type
The monitoring frequency for pH, DO and TRC has changed from 4/week to 1/day. it is unclear how the existing frequency of 4/week was developed but 1/day monitoring requirement for pH, DO and TRC has been consistently implemented on sewage facilities over 0.002 MGD throughout the state. This daily monitoring requirement is also consistent with DEP's technical guidance no. 362-0400-001.

Mass Loading Limitations
All effluent mass loading limits will be based on the formula: design flow x concentration limit x conversion factor of 8.34.

Antidegradation Requirements
All effluent limitations and monitoring requirements have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected.

Class A Wild Trout Fishery
No Class A Wild Trout Fisheries are also impacted by this discharge.

Proposed Effluent Limitations and Monitoring Requirements

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

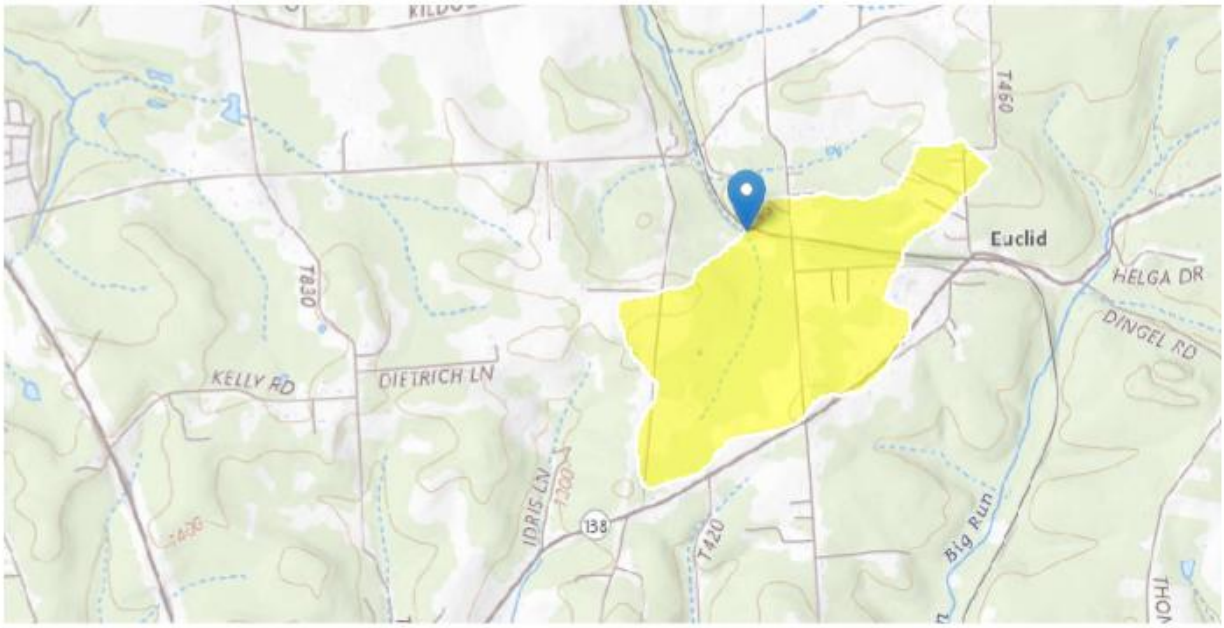
Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.4	XXX	0.9	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
E. Coli (No. / 100 mL)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

StreamStats Report

Region ID: PA
Workspace ID: PA20250922172140365000
Clicked Point (Latitude, Longitude): 40.99407, -79.94230
Time: 2025-09-22 13:22:02 -0400



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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.49	square miles
ELEV	Mean Basin Elevation	1364	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.49	square miles	2.26	1400
ELEV	Mean Basin Elevation	1364	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

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

Low-Flow Statistics Flow Report [Low Flow Region 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0139	ft^3/s
30 Day 2 Year Low Flow	0.0279	ft^3/s
7 Day 10 Year Low Flow	0.00366	ft^3/s
30 Day 10 Year Low Flow	0.00838	ft^3/s
90 Day 10 Year Low Flow	0.0183	ft^3/s

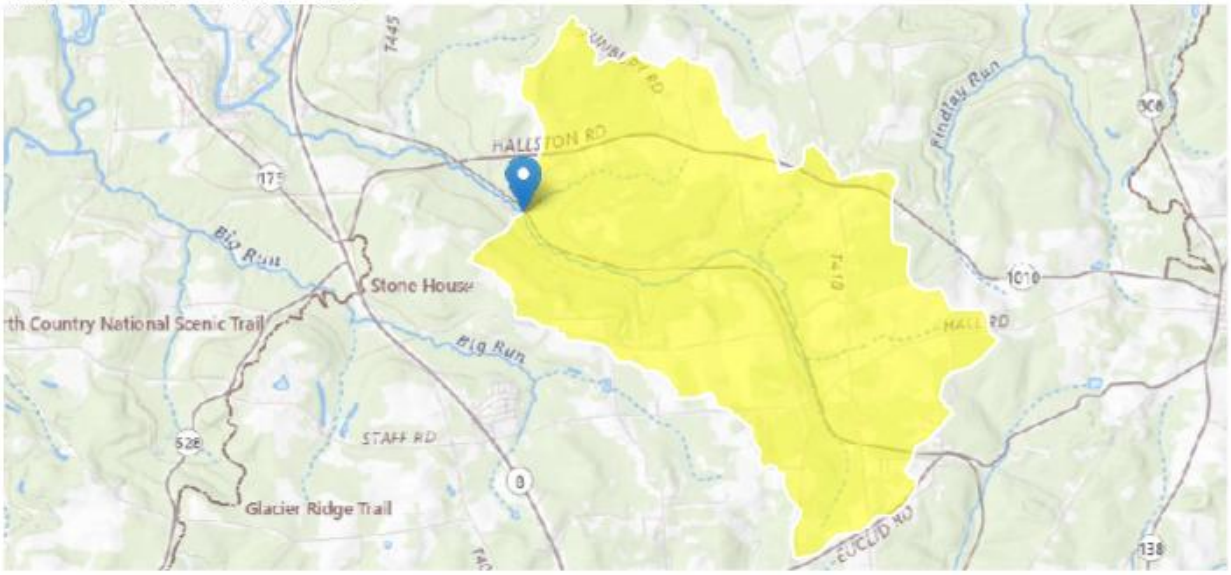
Low-Flow Statistics Citations

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

Application Version: 4.29.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20250922172546364000
Clicked Point (Latitude, Longitude): 41.01517, -79.98098
Time: 2025-09-22 13:26:12 -0400



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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	5.36	square miles
ELEV	Mean Basin Elevation	1341	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	5.36	square miles	2.26	1400
ELEV	Mean Basin Elevation	1341	feet	1050	2580

Low-Flow Statistics Flow Report [Low Flow Region 4]

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	0.209	ft^3/s	43	43
30 Day 2 Year Low Flow	0.375	ft^3/s	38	38
7 Day 10 Year Low Flow	0.0693	ft^3/s	66	66
30 Day 10 Year Low Flow	0.132	ft^3/s	54	54
90 Day 10 Year Low Flow	0.256	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/)

Application Version: 4.29.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

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
20C	34443	GLADE RUN	**4.900**	1200.00	0.49	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	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Sutton MHP Inc.	PA0238601	0.0125	0.0125	0.0125	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	3.00	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
20C	34443	GLADE RUN	**1.900**	1182.00	5.36	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	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20C	34443	GLADE 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												
4.900	0.05	0.00	0.05	.0193	0.00114	.354	3.99	11.28	0.05	3.790	21.41	7.00
Q1-10 Flow												
4.900	0.03	0.00	0.03	.0193	0.00114	NA	NA	NA	0.04	4.480	21.91	7.00
Q30-10 Flow												
4.900	0.07	0.00	0.07	.0193	0.00114	NA	NA	NA	0.06	3.333	21.12	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	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20C	34443	GLADE 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
4.900	Sutton MHP Inc.	14.31	6	14.31	6	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
4.900	Sutton MHP Inc.	1.76	3	1.76	3	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)		
4.90	Sutton MHP Inc.	25	25	3	3	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20C	34443	GLADE RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
4.900	0.012	21.415	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.992	0.354	11.282	0.048
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
8.51	0.358	0.85	0.781
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.325	20.152	Owens	5
Reach Travel Time (days)			
3.790			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.379	7.36	0.63	8.03
0.758	6.37	0.47	8.03
1.137	5.51	0.35	8.03
1.516	4.77	0.26	8.03
1.895	4.13	0.19	8.03
2.274	3.57	0.14	8.03
2.653	3.09	0.11	8.03
3.032	2.67	0.08	8.03
3.411	2.31	0.06	8.03
3.790	2.00	0.04	8.03

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20C	34443	GLADE 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)
4.900	Sutton MHP Inc.	PA0238601	0.013	CBOD5	25		
				NH3-N	3	6	
				Dissolved Oxygen			5

TRC_CALC

1A	B	C	D	E	F	G
2	**TRC EVALUATION**			**Enter Facility Name in E3**		
3	Input appropriate values in B4:B8 and E4:E7					
4	0.049	**= Q stream (cfs)**		**0.5**	**= CV Daily**	
5	0.0125	**= Q discharge (MGD)**		**0.5**	**= CV Hourly**	
6	30	**= no. samples**		**1**	**= AFC_Partial Mix Factor**	
7	0.3	**= Chlorine Demand of Stream**		**1**	**= CFC_Partial Mix Factor**	
8	0	**= Chlorine Demand of Discharge**		**15**	**= AFC_Criteria Compliance Time (min)**	
9	**0.4**	**= BAT/BPJ Value**		**720**	**= CFC_Criteria Compliance Time (min)**	
		= % Factor of Safety (FOS)			**=Decay Coefficient (K)**	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	**1.3.2.iii**	WLA afc = 0.827		**1.3.2.iii**	WLA cfc = 0.799
12	PENTOXSD TRG	**5.1a**	LTAMULT afc = 0.373		**5.1c**	LTAMULT cfc = 0.581
13	PENTOXSD TRG	**5.1b**	LTA_afc= 0.308		**5.1d**	LTA_cfc = 0.465
14						
15	Source		Effluent Limit Calculations			
16	PENTOXSD TRG	5.1f	AML MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.379		AFC	
18			INST MAX LIMIT (mg/l) = 1.241			

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)**