pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0087173**
Facility Type	**Non-Municipal**	APS ID	**278896**
Major / Minor	**Minor**	Authorization ID	**1456774**

Applicant and Facility Information

Applicant Name	**High Point Baptist Chapel**	Facility Name	**High Point Baptist WWTP**
Applicant Address	PO Box 188	Facility Address	PO Box 188
	Geigertown, PA 19523-0188		Geigertown, PA 19523-0188
Applicant Contact	Keith Sensenig	Facility Contact	Keith Sensenig
Applicant Phone	(610) 286-5942	Facility Phone	(610) 286-5942
Client ID	39989	Site ID	452760
Ch 94 Load Status	Not Overloaded	Municipality	Robeson Township
Connection Status	No Limitation	County	Berks
Date Application Received	October 3, 2023	EPA Waived?	Yes
Date Application Accepted	November 2, 2023	If No, Reason	
Purpose of Application	NPDES Renewal.		

Summary of Review

High Point Baptist Chapel has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on March 21, 2019 and became effective on April 1, 2019. The permit expired on March 31, 2024.

Based on the review outlined in this fact sheet, it is recommended that the permit be drafted.

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		*Jinsu Kim* Jinsu Kim / Environmental Engineering Specialist	May 30, 2024
X		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	June 13, 2024
X		Maria D. Bebenek Maria D. Bebenek, P.E. / Program Manager	June 13, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.0265
Latitude	40º 12' 22.28"	Longitude	-75º 51' 8.09"
Quad Name	Elverson	Quad Code	1739
Wastewater Description:	Sewage Effluent		
Receiving Waters	Hay Creek (CWF, MF)	Stream Code	01772
NHD Com ID	25972280	RMI	7.0
Drainage Area	6.28 sq.mi/	Yield (cfs/mi^2)	0.076
Q_{7-10} Flow (cfs)	0.479	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)		Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	HQ-CWF, MF
Existing Use	HQ-CWF(HIGH QUALITY-COLD WATER FISHES)	Existing Use Qualifier	Designated Class A Wild Trout
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Birdsboro Municipal Authority		
PWS Waters	Hay Creek	Flow at Intake (cfs)	
PWS RMI	0.6	Distance from Outfall (mi)	6.4

Drainage Area
The discharge is to Hay Creek at RMI 7.0. A drainage area upstream of the point of discharge is estimated to be 6.28 sq.mi., according to USGS StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow
USGS StreamStats produced a Q7-10 of 0.479 cfs at the point of discharge.

Hay Creek
A stream segment where the discharge is located at is designated as a high quality-cold water fishes and supports migratory fishes under 25 Pa Code §93.9f. This segment which is from the confluence with UNT 63882 of Hay Creek (flowing from Grace Mine Tailing Reservoir) to the confluence with UNT 62990 of Hay Creek is also protected as a high quality-cold water fishes existing uses and is a Class A Wild Trout fishery stream. There is potential for this facility to impact the Class A Wild Trout Fishery. All permit requirements will be developed to ensure that the water quality of this stream be maintained and protected. A draft permit package will be sent to PA Fish and Boat Commission (PFBC) for review and comments.

Based on DEP's 2024 integrated water quality report, the discharge is located within a stream segment listed as attaining use(s).

Public Water Supply Intake
The fact sheet prepared for the last permit renewal indicates that the nearest downstream public water supply intake is the Birdsboro Municipal Authority located on Hay Creek approximately 6.4 miles from the discharge. Based on the distance, the discharge is not expected to significantly impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: High Point Baptist Chapel				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Extended Aeration	Ultraviolet	0.0265
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.0265	53	Not Overloaded	Aerobic Digestion	Other WWTP

The permittee owns an on-site wastewater treatment facility treating sanitary wastewater generated from a church, school and seasonal campground located in Robeson Township, Berks County. With having an annual average design flow of 0.0265 MGD, the facility utilizes an extended aeration activated sludge treatment process including an influent pump station, manual bar screen, equalization tank, aeration tank, clarifier, UV disinfection unit and an outfall to Hay Creek.

Sludge generated from this facility is stored in a sludge holding tank prior to hauled off site via a local septic hauler to another WWTP for ultimate treatment/disposal.

Compliance History	
Summary of DMRs:	A summary of past 12-month DMR data is presented on the next page.
Summary of Inspections:	03/22/2022: DEP conducted a routine inspection and noted that no significant violations were found at the time of inspection.
Other Comments:	Since the last permit reissuance, the facility had two (2) effluent violations in 2021 related to pH and TSS. DEP's database shows that there is no open violation associated with this facility or permittee.

Effluent Data

DMR Data for Outfall 001 (from April 1, 2023 to March 31, 2024)

Parameter	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23
Flow (MGD) Average Monthly	0.0036	0.0039	0.0065	0.0050	0.0039	0.0042	0.0039	0.0052	0.0077	0.0062	0.0039	0.0041
Flow (MGD) Daily Maximum	0.0121	0.0093	0.0240	0.0142	0.0090	0.0083	0.0089	0.0137	0.0138	0.0118	0.0119	0.0078
pH (S.U.) Daily Minimum	6.9	6.9	6.1	6.9	6.7	6.7	6.3	6.6	7.2	6.9	6.1	6.9
pH (S.U.) Daily Maximum	8.1	8.1	7.9	8.1	8.0	8.0	8.1	8.3	8.3	8.0	7.7	7.8
DO (mg/L) Daily Minimum	9.2	8.2	8.4	9.0	9.1	7.9	6.7	6.4	6.0	5.7	6.8	8.0
CBOD5 (mg/L) Average Monthly	< 2.0	< 2.0	< 2.0	2.6	< 2.0	< 2.0	< 2.0	< 2.4	2.5	< 2.1	2.1	< 2.0
TSS (mg/L) Average Monthly	< 4.0	< 4.0	5.6	< 4.7	5.5	< 4.0	< 4.0	< 4.0	< 4.0	< 7.5	25	10.8
Fecal Coliform (No./100 ml) Geometric Mean	4	3	12	15	< 5	8	< 2	< 1	30	3	192	< 5
Fecal Coliform (No./100 ml) Instantaneous Maximum	5	11	15	18	24	16	4	1	93	4	196	28
UV Transmittance (%) Daily Minimum	70	70	70	80	80	80	80	80	80	90	80	80
Total Nitrogen (mg/L) Daily Maximum	17.7			71.6			27.3			56.6		
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.1	19.5	19.9	< 0.1	< 0.1	< 0.1
Total Phosphorus (mg/L) Daily Maximum	2.66			8.42			7.20			7.66		

Existing Effluent Limits and Monitoring Requirements

A table below summarizes effluent limits and monitoring requirements specified in the existing 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	Daily Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Daily Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	25.0	XXX	50	2/month	24-Hr Composite
Total Suspended Solids	XXX	XXX	XXX	30.0	XXX	60	2/month	24-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
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Calculation
Ammonia-Nitrogen	XXX	XXX	XXX	20.0	XXX	40	2/month	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .0265
Latitude 40º 12' 20.00" **Longitude** -75º 51' 8.00"
Wastewater Description: Sewage Effluent

The discharge is to Hay Creek which is a high quality stream protected as designated and existing uses. It is noteworthy that the discharge however has been occurred since late 90's, prior to the June 15, 2000 stream reclassification from cold water fishes to high quality-cold water fishes on Hay Creek. As a result, the discharge would not be subject to, unless additional or increase flows is proposed, non-discharge or antidegradation best available combination of technologies (ABACT) requirements.

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)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
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)

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. The model output indicates that existing effluent limits are still adequate.

Toxics
Sampling of toxic pollutants is not required by DEP's minor sewage permit application for facilities less than 0.1 MGD. Since the facility only treats sanitary wastewater, DEP determines that no reasonable potential analysis is necessary for toxic pollutants at this time.

Best Professional Judgment (BPJ) Limitations

Dissolved Oxygen
A minimum of 5.0 mg/L for D.O. is an existing effluent limit and will remain unchanged in the draft permit as recommended by DEP's SOP. This requirement has also been assigned to other major sewage facilities in the region. 5.0 mg/L is taken directly from 25 Pa. Code § 93.7(a) (i.e., water quality criteria for CWF waters) and it is also determined to be appropriate according to water quality modeling.

Additional Considerations

Chesapeake Bay Total Maximum Daily Load (TMDL)
The discharge is not located within the Chesapeake Bay watershed; therefore, no Chesapeake Bay TMDL has been taken into consideration at this time.

Delaware River Basin Commission
While the discharge is located in the Delaware River basin, the discharge is less than 0.05 MGD and is not located within the Special Protection Waters drainage area designated by DRBC. As a result, no DRBC approval is necessary for this discharge. However, under 25 Pa Code §92.12(b), the more stringent standards and limitations for pollutants of concern should be written in the NPDES permit if such requirements were established by any interstate agencies. Delaware River Basin Commission under 18 CFR§410, requires facilities in non-tidal waters not to exceed a 30-day average of 20 mg/L for ammonia-nitrogen which is more stringent than DEP's typical BPJ effluent limit of 25 mg/L. As a result, the effluent limit of 20 mg/L has been included in this permit and will continue to be included in the permit.

Ultraviolet Disinfection
It is DEP's current standard practice under the current Standard Operating Procedure (SOP) no. BPNPSM-PMT-033 to include a routine monitoring of UV output if the facility utilizes UV disinfection in lieu of chlorine. The existing UV output transmittance (%) will therefore be continued to be included in the permit.

Total Nitrogen and Total Phosphorus
DEP's SOP no. BPNPSM-PMT-033 recommends monitoring of TN and Total Phosphorus for all sewage discharges greater than 0.002 MGD. Accordingly, the requirement to monitor for TN and TP will remain unchanged in the permit.

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 an annual routine monitoring of E. Coli for all sewage facilities that have design flow less than 0.05 MGD but greater than 0.002 MGD. An annual monitoring for E. Coli will therefore be included in the permit.

Anti-Degradation Requirements
Pursuant to 25 Pa Code §93.4a(b) and (c), 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.

Anti-Backsliding Requirements
Unless stated otherwise in this fact sheet, all permit requirements proposed for the upcoming permit renewal have been developed at least as stringent as those specified in the existing permit.

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.

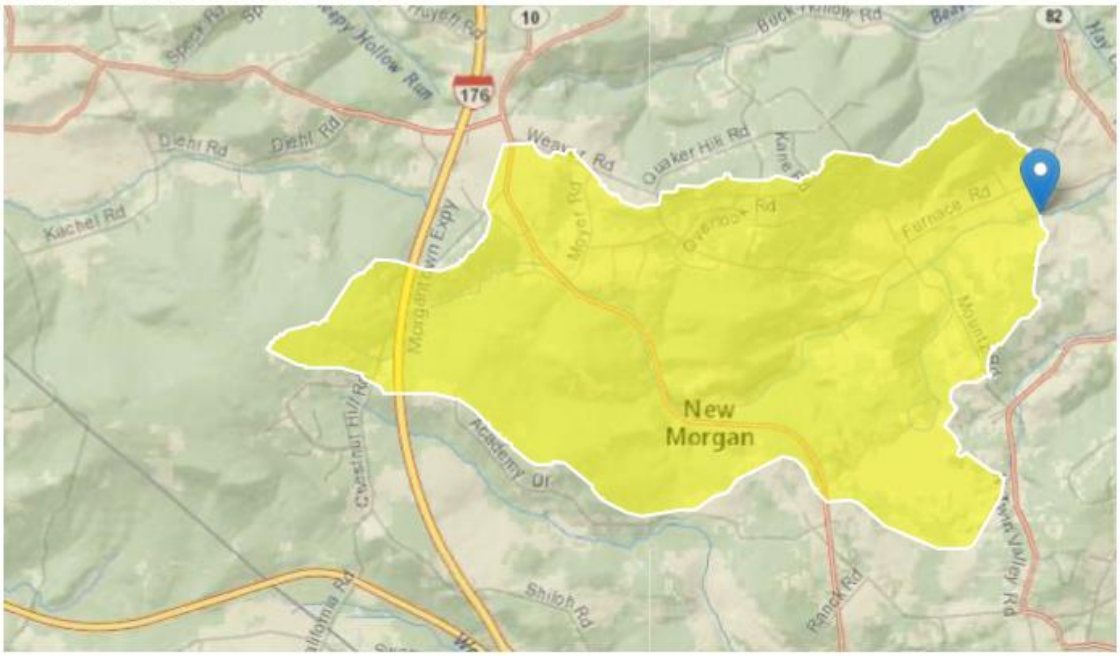
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Daily Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	24-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	24-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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Calculation
Ammonia	XXX	XXX	XXX	20.0	XXX	40	2/month	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite

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:

Attachments

StreamStats Report

Region ID: PA
Workspace ID: PA20240531001154462000
Clicked Point (Latitude, Longitude): 40.20626, -75.85218
Time: 2024-05-30 20:12:15 -0400



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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	5.8	degrees
DRNAREA	Area that drains to a point on a stream	6.28	square miles
ROCKDEP	Depth to rock	4.3	feet
URBAN	Percentage of basin with urban development	0	percent

General Disclaimers

Parameter values have been edited, computed flows may not apply.

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	6.28	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	5.8	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.3	feet	4.13	5.21
URBAN	Percent Urban	0	percent	0	89

Low-Flow Statistics Flow Report [Low Flow Region 1]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	1.07	ft^3/s	46	46
30 Day 2 Year Low Flow	1.41	ft^3/s	38	38
7 Day 10 Year Low Flow	0.479	ft^3/s	51	51
30 Day 10 Year Low Flow	0.655	ft^3/s	46	46
90 Day 10 Year Low Flow	0.988	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/)

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Application Version: 4.20.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20240531001557073000
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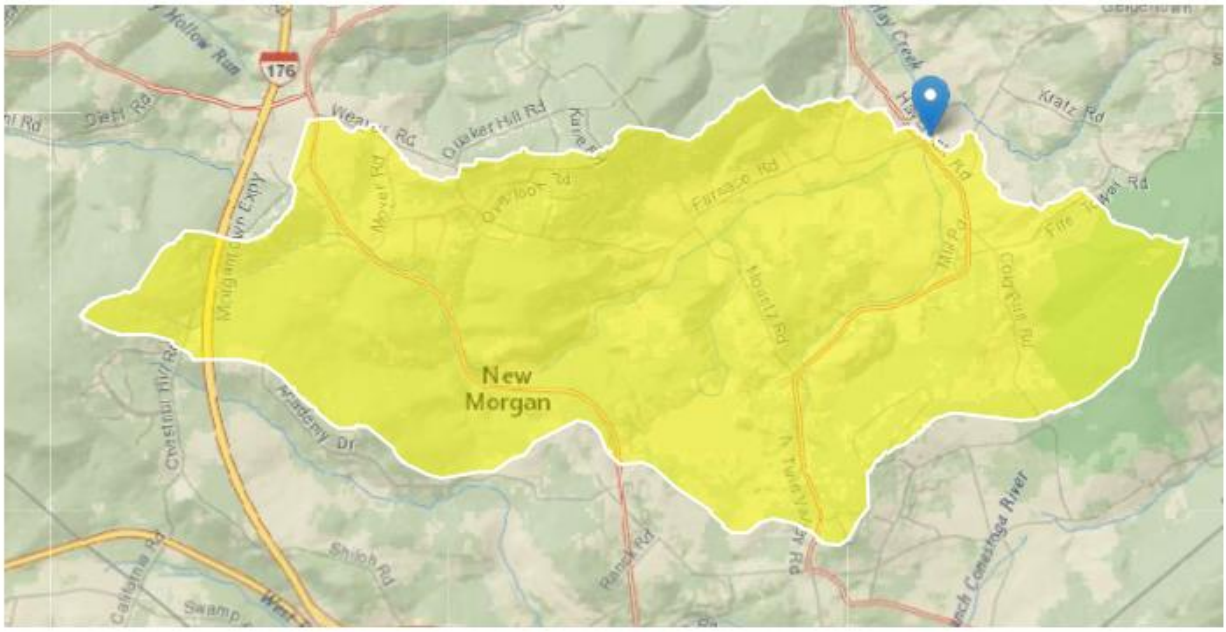

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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	5.5896	degrees
DRNAREA	Area that drains to a point on a stream	9.6	square miles
ROCKDEP	Depth to rock	4.6	feet
URBAN	Percentage of basin with urban development	1.3739	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	9.6	square miles	4.78	1150

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLOPD	Mean Basin Slope degrees	5.5896	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.6	feet	4.13	5.21
URBAN	Percent Urban	1.3739	percent	0	89

Low-Flow Statistics Flow Report [Low Flow Region 1]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	2.15	ft^3/s	46	46
30 Day 2 Year Low Flow	2.72	ft^3/s	38	38
7 Day 10 Year Low Flow	1.04	ft^3/s	51	51
30 Day 10 Year Low Flow	1.35	ft^3/s	46	46
90 Day 10 Year Low Flow	1.96	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: 4.20.1
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
03C	1772	HAY CREEK	**7.000**	358.00	6.28	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	0.48	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
Highpoint STP	PA0087173	0.0265	0.0265	0.0265	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03C	1772	HAY CREEK	**6.100**	348.00	9.56	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	1.03	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	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 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 D.O.Simulation

SWP Basin	Stream Code	Stream Name
03C	1772	HAY CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
7.000	0.027	20.394	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
12.154	0.473	25.707	0.090
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.81	0.606	1.97	0.722
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.987	17.512	Owens	5
Reach Travel Time (days)			
0.608			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.061	3.67	1.89	8.18
0.122	3.54	1.81	8.18
0.182	3.41	1.73	8.18
0.243	3.28	1.65	8.18
0.304	3.16	1.58	8.18
0.365	3.05	1.51	8.18
0.425	2.93	1.45	8.18
0.486	2.83	1.39	8.18
0.547	2.72	1.33	8.18
0.608	2.62	1.27	8.18

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
03C	1772	HAY CREEK

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												
7.000	0.48	0.00	0.48	.041	0.00210	.473	12.15	25.71	0.09	0.608	20.39	7.00
Q1-10 Flow												
7.000	0.31	0.00	0.31	.041	0.00210	NA	NA	NA	0.07	0.762	20.59	7.00
Q30-10 Flow												
7.000	0.65	0.00	0.65	.041	0.00210	NA	NA	NA	0.11	0.518	20.30	7.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
03C	1772	HAY CREEK

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
7.000	Highpoint STP	15.96	50	15.96	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
7.000	Highpoint STP	1.85	25	1.85	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)		
7.00	Highpoint STP	25	25	25	25	5	5	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
03C	1772	HAY CREEK

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)
7.000	Highpoint STP	PA0087173	0.026	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5