pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0084751**
Facility Type	**Non-Municipal**	APS ID	**278344**
Major / Minor	**Minor**	Authorization ID	**1456074**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Doubling Gap Center Inc.**	Facility Name	**Doubling Gap Convention Center**
Applicant Address	1550 Doubling Gap Road	Facility Address	1550 Doubling Gap Road
	Newville, PA 17241-9758		Newville, PA 17241-9758
Applicant Contact	Ryan Long	Facility Contact	Stephen Long
Applicant Phone	(717) 776-5281	Facility Phone	(717) 776-5281
Client ID	1008	Site ID	445098
Ch 94 Load Status	Not Overloaded	Municipality	Lower Mifflin Township
Connection Status	No Limitations	County	Cumberland
Date Application Received	September 27, 2023	EPA Waived?	Yes
Date Application Accepted	October 25, 2023	If No, Reason	
Purpose of Application	NPDES Renewal.		

Summary of Review

Doubling Gap Center Inc. (Doubling Gap) 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, 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 28, 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)	.025
Latitude	40º 16' 31.78"	Longitude	-77º 25' 24.25"
Quad Name	Andersonburg	Quad Code	1626
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Doubling Gap Creek (HQ-CWF)	Stream Code	10385
NHD Com ID	56405353	RMI	6.14
Drainage Area	4.17 sq.mi.	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	USGS Gage no. 01570000
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-B	Chapter 93 Class.	HQ-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		Name	
Nearest Downstream Public Water Supply Intake	Carlisle Borough in North Middleton Township		
PWS Waters	Conodoguinet Creek	Flow at Intake (cfs)	48
PWS RMI	35.95	Distance from Outfall (mi)	28.3

Drainage Area
The discharge is to Doubling Gap Creek at RMI 6.14. A drainage area upstream of the point of discharge is estimated to be 4.17 sq. mi according to USGS StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow
The stream flows measured at USGS gage station no. 01570000 on Conodoguinet Creek near Hogestown have been used to calculate the Q7-10 flow at the point of discharge as follows:

Low Flow Yield = $Q7\text{-}10_{gage}$ / $Drainage\ Area_{gage}$ = 69.3 cfs / 470 sq.mi = 0.147 cfs/sq.mi
$Q7\text{-}10_{site}$ = Low Flow Yield * $Drainage\ Area_{site}$ = 0.147 cfs/sq.mi. * 4.17 sq.mi. = 0.613 cfs
Q1-10/Q7-10 = 63.1 cfs / 69.3cfs = 0.91:1
Q30-10/Q7-10 = 78.3 cfs 69.3 cfs = 1.13:1

Doubling Gap Creek
25 PA Code § 93.9o classifies Doubling Gap Creek (basin, Source to PA 944) as a high quality-cold water fishes surface water (HQ-CWF). DEP's 2024 integrated water quality report indicates that the discharge is located within a stream segment listed as attaining use(s).

Public Water Supply Intake
The nearest public water supply intake is operated by Carlisle Borough, located on Conodoguinet Creek approximately 28.3 miles from the discharge. Given its distance, the discharge is not expected to impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: Doubling Gap Center				
WQM Permit No.	**Issuance Date**			
2191406	4/8/1992			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Phosphorus Reduction	Extended Aeration	Ultraviolet	0.025
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.025	N/A	Not Overloaded	Aerobic Digestion	Other WWTP

Doubling Gap currently owns and operates an on-site sanitary wastewater treatment facility to serve church camp/retreat facility housing 300 residents. The treatment facility utilizes an extended aeration activated sludge process designed for 0.025 MGD. The process includes a comminutor/bar screen, flow equalization tank, aeration tanks (2), clarifier, UV disinfection, rapid sand filters, and outfall to Doubling Gap Creek. Alum is used for phosphorus control and a sludge holding tank is available for sludge. Sludge is hauled off site via a local hauler to another treatment facility for ultimate disposal.

Compliance History	
Summary of DMRs:	A summary of past 12-month DMR is shown on the next page.
Summary of Inspections:	March 9, 2020 – DEP conducted a routine inspection and noted that no violations were identified at the time of inspection. DEP made recommendations related to proper record keeping practices.
Other Comments:	Since last permit reissuance, the facility has two (2) effluent violations associated with NH3-N in 2019 and two (2) permit violations associated with late DMR submission in 2021 and 2022. DEP's database shows that there are two (2) open violations associated with this facility or permittee. These violations were identified by DEP SCRO Safe Drinking Water Program in April 2024. A draft permit cover letter will indicate that the permit may not be issued until all open violations are resolved.

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	0.0015	0.0015	0.0017	0.0015	0.0018	0.0022	0.0024	0.0033	0.0049	0.0049	0.0028	0.002
Flow (MGD) Daily Maximum	0.0039	0.0041	0.0047	0.0053	0.0062	0.0073	0.007	0.0057	0.0077	0.0083	0.007	0.0063
pH (S.U.) Daily Minimum	6.5	6.4	6.3	6.8	6.8	6.7	6.2	6.5	6.6	6.5	6.5	6.4
pH (S.U.) Daily Maximum	7.6	7.1	7.4	7.7	7.6	7.8	7.6	7.7	7.7	7.6	7.2	7.3
DO (mg/L) Daily Minimum	7.7	8.0	8.5	8.5	8.3	7.8	7.2	6.7	7.1	7.8	8.4	7.2
CBOD5 (mg/L) Average Monthly	< 2	< 2	< 2	< 2	< 2	3	< 2	< 2	< 2	< 2	< 2	< 2
CBOD5 (mg/L) Instantaneous Maximum	< 2	2.65	2.93	< 2	2.34	3.13	< 2	< 2	< 2	< 2	< 2	< 2
TSS (mg/L) Average Monthly	1	< 1	< 1	3	3	3	2	2	3	2	2	2
TSS (mg/L) Instantaneous Maximum	1	< 1	1	3	4	3.5	2	2.5	2.5	2.5	3	2.5
Fecal Coliform (No./100 ml) Geometric Mean	< 1	< 1	< 1	< 1	< 2	< 3	< 1	< 1	< 1	10	< 4	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1	< 1	< 1	< 1	4	7	< 1	< 1	< 1	53	18	< 1
UV Transmittance (%) Daily Minimum	46	52	55	48	65	54	60	50	56	62	61	52
Total Nitrogen (lbs/day) Annual Average				< 0.08								
Total Nitrogen (mg/L) Annual Average				< 48.66								
Ammonia (mg/L) Average Monthly	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.9	< 2.1
Ammonia (mg/L) Instantaneous Maximum	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	1.23	3.7

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
Total Phosphorus (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	0.1	< 0.1	0.2	0.2	0.3	0.3	0.2	< 0.1	< 0.1
Total Phosphorus (mg/L) Instantaneous Maximum	0.085	0.207	< 0.05	0.145	0.229	0.196	0.357	0.46	0.298	0.235	0.082	< 0.05

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	Daily Maximum	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	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	XXX	50	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	30	XXX	60	2/month	Grab
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	Metered
Total Nitrogen	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18.0	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6.0	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	1.0	XXX	2.0	2/month	8-Hr Composite

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .025
Latitude 40º 16' 31.79" **Longitude** -77º 25' 24.25"
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)

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 showed that existing effluent limits are still adequate and protective of water quality.

Toxics
DEP's minor sewage facility permit application does not require sampling of toxic pollutants. Further, the facility only treats sanitary wastewater generated from the church camp. No toxic pollutants have therefore been taken into consideration as pollutants of concern at this time.

Best Professional Judgment (BPJ) Limitations

Total Phosphorus
The current permit contains an average monthly total phosphorus limit of 1.0 mg/L for the growing season (i.e., April through October). This is based on the phosphorus loading from point and nonpoint sources for Conodoguinet Creek. The study showed that the discharge from this facility contributes 0.87% of the total phosphorus loading to Conodoguinet Creek during the growing season. Since the phosphorus loading from the facility exceeded 0.25%, seasonal limits were required (See attached 1996 water quality report for more information). 25 Pa Code §96.5 (c) recommends 2.0 mg/L and because of EPA's anti-backsliding policy, existing limits will remain in the permit.

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

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.

Ultraviolet Disinfection
Since UV is used for disinfection, a routine monitoring of UV transmittance will continue to be included in the permit.

Chesapeake Bay Total Maximum Daily Load (TMDL)
This facility, according to DEP's Chesapeake Bay TMDL Phase II Watershed Implementation Plan (WIP) Wastewater Supplement, is considered a phase 5 sewage facility with an annual average design flow less than 0.40 MGD but greater than 0.002 MGD. During the last permit term, the facility has performed annual monitoring of Total Nitrogen (TN). 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 will remain unchanged in the permit.

Monitoring Frequency and Sample Type
All existing monitoring frequencies and sample types will remain unchanged in the permit.

Anti-Degradation 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.

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.

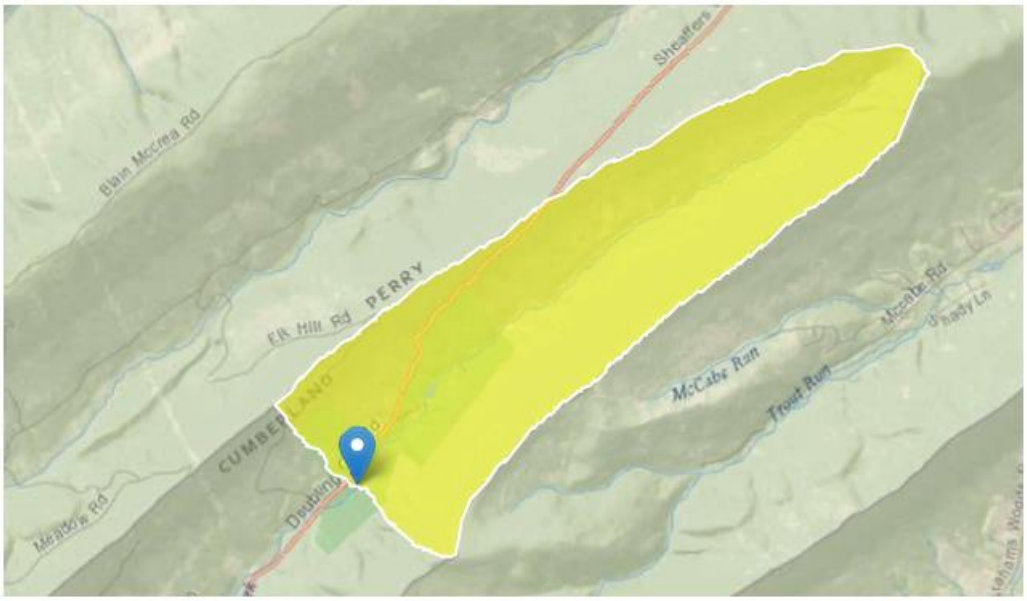
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Daily Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	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	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	2/month	Grab
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
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered
Total Nitrogen	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18.0	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6.0	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	1.0	XXX	2.0	2/month	8-Hr Composite
E. Coli (No. / 100 mL)	XXX	XXX	XXX	XXX	XXX	Report	1/year	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:

Attachments

StreamStats Report

Region ID: PA
Workspace ID: PA20240529010624090000
Clicked Point (Latitude, Longitude): 40.27517, -77.42289
Time: 2024-05-28 21:06:45 -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	4.17	square miles
PRECIP	Mean Annual Precipitation	40	inches
ROCKDEP	Depth to rock	4	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.13	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	4.17	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
STRDEN	Stream Density	1.13	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

Low-Flow Statistics Disclaimers [Low Flow Region 2]

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 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.432	ft^3/s
30 Day 2 Year Low Flow	0.617	ft^3/s
7 Day 10 Year Low Flow	0.168	ft^3/s
30 Day 10 Year Low Flow	0.247	ft^3/s
90 Day 10 Year Low Flow	0.447	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/)

shall the act of distribution constitute any such warranty.

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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
07B	10385	DOUBLING GAP CREEK	**6.140**	580.00	4.17	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	0.613	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
Doubling Gap	PA00847510	0.0250	0.0250	0.0250	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
07B	10385	DOUBLING GAP CREEK	**3.290**	550.00	12.43	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	0.613	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	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 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07B	10385	DOUBLING GAP CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
6.140	0.025	20.075	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
18.124	0.590	30.700	0.243
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.34	0.154	0.04	0.704
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.195	4.602	Tsivoglou	5
Reach Travel Time (days)			
0.718			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.072	2.32	0.04	8.23
0.144	2.29	0.04	8.23
0.215	2.27	0.04	8.23
0.287	2.24	0.04	8.23
0.359	2.22	0.03	8.23
0.431	2.19	0.03	8.23
0.503	2.17	0.03	8.23
0.575	2.14	0.03	8.23
0.646	2.12	0.03	8.23
0.718	2.10	0.03	8.23

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07B	10385	DOUBLING GAP 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												
6.140	2.56	0.00	2.56	.0387	0.00199	.59	18.12	30.7	0.24	0.718	20.07	7.00
Q1-10 Flow												
6.140	2.33	0.00	2.33	.0387	0.00199	NA	NA	NA	0.23	0.756	20.08	7.00
Q30-10 Flow												
6.140	2.89	0.00	2.89	.0387	0.00199	NA	NA	NA	0.26	0.671	20.07	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	0.91	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.13	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
07B	10385	DOUBLING GAP 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
6.140	Doubling Gap	16.65	6	16.65	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
6.140	Doubling Gap	1.88	3	1.88	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)		
6.14	Doubling Gap	25	25	3	3	5	5	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07B	10385	DOUBLING GAP 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)
6.140	Doubling Gap	PA00847510	0.025	CBOD5	25		
				NH3-N	3	6	
				Dissolved Oxygen			5