pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**New**	Application No.	**PA0285285**
Facility Type	**Municipal**	APS ID	**1106796**
Major / Minor	**Minor**	Authorization ID	**1471935**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Donegal Township Westmoreland County**	Facility Name	**Donegal Township WWTP**
Applicant Address	137 Hoffers Lane	Facility Address	500 Kings Way
	Jones Mills, PA 15646-1117		Donegal, PA 15628-4066
Applicant Contact	Thomas Stull	Facility Contact	
Applicant Phone	(724) 593-6309	Facility Phone	
Client ID	85921	Site ID	870493
Ch 94 Load Status	N/A	Municipality	Donegal Township
Connection Status		County	Westmoreland
Date Application Received	February 2, 2024	EPA Waived?	Yes
Date Application Accepted	February 6, 2024	If No, Reason	

Purpose of Application: Request approval for discharge of treated sewage from a proposed sewage treatment plant.

Summary of Review

Donegal Township has applied for a new NPDES Permit, No. PA0285285, to discharge treated sewage from a proposed sewage treatment plant. The construction of the facility is being reviewed by DEP under WQM Permit No. 6524400.

This facility provides advanced sewage treatment via a parallel Sequencing Batch Reactor (SBR) process, with UV disinfection.

Act 537 Planning was approved on September 11, 2023 filed under the DEP Code No. 65930-23-537.

Acts 14, 67, 68, and 127 Notifications were provided to Westmoreland County on September 20, 2023 and to Donegal Township on October 3, 2023.

Sludge use and disposal description and location(s): Hauled to landfill.

This is a new proposed discharge to Minnow Run, a Cold-Water Fishery. Effluent limitations were developed according to the procedures outlined in the SOP for New and Reissuance Sewage Individual NPDES Permit Applications. (DEP Document No. BCW-PMT-002, Revised February 2, 2022.).

Issuance of the Draft Permit is recommended.

Approve	Deny	Signatures	Date
X		John Price Jack Price / Environmental Engineering Specialist	March 18, 2024
X		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E., / Environmental Engineer Manager	April 5, 2024

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

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.11
Latitude	40º 5' 56.08"	Longitude	-79º 22' 38.77"
Quad Name	Donegal	Quad Code	40079A4
Wastewater Description:	Sewage Effluent		

Receiving Waters	Minnow Run (CWF)	Stream Code	38363
NHD Com ID	69914869	RMI	1.41
Drainage Area	0.80	Yield (cfs/mi^2)	0.0098
Q_{7-10} Flow (cfs)	0.0078	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1646.34	Slope (ft/ft)	0.015
Watershed No.	19-E	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	**None**	Name	**None**

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

Nearest Downstream Public Water Supply Intake	Indian Creek Valley Water Auth, 5260011 (0.400 MGD)		
PWS Waters	Indian Creek	Flow at Intake (cfs)	3.59 (USGS StreamStats)
PWS RMI	4.98	Distance from Outfall (mi)	9.1 Linear Miles 17.02 River Miles

Changes Since Last Permit Issuance: N/A. This is a new facility.

Other Comments: N/A

Treatment Facility Summary

Treatment Facility Name: Donegal Township WWTP

WQM Permit No.	Issuance Date
6524400	Pending

This proposed facility consists of the following:

- Raw influent screening/grinder pump station
- Magnesium hydroxide for pH adjustment
- Two parallel Sequencing Batch Reactors
- Post-SBR Equalization
- UV-Disinfection prior to discharge.

There are also the following proposed processes for sludge treatment:

- Aerobic digestor for sludge treatment
- Polymer to aid sludge settlement
- Belt filter press for sludge dewatering prior to landfill disposal

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Advanced	SBR	Ultraviolet	0.11

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.22	183.4	N/A	Aerobic Digestor	Landfilled

Changes Since Last Permit Issuance: N/A. This is a new facility.

Other Comments: The proposed facility is under review by DEP under WQM Permit 6524400.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.11
Latitude 40º 5' 56.00" **Longitude** -79º 22' 39.00"
Wastewater Description: Treated Sewage Effluent

Technology-Based Limitations

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	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)

Comments: The above table lists the applicable TBELs that represent the minimum pollutant limitations. The proposed discharge was evaluated using WQM 7.0 to evaluate CBOD5, Ammonia-Nitrogen, and Dissolved Oxygen Parameters to determine whether the TBELs are sufficient.

The Water Quality-Based Limitations (WQBELs) section below contains more details about the models. The more stringent of either TBELs or WQBELs are selected as the effluent limitations in the “Proposed Effluent Limitations and Monitoring Requirements” section.

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
Ammonia-Nitrogen (May 1 to Oct 31)	2.0	Average Monthly	WQM 7.0 Version 1.1
Ammonia-Nitrogen (Nov 1 to Apr 30)	3.0	Average Monthly	WQM 7.0 Version 1.1
Dissolved Oxygen	5 (min)	Average Monthly	WQM 7.0 Version 1.1

Comments: WQBELs were determined using USGS StreamStats as the basis for Q7-10 flow, reach slope, and basin drainage area. The USGS StreamStats reports are included in Attachments 1 and 2.

The Water Quality Model 7.0 Reports, included in Attachments 3 and 4, support the TBELs for CBOD5, and recommend the above-listed limits for Ammonia-Nitrogen and Dissolved Oxygen. The Dissolved Oxygen goal is derived from 25 PA 93.7 Table 3.

Best Professional Judgment (BPJ) Limitations

Comments: N/A

Flow Limitations

The facility is a Publicly Owned Treatment Works (POTW) and subject to flow limitations based on maximum monthly average flow. The hydraulic capacity of the plant is selected as the maximum monthly flow rate for the facility. The maximum monthly flow rate for the facility is 0.22 mgd.

(Chapter 2.B.1.b. and Chapter 5.B.1 – Permit Writer's Manual, DEP Document No. 386-0400-001 Revised June 28, 2023*)*

Anti-Backsliding

N/A. This is a new Facility.

Industrial Users

There are no industrial or commercial users that will connect to this proposed facility.

Disinfection

Ultraviolet (UV) disinfection is used, therefore, Total Residual Chlorine (TRC) limits are not applicable. Routine monitoring of UV Dosage is applied at the same monitoring frequency that is used for TRC.

Documentation submitted with the WQM permit application states a minimum UV Dosage of 30 mJ/cm^2 will be provided at all times. The equipment uses an intensity setpoint approach to measure the effective UV dose. The intensity setpoint approach accounts for transmittance, with the Programmable Logic Controller reporting the applied dose. The applied dose is determined by equations or lookup tables developed through validation testing, including a bioassay to verify the inactivation of microorganisms. The UV dosage is monitored in real time, with data relayed to the SCADA system for the facility. The proposed SBR process produces an effluent quality sufficient to enable effective UV Disinfection.

Section 104 of the Ten States Standards, 2014 Edition contains recommended standards for ultraviolet disinfection. The section recommends high quality effluent and a dose of 30 mJ/cm^2. Section 105 of the Domestic Wastewater Facility Manual recommends high quality effluent and verification of UV Transmittance.

A monitoring requirement for Instantaneous Minimum UV dose will be established.

(*Section I.A, Note 4, SOP for Clean Water Program, Establishing Effluent Limitations for Individual Sewage Permits, Final November 9, 2012, Revised March 24, 2021, Version 1.9* and *25 PA Code 92a.61(b)*.)

Mass Loadings

Mass loading limits are applicable for publicly owned treatment works. Current policy requires average monthly mass loading limits be established for $CBOD_5$, TSS, and NH_3-N and average weekly mass loading limits be established for $CBOD_5$ and TSS.

Average monthly mass loading limits (lbs./day) are based on the formula: design flow (MGD) x concentration limit (mg/L) x conversion factor (8.34).

(*Section IV, SOP for Clean Water Program, Establishing Effluent Limitations for Individual Sewage Permits, Final November 9, 2012, Revised March 24, 2021, Version 1.9*)

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. BOD5 and TSS influent loads will once again be reported for monthly average and daily maximum values in lbs/day and monthly average concentrations in mg/L.

(Section *IV.E.8. SOP – New and Reissuance Individual Sewage NPDES Permits Final November 9, 2012, Revised February 3, 2022, Version 2.0.)*

Additional Considerations

Nutrient monitoring is required by the SOP for Effluent Limitations for Individual Sewage Permits. Monitoring is included 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). Minnow Run is not listed as impaired for nutrients, therefore at the discretion of the application manager, a monitoring frequency less than the equivalent of conventional pollutants in Table 6-3 of the Permit Writer's Manual may be selected.

(*Section I.A, Note 7 & 8, SOP for Clean Water Program, Establishing Effluent Limitations for Individual Sewage Permits, Final November 9, 2012, Revised March 24, 2021, Version 1.9* and *25 PA Code 92a.61(b)*.)

Sewage discharges will include monitoring, at a minimum, for *E. Coli*, in new and reissued permits, with a monitoring frequency of 1/quarter for design flows between 0.05 and 1.0 MGD.

(*Note 12 SOP-Establishing Effluent Limitations for Individual Sewage Permits Final November 9, 2012, Revised March 24, 2021, Version 1.9.* and *25 PA Code 92a.61(b).)*

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers.

Table 6-3 – Self-Monitoring Requirements for SEWAGE Discharges

Plant Design Flow (MGD)	Flow Monitoring	C-BOD_5 or BOD_5	Suspended Solids	pH	Fecal Coliform	Chlorine Residual	NH_3-N	Phosphorus	DO	Toxics
Single Residence *(Individual Permit)*	2/year by estimate	2/year*	2/year*	1/mont h*	2/year*	1/month*	2/year*	2/year*	2/year*	N/A
.0005 to .002	weekly, using average pump rate or weir (a)	1/month*	1/month*	daily*	1/month*	daily*	1/month*	1/month*	daily*	N/A
.002 to .01	weekly, using average pump rate or weir (a)	2/month*	2/month*	daily*	2/month*	daily*	2/month*	2/month*	daily*	N/A
0.01 to 0.1	weekly, using average pump rate or weir (a)	2/month*	2/month*	daily*	2/month*	daily*	2/month*	2/month*	Daily*	1/week*
0.1 to 1.0	meter	1/week**	1/week**	daily*	1/week*	daily*	1/week**	1/week**	daily*	1/week****
1.0 to 5.0	meter	2/week***	2/week***	daily*	2/week*	daily*	2/week***	2/week***	daily*	1/week****
5.0 to 25.0	meter	daily***	daily***	daily*	daily*	1/shift*	daily***	daily***	daily*	1/week****
over 25.0	meter	daily***	daily***	1/shift*	daily*	1/shift*	1/shift***	1/shift***	1/shift*	1/week****

* Grab sample-these should be most representative of the effluent and are to be taken at a time when the normal daily maximum flow would reach the sampling point.

** 8-hour composite sample.

*** 24-hour composite sample.

**** Same sample type as for Industrial Process Wastewater (See Table 6-4).

(Department Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits, Updated June 28, 2023 (Document No. 362-0400-001))

Section 2.C of the Permit Writers Manual contains the procedure for converting average monthly effluent limitations to average weekly, maximum daily, and instantaneous maximum effluent limitations. The multiplier for converting monthly average concentration to an average weekly or instantaneous maximum value is determined from the following chart:

Discharge Solution	Parameters	Average Weekly	Maximum Daily	Instantaneous Maximum Multiplier
Sewage	All	1.5		2.0
Industrial	All		2.0	2.5*

* The higher multiplier to be used for industrial dischargers is intended to reflect the greater degree of variability of both influent and effluent quality generally associated with those types of discharges. It will also avoid potential conflict with the use of a "daily maximum" multiplier of 2.0 for industrial discharges.

(Department Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits, Updated June 28, 2023 (Document No. 362-0400-001))

Rounding-Off Mathematical Values. Section 5 C.2. of the Permit Writers Manual contains general guidelines for rounding conventional and toxic pollutants, with instructions to round down to the nearest decimal place indicated.

General Magnitude	Conventional Pollutants	Toxic Pollutants
<0.01	to nearest 0.001	to nearest 0.001
0.01 - 0.1	to nearest 0.01	to nearest 0.01
0.1 - 1.0	to nearest 0.1	to nearest 0.01
1.0 - 10.0	to nearest 0.5	to nearest 0.01
10.0 - 60.0	to nearest 1.0	to nearest 0.01
60.0 or greater	to nearest 5.0	to nearest 0.10

(Department Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits, Updated June 28, 2023 (Document No. 362-0400-001))

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	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	0.22	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5	22.0	36.0	XXX	25.0	40.0	50	1/week	8-Hr Composite
CBOD5 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	27.0	41.0	XXX	30.0	45.0	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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	2.5	XXX	XXX	3.0	XXX	6	1/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	1.5	XXX	XXX	2.0	XXX	4	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

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	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
UV Dosage (mjoules/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded

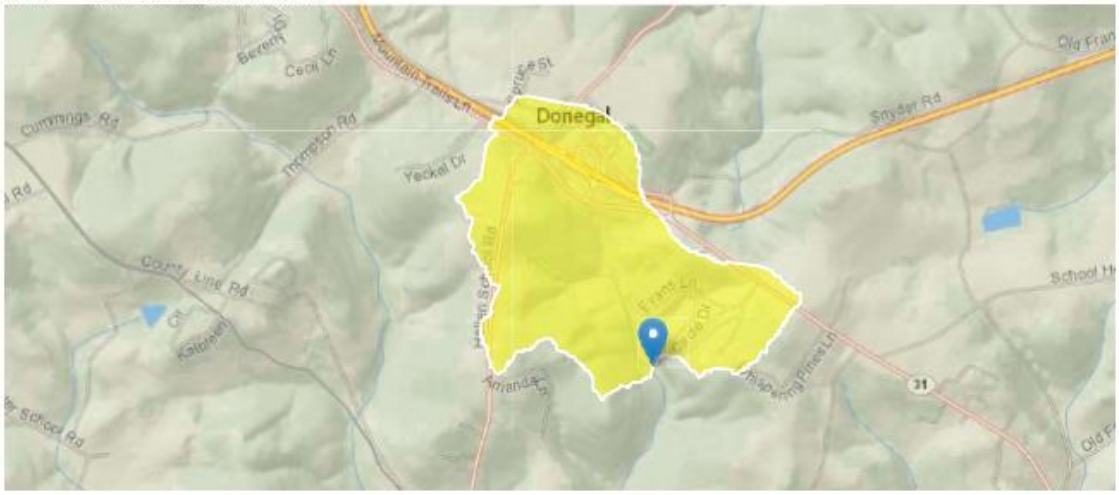
Compliance Sampling Location: Outfall 001

Other Comments: N/A

Attachment 1: USGS StreamStats Upstream Report

PA0285285 StreamStats Report Upstream

Region ID: PA
Workspace ID: PA20240315140333255000
Clicked Point (Latitude, Longitude): 40.09889, -79.37727
Time: 2024-03-15 10:03:54 -0400



Outlet Elevation: 1646.34

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.8	square miles
ELEV	Mean Basin Elevation	1796	feet
OUTLETXA83	X coordinate of the outlet, in NAD_1983_Albers,meters	-117437.01	meters
OUTLETYA83	Y coordinate of the outlet, in NAD_1983_Albers, meters	122907.2582	meters

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.8	square miles	2.26	1400
ELEV	Mean Basin Elevation	1796	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	0.0305	ft^3/s
30 Day 2 Year Low Flow	0.0609	ft^3/s
7 Day 10 Year Low Flow	0.00782	ft^3/s
30 Day 10 Year Low Flow	0.0177	ft^3/s
90 Day 10 Year Low Flow	0.0401	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: 4.19.4
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment 2: USGS StreamStats Downstream Report

PA0285285 StreamStats Report Downstream

Region ID: PA
Workspace ID: PA20240315141327611000
Clicked Point (Latitude, Longitude): 40.09414, -79.37809
Time: 2024-03-15 10:13:48 -0400

Outlet Elevation: 1619.21

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1	square miles
ELEV	Mean Basin Elevation	1794	feet
OUTLETXA83	X coordinate of the outlet, in NAD_1983_Albers,meters	-117508.4956	meters
OUTLETYA83	Y coordinate of the outlet, in NAD_1983_Albers, meters	122385.8995	meters

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1	square miles	2.26	1400
ELEV	Mean Basin Elevation	1794	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	0.0393	ft^3/s
30 Day 2 Year Low Flow	0.0776	ft^3/s
7 Day 10 Year Low Flow	0.0103	ft^3/s
30 Day 10 Year Low Flow	0.0229	ft^3/s
90 Day 10 Year Low Flow	0.0513	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: 4.19.4
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment 3: WQM 7.0 Report-Summer

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
19E	38363	MINNOW RUN	**1.410**	1646.34	0.80	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	0.010	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
Donegal TwpWWTP	PA0285285	0.1100	0.0000	0.0000	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	9.01	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
19E	38363	MINNOW RUN	**1.030**	1619.21	0.80	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	0.010	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

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 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
19E	38363	MINNOW 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												
1.410	0.01	0.00	0.01	.1702	0.01352	.442	4.42	10	0.09	0.255	20.00	7.00
Q1-10 Flow												
1.410	0.01	0.00	0.01	.1702	0.01352	NA	NA	NA	0.09	0.257	20.00	7.00
Q30-10 Flow												
1.410	0.01	0.00	0.01	.1702	0.01352	NA	NA	NA	0.09	0.253	20.00	7.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19E	38363	MINNOW 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
1.410	Donegal TwpWW	9.67	9.96	9.67	9.96	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
1.410	Donegal TwpWW	1.92	2.04	1.92	2.04	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)		
1.41	Donegal TwpWWTP	25	25	2.04	2.04	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19E	38363	MINNOW RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.410	0.110	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
4.419	0.442	10.000	0.091
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
23.99	1.493	1.95	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.176	19.759	Owens	5
Reach Travel Time (days)			
0.255			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.025	23.09	1.91	5.57
0.051	22.23	1.88	5.86
0.076	21.40	1.85	6.07
0.102	20.60	1.81	6.23
0.127	19.83	1.78	6.37
0.153	19.09	1.75	6.49
0.178	18.38	1.72	6.60
0.204	17.70	1.69	6.69
0.229	17.03	1.66	6.78
0.255	16.40	1.63	6.87

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19E	38363	MINNOW 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)
1.410	Donegal TwpWWTP	PA0285285	0.110	CBOD5	25		
				NH3-N	2.04	4.08	
				Dissolved Oxygen			5

Attachment 4: WQM 7.0 Report-Winter

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
19E	38363	MINNOW RUN	**1.410**	1646.34	0.80	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	0.020	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Donegal TwpWWTP	PA0285285	0.1100	0.0000	0.0000	0.000	15.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	12.51	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
19E	38363	MINNOW RUN	**1.030**	1619.21	0.80	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	0.020	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

SWP Basin	Stream Code	Stream Name
19E	38363	MINNOW 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												
1.410	0.02	0.00	0.02	.1702	0.01352	.446	4.46	10	0.09	0.249	14.16	7.00
Q1-10 Flow												
1.410	0.01	0.00	0.01	.1702	0.01352	NA	NA	NA	0.09	0.253	14.44	7.00
Q30-10 Flow												
1.410	0.02	0.00	0.02	.1702	0.01352	NA	NA	NA	0.09	0.245	13.89	7.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19E	38363	MINNOW 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
1.410	Donegal TwpWW	14.62	15.48	14.62	15.48	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
1.410	Donegal TwpWW	3.02	3.4	3.02	3.4	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)		
1.41	Donegal TwpWWTP	25	25	3.4	3.4	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19E	38363	MINNOW RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.410	0.110	14.158	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
4.461	0.446	10.000	0.093
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
23.06	1.487	3.11	0.447
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.632	17.179	Owens	5
Reach Travel Time (days)			
0.249			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.025	22.42	3.08	6.34
0.050	21.79	3.05	6.82
0.075	21.19	3.01	7.16
0.099	20.60	2.98	7.40
0.124	20.02	2.95	7.58
0.149	19.46	2.91	7.72
0.174	18.92	2.88	7.83
0.199	18.39	2.85	7.92
0.224	17.88	2.82	8.00
0.249	17.38	2.79	8.07

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19E	38363	MINNOW 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)
1.410	Donegal TwpWWTP	PA0285285	0.110	CBOD5	25		
				NH3-N	3.4	6.8	
				Dissolved Oxygen			5