pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0219215**
Facility Type	**Municipal**	APS ID	**856521**
Major / Minor	**Minor**	Authorization ID	**1300611**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Donegal Township**	Facility Name	**Donegal Township STP**
Applicant Address	34 North Liberty Street, P.O. Box 310	Facility Address	50 Depot Street
	West Alexander, PA 15376-0310		West Alexander, PA 15376
Applicant Contact	Judith Taylor	Facility Contact	John Foris (Chief Operator)
Applicant Phone	(724) 484-4017	Facility Phone	(412) 445-9145
Client ID	57859	Site ID	537069
Ch 94 Load Status	Not Overloaded	Municipality	West Alexander Borough
Connection Status	No Limitations	County	Washington
Date Application Received	January 2, 2020	EPA Waived?	Yes
Date Application Accepted	January 3, 2020	If No, Reason	

Purpose of Application: Renewal of a NPDES Permit for an existing discharge of treated domestic sewage from a POTW

Summary of Review

This is a publicly owned treatment works treating domestic sewage from Donegal Township and West Alexander Borough, Washington County.

No changes to discharge quantity or quality were proposed as part of this permit renewal.

There is currently one open violation listed in EFACTS for this Permittee (2/17/2021). The Department will follow up on this open violation prior to final permit issuance.

Facility started using the eDMR system for reporting in October 2016.

Sludge use and disposal description and location(s): Sewage sludge is hauled to an offsite treatment plant for further treatment and disposal (Liquid Assets Disposal in Wheeling, WV).

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		Adam Pesek Adam J. Pesek, E.I.T. / Environmental Engineering Specialist	February 17, 2021
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	February 18, 2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.064
Latitude	40º 6' 18.25"	Longitude	-80º 30' 55.16"
Quad Name	Valley Grove, WV	Quad Code	01801
Wastewater Description:	Domestic Sewage Effluent		
Receiving Waters	Little Wheeling Creek	Stream Code	32444
NHD Com ID	73867562	RMI	0.19
Drainage Area	0.45	Yield (cfs/mi^2)	0.037
Q_{7-10} Flow (cfs)	0.01665	Q_{7-10} Basis	Bulletin 12, Montour Run near Coraopolis, #03085900
Elevation (ft)	1160	Slope (ft/ft)	0.0124
Watershed No.	20-E	Chapter 93 Class.	WWF
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	

Background/Ambient Data		Data Source
pH (SU)	7.0	Default
Temperature (°C)	25(S); 5 (W)	Default (WWF) (S)Summer – (W)Winter
Hardness (mg/L)		
Other: NH_3-N	0.1	Default

Nearest Downstream Public Water Supply Intake		Village of Bellaire, Ohio Water Department	
PWS Waters	Ohio River	Flow at Intake (cfs)	5700
PWS RMI		Distance from Outfall (mi)	3.2 miles below mouth of Wheeling Creek mouth on the Ohio River

Changes Since Last Permit Issuance: N/A

Other Comments:

Treatment Facility Summary

Treatment Facility Name: Donegal Township STP

WQM Permit No.	Issuance Date
6301408	1/15/2003

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with NH3-N removal	Biolac System	Ultraviolet	0.064

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.064	128	Not Overloaded	Sludge holding basin	Liquid Assets Disposal in Wheeling, WV

The existing treatment plant is a Biolac system. It consists of a reactor basin that is equipped with moving aeration chains. An integral clarifier is provided at the end of the aeration basin. The head works consist of a manual bar screen. A sludge holding basin and UV disinfection are provided as well.

The facility accepts hauled in municipal waste.

Compliance History	
Summary of DMRs:	Six effluent violations were reported since January 2016, all for ammonia nitrogen. Months the violations occurred were May 2017 and April and May 2019.
Summary of Inspections:	Sewage compliance inspection was last conducted on January 10, 2020. A NOV, as a result of that inspection, was issued February 4, 2020. The NOV was for effluent violations reported on eDMRs and for the operation and maintenance of the back-up generator.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from January 1, 2020 to December 31, 2020)

Parameter	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20
Flow (MGD) Average Monthly	0.0385	0.038	0.034	0.036	0.032	0.033	0.031	0.036	0.0385	0.0385	0.0325	0.0345
pH (S.U.) Minimum	6.79	6.79	6.76	6.90	7.59	6.96	7.02	6.81	6.81	6.76	6.46	6.56
pH (S.U.) Maximum	7.56	7.63	7.56	7.71	8.04	7.87	8.09	7.56	7.51	7.41	7.75	7.51
DO (mg/L) Minimum	7.16	6.76	6.04	5.26	5.70	6.11	5.88	6.12	7.61	6.56	6.06	7.84
CBOD5 (lbs/day) Average Monthly	0.64	< 0.63	0.57	0.60	0.53	0.56	0.52	< 0.60	0.64	< 0.64	< 0.54	0.58
CBOD5 (mg/L) Average Monthly	< 2.0	< 2.0	2.0	< 2.0	< 2.0	2.1	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
CBOD5 (mg/L) Instantaneous Maximum	< 2.0	< 2.0	2.0	< 2.0	< 2.0	2.1	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	59.93	55.54	65.18	65.51	71.87	72.38	44.95	54.5	51.60	44.25	36.23	39.36
BOD5 (mg/L) Raw Sewage Influent Average Monthly	186.7	175.3	229.9	218.2	269.3	263.0	173.9	181.4	160.7	137.8	133.7	136.8
TSS (lbs/day) Average Monthly	1.77	< 1.58	1.42	< 1.50	1.33	1.38	1.29	1.50	1.61	< 1.61	< 1.36	1.44
TSS (lbs/day) Raw Sewage Influent Average Monthly	55.87	177.48	57.85	50.44	44.30	27.52	50.16	61.85	55.55	45.59	60.17	50.64
TSS (mg/L) Average Monthly	5.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TSS (mg/L) Raw Sewage Influent Average Monthly	174.0	560.0	204.0	168.0	166.0	100.0	194.0	206.0	173.0	142.0	222.0	176.0

TSS (mg/L) Instantaneous Maximum	6.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Fecal Coliform (CFU/100 ml) Geometric Mean	< 1	1	< 1	1	1.41	< 1	1	< 1	1	1	< 1	1
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	< 1	1	< 1	1	2	< 1	1	< 1	1	1	< 1	1
UV Intensity (mW/cm²) Minimum	2.6	3.2	2.6	3	2.8	3.1	3.2	2.8	2.8	2.2	2.4	2.7
UV Intensity (mW/cm²) Average Monthly	3.05	3.4	3.1	3.2	3.1	3.4	3.8	3.2	3.2	3.1	3.2	3.3
Ammonia (lbs/day) Average Monthly	0.6	0.05	0.13	< 0.03	0.03	0.07	0.08	0.06	0.06	< 0.05	0.03	< 0.03
Ammonia (mg/L) Average Monthly	0.6	0.15	0.5	< 0.1	< 0.1	0.25	0.3	0.2	0.2	0.15	0.1	< 0.1
Ammonia (mg/L) Instantaneous Maximum	0.19	0.2	0.8	< 0.1	< 0.1	0.3	0.4	0.3	0.3	0.2	0.1	< 0.1

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.064
Latitude 40º 6' 18.25" **Longitude** -80º 30' 55.16"
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)

Comments: Technology-based average weekly limits for $CBOD_5$ and TSS will not be applied to this discharge because the sampling frequency for these parameters are less than 1/week. This is in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
Ammonia Nitrogen (5/01 - 10/31)	2.0	Average Monthly	WQM 7.0 Ver. 1.0b
Ammonia Nitrogen (11/01 - 4/30)	5.0	Average Monthly	WQM 7.0 Ver. 1.0b
Dissolved Oxygen	5.0	Daily Minimum	WQM 7.0 Ver. 1.0b

Comments: Modeling results done for this renewal mimic those results from previous modeling

Best Professional Judgment (BPJ) Limitations

Comments: None

Additional Considerations

Comments: Influent BOD_5 and Influent TSS monitoring is being retained in the renewed permit in accordance with the Department's SOP entitled "New and Reissuance of Sewage Individual NPDES Permit Applications (SOP No. BCW-PMT-002)."

Monitoring of UV intensity, total nitrogen, and total phosphorus is being retained in the renewed permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

Flow monitoring is being retained as authorized under Chapter 92a.61.

Anti-Backsliding

N/A

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" (362-0400-001), 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	Daily Maximum	Daily Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5	13.4	XXX	XXX	25	XXX	50	2/month	Grab
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
TSS	16.0	XXX	XXX	30	XXX	60	2/month	Grab
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	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 Intensity (mW/cm²)	XXX	XXX	Report	Report	XXX	XXX	1/day	Recorded
Total Nitrogen	XXX	Report	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia Nov 1 - Apr 30	2.7	XXX	XXX	5.0	XXX	10.0	2/month	Grab
Ammonia May 1 - Oct 31	1.1	XXX	XXX	2.0	XXX	4.0	2/month	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	Daily Maximum	Daily Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Phosphorus	XXX	Report	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001 (after disinfection)

Other Comments: For pH, Dissolved Oxygen (DO) and UV intensity, a monitoring frequency of “1/day” has been imposed. In general, less frequent monitoring may be established only when the permittee demonstrates that there will be no discharge on days where monitoring is not required. The permittee may remain in compliance with the permit by using a No Discharge Indicator (NODI) code on the “Daily Effluent Monitoring” supplemental form to identify the lack of a discharge on a particular day.

Summertime Modeling

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
20E	32444	LITTLE WHEELING CREEK	**1.630**	1160.00	0.45	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	0.037	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	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 Twp STP	PA0219215	0.0640	0.0640	0.0640	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	7.54	0.00	0.00
NH3-N	25.00	0.10	0.00	0.70

Please note that the stream reach extends from the discharge point to just above the tributary confluence in Mt. Echo, WV. Actual stream RMIs were not used.

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
20E	32444	LITTLE WHEELING CREEK	**0.010**	1040.00	1.87	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	0.037	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	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
20E	32444	LITTLE WHEELING 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												
1.630	0.02	0.00	0.02	.099	0.01403	.363	3.91	10.79	0.08	1.214	20.72	7.00
Q1-10 Flow												
1.630	0.01	0.00	0.01	.099	0.01403	NA	NA	NA	0.08	1.251	20.49	7.00
Q30-10 Flow												
1.630	0.02	0.00	0.02	.099	0.01403	NA	NA	NA	0.08	1.181	20.93	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
20E	32444	LITTLE WHEELING 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
1.630	Donegal Twp ST	9.34	10.33	9.34	10.33	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
1.630	Donegal Twp ST	1.79	2.18	1.79	2.18	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)		
1.63	Donegal Twp STP	25	25	2.18	2.18	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20E	32444	LITTLE WHEELING CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.630	0.064	20.720	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.912	0.363	10.788	0.082
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
21.69	1.443	1.88	0.740
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.366	26.877	Owens	5
Reach Travel Time (days)			
1.214			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.121	18.10	1.72	7.16
0.243	15.10	1.57	7.50
0.364	12.60	1.44	7.54
0.486	10.51	1.31	7.54
0.607	8.77	1.20	7.54
0.729	7.32	1.10	7.54
0.850	6.10	1.00	7.54
0.972	5.09	0.92	7.54
1.093	4.25	0.84	7.54
1.214	3.54	0.77	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20E	32444	LITTLE WHEELING 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)
1.630	Donegal Twp STP	PA0219215	0.064	CBOD5	25		
				NH3-N	2.18	4.36	
				Dissolved Oxygen			5

Wintertime Modeling

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
20E	32444	LITTLE WHEELING CREEK	**1.630**	1160.00	0.45	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	0.074	0.00	0.00	0.000	0.000	0.0	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 Twp STP	PA0219215	0.0640	0.0640	0.0640	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	11.45	0.00	0.00
NH3-N	25.00	0.10	0.00	0.70

Please note that the stream reach extends from the discharge point to just above the tributary confluence in Mt. Echo, WV. Actual stream RMIs were not used.

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
20E	32444	LITTLE WHEELING CREEK	**0.010**	1040.00	1.87	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	0.074	0.00	0.00	0.000	0.000	0.0	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 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20E	32444	LITTLE WHEELING 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												
1.630	0.03	0.00	0.03	.099	0.01403	.371	4.06	10.93	0.09	1.126	12.48	7.00
Q1-10 Flow												
1.630	0.02	0.00	0.02	.099	0.01403	NA	NA	NA	0.08	1.188	13.23	7.00
Q30-10 Flow												
1.630	0.05	0.00	0.05	.099	0.01403	NA	NA	NA	0.09	1.073	11.86	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
20E	32444	LITTLE WHEELING 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
1.630	Donegal Twp ST	16.03	19.46	16.03	19.46	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
1.630	Donegal Twp ST	3.53	5.1	3.53	5.1	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)		
1.63	Donegal Twp STP	25	25	5.1	5.1	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20E	32444	LITTLE WHEELING CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.630	0.064	12.483	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
4.056	0.371	10.929	0.088
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
19.21	1.426	3.84	0.393
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.875	22.280	Owens	5
Reach Travel Time (days)			
1.126			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.113	17.15	3.67	8.88
0.225	15.30	3.52	9.26
0.338	13.66	3.36	9.41
0.451	12.19	3.22	9.52
0.563	10.88	3.08	9.59
0.676	9.71	2.95	9.59
0.788	8.66	2.82	9.59
0.901	7.73	2.70	9.59
1.014	6.90	2.58	9.59
1.126	6.16	2.47	9.59

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20E	32444	LITTLE WHEELING 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)
1.630	Donegal Twp STP	PA0219215	0.064	CBOD5	25		
				NH3-N	5.1	10.2	
				Dissolved Oxygen			4