pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0027651**
Facility Type	**Municipal**	APS ID	**34154**
Major / Minor	**Minor**	Authorization ID	**1212168**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**West Newton Borough**	Facility Name	**West Newton Borough STP**
Applicant Address	112 S Water Street	Facility Address	Sr 3039
	West Newton, PA 15089-1364		West Newton, PA 15089
Applicant Contact	Patricia Humenik	Facility Contact	Dale Lyles
Applicant Phone		Facility Phone	(724) 872-6171
Client ID	62040	Site ID	271835
Ch 94 Load Status	Existing Hydraulic Overload	Municipality	West Newton Borough
Connection Status	Dept. Imposed Connection Prohibitions	County	Westmoreland
Date Application Received	December 29, 2017	EPA Waived?	No
Date Application Accepted	January 3, 2018	If No, Reason	CSO System

Purpose of Application: Renewal application to discharge treated sewage

Summary of Review

This review is in response to an incomplete renewal application received on December 29, 2017. Additional information was received on January 25, 2018. The incomplete application was received on time, but the complete application was not received 180 days before permit expiration.

West Newton Borough owns and operates a sewage treatment plant that treats sewage from West Newton Borough, South Huntingdon Township and Rostraver Township in Westmoreland County. Sewage is treated with comminution, contact stabilization, clarification and chlorination before discharging to the Youghiogheny River through outfall 001. West Newton's collection system is a combined storm and sanitary (CSS) system. The borough has 13 combined sewer overflows (CSO's) that discharge to the Youghiogheny River and an unnamed tributary to the Youghiogheny River.

Sludge from the sewage plant is sent to the Clairton sewage treatment plant for further processing.

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		James Vanek James Vanek, P.E. / Environmental Engineer	August 1, 2023
X		Mahbuba Iasmin Mahbuba Iasmin, P.E., Ph. D. / Environmental Engineering Manager	July 29, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.75
Latitude	40º 12' 35.69"	Longitude	-79º 46' 12.33"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Sewage Effluent		
Receiving Waters	Youghiogheny River (WWF)	Stream Code	37456
NHD Com ID	69913629	RMI	18.1
Drainage Area	1530	Yield (cfs/mi^2)	0.333
Q_{7-10} Flow (cfs)	510	Q_{7-10} Basis	ACE regulated flow
Elevation (ft)	740	Slope (ft/ft)	0.001
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	none	Exceptions to Criteria	none
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake	MAWC – McKeesport		
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0
Latitude	40º 13' 7.50"	Longitude	-79º 45' 59.24"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Combined Sewer Overflow		
Receiving Waters	Youghiogheny River (WWF)	Stream Code	37456
NHD Com ID	69913629	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	003	Design Flow (MGD)	0
Latitude	40º 13' 0.62"	Longitude	-79º 46' 0.77"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Combined Sewer Overflow		
Receiving Waters	Youghiogheny River (WWF)	Stream Code	37456
NHD Com ID	69913629	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	0
Latitude	40º 12' 57.33"	Longitude	-79º 46' 1.50"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Combined Sewer Overflow		
Receiving Waters	Youghiogheny River (WWF)	Stream Code	37456
NHD Com ID	69913629	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	005	Design Flow (MGD)	0
Latitude	40º 12' 53.02"	Longitude	-79º 46' 2.17"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Combined Sewer Overflow		
Receiving Waters	Youghiogheny River (WWF)	Stream Code	37456
NHD Com ID	69913629	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	006	Design Flow (MGD)	0
Latitude	40º 12' 47.17"	Longitude	-79º 46' 4.64"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Combined Sewer Overflow		
Receiving Waters	Youghiogheny River (WWF)	Stream Code	37456
NHD Com ID	69913629	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	007	Design Flow (MGD)	0
Latitude	40º 12' 43.40"	Longitude	-79º 46' 6.60"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Combined Sewer Overflow		
Receiving Waters	Youghiogheny River (WWF)	Stream Code	37456
NHD Com ID	69913629	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	008	Design Flow (MGD)	0
Latitude	40º 12' 38.79"	Longitude	-79º 46' 9.80"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Combined Sewer Overflow		
Receiving Waters	Youghiogheny River (WWF)	Stream Code	37456
NHD Com ID	69913629	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	009	Design Flow (MGD)	0
Latitude	40º 12' 34.14"	Longitude	-79º 46' 12.67"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Combined Sewer Overflow		
Receiving Waters	Youghiogheny River (WWF)	Stream Code	37456
NHD Com ID	69913675	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	010	Design Flow (MGD)	0
Latitude	40º 12' 35.58"	Longitude	-79º 46' 16.86"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Combined Sewer Overflow		
Receiving Waters	Unnamed Tributary to Youghiogheny River (WWF)	Stream Code	37456
NHD Com ID	69913713	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	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)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	011	Design Flow (MGD)	0
Latitude	40º 12' 32.03"	Longitude	-79º 46' 13.12"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Combined Sewer Overflow		
Receiving Waters	Youghiogheny River (WWF)	Stream Code	37456
NHD Com ID	69913675	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	012	Design Flow (MGD)	0
Latitude	40º 12' 35.84"	Longitude	-79º 46' 14.10"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Combined Sewer Overflow		
Receiving Waters	Unnamed Tributary to Youghiogheny River (WWF)	Stream Code	37456
NHD Com ID	69913631	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	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)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	013	Design Flow (MGD)	0
Latitude	40º 12' 21.00"	Longitude	-79º 46' 14.00"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Combined Sewer Overflow		
Receiving Waters	Youghiogheny River (WWF)	Stream Code	37456
NHD Com ID	69913675	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	014	Design Flow (MGD)	0
Latitude	40º 12' 10.48"	Longitude	-79º 46' 12.49"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Combined Sewer Overflow		
Receiving Waters	Youghiogheny River (WWF)	Stream Code	37456
NHD Com ID	69913825	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Treatment Facility Summary

Treatment Facility Name: W Newton Borough STP

WQM Permit No.	Issuance Date
463S90	05/20/1964
6571411	08/09/1971

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Contact Stabilization W/Solids Removal	Gas Chlorine	0.75

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.75	1020	Existing Hydraulic Overload	Aerated holding tank	Other STP

Changes Since Last Permit Issuance:

Other Comments:

Compliance History

The sewage treatment plant is hydraulically overloaded. West Newton's engineer LSSE submitted a re-rating study with the NPDES renewal application. The engineer believes the plant is capable of handling 0.75 MGD and still achieve its NPDES permit limits.

The re-rating study compared the design recommendations from the Domestic Wastewater Facilities Manual (DWFM) with the sewage plant's unit operations. The plant consists of contact stabilization tanks integrated with internal circular clarifiers followed by chlorine contact tanks. Based on the DWFM for a contact stabilization plant, the West Newton STP is capable of handling 1.152 MGD of flow through its aeration zones (aeration contact zone and the sludge reaeration zone). Based on the DWFM overflow rate of 800 gpd/sf, the West Newton STP is capable of handling 0.750 MGD. Based on the DWFM clarifier weir overflow rate of 10,000 gpd/linear foot, the West Newton STP is capable of handling 1.51 MGD. Based on the DWFM chlorine contact time of 30 minutes at average flow, the STP is capable of handling 0.97 MGD. Based on all unit operations, the clarifier is the limiting factor with the ability to handle 0.75 MGD.

The applicant is not seeking an increase to its rated organic load capacity of 1020 lb/day. The DWFM allows for an organic loading rate up to 1920 lbs/day for the existing plant, but the organic loading rate will not be increased. An evaluation of the air supply for BOD treatment was not included as part of the re-rating study. The organic loading rate will remain 1020 lbs/day.

The re-rating study has a few graphs. A graph of monthly average effluent CBOD vs. monthly average flow does not show any data points above 21 mg/l. The average monthly CBOD limit is 25 mg/l. The graph of weekly average CBOD vs. average flow does not show any data points above 25 mg/l. The average weekly CBOD limit is 38 mg/l. The effluent TSS concentration vs. average sewage flow does not show any data points above 29 mg/l. The monthly average limit is 30 mg/l TSS. The graph of weekly average TSS concentration vs. average flow does not show any data points above 40 mg/l. The weekly average TSS limit is 45 mg/l. Finally, a graph of average monthly flow vs. date was provided. It illustrates that a hydraulic overload would not exist if the design flow were increased to 0.75 MGD. The plant would still have exceedances but there would not be three consecutive months where the flow exceeds 0.75 MGD. None of the graphs show anything surprising especially since the collection system is a combined system.

The re-rating study did not include much discussion about future growth. The existing organic loading is around 580 lbs/day which is well below the 1020 lbs/day that the plant is permitted to treat. There is little if any development pressure around West Newton.

Re-rating of the plant from 0.6 MGD to 0.75 MGD is recommended. The increased flow is based on the limiting factor of the maximum loading possible to the clarifiers based on the Domestic Wastewater Facilities Manual design criteria. This should be the last time that the plant be re-rated without actual stress testing at the plant. Any future organic re-rating should include a thorough evaluation of the existing aeration equipment and future development.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .75
Latitude 40º 12' 36.00" **Longitude** -79º 46' 6.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments:

Water Quality-Based Limitations

Water quality analysis was performed using the TRC Spreadsheet and WQM7.0. Modeling showed no need for water quality based effluent limits. The outputs from these models are attached to this report.

Best Professional Judgment (BPJ) Limitations

Dissolved oxygen will be limited at 4.0 mg/l as an instantaneous minimum.

Anti-Backsliding

Anti-backsliding was not utilized for this permit renewal.

Industrial/Commercial Contributors

The applicant provided a comprehensive list of 70 industrial or commercial contributors to the collection system even though none of the contributors have federal effluent limitation guidelines associated with them. Average water usage was included.

Ammonia Nitrogen

NH_3N shall be limited at 25 mg/l. Water quality analysis showed no need for seasonal water quality based effluent limits. This limit should be achieved even with contact stabilization technology.

Disinfection

25 PA Code 92a.47(a)(7) and 92a.48(b) sets technology limits for total residual chlorine at 0.5 mg/l as a monthly average and 1.6 mg/l as an instantaneous maximum. The TRC spreadsheet showed no need for water quality based limits for TRC.

E. Coli

In accordance with Section I of DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits" [SOP No. BCW-PMT-033, Version 1.9, March 22, 2021] and under the authority of 25 Pa. Code § 92a.61(b), annual reporting for Total Nitrogen and Total Phosphorus is required for sewage discharges with design flows greater than 2,000 gpd to help evaluate treatment effectiveness and to monitor nutrient loading to the receiving watershed (this reporting was required by the previous permit and will be reimposed in the new permit). Pursuant to that same SOP and under the authority of § 92a.61(b), a quarterly reporting requirement for *E. coli* will be added to Outfall 001. *E. coli* was recently added to the bacteria water quality criteria in 25 Pa. Code § 93.7(a) and the monitoring will be used to determine if *E. coli* concentrations require additional controls.

Total Dissolved Solids

Total Dissolved Solids (TDS) and its major constituents including sulfate, chloride, and bromide have emerged as pollutants of concern in several major watersheds in the Commonwealth. The conservative nature of these solids allows them to accumulate in surface waters and they may remain a concern even if the immediate downstream public water supply is not directly impacted. Bromide has been linked to formation of disinfection byproducts at increased levels in public water systems. As a consequence of actions associated with Triennial Review 13, the Environmental Quality Board has directed DEP to collect additional data. Facilities with design flows greater than or equal to 0.1 mgd are required to report at least one sample analyzed for these parameters.

The permit application reports a TDS concentration of 394 mg/l which is less than the threshold level of 1,000 mg/l. The application reports a bromide concentration of <0.4 mg/l which is less than the threshold level of 1 mg/l. Since the threshold levels were not exceeded, monitoring for TDS, chloride, bromide and sulfates is not necessary.

Mass Loadings

Mass loading limits are applicable for publicly owned treatment works. Current policy requires average monthly mass loading limits be established for CBOD5 and TSS, and average weekly mass loading limits be established for CBOD5 and TSS.

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

Total Nitrogen and Total Phosphorus

Nutrient monitoring is required 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). Sewage discharges with design flows > 2,000 gpd require annual monitoring for Total Nitrogen and Total Phosphorus in new and reissued permits.

Monitoring Frequency Considerations

For pH, Dissolved Oxygen (DO) and Total Residual Chlorine (TRC), a monitoring frequency of 1/day has been imposed. The daily monitoring frequencies are consistent with current policy and Table 6-3 of DEP's Technical Guidance for the Development and Specification of Effluent Limitations.

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.

Combined Sewer Overflows

Outfalls 002 through 014 are combined sewer outfalls. West Newton Borough has a combined sewer collection system. The Department approved the borough's Long Term Control Plan (LTCP) on August 8, 2008.

Post Construction Compliance Monitoring Plan

The Department has never received a Post Construction Compliance Monitoring Plan (PCCMP) even though the construction for the Long-Term Control Plan (LTCP) was completed in 2009. Since the Department has never received the plan, this renewal permit will include a requirement to submit one. After the Department reviews the plan and approves it, West Newton will implement the PCCMP.

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. 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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	156	238	XXX	25.0	38.0	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	8-Hr Composite
TSS	188	281	XXX	30.0	45.0	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	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	8-Hr Composite
Ammonia-Nitrogen	XXX	XXX	XXX	25.0	XXX	50	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite

Compliance Sampling Location: outfall 001

MODEL OUTPUTS FROM WQM7.0 AND THE TRC SPREADSHEET

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
19D	37456	YOUGHIOGHENY RIVER	**18.100**	740.00	1530.00	0.00100	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	0.333	0.00	0.00	0.000	0.000	0.0	528.00	2.20	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
west newton stp	pa0027651	0.7500	0.7500	0.7500	10.000	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	5.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	1.00	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
19D	37456	YOUGHIOGHENY RIVER	**17.600**	737.36	1540.00	0.00100	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	0.333	0.00	0.00	0.000	0.000	0.0	528.00	2.20	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
end of segment		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
19D	37456	YOUGHIOGHENY RIVER

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												
18.100	509.99	0.00	509.99	1.1602	0.00100	2.2	528	240	0.44	0.069	20.01	7.00
Q1-10 Flow												
18.100	326.40	0.00	326.40	1.1602	0.00100	NA	NA	NA	0.28	0.108	20.02	7.00
Q30-10 Flow												
18.100	693.59	0.00	693.59	1.1602	0.00100	NA	NA	NA	0.60	0.051	20.01	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	Uniform Treatme	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	85.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19D	37456	YOUGHIOGHENY RIVER

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
18.100	west newton stp	NA	50	9.66	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
18.100	west newton stp	NA	25	1.92	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)		
18.10	west newton stp	25	25	25	25	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19D	37456	YOUGHIOGHENY RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
18.100	0.750	20.011	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
528.000	2.200	240.000	0.440
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
5.05	0.016	1.05	0.701
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.231	2.623	O'Connor	5
Reach Travel Time (days)			
0.069			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.007	5.04	1.05	7.78
0.014	5.04	1.04	7.78
0.021	5.04	1.04	7.78
0.028	5.04	1.03	7.78
0.035	5.04	1.03	7.78
0.042	5.04	1.02	7.78
0.049	5.04	1.02	7.78
0.056	5.04	1.01	7.78
0.062	5.04	1.01	7.78
0.069	5.04	1.00	7.78

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19D	37456	YOUGHIOGHENY RIVER

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)
18.100	west newton stp	pa0027651	0.750	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3

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
19D	37456	YOUGHIOGHENY RIVER	**18.100**	740.00	1530.00	0.00100	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	0.667	0.00	0.00	0.000	0.000	0.0	528.00	3.00	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
west newton stp	pa0027651	0.7500	0.7500	0.7500	10.000	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	3.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	1.00	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
19D	37456	YOUGHIOGHENY RIVER	**17.600**	737.36	1540.00	0.00100	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	0.667	0.00	0.00	0.000	0.000	0.0	528.00	3.00	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
end of segment		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
19D	37456	YOUGHIOGHENY RIVER

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												
18.100	1020.05	0.00	1020.05	1.1602	0.00100	3	528	176	0.64	0.047	5.01	7.00
Q1-10 Flow												
18.100	652.83	0.00	652.83	1.1602	0.00100	NA	NA	NA	0.41	0.074	5.02	7.00
Q30-10 Flow												
18.100	1387.27	0.00	1387.27	1.1602	0.00100	NA	NA	NA	0.88	0.035	5.01	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	Uniform Treatme	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	85.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19D	37456	YOUGHIOGHENY RIVER

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
18.100	west newton stp	NA	50	20.59	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
18.100	west newton stp	NA	25	4.08	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)		
18.10	west newton stp	25	25	25	25	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19D	37456	YOUGHIOGHENY RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
18.100	0.750	5.011	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
528.000	3.000	176.000	0.645
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.02	0.014	1.03	0.221
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.237	1.397	O'Connor	5
Reach Travel Time (days)			
0.047			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.005	3.02	1.03	8.24
0.009	3.02	1.03	8.24
0.014	3.02	1.02	8.24
0.019	3.02	1.02	8.24
0.024	3.02	1.02	8.24
0.028	3.02	1.02	8.24
0.033	3.02	1.02	8.24
0.038	3.02	1.02	8.24
0.043	3.02	1.02	8.24
0.047	3.02	1.02	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19D	37456	YOUGHIOGHENY RIVER

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)
18.100	west newton stp	pa0027651	0.750	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3

TRC_CALC_west_newton_stp

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

510	= Q stream (cfs)	0.5	= CV Daily
0.75	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	0.06	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	0.44	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 8.432	1.3.2.iii	WLA cfc = 60.160
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 3.142	5.1d	LTA_cfc = 34.974

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...
	...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...
	...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)