Pennsylvania Department of Environmental Protection

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0113719**
Facility Type	**Municipal**	APS ID	**1119655**
Major / Minor	**Minor**	Authorization ID	**1495504**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Perry Township Municipal Authority**	Facility Name	**Mt. Pleasant Mills WWTF**
Applicant Address	PO Box 27	Facility Address	Cluck Ridge Road
	Mt. Pleasant Mills, PA 17853-0027		Mt. Pleasant Mills, PA 17853
Applicant Contact	Ronald Mowery	Facility Contact	Ronald Mowery
Applicant Phone	(570) 539-2905	Facility Phone	(570) 539-2905
Client ID	25657	Site ID	246709
Ch 94 Load Status	Not Overloaded	Municipality	Perry Township
Connection Status	No Limitations	County	Snyder
Date Application Received	August 12, 2024	EPA Waived?	No
Date Application Accepted	August 26, 2024	If No, Reason	Chesapeake Bay

Purpose of Application: Renewal and major amendment to an existing NPDES permit for the discharge of treated sewage.

Summary of Review

An application to renew the existing NDPES permit was received August 2024. In January 2025 an application to amend the existing permit was received. The amendment application was submitted because the existing treatment plant is being replaced and the design capacity is increasing from 0.06 MGD to 0.1 MGD and the effluent disinfection method is changing from chlorine to ultraviolet light. Accordingly, this permit will provide tiered limits for the existing and proposed treatment plants. Construction and operation of the proposed treatment plant is approved under WQM Permit No. 552401, issued May 6, 2025.

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		Derek S. Garner / Project Manager	May 13, 2025
X		Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	May 13, 2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.06 – existing 0.10 - proposed
Latitude	40º 43' 24.47"	Longitude	-77º 0' 24.57"
Quad Name	Richfield	Quad Code	1329
Wastewater Description:	Sewage Effluent		

Receiving Waters	North Branch Mahantango Creek	Stream Code	17370
NHD Com ID	54969659	RMI	6.39
Drainage Area	9.46	Yield (cfs/mi^2)	0.14
Q_{7-10} Flow (cfs)	1.32	Q_{7-10} Basis	Streamstats
Elevation (ft)	535	Slope (ft/ft)	n/a
Watershed No.	6-C	Chapter 93 Class.	TSF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens		
Source(s) of Impairment	Unknown		
TMDL Status	n/a [1]	Name	n/a

Nearest Downstream Public Water Supply Intake	SUEZ Water		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	2,356
PWS RMI	76.73	Distance from Outfall (mi)	35

[1] There is a TMDL in place for a portion of the North Branch Mahantango Creek Watershed, finalized March 2001. The TMDL ends at the mouth of an unnamed tributary to North Branch Mahantango Creek approximately 0.3 miles upstream of Outfall 001. Since the TMDL is for the portion of the watershed upstream of Outfall 001, the TMDL should not impact the development of effluent limitations.

Treatment Facility Summary

The existing Mt. Pleasant Mills Wastewater Treatment Facility (WWTF) is a Cromaglass sequencing batch reactor facility with an annual average design flow of 0.06 MGD, hydraulic design capacity of 0.072 MGD, and an organic design capacity of 168 lbs BOD_5/day. WQM Permit No. 5598401, issued July 24, 1998, authorized the construction and operation of the following treatment units:

- One (1) equalization tank
- Five (5) CA-120 Cromaglass units
- Three (3) erosion chlorinators
- Three (3) chlorine contact tanks

A sixth Cromaglass tank was installed without prior DEP approval, resulting in subsequent approval under WQM Permit No. 5508402. This permit also rerated the plant's average annual design flow from 0.05 to 0.06 MGD.

The existing WWTF is proposed to be decommissioned and replaced with a new WWTF. The proposed treatment plant's construction and operation is approved under WQM Permit No. 552401, issued May 6, 2025. The proposed facility will generally consist of:

- Influent Pump Station, consisting of: Vogelsand XRipper XRC with SIK comminutor, or equivalent; 6-ft dia. wet well; two Gorman-Rupp SFEV3b-X submersible pumps (duty/standby), or equivalent
- One (1) Endress+Hauser W300 magnetic influent flow meter, or equivalent
- One (1) SAVECO GCP300-5000 Shaftless Spiral Fine Screen, or equivalent
- Two (2) 0.073 MG AquaSBR system tanks
- One (1) 0.012 MG Post Equalization Tank
- One (1) Glasco GLOW-300-4-2 horizontal open channel UV disinfection unit, or equivalent
- One (1) Endress+Hauser Free Space Radar FMR20 effluent flow meter, or equivalent
- One (1) 0.033 MG aerated Sludge Holding Tank
- Wastewater Treatment Building to house the lab, restrooms, electrical equipment, SCADA system, and blowers.

The proposed treatment plant will have an increased design capacity of 0.1 MGD and 229 lb BOD_5/day.

Currently, sludge is hauled to the either the Richland Area Joint Authority or Municipal Authority of Ralpho Township Wastewater Treatment Plants. It is expected that this will continue after startup of the proposed treatment plant.

Compliance History

The facility was most recently inspected by DEP on March 19, 2025. All treatment units were online, and no impact was noted upstream or downstream of Outfall 001 in the receiving stream.

There have been numerous effluent violations over the course of the existing permit's term. A list of the violations is attached to this fact sheet. It is expected that the proposed wastewater treatment facility will greatly help in eliminating the reoccurring effluent violations.

There are no open violations associated with the permittee.

Development of Effluent Limitations

As mentioned on page one, the effluent limits were developed for two phases. Phase one is from the permit's effective date through startup of the new wastewater treatment facility, and phase two is from startup of the new wastewater treatment facility through the permit's expiration date.

Phase One – Permit Effective Date through Startup of New Facilities

Outfall No. 001 **Design Flow (MGD)** 0.06
Latitude 40º 43' 24.70" **Longitude** -77º 0' 24.50"
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)

Water Quality-Based Limitations

DEP models in-stream conditions to determine if WQBELs are appropriate. A model was created using WQM 7.0 v1.1 for CBOD5, ammonia-N and dissolved oxygen.

WQM 7.0 v1.1

The water quality model WQM 7.0 v1.1 is used to determine the WQBELs for dissolved oxygen, CBOD5 and ammonia-n (NH3-N) based on a multiple-discharge analysis, if applicable. The model assumes complete and instantaneous mixing with the receiving surface water. The reach chosen to model the in-stream characteristics is appropriate as a recovery in dissolved oxygen levels is demonstrated. The modeling output is as follows:

Parameter	Discharge Conc. (mg/l)	Effluent Limitations		
		30 Day Average (mg/l)	Maximum (mg/l)	Minimum (mg/l)
CBOD5	25	25	--	--
NH3-N	25	24	48	--
Dissolved Oxygen	3	--	--	3

The input concentration for CBOD5 is the current average monthly technology-based concentration limitation in the existing permit. The discharge concentration for ammonia-n is an assumed concentration typical of domestic sewage. The dissolved oxygen input concentration of 3 mg/l is the average concentration of dissolved oxygen contained within treated effluent. Based on the model output, WQBELs are recommended for ammonia-n.

Since problems associated with low dissolved oxygen are generally a warm-weather phenomenon and cold-weather months generally have a higher low-flow, DEP typically establishes ammonia-n warm-weather limits based on water

quality considerations (see model results above) and applies a multiplier of three to those limits for cold-weather months. In the event the multiplier results in a monthly average limit above a concentration of 25 mg/l ammonia-n, DEP assigns a reporting requirement. The proposed seasonal concentration limits will be established as follows:

Parameter	Concentrations (mg/l)		
	Average Monthly	Weekly Average	Instant. Maximum
Ammonia-Nitrogen Nov 1 - Apr 30	Report	Report	XXX
Ammonia-Nitrogen May 1 - Oct 31	24.0	36.0	48

Total Residual Chlorine Calculation Spreadsheet

Existing total residual chlorine water quality-based effluent limits were evaluated in the TRC_CALC spreadsheet. The spreadsheet indicates the existing technology-based limits are protective of North Branch Mahantango Creek.

Best Professional Judgment (BPJ) Limitations

DEP recommends that existing BOD5 and TSS influent monitoring requirements remain in the permit to continue to characterize the wastewater and help with Chapter 94 reporting.

A quarterly reporting requirement for E. Coli is proposed per the 2017 Triennial Review of Water Quality Standards, published in the PA Bulletin on July 11, 2020.

Chesapeake Bay

The existing Mt. Pleasant Mills WWTF is identified as a Phase 5 facility in Phase 3 of Pennsylvania's Watershed Implementation Plan (WIP). Per the WIP, no nutrient monitoring is required if the facility has previously completed at least two-years' worth of sampling. The Mt. Pleasant Mills WWTF completed five annual samples of total nitrogen (TN) and total phosphorus (TP) from 2015 to 2019, and the sample results were summarized in the previous renewal's fact sheet. Accordingly, DEP is not recommended any nutrient monitoring for first phase of this permit. Over the five years of sampling the average TN concentration was 23 .1 mg/l and the average TP concentration was 3.2 mg/l.

The proposed WWTF expansion and how it relates to the WIP will be addressed in Phase 2's discussion of effluent limitation development.

Anti-Backsliding

No limits or monitoring requirements are less stringent than what is established in the existing permit. Anti-backsliding is not applicable.

Phase Two – Startup of New Facilities through Permit Expiration Date

Outfall No. 001 **Design Flow (MGD)** 0.10
Latitude 40º 43' 24.70" **Longitude** -77º 0' 24.50"
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

DEP models in-stream conditions to determine if WQBELs are appropriate. A model was created using WQM 7.0 v1.1 for CBOD5, ammonia-N and dissolved oxygen.

WQM 7.0 v1.1

The water quality model WQM 7.0 v1.1 is used to determine the WQBELs for dissolved oxygen, CBOD5 and ammonia-n (NH3-N) based on a multiple-discharge analysis, if applicable. The model assumes complete and instantaneous mixing with the receiving surface water. The reach chosen to model the in-stream characteristics is appropriate as a recovery in dissolved oxygen levels is demonstrated. The modeling output is as follows:

Parameter	Discharge Conc. (mg/l)	Effluent Limitations		
		30 Day Average (mg/l)	Maximum (mg/l)	Minimum (mg/l)
CBOD5	25	25	--	--
NH3-N	25	15	30	--
Dissolved Oxygen	3	--	--	3

The input concentration for CBOD5 is the current average monthly technology-based concentration limitation in the existing permit. The discharge concentration for ammonia-n is an assumed concentration typical of domestic sewage. The dissolved oxygen input concentration of 3 mg/l is the average concentration of dissolved oxygen contained within treated effluent. Based on the model output, WQBELs are recommended for ammonia-n.

Since problems associated with low dissolved oxygen are generally a warm-weather phenomenon and cold-weather months generally have a higher low-flow, DEP typically establishes ammonia-n warm-weather limits based on water quality considerations (see model results above) and applies a multiplier of three to those limits for cold-weather months. In the event the multiplier results in an average monthly limit above a concentration of 25 mg/l ammonia-n, DEP assigns a reporting requirement. The proposed seasonal concentration limits will be established as follows:

Parameter	Concentrations (mg/L)		
	Average Monthly	Weekly Average	Instant. Maximum
Ammonia-Nitrogen Nov 1 - Apr 30	Report	Report	XXX
Ammonia-Nitrogen May 1 - Oct 31	15.0	22.5	30

Best Professional Judgment (BPJ) Limitations

DEP recommends that existing BOD5 and TSS influent monitoring requirements remain in the permit to continue to characterize the wastewater and help with Chapter 94 reporting.

A quarterly reporting requirement for E. Coli is proposed per the 2017 Triennial Review of Water Quality Standards, published in the PA Bulletin on July 11, 2020.

The proposed treatment plant will use ultraviolet light disinfection. Consequently, Phase 2 of the permit's limits will replace total residual chlorine with ultraviolet light dosage.

Chesapeake Bay

The proposed Mt. Pleasant Mills WWTF will still be identified as a Phase 5 facility in Phase 3 of Pennsylvania's Watershed Implementation Plan (WIP). However, per the WIP, when Phase 5 facilities have proposed an expansion, the renewed permit must contain Cap Loads based on the lesser of a) existing TN/TP concentrations at current design average annual flow or b) 7,306 lbs/yr TN and 974 lbs/yr TP.

Previous annual nutrient monitoring completed from 2015 to 2019 resulted in an average TN concentration of 23.1 mg/l and average TP concentration of 3.2 mg/l. At the current design flow of 0.06 MGD, total annual loadings of 4,214 lbs/yr TN and 590 lbs/yr TP are calculated. Since these loadings are less than 7,306 lbs/yr TN and 974 lbs/yr TP they will be established in the permit as Cap Loads.

Anti-Backsliding

No limits or monitoring requirements are less stringent than what is established in the existing permit. Anti-backsliding is not applicable.

Existing Effluent Limitations and Monitoring Requirements

The existing effluent limitations and monitoring requirements are as follows:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum 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	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	Report Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	12	20	XXX	25.0	40.0	50	2/month	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Suspended Solids	15	22	XXX	30.0	45.0	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite

Compliance Sampling Location: Outfall 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" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Startup of New or Upgraded Facilities.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum 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	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	Report Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	12.5	20.0	XXX	25.0	40.0	50	2/month	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Suspended Solids	15.0	22.5	XXX	30.0	45.0	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	Report	Report	XXX	Report	Report	XXX	2/month	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	12.0	18.0	XXX	24.0	36.0	48	2/month	8-Hr Composite

Compliance Sampling Location: Outfall 001

Outfall 001, Effective Period: Startup of New or Upgraded Facilities through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	Report	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	20.8	33.4	XXX	25.0	40.0	50	2/month	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Suspended Solids	25.0	37.5	XXX	30.0	45.0	60	2/month	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	Report	Report	XXX	Report	Report	XXX	2/month	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	12.5	18.8	XXX	15.0	22.5	30	2/month	8-Hr Composite
Ultraviolet light dosage (mjoules/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	Continuous	Measured

Compliance Sampling Location: Outfall 001

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

Outfall 001, Effective Period: Startup of New or Upgraded Facilities through Permit Expiration Date.

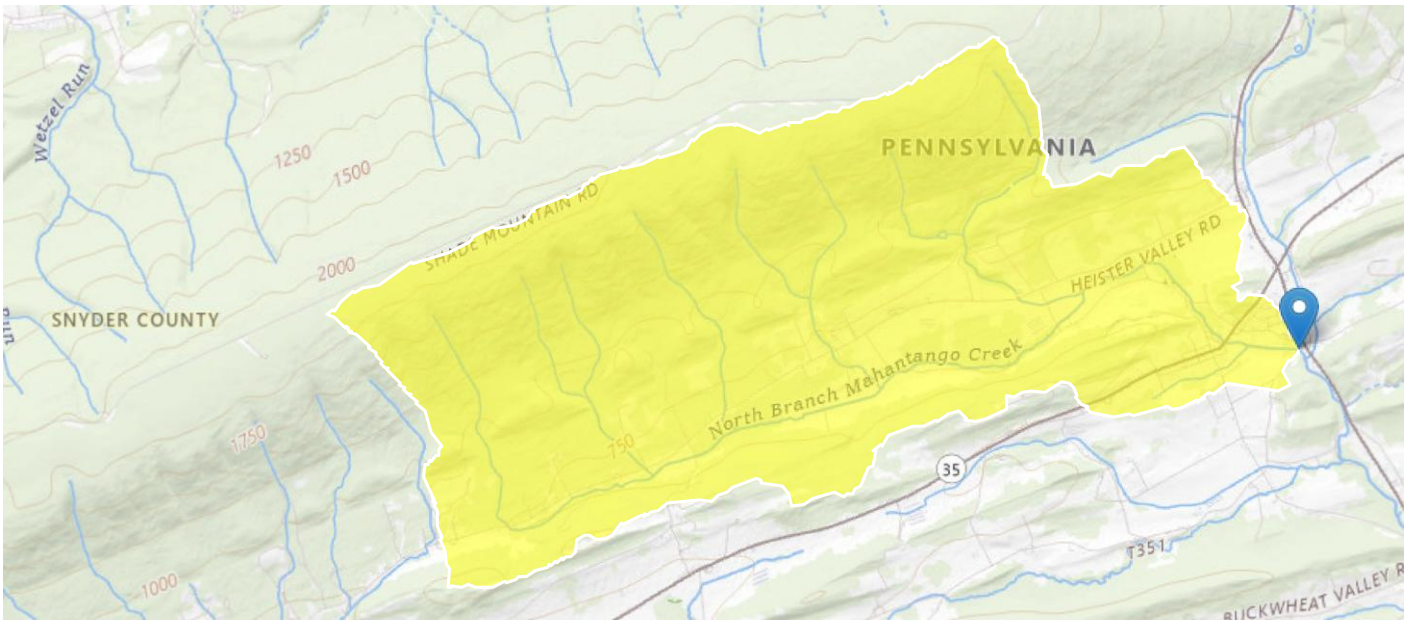
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Net Total Nitrogen	XXX	4214	XXX	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	590	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: Outfall 001

ATTACHMENT A
STREAMSTATS OUTPUT

Mt. Pleasant Mills WWTF

Region ID: PA
Workspace ID: PA20250508115322863000
Clicked Point (Latitude, Longitude): 40.72345, -77.00675
Time: 2025-05-08 07w53w48 -0400



ra nage area at ex st ng Outfall 001

D Colllpse All

) Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	9.2608	degrees
BSLOPDRAW	Unadjusted basin slope, in degrees	9.4905	degrees
BSLPDRPA20	Unadjusted basin slope, in degrees, from PA v1	9.7129	degrees
CARBON	Percentage of area of carbonate rock	20.88	percent
CENTROXA83	X coordinate of the centroid, in NAD_1 983_Albers, meters	79213.9049	meters
CENTROYA83	Basin centroid horizontal ly) location in NAD 1983 Albers	192110.6251	meters
DRN	Drainage quality index from STATSGO	3.2	dimensionless
DRNAREA	Area that drains to a point on a stream	9.46	square miles
ELEV	Mean Basin Elevation	1059	feet
ELEVMAX	Maximum basin elevation	2073	feet
FOREST	Percentage of area covered by forest	70.3735	percent
GLACiATED	Percentage of basin area that was historically covered by glaciers	0	percent
iMPNLCD01	Percentage of impervious area determined from NLCD 2001 impervious dataset	0.8704	percent

Parameter Code	Parameter Description	Value	Unit
LC01DEV	Percentage of land-use from NLCD 2001 classes 21-24	5.6811	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	5.7656	percent
LC119MP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	0.902	percent
LONG_OUT	Longitude of Basin Outlet	-77.006701	degrees
MAXTEMP	Mean annual maximum air temperature over basin area from PRISM 1971-2000 800-m grid	59.4	degrees F
OUTLETXA83	X coordinate of the outlet, in NAD_1983_Albers, meters	83906.2183	meters
OUTLETYA83	Y coordinate of the outlet, in NAD_1983_Albers, meters	191817.3616	meters
PREC9P	Mean Annual Precipitation	44	inches
ROCKDEP	Depth to rock	5.3	feet
STORAGE	Percentage of area of storage (lakes ponds reservoirs wetlands)	0.33	percent
STRDEN	Stream Density--total length of streams divided by drainage area	1.81	miles per square mile
STRMTOT	total length of all mapped streams (1:24,000-scale) in the basin	17.14	miles
URBAN	Percentage of basin with urban development	1.0036	percent

) Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	20.88	percent	0	99
DRNAREA	Drainage Area	9.46	square miles	4.93	1280
PREC9P	Mean Annual Precipitation	44	inches	35	50.4
ROCKDEP	Depth to Rock	5.3	feet	3.32	5.65
STRDEN	Stream Density	1.81	miles per square mile	0.51	3.1

Low-Flow Statistics Flow Report [Low Flow Region 2]

P9L: Lower 90% Prediction 9nterval, P9U: Upper 90% Prediction 9nterval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR"2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	2.19	ft"3Is	38	38
30 Day 2 Year Low Flow	2.65	ft"3Is	33	33
7 Day 10 Year Low Flow	1.32	ft"3Is	51	51
30 Day 10 Year Low Flow	1.53	ft"3Is	46	46
90 Day 10 Year Low Flow	1.94	ft"3Is	36	36

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

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Application Version: 6.48.2881
Streamstats Services Version: 6.1.828.22
NSS Services Version: 6.28.281

ATTACHMENT B
COMPLIANCE HISTORY

Monitoring Period Begin Date	Monitoring Period End Date	Submission Date	Parameter	Sample Value	Violation Condition	Permit alue	Units	SBC	Facility Comments
9/1/2020	9/30/2020	10/26/2020	Fecal Coliform	422	>	200	No./100 ml	Geometric Mean	
6/1/2021	6/30/2021	7/28/2021	Fecal Coliform	2419.6	>	1000	No./100 ml	Instantaneous Maximum	pumps failed and were repaired
9/1/2021	9/30/2021	10/28/2021	Fecal Coliform	2419.6	>	1000	No./100 ml	Instantaneous Maximum	Extreme flooding caused increased I&I which caused increase Fecal limits
1/1/2022	1/31/2022	3/17/2022	Carbonaceous Biochemical Oxygen Demand (CBOD5)	36	>	25	mg/L	Average Monthly	
1/1/2022	1/31/2022	3/17/2022	Carbonaceous Biochemical Oxygen Demand (CBOD5)	41	>	40	mg/L	Weekly Average	
1/1/2022	1/31/2022	3/17/2022	Total Residual Chlorine (TRC)	2.2	>	1.6	mg/L	Instantaneous Maximum	
1/1/2022	1/31/2022	3/17/2022	Total Suspended Solids	54	>	30	mg/L	Average Monthly	
1/1/2022	1/31/2022	3/17/2022	Total Suspended Solids	58	>	45	mg/L	Weekly Average	
2/1/2022	2/28/2022	3/26/2022	Carbonaceous Biochemical Oxygen Demand (CBOD5)	21	>	20	lbs/day	Weekly Average	repaired/replaced transfer pumps
2/1/2022	2/28/2022	3/26/2022	Total Suspended Solids	23	>	15	lbs/day	Average Monthly	repaired/replaced transfer pumps
2/1/2022	2/28/2022	3/26/2022	Total Suspended Solids	40	>	22	lbs/day	Weekly Average	repaired/replaced transfer pumps
2/1/2022	2/28/2022	3/26/2022	Total Suspended Solids	44	>	30	mg/L	Average Monthly	repaired/replaced transfer pumps
2/1/2022	2/28/2022	3/26/2022	Total Suspended Solids	51	>	45	mg/L	Weekly Average	repaired/replaced transfer pumps
4/1/2022	4/30/2022	5/26/2022	Total Suspended Solids	25	>	22	lbs/day	Weekly Average	
4/1/2022	4/30/2022	5/26/2022	Total Suspended Solids	46	>	45	mg/L	Weekly Average	
6/1/2022	6/30/2022	7/27/2022	Fecal Coliform	4839.2	>	1000	No./100 ml	Instantaneous Maximum	Several pumps have failed & were replaced. Daily pump clogging hinders the operation. A new facility is being planned.
6/1/2022	6/30/2022	7/27/2022	Total Suspended Solids	28	>	22	lbs/day	Weekly Average	Several pumps have failed & were replaced. Daily pump clogging hinders the operation. A new facility is being planned.
6/1/2022	6/30/2022	7/27/2022	Total Suspended Solids	69	>	45	mg/L	Weekly Average	Several pumps have failed & were replaced. Daily pump clogging hinders the operation. A new facility is being planned.
7/1/2022	7/31/2022	8/25/2022	Total Suspended Solids	35	>	30	mg/L	Average Monthly	Transfer pumps continually block/fail. Pumps are cleaned & replaced as needed.
7/1/2022	7/31/2022	8/25/2022	Total Suspended Solids	76	>	45	mg/L	Weekly Average	Transfer pumps continually block/fail. Pumps are cleaned & replaced as needed.
9/1/2022	9/30/2022	10/27/2022	Fecal Coliform	3465.8	>	1000	No./100 ml	Instantaneous Maximum	
12/1/2022	12/31/2022	1/31/2023	Fecal Coliform	> 2419.6	>	10000	No./100 ml	Instantaneous Maximum	Several transfer pumps were replaced/repaired.
12/1/2022	12/31/2022	1/31/2023	Fecal Coliform	2420	>	2000	No./100 ml	Geometric Mean	Several transfer pumps were replaced/repaired.
1/1/2023	1/31/2023	2/27/2023	Fecal Coliform	> 2419.6	>	10000	No./100 ml	Instantaneous Maximum	
1/1/2023	1/31/2023	2/27/2023	Fecal Coliform	> 28	>	2000	No./100 ml	Geometric Mean	
2/1/2023	2/28/2023	3/26/2023	Carbonaceous Biochemical Oxygen Demand (CBOD5)	52	>	25	mg/L	Average Monthly	We repaired/replaced several pumps that were burnt up or blocked with debris.
2/1/2023	2/28/2023	3/26/2023	Carbonaceous Biochemical Oxygen Demand (CBOD5)	81	>	40	mg/L	Weekly Average	We repaired/replaced several pumps that were burnt up or blocked with debris.
2/1/2023	2/28/2023	3/26/2023	Fecal Coliform	17182	>	2000	No./100 ml	Geometric Mean	We repaired/replaced several pumps that were burnt up or blocked with debris.
2/1/2023	2/28/2023	3/26/2023	Fecal Coliform	24196	>	10000	No./100 ml	Instantaneous Maximum	We repaired/replaced several pumps that were burnt up or blocked with debris.
3/1/2023	3/31/2023	4/26/2023	Fecal Coliform	24196	>	10000	No./100 ml	Instantaneous Maximum	
4/1/2023	4/30/2023	5/22/2023	Fecal Coliform	> 24196	>	10000	No./100 ml	Instantaneous Maximum	Multiple pumps failed and were repaired/replaced.
4/1/2023	4/30/2023	5/22/2023	Fecal Coliform	> 7107	>	2000	No./100 ml	Geometric Mean	Multiple pumps failed and were repaired/replaced.
5/1/2023	5/31/2023	6/27/2023	Fecal Coliform	> 11360	>	200	No./100 ml	Geometric Mean	repaired and replaced pumps
5/1/2023	5/31/2023	6/27/2023	Fecal Coliform	> 24196	>	1000	No./100 ml	Instantaneous Maximum	repaired and replaced pumps
6/1/2023	6/30/2023	7/21/2023	Fecal Coliform	> 2728	>	200	No./100 ml	Geometric Mean	We had multiple pumps & equipment failures that were repaired.
6/1/2023	6/30/2023	7/21/2023	Fecal Coliform	3076	>	1000	No./100 ml	Instantaneous Maximum	We had multiple pumps & equipment failures that were repaired.
7/1/2023	7/31/2023	8/28/2023	Fecal Coliform	> 1054	>	200	No./100 ml	Geometric Mean	I feel this was a lab error due to exceptional water quality CBOD and TSS effluent leaving the plant
7/1/2023	7/31/2023	8/28/2023	Fecal Coliform	> 24196	>	1000	No./100 ml	Instantaneous Maximum	I feel this was a lab error due to exceptional water quality CBOD and TSS effluent leaving the plant
8/1/2023	8/31/2023	9/25/2023	Fecal Coliform	> 225	>	200	No./100 ml	Geometric Mean	
8/1/2023	8/31/2023	9/25/2023	Fecal Coliform	> 24196	>	1000	No./100 ml	Instantaneous Maximum	
9/1/2023	9/30/2023	10/25/2023	Fecal Coliform	1299.7	>	1000	No./100 ml	Instantaneous Maximum	
9/1/2023	9/30/2023	10/25/2023	Fecal Coliform	595	>	200	No./100 ml	Geometric Mean	
10/1/2023	10/31/2023	11/22/2023	Carbonaceous Biochemical Oxygen Demand (CBOD5)	35	>	25	mg/L	Average Monthly	
11/1/2023	11/30/2023	12/19/2023	Carbonaceous Biochemical Oxygen Demand (CBOD5)	37	>	25	mg/L	Average Monthly	several pumps were cleaned and or replaced
11/1/2023	11/30/2023	12/19/2023	Fecal Coliform	> 2419.6	>	10000	No./100 ml	Instantaneous Maximum	several pumps were cleaned and or replaced
11/1/2023	11/30/2023	12/19/2023	Fecal Coliform	> 572	>	2000	No./100 ml	Geometric Mean	several pumps were cleaned and or replaced
11/1/2023	11/30/2023	12/19/2023	Total Suspended Solids	39	>	30	mg/L	Average Monthly	several pumps were cleaned and or replaced
12/1/2023	12/31/2023	1/23/2024	Carbonaceous Biochemical Oxygen Demand (CBOD5)	33	>	25	mg/L	Average Monthly	
12/1/2023	12/31/2023	1/23/2024	Fecal Coliform	> 20477	>	2000	No./100 ml	Geometric Mean	
12/1/2023	12/31/2023	1/23/2024	Fecal Coliform	> 24196	>	10000	No./100 ml	Instantaneous Maximum	
4/1/2024	4/30/2024	5/23/2024	Fecal Coliform	> 24196	>	10000	No./100 ml	Instantaneous Maximum	Tank #4 floated along with other pump failures
4/1/2024	4/30/2024	5/23/2024	Fecal Coliform	> 2939	>	2000	No./100 ml	Geometric Mean	Tank #4 floated along with other pump failures
5/1/2024	5/31/2024	6/24/2024	Carbonaceous Biochemical Oxygen Demand (CBOD5)	35	>	25	mg/L	Average Monthly	multiple pumps were blocked and were either replaced or repaired.
5/1/2024	5/31/2024	6/24/2024	Fecal Coliform	> 17063	>	200	No./100 ml	Geometric Mean	multiple pumps were blocked and were either replaced or repaired.
5/1/2024	5/31/2024	6/24/2024	Fecal Coliform	> 24196	>	1000	No./100 ml	Instantaneous Maximum	multiple pumps were blocked and were either replaced or repaired.
5/1/2024	5/31/2024	6/24/2024	Total Suspended Solids	32	>	30	mg/L	Average Monthly	multiple pumps were blocked and were either replaced or repaired.
7/1/2024	7/31/2024	8/28/2024	Carbonaceous Biochemical Oxygen Demand (CBOD5)	27	>	25	mg/L	Average Monthly	
7/1/2024	7/31/2024	8/28/2024	Carbonaceous Biochemical Oxygen Demand (CBOD5)	44	>	40	mg/L	Weekly Average	
7/1/2024	7/31/2024	8/28/2024	Fecal Coliform	> 2058	>	200	No./100 ml	Geometric Mean	
7/1/2024	7/31/2024	8/28/2024	Fecal Coliform	> 24196	>	1000	No./100 ml	Instantaneous Maximum	
7/1/2024	7/31/2024	8/28/2024	Total Residual Chlorine (TRC)	2.2	>	1.6	mg/L	Instantaneous Maximum	
12/1/2024	12/31/2024	1/9/2025	Total Suspended Solids	47	>	45	mg/L	Weekly Average	
3/1/2025	3/31/2025	4/21/2025	Fecal Coliform	> 156	>	2000	No./100 ml	Geometric Mean	
3/1/2025	3/31/2025	4/21/2025	Fecal Coliform	> 24196	>	10000	No./100 ml	Instantaneous Maximum	

ATTACHMENT C
MODELING INPUT/OUTPUT

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
06C	17370	NORTH BRANCH MAHANTANGO CR	**6.390**	535.00	9.46	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.140	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 (ºC)	Disc pH
MtPleasantMills	PA0113719	0.0600	0.0600	0.0600	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

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
06C	17370	NORTH BRANCH MAHANTANGO CR	**6.320**	534.00	14.10	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.140	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 (ºC)	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 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
06C	17370	NORTH BRANCH MAHANTANGO 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 (ºC)	Analysis pH
Q7-10 Flow												
6.390	1.32	0.00	1.32	.0928	0.00271	.545	17.56	32.19	0.15	0.029	25.00	7.00
Q1-10 Flow												
6.390	1.27	0.00	1.27	.0928	0.00271	NA	NA	NA	0.14	0.030	25.00	7.00
Q30-10 Flow												
6.390	1.54	0.00	1.54	.0928	0.00271	NA	NA	NA	0.16	0.027	25.00	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	0.96	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.16	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
06C	17370	NORTH BRANCH MAHANTANGO 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
6.390	MtPleasantMills	11.07	50	11.07	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
6.390	MtPleasantMills	1.37	23.99	1.37	23.99	0	0

Dissolved Oxygen Allocations

		CBOD5		NH3-N		Dissolved Oxygen		Critical	Percent
RMI	Discharge Name	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Reach	Reduction
6.39	MtPleasantMills	25	25	23.99	23.99	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
06C	17370	NORTH BRANCH MAHANTANGO CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
6.390	0.060	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
17.555	0.545	32.192	0.148
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.51	0.690	1.57	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.900	4.285	Tsivoglou	5
Reach Travel Time (days)			
0.029			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.003	3.50	1.57	7.54
0.006	3.49	1.56	7.54
0.009	3.48	1.56	7.54
0.012	3.47	1.55	7.54
0.014	3.46	1.55	7.54
0.017	3.45	1.54	7.54
0.020	3.45	1.54	7.54
0.023	3.44	1.53	7.54
0.026	3.43	1.53	7.54
0.029	3.42	1.53	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
06C	17370	NORTH BRANCH MAHANTANGO 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)
6.390	MtPleasantMills	PA0113719	0.060	CBOD5	25		
				NH3-N	23.99	47.98	
				Dissolved Oxygen			3

	A	B	C	D	E	F	G
1							
2	**TRC EVALUATION**						
3	Input appropriate values in B4:B8 and E4:E7						
4		1.32	= Q stream (cfs)		0.5	= CV Daily	
5		0.06	= Q discharge (MGD)		0.5	= CV Hourly	
6		30	= no. samples		0.923	= AFC_Partial Mix Factor	
7		0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor	
8		0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
9		0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
		0	= % Factor of Safety (FOS)		0	=Decay Coefficient (K)	
10		Source	Reference	AFC Calculations		Reference	CFC Calculations
11		TRC	1.3.2.iii	WLA afc = 4.206		1.3.2.iii	WLA cfc = 4.434
12		PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13		PENTOXSD TRG	5.1b	LTA_afc= 1.567		5.1d	LTA_cfc = 2.578
14							
15		Source		Effluent Limit Calculations			
16		PENTOXSD TRG	5.1f	AML MULT = 1.231			
17		PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500		BAT/BPJ	
18				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)

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
06C	17370	NORTH BRANCH MAHANTANGO CR	**6.390**	535.00	9.46	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.140	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 (ºC)	Disc pH
MtPleasantMills	PA0113719	0.1000	0.1000	0.1000	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

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
06C	17370	NORTH BRANCH MAHANTANGO CR	**6.320**	534.00	14.10	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.140	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 (ºC)	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

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
06C	17370	NORTH BRANCH MAHANTANGO CR	**5.570**	515.00	18.20	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.140	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 (ºC)	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
06C	17370	NORTH BRANCH MAHANTANGO 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 (ºC)	Analysis pH
Q7-10 Flow												
6.390	1.32	0.00	1.32	.1547	0.00271	.548	17.79	32.43	0.15	0.028	25.00	7.00
6.320	1.97	0.00	1.97	.1547	0.00480	.577	20.66	35.82	0.18	0.257	25.00	7.00
Q1-10 Flow												
6.390	1.27	0.00	1.27	.1547	0.00271	NA	NA	NA	0.15	0.029	25.00	7.00
6.320	1.90	0.00	1.90	.1547	0.00480	NA	NA	NA	0.17	0.262	25.00	7.00
Q30-10 Flow												
6.390	1.54	0.00	1.54	.1547	0.00271	NA	NA	NA	0.16	0.026	25.00	7.00
6.320	2.29	0.00	2.29	.1547	0.00480	NA	NA	NA	0.19	0.238	25.00	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	0.96	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.16	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
06C	17370	NORTH BRANCH MAHANTANGO 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
6.390	MtPleasantMills	11.07	50	11.07	50	0	0
6.320		NA	NA	11.07	NA	NA	NA

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
6.390	MtPleasantMills	1.37	14.94	1.37	14.94	0	0
6.320		NA	NA	1.37	NA	NA	NA

Dissolved Oxygen Allocations

		CBOD5		NH3-N		Dissolved Oxygen		Critical	Percent
RMI	Discharge Name	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Reach	Reduction
6.39	MtPleasantMills	25	25	14.94	14.94	3	3	0	0
6.32		NA	NA	NA	NA	NA	NA	NA	NA

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
06C	17370	NORTH BRANCH MAHANTANGO CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
6.390	0.100	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
17.786	0.548	32.429	0.152
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
4.41	0.881	1.56	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.695	4.389	Tsivoglou	5
Reach Travel Time (days)			
0.028			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.003	4.39	1.56	7.54
0.006	4.38	1.55	7.54
0.008	4.36	1.55	7.54
0.011	4.35	1.54	7.54
0.014	4.34	1.54	7.54
0.017	4.32	1.54	7.51
0.020	4.31	1.53	7.48
0.023	4.30	1.53	7.45
0.025	4.28	1.52	7.42
0.028	4.27	1.52	7.39

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
6.320	0.100	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
20.663	0.577	35.819	0.179
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.58	0.633	1.05	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.651	9.167	Tsivoglou	5
Reach Travel Time (days)			
0.257			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.026	3.50	1.03	7.54
0.051	3.43	1.00	7.54
0.077	3.36	0.97	7.53
0.103	3.30	0.95	7.51
0.128	3.23	0.92	7.50
0.154	3.16	0.90	7.50

0.180	3.10	0.88	7.50
0.205	3.04	0.85	7.51
0.231	2.98	0.83	7.52
0.257	2.92	0.81	7.53

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
06C	17370	NORTH BRANCH MAHANTANGO 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)
6.390	MtPleasantMills	PA0113719	0.100	CBOD5	25		
				NH3-N	14.94	29.88	
				Dissolved Oxygen			3