pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0253171**
Facility Type	**Municipal**	APS ID	**1033689**
Major / Minor	**Minor**	Authorization ID	**1345551**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Mount Pleasant Township Municipal Authority**	Facility Name	**Mount Pleasant Township STP**
Applicant Address	PO Box 137, 208 Poker Road	Facility Address	Brinkerton Road
	Mammoth, PA 15664		Brinkerton, PA 15601
Applicant Contact	Charles Naggy	Facility Contact	Vance James
Applicant Phone	(724) 424-5418	Facility Phone	(412) 965-4061
Client ID	245381	Site ID	665452
Ch 94 Load Status	Not Overloaded	Municipality	Mount Pleasant Township
Connection Status	No Limitations	County	Westmoreland
Date Application Received	March 5, 2021	EPA Waived?	No
Date Application Accepted	March 11, 2021	If No, Reason	TMDL
Purpose of Application	NPDES permit renewal for treated sewage effluent.		

Summary of Review

The Mount Pleasant Township Municipal Authority (MPTMA) submitted an application dated March 1, 2021 to renew NPDES Permit PA0253171 for discharges from the Mount Pleasant Township Sewage Treatment Plant (Mount Pleasant Township STP). The application was received by DEP on March 5, 2021. The permit currently in effect was issued on August 26, 2016 with a September 1, 2016 effective date and an August 31, 2021 expiration date. The renewal application was ostensibly submitted 180 days before the permit expired (i.e., by March 4, 2021) despite being received a day late, so the terms and conditions of the 2016 permit will be automatically continued if the effective date of the renewed permit extends past August 31, 2021.

Effluent limits for ammonia-nitrogen in the renewed permit are updated to be consistent with new water quality criteria for ammonia-nitrogen.

Sludge use and disposal description and location(s): Landfill disposal via County Hauling Corporation.

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.

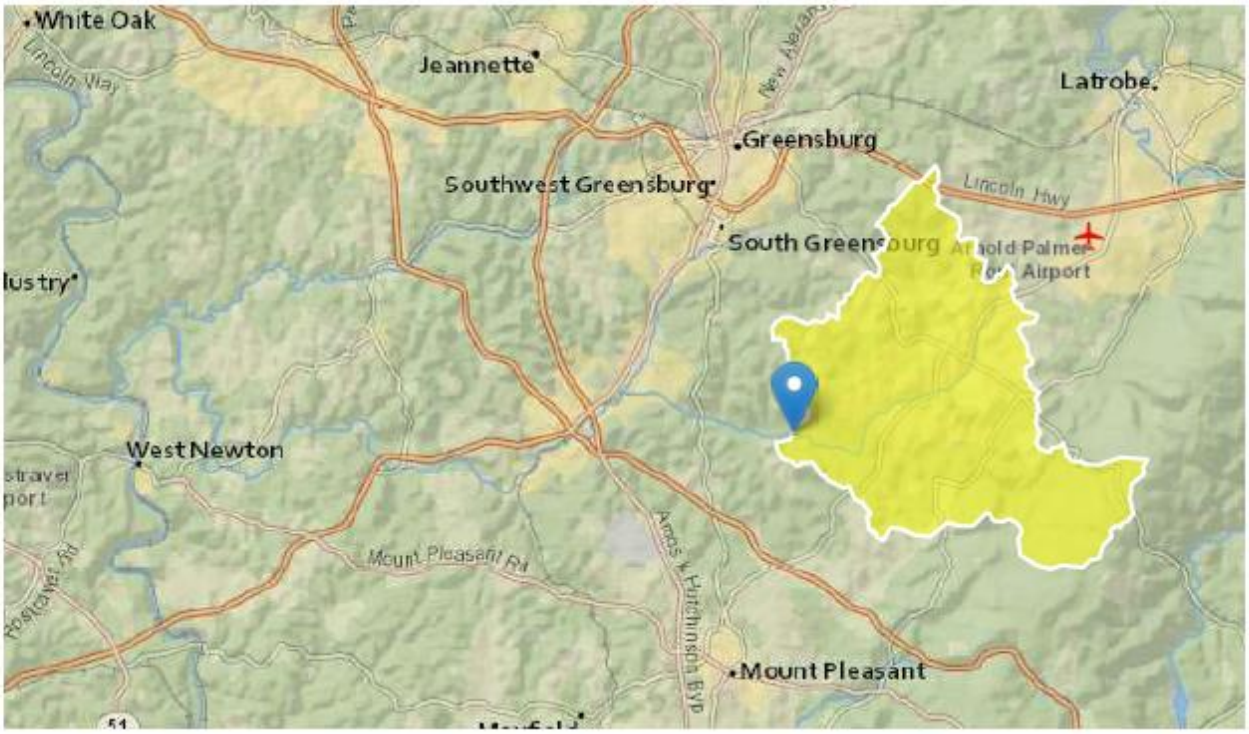
Approve	Deny	Signatures	Date
X		*Ryan C. Decker* Ryan C. Decker, P.E. / Environmental Engineer	June 15, 2021
X		*James Vanek* James Vanek, P.E. / Environmental Engineer	June 15, 2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.33
Latitude	40° 13' 6"	Longitude	-79° 31' 3"
Quad Name	Mt. Pleasant	Quad Code	1709
Wastewater Description:	Treated sewage effluent		
Receiving Waters	Sewickley Creek (WWF)	Stream Code	37556
NHD Com ID	69913055	River Mile Index (RMI)	23.88
Drainage Area	28	Yield (cfs/mi^2)	0.030
Q_{7-10} Flow (cfs)	0.876	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	964	Slope (ft/ft)	0.0012
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens, pH, Siltation		
Source(s) of Impairment	Acid Mine Drainage; Agriculture; Source Unknown		
TMDL Status	Final (March 12, 2009)	Name	Sewickley Creek Watershed TMDL
Nearest Downstream Public Water Supply Intake	Westmoreland County Municipal Authority - McKeesport		
PWS Waters	Youghiogheny River	Flow at Intake (cfs)	510
PWS RMI	1.30	Distance from Outfall (mi)	32.88

Changes Since Last Permit Issuance: None

StreamStats Report

Region ID: PA
Workspace ID: PA20210519212630811000
Clicked Point (Latitude, Longitude): 40.21822, -79.51771
Time: 2021-05-19 17:26:47 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	28.9	square miles
ELEV	Mean Basin Elevation	1230	feet

Low-Flow Statistics Parameters [99.9 Percent (28.9 square miles) Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	28.9	square miles	2.26	1400

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ELEV	Mean Basin Elevation	1230	feet	1050	2580

Low-Flow Statistics Flow Report [99.9 Percent (28.9 square miles) Low Flow Region 4]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	1.32	ft^3/s	43	43
30 Day 2 Year Low Flow	2.18	ft^3/s	38	38
7 Day 10 Year Low Flow	0.528	ft^3/s	66	66
30 Day 10 Year Low Flow	0.879	ft^3/s	54	54
90 Day 10 Year Low Flow	1.54	ft^3/s	41	41

Low-Flow Statistics Citations

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

Application Version: 4.5.3
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

Treatment Facility Summary		
Treatment Facility: Mount Pleasant Township STP – 0.33 MGD average daily flow, 0.85 MGD peak hourly flow		
WQM Permit No.	**Issuance Date**	**Purpose**
6507403	January 16, 2009	Permit issued to Mount Pleasant Township Municipal Authority for a sewage treatment plant consisting of: • a mechanical bar screen and manually cleaned bar screen backup • two sequential batch reactors (44' dia., maximum average water depths of 15.5 feet) • one 57,000-gallon aerobic digester for wasted sludge with high level overflow to the head of the plant • one belt filter press to dewater digested sludge • one UV disinfection system designed for peak instantaneous flow with emergency backup power.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with ammonia-nitrogen removal	Sequential Batch Reactor	Ultraviolet light	0.121

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.33	606	Not Overloaded	Aerobic digester and belt filter press	Landfill

Changes Since Last Permit Issuance: None

Compliance History

DMR Data for Outfall 001 (from April 1, 2020 to March 31, 2021)

Parameter	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20
Flow (MGD) Average Monthly	0.08	0.074	0.0630	0.072	0.05	0.045	0.045	0.047	0.048	0.044	0.057	0.073
Flow (MGD) Daily Maximum	0.156	0.130	0.0940	0.120	0.104	0.07	0.074	0.085	0.063	0.05	0.095	0.128
pH (S.U.) Instantaneous Minimum	6.8	6.8	6.8	6.8	6.9	6.8	6.8	6.7	6.7	6.8	6.8	6.8
pH (S.U.) Instantaneous Maximum	7.1	7.2	7.1	7.1	7.1	7.1	7.2	7.1	7.1	7.0	7.2	7.1
DO (mg/L) Minimum	6.4	6.2	6.09	5.9	5.8	5.7	5.6	5.0	5.2	5.7	5.6	6.0
CBOD5 (lbs/day) Average Monthly	7.0	4.6	4.3	4.0	< 2.9	< 1.3	< 1.4	< 1.1	< 1.7	< 1.8	< 2.3	< 3.2
CBOD5 (lbs/day) Weekly Average	10.4	7.1	7.8	5.7	4.9	1.7	1.8	< 1.3	2.7	2.5	< 4.5	4.0
CBOD5 (mg/L) Average Monthly	11.8	6.0	7.6	7.8	< 7.4	< 3.5	< 3.5	< 3.0	< 4.4	< 5.1	< 5.7	< 5.2
CBOD5 (mg/L) Weekly Average	19.3	7.3	12.4	13.7	13.3	4.8	4.5	< 3.0	7.5	6.4	< 12.0	6.3
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	82.7	111.4	76.4	84.9	81.2	100.8	44.0	< 40.1	72.5	56.2	96.7	154.2
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	171.7	166.4	93.2	177.1	92.1	211.2	74.0	54.2	87.2	73.0	168.5	270.1
BOD5 (mg/L) Raw Sewage Influent Average Monthly	115.7	181	151.4	149.6	205.8	258.1	108.3	< 105.7	189.8	161.5	238.0	255.2
TSS (lbs/day) Average Monthly	< 3.6	< 3.6	2.6	< 3.4	< 2.4	< 1.9	< 2.1	< 1.9	< 2.0	< 1.7	< 2.1	< 3.0
TSS (lbs/day) Raw Sewage Influent Average Monthly	43.2	109.5	58.0	66.7	40.4	35.8	30.1	32.9	43.3	39.4	55.0	94.6
TSS (lbs/day) Raw Sewage Influent Daily Maximum	97.6	269.9	80.8	120.1	61.1	66.7	46.6	54.2	69.6	56.7	66.1	129.3
TSS (lbs/day) Weekly Average	< 6.5	< 5.4	3.9	5.1	3.3	< 2.4	< 2.6	< 2.1	< 2.6	< 2.1	< 2.5	< 3.4
TSS (mg/L) Average Monthly	< 6.0	< 5.0	< 5.0	< 6.0	< 6.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Parameter	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20
TSS (mg/L) Raw Sewage Influent Average Monthly	57	196	114.0	124	103	93	71	88	112	111	132	160
TSS (mg/L) Weekly Average	7.0	5.0	< 5.0	10.0	9.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	5.0
Fecal Coliform (CFU/100 ml) Geometric Mean	< 3	< 2	7	< 1	< 2	> 9	< 10	< 3	< 2	< 2	< 23	< 32
UV Transmittance (%) Minimum	1.7	1.9	1.8	1.8	1.9	1.9	1.8	1.7	1.7	1.9	1.2	1.7
UV Transmittance (%) Average Monthly	1.9	2.1	2.4	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.1	2.0
Total Nitrogen (mg/L) Daily Maximum				5.5								
Ammonia (lbs/day) Average Monthly	< 5.1	2.9	3.7	< 0.5	< 0.3	< 0.3	< 0.3	< 0.3	< 0.4	< 0.3	< 0.3	< 0.5
Ammonia (mg/L) Average Monthly	< 7.1	4.9	6.1	< 0.8	< 0.8	0.9	< 0.8	< 0.8	< 1.0	< 0.8	< 0.8	< 0.8
Total Phosphorus (mg/L) Daily Maximum				1.7								

Violation Summary

VIOL ID	VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE	INSP ID	INSP CATEGORY	INSPECTED DATE	INSP TYPE	INSPECTOR
677092	09/03/2013	302.202	Failure to submit Operator Certification system fee	09/25/2013	2201619	PF	09/03/2013	Administrative/File Review	MOYER, GARY
677093	09/03/2013	302.1202	Failure to submit Operator Certification Available Operator Report (AOR)	09/25/2013	2201619	PF	09/03/2013	Administrative/File Review	MOYER, GARY
861677	08/30/2019	94.21	Wasteload Management - Failure to implement required measures for an existing overload	09/11/2019	2931287	PF	08/30/2019	Compliance Evaluation	MILSOP, LISA
861678	08/30/2019	92A.61(C)	NPDES - Failure to monitor pollutants as required by the NPDES permit	09/11/2019	2931287	PF	08/30/2019	Compliance Evaluation	MILSOP, LISA
867117	11/04/2019	92A.62	NPDES - Failure to pay annual fee	11/26/2019	2954442	PF	11/04/2019	Administrative/File Review	OPILA, TAMI

There are no open violations for the client.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.33
Latitude 40° 13' 6.00" **Longitude** -79° 31' 3.00"
Wastewater Description: Treated sewage effluent

001. Technology-Based Effluent Limitations (TBELs)

25 Pa. Code § 92a.47 – Sewage Permits

Regulations at 25 Pa. Code § 92a.47 specify TBELs and effluent standards that apply to sewage discharges. Section 92a.47(a) requires that sewage be given a minimum of secondary treatment with significant biological treatment that achieves the following:

Table 1. Regulatory TBELs for Sanitary Wastewaters

Parameter	Average Monthly (mg/L)	Weekly Average (mg/L)	Instant. Max (mg/L)	Basis
CBOD5	25	40†	50††	25 Pa. Code § 92a.47(a)(1), (a)(2) & 40 CFR §§ 133.102(a)(4)(i) & (ii)
Total Suspended Solids	30	45	60†	25 Pa. Code § 92a.47(a)(1), (a)(2) & 40 CFR §§ 133.102(b)(1) & (b)(2)
Fecal Coliform (No./100 mL) May 1 – September 30	200 (Geometric Mean)	N/A	1,000	25 Pa. Code § 92a.47(a)(4)
Fecal Coliform (No./100 mL) October 1 – April 30	2,000 (Geometric Mean)	N/A	10,000	25 Pa. Code § 92a.47(a)(5)
Total Residual Chlorine	0.5 (or facility-specific)	N/A	1.00 (or facility-specific)	25 Pa. Code § 92a.47(a)(8) & § 92a.48(b)(2)
pH (s.u.)	not less than 6.0 and not greater than 9.0			25 Pa. Code § 92a.47(a)(7) & § 95.2(1), & 40 CFR § 133.102(c)

† Outfall 001 is currently subject to a more stringent CBOD5 weekly average limit of 37.5 mg/L. That limit will be maintained pursuant to EPA's anti-backsliding regulation (40 CFR § 122.44(l)).

†† Value is calculated as two times the monthly average in accordance with Chapter 2 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations. and Other Permit Conditions in NPDES Permits" [Doc. No. 362-0400-001].

The CBOD5, TSS, and pH limits are the same as those in EPA's secondary treatment regulation (40 CFR § 133.102).

Average monthly and maximum daily flows must be reported pursuant to 25 Pa. Code § 92a.61(d)(1). The existing minimum dissolved oxygen limit of 4.0 mg/L will be maintained at Outfall 001 pursuant to 25 Pa. Code § 92a.61(b) (regarding reasonable monitoring requirements) and 40 CFR § 122.44(l) (regarding anti-backsliding).

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. 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.

MPTMA uses ultraviolet light for disinfection rather than chlorine, so the TBELs for TRC from 92a.47(a)(8) are replaced with minimum and average reporting requirements for ultraviolet light transmittance pursuant to § 92a.61(b).

Mass Limits

In accordance with Table 5-3 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations. and Other Permit Conditions in NPDES Permits" and Section IV of DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits", mass limits are calculated for CBOD5 and TSS. Average monthly and average weekly mass limits (in units of pounds per day) are calculated using the concentration limits in Table 1 and the Mount Pleasant Township STP's 0.33 MGD design flow with the following formula:

Design flow (average annual) (MGD) × concentration limit (mg/L) at design flow × conversion factor (8.34) = mass limit (lb/day)

Table 2. Mass TBELs for Sanitary Wastewaters

Parameter	Average Monthly (mg/L)	Average Weekly (mg/L)
CBOD5	65.0	100.0
Total Suspended Solids	80.0	120.0

Pursuant to Chapter 5, Section C.2 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" mass limits for conventional pollutants with a magnitude greater than 60.0 are rounded down to the nearest 5.0 mg/L (the mass limits in Table 2 account for this rounding convention).

Water Quality-Based Effluent Limitations (WQBELs)

Pursuant to EPA's approval of Pennsylvania's 2017 Triennial Review of Water Quality Standards and corresponding regulatory changes published in the *Pennsylvania Bulletin* on July 11, 2020, new water quality criteria for ammonia-nitrogen apply to waters of the Commonwealth. Therefore, WQBELs for CBOD-5 and ammonia-nitrogen are re-evaluated even though there have been no changes to the STP.

WQM 7.0 Water Quality Modeling Program

WQM 7.0 is a water quality modeling program for Windows that determines Waste Load Allocations ("WLAs") and effluent limitations for carbonaceous biochemical oxygen demand ("CBOD5"), ammonia-nitrogen, and dissolved oxygen ("DO") for single and multiple point-source discharge scenarios. To accomplish this, the model simulates two basic processes. In the ammonia-nitrogen module, the model simulates the mixing and degradation of ammonia-nitrogen in the stream and compares calculated instream ammonia-nitrogen concentrations to ammonia-nitrogen water quality criteria. In the DO module, the model simulates the mixing and consumption of DO in the stream due to the degradation of CBOD5 and ammonia-nitrogen, and compares calculated instream DO concentrations to DO water quality criteria. WQM 7.0 then determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions.

Water Quality Modeling with WQM 7.0

Table 3. 001 WQM 7.0 Inputs

Discharge Characteristics	
Parameter	**Value**
River Mile Index	23.88
Discharge Flow (MGD)	0.33
Discharge Temp. (°C) (Summer)	20.0
Discharge Temp. (°C) (Winter)	15.0
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	28.9
Q_{7-10} (cfs)	0.876
Low-flow yield (cfs/mi^2)	0.030
Elevation (ft)	964
Slope	0.0012
Stream Temp. (°C) (Summer)	25.0
Stream Temp. (°C) (Winter)	5.0
Stream pH (s.u.)	7.0

The WQM 7.0 model is run for Outfall 001 to determine whether WQBELs are necessary for $CBOD_5$, ammonia-nitrogen, and/or dissolved oxygen. Input values for the WQM 7.0 model are shown in Table 3.

DEP's modeling for sewage discharges is a two-step process. First, a discharge is modeled for the summer period (May through October) using warm temperatures for the discharge and the receiving stream. Modeling for the summer period is done first because allowable ammonia concentrations in a discharge are lower at higher temperatures (i.e., warm temperatures are more likely to result in critical loading conditions). Reduced dissolved oxygen levels also appear to increase ammonia toxicity and the maximum concentration of dissolved oxygen in water is lower at higher temperatures.

The second step is to evaluate WQBELs for the winter period, but only if modeling shows that WQBELs are needed for the summer period. For the summer period, pursuant to DEP's "Implementation Guidance of Section 93.7 Ammonia Criteria" [Doc. No. 391-2000-013] (Ammonia Guidance) and in the absence of site-specific data, the discharge temperature is assumed to be 20°C and the design stream temperature and pH are assumed to be 25°C and 7.0 s.u., respectively, based on the recommendations for free stone warm water streams in DEP's Ammonia Guidance (Sewickley Creek is designated for warm water fishes). The flow used for modeling is the average design flow (0.33 MGD). Input discharge concentrations are the existing average monthly limits.

The Q_{7-10} flow of Sewickley Creek (0.876 cfs) estimated using USGS's StreamStats web application with an allowance for that application's 66% standard error [i.e., 0.528 cfs + (0.528 × 0.66) cfs]

The results of the WQM 7.0 modeling (see attachments) indicate that new WQBELs are needed for CBOD5 and ammonia-nitrogen. Consistent with Section IV.D of DEP's Ammonia Guidance, limits from WQM 7.0 greater than 10 mg/L are rounded down to the nearest whole number and limits less than 10 mg/L and greater than 1 mg/L are rounded down to the nearest 0.5 mg/L. Limits less than 1 mg/L are around down to the nearest 0.1 mg/L. Limits greater than 60.0 are rounded down to the nearest 5 mg/L.

The average monthly and instantaneous maximum ammonia-nitrogen WQBELs calculated by WQM 7.0 for the summer period are 3.0 mg/L and 6.0 mg/L, respectively (rounded down from 3.07 and 6.14 to the nearest 0.5 mg/L), and the average monthly WQBEL for CBOD5 is 10.0 mg/L (rounded down from 10.24 to the nearest 1.0 mg/L). IMAX limits for ammonia-nitrogen are calculated using an average monthly limit multiplier of 2.0. That limit will appear in the permit. However, IMAX limits are used by DEP sampling personnel, so MPTMA does not need to report results on DMRs for compliance with the ammonia-nitrogen IMAX limits.

Pursuant to Section IV.C.2 of DEP's Ammonia Guidance, average weekly and instantaneous maximum limits for CBOD5 are calculated using average monthly limit multipliers of 1.5 and 2.0, which results in average weekly and instantaneous maximum CBOD5 WQBELs of 15.0 mg/L and 20.0 mg/L, respectively.

Since WQBELs are calculated for the summer period, winter limits are evaluated also. Pursuant to DEP's Ammonia Guidance, WQBELs for the winter period are set by multiplying the summer limits by three, unless modeling indicates that more stringent WQBELs are needed for winter.

For winter period modeling, the low-flow yield (representing $Q_{7\text{-}10}$ flow) is doubled to 0.06 cfs/mi^2 consistent with DEP's Ammonia Guidance. Default stream and discharge temperatures of 5°C and 15°C, respectively, also are assumed based on the Ammonia Guidance. The results of the modeling (see attachments) indicate that winter limits for ammonia-nitrogen calculated using a summer limit multiplier of three (9.0 mg/L and 18.0 mg/L) are more stringent than the winter modeling results (16.5 mg/L and 33.0 mg/L—the existing winter limits for ammonia-nitrogen). Therefore, WQBELs calculated for ammonia-nitrogen using the summer limit multiplier of 3 will apply from November through April. Standard secondary limits are recommended by WQM 7.0 for CBOD5 (see Table 1) during the winter period. The WQBELs are summarized in the table below (after rounding). For comparison, the existing (old) limits also are shown.

Table 4. WQBELs for Outfall 001 versus Existing Limits

Parameter	Permit	Average Monthly (mg/L)	Average Weekly (mg/L)	Instant. Maximum (mg/L)
CBOD5 May 1 – October 31	Old	25.0	37.5	50.0
	New	**10.0** (rounded)	10.0 × 1.5 = **15.0**	10.0 × 2.0 = **20.0**
CBOD5 November 1 – April 30	Old	25.0	40.0	50.0
	New	**25.0**	**40.0**	**50.0**
Ammonia-Nitrogen May 1 – October 31	Old	5.5	N/A	11
	New	**3.0** (rounded)	N/A	**6.0** (rounded)
Ammonia-Nitrogen November 1 – April 30	Old	16.5	N/A	33
	New	3.0 × 3.0 = **9.0**	N/A	9.0 × 2 = **18.0**

Mass Limits

Since CBOD5 limits during the summer period are more stringent than the TBELs in Table 1, mass limits for CBOD5 are recalculated. In accordance with Section IV of DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits", only average monthly mass limits are calculated for ammonia-nitrogen (no average weekly mass limits).

Average monthly and average weekly mass limits (in units of pounds per day) are calculated using the concentration limits in Table 4 and the plant's 0.33 MGD design flow with the following formula:

Design flow (average annual) (MGD) × concentration limit (mg/L) at design flow × conversion factor (8.34) = mass limit (lb/day)

The calculated mass WQBELs are summarized in Table 5 (after rounding).

Table 5. Mass WQBELs for Sanitary Wastewaters

Parameter	Average Monthly (lb/day)	Average Weekly (lb/day)
CBOD5 May 1 – October 31	27.0 (rounded)	41.0 (rounded)
Ammonia-Nitrogen May 1 – October 31	8.0 (rounded)	—
Ammonia-Nitrogen November 1 – April 30	24.0 (rounded)	—

The technology-based mass limits for CBOD5 in Table 2 will apply from November 1 through April 30.

As explained previously, MPTMA does not use chlorine for disinfection, so no WQBELs are developed for total residual chlorine. However, a condition will be included in Part C of the permit requiring MPTMA to obtain approval from DEP prior to the use of chlorine and to minimize its use if it is used for disinfection or other purposes (e.g. cleaning).

The new WQBELs and 5-year average DMR results over the last five years are compared in Table 6. The effluent data indicate that MPTMA can comply with the new CBOD5 and ammonia-nitrogen limits without a compliance schedule.

Table 6. WQBELs and Five-Year Average DMR Results

Parameter	Load (lbs/day)				Concentration (mg/L)			
	Avg. Mo. WQBEL	5-Year DMR Avg.	Avg. Wkly WQBEL	5-Year DMR Avg.	Avg. Mo. WQBEL	5-Year DMR Avg.	Avg. Wkly WQBEL	5-Year DMR Avg.
CBOD5 May 1 – Oct 31	27.0	10.6	41.0	5.9	10.0	6.6	15.0	7.4
CBOD5 Nov 1 – April 30	65.0	5.5	100.0	9.4	25.0	6.9	40.0	8.5
Ammonia-Nitrogen May 1 – Oct 31	8.0	<0.75	—	—	3.0	<0.8	—	—
Ammonia-Nitrogen Nov 1 – April 30	24.0	<1.5	—	—	9.0	<2.0	—	—

Total Maximum Daily Load ("TMDL") for the Sewickley Creek Watershed

The aquatic life uses of Sewickley Creek and tributaries to Sewickley Creek including Jacks Run, Welty Run, Buffalo Run, and their tributaries are impaired by metals (aluminum, iron, and manganese) and pH from acid mine drainage ("AMD"). These streams were variously listed on Pennsylvania's 1996, 1998, 2002, and 2006 lists of impaired waters. On April 8, 2009, U.S. EPA approved a TMDL prepared by DEP addressing the AMD-based impairments in the watershed. The current NPDES permit was issued after the TMDL was finalized, but there was no discussion of the TMDL in the Fact Sheet for the previous permit.

No waste load allocations were assigned to the Mount Pleasant Township STP's discharges by the TMDL. Also, since the TMDL was not previously addressed by DEP, the effluent concentrations of AMD metals (aluminum, iron, and manganese) in the discharge are unknown and were not analyzed and reported to complete the permit application. The Mount Pleasant Township STP does not have industrial users and AMD metals are not expected to be present in significant concentrations in sewage. However, in the absence of any data, annual reporting requirements will be imposed at Outfall 001 for aluminum, iron, and manganese pursuant to 25 Pa. Code §§ 92a.61(b) and 96.4(i).

There is no TMDL for Sewickley Creek's pathogen-based recreational use impairment, but MPTMA's use of UV disinfection should prevent MPTMA from contributing to the pathogen-based impairment.

Influent Monitoring

Pursuant to Section IV.E.8 of DEP's "Standard Operating Procedure (SOP) for Clean Water Program New and Reissuance Sewage Individual NPDES Permit Applications" [SOP No. BCW-PMT-002, Version 1.9, January 6, 2020], for POTWs with design flows greater than 2,000 GPD, influent BOD_5 and TSS monitoring is established in the permit with the same sample frequency and sample type used for the effluent (1/week, 8-Hr Composite).

Effluent Limits

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61, effluent limits applicable at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in the tables on the following pages.

Monitoring frequencies and sample types are established pursuant to DEP's "Technical Guidance for the Development and Specification of Effluent Limitations. and Other Permit Conditions in NPDES Permits" and DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits". Dissolved oxygen and pH must be sampled 1/day using grab sampling. UV transmittance must be recorded 1/day. CBOD5, TSS, and ammonia-nitrogen must be sampled 1/week using 8-hour composite sampling. Fecal coliform must be sampled 1/week using grab sampling. *E.Coli* must be sampled 1/quarter using grab sampling. Total nitrogen and total phosphorus must be sampled 1/year using grab sampling. Total aluminum, total iron, and total manganese must be sampled 1/year using 8-hour composite sampling. Flow must be recorded continuously.

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) 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)	Required
	Average Monthly	Weekly Average	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	65.0	100.0	XXX	25.0	37.5	50.0	1/week	8-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	27.0	41.0	XXX	10.0	15.0	20.0	1/week	8-Hr Composite
Biochemical Oxygen Demand 5-day Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids	80.0	120.0	XXX	30.0	45.0	60.0	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
Ultraviolet light transmittance (%)	XXX	XXX	Report	Report	XXX	XXX	1/day	Recorded
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	24.0	XXX	XXX	9.0	XXX	18.0	1/week	8-Hr Composite

Outfall 001 (continued), Effective Period: Permit Effective Date through Permit Expiration Date

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2)	Required
	Average Monthly	Weekly Average	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
Ammonia-Nitrogen May 1 - Oct 31	8.0	XXX	XXX	3.0	XXX	6.0	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Aluminum, Total	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Iron, Total	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Manganese, Total	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001

Summer 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
19D	37556	SEWICKLEY CREEK	23.880	964.00	28.90	0.00120	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	0.030	0.00	0.00	0.000	0.000	10.0	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
Outfall 001	PA0253171	0.3300	0.0000	0.0000	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.38	0.00	0.00
NH3-N	5.50	0.00	0.00	0.70

Summer 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
19D	37556	SEWICKLEY CREEK	20.880	944.00	43.90	0.00120	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	0.033	0.00	0.00	0.000	0.000	10.0	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	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

Summer Modeling

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		

Summer Modeling

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY 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												
23.880	0.87	0.00	0.87	.5105	0.00120	1.137	11.37	10	0.11	1.721	23.15	7.00
Q1-10 Flow												
23.880	0.55	0.00	0.55	.5105	0.00120	NA	NA	NA	0.09	1.987	22.60	7.00
Q30-10 Flow												
23.880	1.18	0.00	1.18	.5105	0.00120	NA	NA	NA	0.12	1.535	23.49	7.00

Summer Modeling

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY 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
23.880	Outfall 001	13.51	11	13.51	11	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
23.880	Outfall 001	1.51	4.99	1.51	4.99	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)		
23.88	Outfall 001	10.24	10.24	3.07	3.07	4	4	0	0

Summer Modeling

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
23.880	0.330	23.147	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
11.371	1.137	10.000	0.107
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
5.05	0.379	1.14	0.892
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.757	1.309	Tsivoglou	5
Reach Travel Time (days)			
1.721			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.172	4.69	0.98	5.99
0.344	4.35	0.84	5.50
0.516	4.03	0.72	5.22
0.688	3.74	0.62	5.11
0.860	3.47	0.53	5.10
1.033	3.21	0.45	5.17
1.205	2.98	0.39	5.30
1.377	2.76	0.33	5.46
1.549	2.56	0.29	5.64
1.721	2.38	0.25	5.83

Summer Modeling

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY 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)
23.880	Outfall 001	PA0253171	0.330	CBOD5	10.24		
				NH3-N	3.07	6.14	
				Dissolved Oxygen			4

Winter 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
19D	37556	SEWICKLEY CREEK	23.880	964.00	28.90	0.00120	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	0.060	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Outfall 001	PA0253171	0.3300	0.0000	0.0000	0.000	15.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	12.80	0.00	0.00
NH3-N	16.50	0.00	0.00	0.70

Winter 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
19D	37556	SEWICKLEY CREEK	20.880	944.00	43.90	0.00120	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	0.066	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Winter Modeling

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		

Winter Modeling

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY 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												
23.880	1.73	0.00	1.73	.5105	0.00120	1.266	12.66	10	0.14	1.309	7.27	7.00
Q1-10 Flow												
23.880	1.11	0.00	1.11	.5105	0.00120	NA	NA	NA	0.12	1.571	8.15	7.00
Q30-10 Flow												
23.880	2.36	0.00	2.36	.5105	0.00120	NA	NA	NA	0.16	1.141	6.78	7.00

Winter Modeling

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY 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
23.880	Outfall 001	24.1	33	24.1	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
23.880	Outfall 001	4.36	16.5	4.36	16.5	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)		
23.88	Outfall 001	25	25	16.5	16.5	4	4	0	0

Winter Modeling

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
23.880	0.330	7.274	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
12.661	1.266	10.000	0.140
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
7.23	1.015	3.75	0.263
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
10.798	1.181	Tsivoglou	5
Reach Travel Time (days)			
1.309			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.131	6.72	3.63	9.72
0.262	6.24	3.50	8.86
0.393	5.79	3.38	8.20
0.524	5.38	3.27	7.68
0.655	4.99	3.16	7.30
0.786	4.64	3.05	7.03
0.917	4.31	2.95	6.85
1.047	4.00	2.85	6.74
1.178	3.71	2.75	6.69
1.309	3.45	2.66	6.69

Winter Modeling

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY 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)
23.880	Outfall 001	PA0253171	0.330	CBOD5	25		
				NH3-N	16.5	33	
				Dissolved Oxygen			4