pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

/Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0092274**
Facility Type	**Municipal**	APS ID	**1063502**
Major / Minor	**Minor**	Authorization ID	**1396419**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Unity Township Municipal Authority**	Facility Name	**Pleasant Unity STP**
Applicant Address	PO Box 506	Facility Address	370 Pleasant Unity Mutual Road
	Pleasant Unity, PA 15676-0506		Greensburg, PA 15601-6388
Applicant Contact	Douglas Pike	Facility Contact	Same as applicant
Applicant Phone	(724) 423-6888	Facility Phone	Same as applicant
Client ID	62039	Site ID	270685
Ch 94 Load Status	Not Overloaded	Municipality	Unity Township
Connection Status	No Limitations	County	Westmoreland
Date Application Received	May 4, 2022	EPA Waived?	Yes
Date Application Accepted	May 16, 2022	If No, Reason	

Purpose of Application: Renewal of NPDES permit for the discharge of treated sewage

Summary of Review

The applicant has applied for the renewal of NPDES Permit PA0217271. The previous permit was issued on October 30, 2017 and expired on October 1, 2022. The permit is currently under administrative extension.

Sewage from this plant is treated with a distribution chamber, 4 aeration tanks, 4 clarifiers, 2 digesters, 1 decant tank, and UV light disinfection. Ferric chloride is used for phosphorus removal. Caustic soda is used to increase alkalinity. Pleasant Unity STP receives waste from the following commercial/industrial contributors: a funeral home, a recycling center, medical facilities, auto repair/machine shop, retail facilities, restaurants, religious facilities, banks, hair salons, a school, a hotel, and construction services.

The applicant is currently enrolled in and will continue to use eDMR.

The Act 14-PL 834 Municipal Notification was provided by the January 28, 2022 letters and no comments were received.

In the NPDES Permit Fact Sheet Addendum attached with the final NPDES permit transmitted to the permittee on October 30, 2017, David Ponchione informed the permittee that 1/day sampling would be imposed in the next permit cycle. The sampling frequency has been updated in this permit. A summary of additional changes to this draft permit can be found below:

- Quarterly *E. coli* monitoring has been imposed
- 1/day sampling has been imposed for pH, DO, and UV light intensity
- All instance of 8-hr composite sampling has been updated to 24-hr composite sampling
- More stringent winter limits for ammonia nitrogen have been imposed

Approve	Deny	Signatures	Date
X		Grace Polakoski Grace Polakoski, E.I.T. / Environmental Engineering Specialist	May 8, 2023
X		Mahbuba Iasmin Mahbuba Iasmin, P.E., Ph.D. / Environmental Engineer Manager	May 31, 2023

Summary of Review

- A more stringent year-round limit for $CBOD_5$ was imposed
- A more stringent TSS limit was imposed
- A DO limit of 6.0 mg/L was imposed
- Annual monitoring of Total Aluminum, Total Iron, and Total Manganese has been imposed

Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 **(l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.**

The facility is not seeking to revise the previously permitted effluent limits.

Sludge use and disposal description and location(s): disposal at Evergreen Landfill (1310 Luciusboro Rd Blairsville, PA 15717) and Valley Landfill (6015 Pleasant Valley Rd Irwin, PA 15642)

Public Participation

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

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.95
Latitude	40º 14' 34"	Longitude	-79º 28' 32"
Quad Name	Mammoth	Quad Code	1710
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary of Sewickley Creek (HQ-CWF)	Stream Code	37800
NHD Com ID	69912539	RMI	0.08
Drainage Area	0.63 sq. mi.	Yield (cfs/mi^2)	0.00716
Q_{7-10} Flow (cfs)	0.00451	Q_{7-10} Basis	USGS StreamStats (Attachment A)
Elevation (ft)	1009	Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	HQ-CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Sewickley Creek Watershed

Background/Ambient Data		Data Source
pH (SU)	6.4 (MIN) 8.0 (MAX)	NPDES Renewal Application
Temperature (°F)	47	NPDES Renewal Application
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake		West County Municipal Authority – McKeesport	
PWS Waters	Youghiogheny River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	43.58

Changes Since Last Permit Issuance:

Other Comments:

Treatment Facility Summary

Treatment Facility Name: Pleasant Unity STP

WQM Permit No.	Issuance Date	Purpose
6576417 A-7	08/30/2022	Addition of pump to influent pump station. Replacement of discharge cast iron pipe with ductile iron pipe, check and isolation valves, and connect VFD to existing SCADA system.
6576417 A-6	09/24/2020	Modification of existing wet well screening equipment.
6576417 A-5	07/19/2018	Removal of influent grinder unit and auger-type screen. Replacement with mechanical bar screen.
6576417 A-4	09/05/2012	Improvements to pump station to handle increased wet weather flows.
6576417 A-3	09/25/2006	Installation of new grit and comminutor facilities
6576417 A-2	04/01/1996	Authorization of plant expansion from 0.5 MGD to 0.95 MGD. Replacement of existing comminutor with (2) new comminutors. Additional of new raw sewage pump. Installation of (2) additional parallel treatment trains. Expansion of existing aeration tanks. Installation of (3) new blowers. Replacement of belt filter press. Replacement of chlorine disinfection with UV disinfection. Conversion of existing microstrainer building to chemical feed building.
6576417 A-1	08/09/1994	Construction of one additional aerobic digester tank. Installation of (2) new blowers and (2) new waste sludge pumps.
6576417	01/18/1977	Construction of original STP

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia Reduction	Activated Sludge	UltraViolet	0.95

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.95	1743	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: N/A

Compliance History

Facility: Pleasant Unity STP

NPDES Permit No.: PA0092274

Compliance Review Period: 5/2017 – 5/2022

Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
2856200	01/24/2019	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted

Violation Summary:
No violations

Open Violations by Client ID:
No open violations for client 62039

Enforcement Summary:
No enforcements

DMR Violation Summary:
DO 2/2020 value 6.8 permit 7
DO 7/2018 value 5.2 permit 7
DO 8/2017 value 6.6 permit 7

Compliance Status: In compliance

Completed by: John Murphy

Completed date: 5/26/2022

:

Compliance History

DMR Data for Outfall 001 (from April 1, 2021 to March 31, 2022)

Parameter	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21
Flow (MGD) Average Monthly	0.59	1.024	0.695	0.627	0.5	0.469	0.552	0.48	0.425	0.452	0.636	0.478
Flow (MGD) Daily Maximum	0.837	2.947	2.184	1.515	1.486	0.674	2.391	1.71	0.699	0.898	1.73	0.836
pH (S.U.) Instantaneous Minimum	6.4	6.3	6.4	6.4	6.7	6.4	6.9	6.4	6.8	6.5	6.7	6.7
pH (S.U.) Instantaneous Maximum	7.1	7.1	7.4	7.0	7.3	7.3	7.5	7.5	7.2	7.3	7.5	8.0
DO (mg/L) Instantaneous Minimum	7.6	8.0	8.5	8.0	8.4	7.3	7.3	7.2	7.4	7.6	7.6	7.2
CBOD5 (lbs/day) Average Monthly	12.8	16.3	14.1	18.6	7.4	7.4	7.5	10.0	6.5	9.3	12.3	10.4
CBOD5 (lbs/day) Weekly Average	23.3	27.1	46.7	11.4	8.0	11.0	28.5	28.5	6.9	15.4	19.2	11.7
CBOD5 (mg/L) Average Monthly	2.6	2.8	2.8	3.0	2.0	2.0	2.0	1.8	2.0	2.4	2.5	3.0
CBOD5 (mg/L) Weekly Average	2.8	2.8	3.2	2.3	2.0	2.0	2.0	15.0	2.0	2.5	2.6	3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	931.0	1178.1	1124.4	943.2	960.6	730.5	785	831.8	826.6	743.8	1108.8	1354.2
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	1148.4	2126.5	1579.8	1083.9	1350.9	1196.6	1020.4	1497.4	1007.6	933.5	1724.9	1631.0
BOD5 (mg/L) Raw Sewage Influent Average Monthly	195.6	198.8	229.3	208.3	259.0	229.5	207.5	191.8	257.0	194.4	230.0	390.5
TSS (lbs/day) Average Monthly	19.2	60.3	51.6	42.1	19.0	19.6	16.7	23.8	12.3	19.0	28.9	25.7
TSS (lbs/day) Raw Sewage Influent Average Monthly	1390	1874	1974	3024	1779	4145	1214	2225	1191	1160	1835	3185

TSS (lbs/day) Raw Sewage Influent Daily Maximum	2390	4280	4128	6351	2807	6311	6703	6703	1583	1487	3066	5397
TSS (lbs/day) Weekly Average	32.5	81.4	102.7	34.9	30.1	38.4	71.3	71.3	17.2	41.0	50.8	50.8
TSS (mg/L) Average Monthly	4.4	10.5	9.8	6.8	5.2	5.0	4.3	4.0	3.8	4.8	5.8	7.8
TSS (mg/L) Raw Sewage Influent Average Monthly	288	296	435	735	476	1132	320	376	371	310	376	925
TSS (mg/L) Weekly Average	3.5	10.5	10.0	5.3	5.3	5.4	3.8	8.0	3.6	5.3	7.8	16.0
Fecal Coliform (No./100 ml) Geometric Mean	4	5	8	3	5	12	9	13	5	3	3	4
Fecal Coliform (No./100 ml) Instantaneous Maximum	8	7	34	7	18	35	22	41	8	6	4	6
UV Intensity (mW/cm²) Daily Minimum	0.0	00	1.3	1.4	1.4	1.5	1.5	1.6	1.7	0.4	3.3	3.4
Nitrate-Nitrite (mg/L) Average Monthly	13.2	14.3	15.0	15.4	26.5	25.5	20.6	24.9	23.0	22.7	17.1	18.2
Nitrate-Nitrite (mg/L) Weekly Average	13.2	14.3	13.9	17.3	28.9	26.0	23.1	21.5	22.9	22.7	19.4	14.5
Total Nitrogen (mg/L) Daily Maximum				23.8								
Ammonia (lbs/day) Average Monthly	0.8	0.8	0.7	0.6	0.4	1.7	0.6	0.5	0.3	1.1	0.7	0.3
Ammonia (mg/L) Average Monthly	0.2	0.1	0.1	0.1	0.1	0.5	0.2	0.1	0.1	0.2	0.2	0.1
Total Phosphorus (lbs/day) Average Monthly	2.6	3.5	3.3	4.8	3.8	4.8	4.7	6.4	6.1	5.2	5.2	4.3
Total Phosphorus (lbs/day) Weekly Average	0.8	0.7	0.8	1.3	1.3	2.1	1.8	1.9	12.5	7.4	6.8	5.4
Total Phosphorus (mg/L) Average Monthly	0.5	0.6	0.7	1.0	1.0	1.4	1.3	1.2	1.9	1.5	1.2	1.3
Total Phosphorus (mg/L) Weekly Average	0.5	0.6	0.7	1.1	0.9	1.2	1.4	1.2	1.9	1.4	1.3	1.7

Total Copper (mg/L) Daily Maximum	0.0185			14.8			26.1			12.2		
Total Zinc (mg/L) Daily Maximum	0.0897			90.4			106.0			51.6		

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.95
Latitude 40º 14' 34.00" **Longitude** -79º 28' 32.00"
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
Flow (MGD)	Report	Average Monthly	-	92a.27, 92a.61
	Report Max Daily	Average Weekly	-	92a.27, 92a.61
$CBOD_5$	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 (TSS)	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
Total Residual Chlorine (TRC)	0.5	Average Monthly	-	92a.48(b)(2)
Ammonia-Nitrogen (NH_3-N)	25	Average Monthly	-	92a.61
	50	IMAX	-	92a.61
Dissolved Oxygen (DO)	4.0	Instantaneous Minimum	-	93.6, 92a.61
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Total N	Report	Average Monthly	-	92a.61
Total P	Report	Average Monthly	-	92a.61
Fecal Coliform (No./100mL) (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (No./100mL) (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (No./100mL) (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (No./100mL) (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
E. Coli (No./100mL)	Report	IMAX	-	92a.61

Water Quality-Based Limitations

WQM7.0

WQM7.0 is a water quality modeling program for Windows that determines Waste Load Allocations ("WLAs") and effluent limitations for carbonaceous biochemical oxygen demand ("$CBOD_5$"), ammonia-nitrogen, and dissolved oxygen 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 dissolved oxygen module, the model simulates the mixing and consumption of dissolved oxygen in the stream due to the degradation of $CBOD_5$ and ammonia-nitrogen and compares calculated instream dissolved oxygen concentrations to dissolved oxygen 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.

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-nitrogen 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.

The model inputs used to model the discharge from Pleasant Unity STP are shown below:

Stream Parameters			
Reach 1		**Reach 2**	
Stream Code	37800	Stream Code	37800
RMI	0.08	RMI	0.01
Elevation (ft)	1009	Elevation (ft)	1008
Drainage Area (mi^2)	0.63	Drainage Area (mi^2)	0.63
Q_{7-10} Flow (cfs)	0.00451	Q_{7-10} Flow (cfs)	0.00451

Facility/Design Parameters	
Discharge Flow (MGD)	0.95
LFY (cfs/mi^2) [for use in summer modeling]	0.0072
2*LFY (cfs/mi^2) [for use in winter modeling]	0.014

Summer Modeling Inputs			
Tributary		**Discharge**	
Temperature (°C)	20	Temperature (°C)	20
pH (S.U.)	7	pH (S.U.)	7
DO (mg/L)	9.01	DO (mg/L)	4
$CBOD_5$ (mg/L)	2	$CBOD_5$ (mg/L)	25
NH_3-N (mg/L)	0	NH_3-N (mg/L)	25
DO Goal (mg/L)	6	DO Goal (mg/L)	6
Winter Modeling Inputs			
Tributary		**Discharge**	
Temperature (°C)	5	Temperature (°C)	15
pH (S.U.)	7	pH (S.U.)	7
DO (mg/L)	12.51	DO (mg/L)	4
$CBOD_5$ (mg/L)	2	$CBOD_5$ (mg/L)	25
NH_3-N (mg/L)	0	NH_3-N (mg/L)	25
DO Goal (mg/L)	6	DO Goal (mg/L)	6

The modeling results (output files can be found in Attachments B and C) show that the following water quality based effluent limits are appropriate.

Parameter	Limit (mg/l)	SBC	Model
Dissolved Oxygen	6	Minimum	WQM7.0
$CBOD_5$ (Nov 1 – Apr 30)	16.26	Average Monthly	
$CBOD_5$ (May 1 – Oct 31)	13.62	Average Monthly	
Ammonia Nitrogen (Nov 1 – Apr 30)	2.62	Average Monthly	WQM7.0
Ammonia Nitrogen (May 1 – Oct 31)	1.89	Average Monthly	WQM7.0

The previous permit cycle had more stringent limits for $CBOD_5$, TSS, and ammonia nitrogen (summer), which will all be reimposed. Modeling recommends more stringent winter limits for ammonia nitrogen in this permit cycle. Based upon a review of past eDMR data, Pleasant Unity STP will be able to immediately comply with the more stringent winter limits as they have consistently reported values far below the new limits. It is assumed that DO will recover in the larger river.

Previously, a DO limit of 7.0 mg/L was imposed for this facility. Since WQM7.0 now recommends a DO limit of 6.0 mg/L, 6.0 mg/L will be imposed during this permit cycle. Per Section 402(o)(2)(B)(ii) of the Clean Water Act (CWA), exceptions to anti-backsliding regulation are permitted when “the Administrator determines that technical mistakes or mistaken interpretations of the law were made in issuing the permit.” 25 Pa Code §93.7 was revised in 2011, 2013, and 2020. The

2011 version of §93.7 allowed permit writers to enforce a DO limit of 7.0 mg/L for HQ-CWF rivers, of which the receiving stream is one. This provision was removed from the 2013 version of 25 Pa. Code §93.7 and is not in the active version of the code. The previous NPDES permit was issued in 2017, at which time the 2013 version of 25 Pa Code §93.7 was effective. Given that water quality standards were improperly applied in the 2017 permit, it is not considered anti-backsliding to decrease the DO limit during this permit cycle.

Toxics Management Spreadsheet (TMS)

WQBELs are developed pursuant to Section 301(b)(1)(C) of the Clean Water Act and, per 40 CFR § 122.44(d)(1)(i), are imposed to "control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) that are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality." The Department of Environmental Protection developed the Toxics Management Spreadsheet (TMS) to facilitate calculations necessary to complete a reasonable potential (RP) analysis and determine WQBELs for discharges of toxic and some nonconventional pollutants.

The TMS is a single discharge, mass-balance water quality modeling program for Microsoft Excel® that considers mixing, first-order decay, and other factors to determine WQBELs for toxic and nonconventional pollutants. Required input data including stream code, river mile index, elevation, drainage area, discharge flow rate, low-flow yield, and the hardness and pH of both the discharge and the receiving stream are entered into the TMS to establish site-specific discharge conditions. Other data such as reach dimensions, partial mix factors, and the background concentrations of pollutants in the stream also may be entered to further characterize the discharge and receiving stream. The pollutants to be analyzed by the model are identified by inputting the maximum concentration reported in the permit application or Discharge Monitoring Reports, or by inputting an Average Monthly Effluent Concentration (AMEC) calculated using DEP's TOXCONC.xls spreadsheet for datasets of 10 or more effluent samples. Pollutants with no entered concentration data and pollutants for which numeric water quality criteria in 25 Pa. Code Chapter 93 have not been promulgated are excluded from the modeling.

The TMS evaluates each pollutant by computing a Wasteload Allocation for each applicable criterion, determining the most stringent governing WQBEL, and comparing that governing WQBEL to the input discharge concentration to determine whether permit requirements apply in accordance with the following RP thresholds:

- Establish limits in the permit where the maximum reported effluent concentration or calculated AMEC equals or exceeds 50% of the WQBEL. Use the average monthly, maximum daily, and instantaneous maximum (IMAX) limits for the permit as recommended by the TMS (or, if appropriate, use a multiplier of 2 times the average monthly limit for the maximum daily limit and 2.5 times the average monthly limit for IMAX).
- For non-conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 25% - 50% of the WQBEL.
- For conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 10% - 50% of the WQBEL.

In most cases, pollutants with effluent concentrations that are not detectable at the level of DEP's Target Quantitation Limits are eliminated as candidates for WQBELs and water quality-based monitoring.

Per DEP SOP "Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers" (SOP No. BCW-PMT-037), the Toxics Management Spreadsheet (TMS) will be run for all pollutants for which sampling data is available. Per the NPDES Application instructions all sewage facilities with a design flow of greater than or equal to 0.1 MGD are required to provide effluent samples for: pH, TRC, fecal coliform, $CBOD_5$ or BOD_5, TSS, NH_3-N, Total N, Total P, dissolved oxygen (min), temperature, TKN, NO_2-N + NO_3-N, TDS, chloride, bromide, sulfate, oil and grease, and TMDL parameters.

The results reported originally in the NPDES Renewal application were entered into the TMS (Attachment D) and the following WQBELs were recommended:

Pollutant	Average Monthly (µg/L)	Maximum Daily (µg/L)	IMAX (µg/L)
Total Copper	9.36	14.0	14.0
Total Lead	3.19	4.98	7.98
Total Zinc	120	120	120

The permittee was informed of the anticipated WQBELs via Pre-Draft Letter on June 3, 2022 (Attachment E). Since the original effluent sampling results did not meet the DEP-required quantitation limits (QLs), the permittee was given the option to perform resampling. The Pre-Draft Survey and additional narrative were returned to the DEP on July 6, 2022 (Attachment F) and the permittee did elect to resample.

The resampling results were returned to the DEP on April 24, 2023 (Attachment G). Since the permittee elected to perform 14 additional samples for Total Copper and Total Zinc, TOX_CONC was used to find the AMEC value. The effluent sampling results reported on the application for Total Copper and Total Zinc did meet the DEP-required QL so the application data was also entered into TOX_CONC. The results for Total Copper and Total Zinc can be found in Attachments H and I. The application reported Total Lead as "ND" at a QL that was less-sensitive than the DEP-required QL so this data point has been disregarded. There were less than 10 additional samples taken for Total Lead so the maximum of those values was entered into the TMS. The updated TMS results can be found in Attachment J and the following WQBELs were recommended:

Pollutant	Average Monthly (µg/L)	Maximum Daily (µg/L)	IMAX (µg/L)
Total Copper	9.36	14.0	14.0
Total Lead	Report	Report	Report
Total Zinc	120	120	120

As the permittee points out in their Pre-Draft Response and additional sampling report (Attachments F and G), Pleasant Unity STP will not be immediately able to comply with the numeric effluent limitations for Total Copper and Total Zinc. Therefore, the permittee will be given the standard 2-year compliance schedule with the Toxics Reduction Evaluation requirement in the permit.

Previously, Total Copper and Total Zinc were subject to quarterly monitoring. As a result of the current RP analysis, the numeric effluent limitations recommended by TMS in Attachment J supersede the quarterly monitoring.

Best Professional Judgment (BPJ) Limitations

According to the standard in 25 PA Code Chapter 93 and best professional judgment, a dissolved oxygen minimum limitation of 4.0 mg/L should be implemented. However, WQM7.0 modeling results recommend a dissolved oxygen minimum limitation of 6.0 mg/L. The more stringent of the values shall be imposed during this permit cycle.

Mass Loading Limitations

Per Department SOP "Establishing Effluent Limitations for Individual Sewage Permits" (BCW-PMT-033), mass loading limits will be established for POTWs for $CBOD_5$, TSS, ammonia nitrogen. Average monthly mass loading limits will be established for $CBOD_5$, TSS, and ammonia nitrogen. Average weekly mass loading limits will be established for $CBOD_5$ and TSS. Mass loading limits will be calculated according to the formula below:

$$average\ annual\ design\ flow\ (MGD) \times concentration\ limit\ \left(\frac{mg}{L}\right) \times 8.34\ (converstion\ factor)$$
$$= mass\ loading\ limit\ \left(\frac{lbs}{day}\right)$$

The following mass loading limitations were calculated:

Parameter	Average Monthly (lbs/day)	Average Weekly (lbs/day)
$CBOD_5$ (May 1 – Oct 31)	107.9	161.87
$CBOD_5$ (Nov 1 – Apr 30)	128.83	193.24
TSS	158.46	237.69
Ammonia Nitrogen (May 1 – Oct 31)	14.97	-
Ammonia Nitrogen (Nov 1 – Apr 30)	20.76	-

In the previous permit, the average monthly mass loading limitations for $CBOD_5$ (summer), TSS, and Ammonia Nitrogen (summer) were all more stringent than the above values. The more stringent values have been re-imposed during this permit cycle but have been rounded to comply with DEP Rounding Guidance. The Ammonia Nitrogen (winter) average monthly concentration limits have become more stringent, which has resulted in more stringent average monthly mass

loading limits in this permit. The $CBOD_5$ (winter) limits have been updated to comply with 2003 antidegradation guidance (see below).

Total Maximum Daily Load (TMDL) Considerations

Sewickley Creek Watershed TMDL

A TMDL for the Sewickley Creek Watershed was approved by the EPA on April 8, 2009 for the control of abandoned mine drainage pollutants including: low pH, iron, manganese, and aluminum. In accordance with 40 CFR § 122.44(d)(1)(vii)(B), when developing WQBELs, the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation (WLA) for the discharge prepared by the State and approved by the EPA pursuant to 40 CFR § 130.7. Stream segment 37800 was not listed in the Sewickley Creek Watershed TMDL. Additionally, PA0092274 was not assigned a WLA in the TMDL. Annual monitoring for Total Aluminum, Total Iron, and Total Manganese will be imposed during this permit cycle.

Antidegradation Considerations

Pleasant Unity STP discharges to a high quality (HQ) stream and is therefore subject to antidegradation considerations, in addition to applicable TBELs and WQBELs. Socio-economic justification (SEJ) was approved for this facility on October 3, 1995. This discharge was originally evaluated using the August 1992 edition of the "Special Protection Waters Implementation Handbook." According to Appendix 1 of that document, "The last and least preferred T/D (treatment and disposal) technology is the year round discharge of treated wastes. Where this technology is employed, the discharge is required to meet, at a minimum, BAT (best available technology) average effluent concentrations of $CBOD_5$ = 10 mg/L, total phosphorus = 1.0 mg/L, total NH_3-N = 1.5 mg/L, suspended solids = 10 mg/L, and DO = 5-6 mg/L for sewage." In 2001, the numeric effluent limit for total phosphorus and weekly monitoring for nitrate-nitrite as N was imposed under the "Special Protection Waters Implementation Handbook" and will be reimposed during this permit cycle. The Total Phosphorus mass loading limits were rounded to comply with DEP Rounding Guidance.

The DEP released the guidance document "Water Quality Antidegradation Implementation Guidance" (November 29, 2003, 391-0300-002), which updates some BAT average effluent concentrations in Item C of Appendix B.

	Effluent Concentrations (mg/L)		
	Facilities <2,000 gpd	Facilities 2,000-50,000 gpd	Facilities >50,000 gpd
$CBOD_5$ (May 1 – Oct. 31)	10	10	10
$CBOD_5$ (Nov. 1 – Apr. 30)	20	20	10
Suspended Solids	20	10	10
NH_3-N (May 1 – Oct. 31)	5.0	3.0	1.5
NH_3-N (Nov. 1 – Apr. 30)	15.0	9.0	4.5
Effective Disinfection	*Disinfection should be accomplished using a method that leaves no detectable residual. Disinfection using ultra-violet light or other non-chlorine based systems is encouraged and must be considered.*		
Other Parameters (as needed)	*Determined by the size and characteristics of the proposed discharge, may include: NO_2/NO_3-N, Total Phosphorus, Copper, Lead, Zinc*		

The 2003 guidance document recommends more stringent $CBOD_5$ limits for winter than the 1992 guidance document and what was calculated in the Mass Loading Limitations Section. The more stringent limits shall be imposed in this permit cycle to bring the facility into compliance with current guidance, this essentially eliminates the seasonal $CBOD_5$ effluent limitations and imposes one standard year-round. The 2003 guidance document also indicates more stringent TSS limits that will also be imposed during this permit cycle. Upon review of eDMR data, Pleasant Unity STP should be able to immediately comply with the more stringent $CBOD_5$ and TSS limits.

Influent Monitoring

Per Department SOP "New and Reissuance Sewage Individual NPDES Permit Applications" (BCW-PMT-002), POTWs with design flows greater than 2,000 GPD, influent BOD_5 and TSS monitoring will be established in the permit. The influent monitoring will be established with the same frequency and sample type as the effluent sampling.

Additional Considerations

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

The receiving stream is not impaired for nutrients, therefore, annual sampling for nitrogen will be imposed per 25 PA Code §92.61b.

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Department's Technical Guidance for the Development and Specification of Effluent Limitations.

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 End of Second Year from Permit Effective Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Copper, Total (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite
Zinc, Total (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	24-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: Beginning of Third Year from Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Copper, Total (ug/L)	0.074	0.11 Daily Max	XXX	9.36	14.0 Daily Max	14	1/week	24-Hr Composite
Zinc, Total (ug/L)	0.95	0.95 Daily Max	XXX	120.0	120.0 Daily Max	120	1/week	24-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 Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2)	Required
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
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
Dissolved Oxygen	XXX	XXX	7.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	75.0	115.0	XXX	10.0	15.0	20	1/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	75.0	115.0	XXX	10.0	15.0	20	1/week	24-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 intensity (mW/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Nitrate-Nitrite as N	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite

Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date)

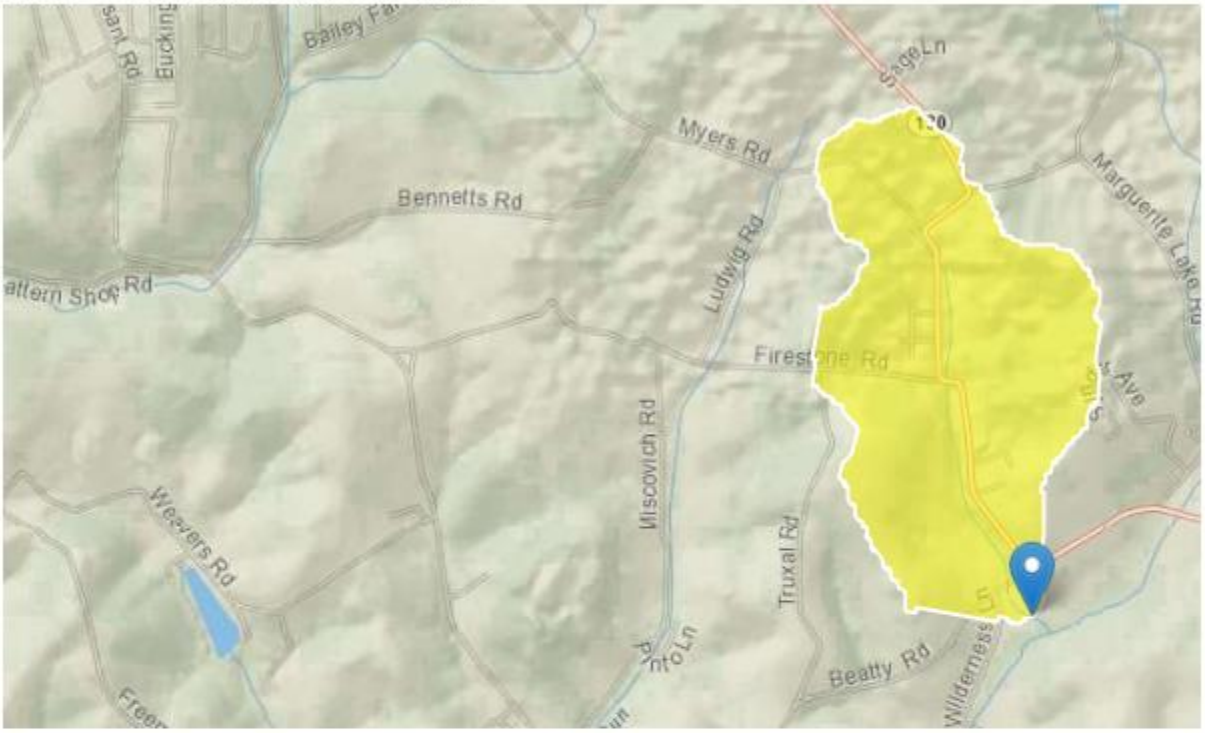
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	20.0	XXX	XXX	2.62	XXX	5.24	1/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	11.0	XXX	XXX	1.5	XXX	3	1/week	24-Hr Composite
Total Phosphorus	23.0	35.0	XXX	3.0	4.5	6	1/week	24-Hr Composite
Aluminum, Total (ug/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	24-Hr Composite
Iron, Total (ug/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	24-Hr Composite
Lead, Total (ug/L)	XXX	XXX	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite
Manganese, Total (ug/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	24-Hr Composite

Compliance Sampling Location: Outfall 001

ATTACHMENT A:
USGS STREAMSTATS

Outfall StreamStats Report

Region ID: PA
Workspace ID: PA20220525145350923000
Clicked Point (Latitude, Longitude): 40.24286, -79.47546
Time: 2022-05-25 10:54:15 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.63	square miles
ELEV	Mean Basin Elevation	1139	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.63	square miles	2.26	1400

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ELEV	Mean Basin Elevation	1139	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Low-Flow Statistics Flow Report [Low Flow Region 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0159	ft^3/s
30 Day 2 Year Low Flow	0.0312	ft^3/s
7 Day 10 Year Low Flow	0.00451	ft^3/s
30 Day 10 Year Low Flow	0.00996	ft^3/s
90 Day 10 Year Low Flow	0.0206	ft^3/s

Low-Flow Statistics Citations

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

Application Version: 4.9.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.0

ATTACHMENT B:
WQM MODELING RESULTS (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	37800	Trib 37800 of Sewickley Creek	**0.080**	1009.00	0.63	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.007	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 (°C)	Disc pH
Plesant Unity	PA0092274	0.0000	0.0000	0.9500	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	9.01	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19D	37800	Trib 37800 of Sewickley Creek	**0.010**	1008.00	0.63	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.007	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 (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
19D	37800	Trib 37800 of 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												
0.080	0.00	0.00	0.00	1.4697	0.00271	.566	9.47	16.72	0.27	0.016	20.00	7.00
Q1-10 Flow												
0.080	0.00	0.00	0.00	1.4697	0.00271	NA	NA	NA	0.27	0.016	20.00	7.00
Q30-10 Flow												
0.080	0.01	0.00	0.01	1.4697	0.00271	NA	NA	NA	0.27	0.016	20.00	7.00

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19D	37800	Trib 37800 of Sewickley Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.080	0.950	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
9.474	0.566	16.724	0.275
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
13.59	0.817	1.89	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.009	7.061	Tsivoglou	6
Reach Travel Time (days)			
0.016			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.002	13.57	1.89	6.01
0.003	13.55	1.88	6.01
0.005	13.53	1.88	6.01
0.006	13.52	1.88	6.01
0.008	13.50	1.88	6.01
0.009	13.48	1.88	6.01
0.011	13.47	1.87	6.01
0.012	13.45	1.87	6.01
0.014	13.43	1.87	6.00
0.016	13.41	1.87	6.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19D	37800	Trib 37800 of 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
0.080	Plesant Unity	16.76	16.79	16.76	16.79	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
0.080	Plesant Unity	1.89	1.89	1.89	1.89	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)		
0.08	Plesant Unity	13.62	13.62	1.89	1.89	6	6	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19D	37800	Trib 37800 of 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)
0.080	Plesant Unity	PA0092274	0.000	CBOD5	13.62		
				NH3-N	1.89	3.78	
				Dissolved Oxygen			6

ATTACHMENT C:
WQM MODELING RESULTS (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	37800	Trib 37800 of Sewickley Creek	**0.080**	1009.00	0.63	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.014	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Plesant Unity	PA0092274	0.0000	0.0000	0.9500	0.000	15.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	12.51	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19D	37800	Trib 37800 of Sewickley Creek	**0.010**	1008.00	0.63	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.014	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 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	6		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
19D	37800	Trib 37800 of 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												
0.080	0.00	0.00	0.00	1.4697	0.00271	.566	9.47	16.72	0.27	0.016	14.97	7.00
Q1-10 Flow												
0.080	0.00	0.00	0.00	1.4697	0.00271	NA	NA	NA	0.27	0.016	14.98	7.00
Q30-10 Flow												
0.080	0.01	0.00	0.01	1.4697	0.00271	NA	NA	NA	0.27	0.016	14.96	7.00

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19D	37800	Trib 37800 of Sewickley Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.080	0.950	14.969	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
9.474	0.566	16.724	0.275
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
16.22	0.975	2.61	0.475
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.020	6.267	Tsivoglou	6
Reach Travel Time (days)			
0.016			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.002	16.20	2.61	6.02
0.003	16.18	2.61	6.02
0.005	16.16	2.61	6.03
0.006	16.14	2.61	6.03
0.008	16.12	2.61	6.03
0.009	16.10	2.60	6.03
0.011	16.08	2.60	6.03
0.012	16.06	2.60	6.03
0.014	16.04	2.60	6.04
0.016	16.02	2.60	6.04

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19D	37800	Trib 37800 of 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
0.080	Plesant Unity	24.1	24.15	24.1	24.15	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
0.080	Plesant Unity	2.61	2.62	2.61	2.62	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)		
0.08	Plesant Unity	16.26	16.26	2.62	2.62	6	6	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19D	37800	Trib 37800 of 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)
0.080	Plesant Unity	PA0092274	0.000	CBOD5	16.26		
				NH3-N	2.62	5.24	
				Dissolved Oxygen			6

ATTACHMENT D:
TOXICS MANAGEMENT SPREADSHEET (APPLICATION DATA)

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Pleasant Unity STP** NPDES Permit No.: **PA0092274** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **treated sewage**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.95	100	7.2						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L											
	Chloride (PWS)	mg/L		779									
	Bromide	mg/L	<	0.5									
	Sulfate (PWS)	mg/L		51.1									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L		18.5									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L	<	10									
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L		89.7									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Group 3	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										
	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										

	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										
	1,2-Diphenylhydrazine	µg/L	<										
	Fluoranthene	µg/L	<										
	Fluorene	µg/L	<										
	Hexachlorobenzene	µg/L	<										
	Hexachlorobutadiene	µg/L	<										
	Hexachlorocyclopentadiene	µg/L	<										
	Hexachloroethane	µg/L	<										
	Indeno(1,2,3-cd)Pyrene	µg/L	<										
	Isophorone	µg/L	<										
	Naphthalene	µg/L	<										
	Nitrobenzene	µg/L	<										
	n-Nitrosodimethylamine	µg/L	<										
	n-Nitrosodi-n-Propylamine	µg/L	<										
	n-Nitrosodiphenylamine	µg/L	<										
	Phenanthrene	µg/L	<										
	Pyrene	µg/L	<										
	1,2,4-Trichlorobenzene	µg/L	<										
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Pleasant Unity STP, NPDES Permit No. PA0092274, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **UNT of Sewickley Creek**

No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	037800	0.08	1009	0.63			Yes
End of Reach 1	037800	0.01	1008	0.631			Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	0.08	0.00716										100	7		
End of Reach 1	0.01	0.00716													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	0.08														
End of Reach 1	0.01														

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Pleasant Unity STP, NPDES Permit No. PA0092274, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | (●) All ( ) Inputs ( ) Results ( ) Limits

☑ ***Hydrodynamics***

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
0.08	0.00		0.00	1.47	0.003	0.566	9.474	16.724	0.275	0.016	0.00005
0.01	0.00		0.005								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
0.08	0.07		0.07	1.47	0.003	0.577	9.474	16.425	0.281	0.015	0.01
0.01	0.066		0.07								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.20

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	13.439	14.0	14.0	Chem Translator of 0.96 applied
Total Lead	0	0		0	64.581	81.6	81.9	Chem Translator of 0.791 applied
Total Zinc	0	0		0	117.180	120	120	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.20

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	8.956	9.33	9.36	Chem Translator of 0.96 applied

Total Lead	0	0		0	2.517	3.18	3.19	Chem Translator of 0.791 applied
Total Zinc	0	0		0	118.139	120	120	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 0.010 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	0.074	0.11	9.36	14.0	14.0	µg/L	9.36	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Lead	0.025	0.039	3.19	4.98	7.98	µg/L	3.19	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	0.95	0.95	120	120	120	µg/L	120	AFC	Discharge Conc ≥ 50% WQBEL (RP)

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable

ATTACHMENT E:
PRE-DRAFT LETTER

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

June 3, 2022

VIA ELECTRONIC MAIL:

Douglas Pike
Unity Township Municipal Authority
PO Box 506
Pleasant Unity, PA 15676-0506

Re: Draft NPDES Permit- Sewage
Pleasant Unity STP
Application No. PA0092274
Authorization ID No. 1396419
Unity Township, Westmoreland County

Dear Permittee:

The Department of Environmental Protection (DEP) has reviewed your NPDES permit application and has reached a preliminary finding that new or more stringent water quality-based effluent limitations (WQBELs) for toxic pollutant(s) should be established in the permit. This finding is based on DEP's assessment that reasonable potential exists to exceed water quality criteria under Chapter 93 in the receiving waters during design flow conditions. The following WQBELs are anticipated based on the information available to DEP during its review:

Outfall No.	Pollutant	Average Monthly (µg/L)	Maximum Daily (µg /L)	IMAX (µg/L)	Target Quantitation Limits (µg/L)
001	Total Copper	9.36	14.0	14.0	4
001	Total Lead	3.19	4.98	7.98	1
001	Total Zinc	120	120	120	5

Attached is a survey that DEP requests that you complete and return to DEP in 30 days (by July 5, 2022). Completion of this survey will help DEP develop the draft NPDES permit and allow DEP to understand your current capabilities or plans to treat or control these pollutant(s). If you decide not to complete and return the survey, DEP will proceed with developing the draft NPDES permit based on all available information and certain assumptions. Your response to this notice does not constitute an official comment for DEP response but will be taken under consideration. When the draft NPDES permit is formally noticed in the *Pennsylvania Bulletin*, you may make official comments for DEP's further consideration and response.

In addition to completion of the survey, you may elect to collect a minimum of four (4) additional effluent samples, as 24-hour composites, and have the samples analyzed for the pollutant(s) identified above, using a quantitation limit (QL) that is no greater than the Target QLs identified in the table above. The samples should be collected at least one week apart. If you elect this option, please check the appropriate box on the survey and return the survey to DEP. Review of your application will remain on hold until the additional sampling results are provided to DEP.

Please contact me if you have any questions about this information or the attached survey.

Sincerely,

Grace Polakoski

Grace Polakoski, E.I.T.
Environmental Engineering Specialist
Clean Water Program

Enclosures

cc: Emily A. Palmer, P.E. - LSSE
Southwest Regional Office

ATTACHMENT F:
PRE-DRAFT RESPONSE

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Clean Water

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: **Unity Township Municipal Authority Westmoreland County** Permit No.: **PA0092274**

Pollutant(s) identified by DEP that may require WQBELs: Copper, Lead and Zinc

Is the permittee aware of the source(s) of the pollutant(s)? ☐ Yes ☑ No ☐ Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)? ☐ Yes ☑ No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now? ☐ Yes ☐ No ☑ Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: ☑ Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? ☑ Yes ☐ No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

☐	Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
☐	Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
☐	Background / ambient pollutant concentrations	Year(s) Studied:
☐	Chemical translator(s) (metals)	Year(s) Studied:
☐	Slope and width of receiving waters	Year(s) Studied:
☐	Velocity of receiving waters at design conditions	Year(s) Studied:
☐	Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
☐	Volatilization rates (highly volatile organics)	Year(s) Studied:
☐	Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP regional office that is reviewing the permit application within 30 days of receipt.

MAILING ADDRESS:
PO BOX 506
PLEASANT UNITY, PA 15676

PHONE: 724-423-6888
FAX: 724-423-6878

SHIPPING ADDRESS:
370 PLEASANT UNITY MUTUAL ROAD
GREENSBURG, PA 15601

July 6, 2022

Grace Polakoski
Clean Water Program
Pennsylvania Department of Environmental Protection
South West Regional Office
400 Waterfront Drive
Pittsburgh, Pennsylvania 15222

Subject: Draft NPDES Permit – Sewage
Pleasant Unity STP
Application No. PA0092274
Authorization ID No. 1396419
Unity Township, Westmoreland County

Dear Ms. Polakoski:

This letter is in response to the letter sent on June 3, 2022 regarding a Pre-Draft Survey. On behalf of the Unity Township Municipal Authority, we thank the Department for your time to understand the Authorities concerns with respect to its NPDES permit renewal.

As noted by the Pre-Draft Survey for Toxic Pollutants, DEP has identified Copper, Lead, and Zinc as pollutants that may require WQBELs. Unity Township Sewage Treatment Plant (STP) does accept sludge from septic haulers, this could be a potential source of contaminants. Unity Township has no Significant Industrial Users (SIUs) in the sanitary sewer system, the only other known source of these pollutants would be coming from the potable water system. The Authority has not completed any studies in order to control or treat the pollutants. The Authority feels uncertain that the proposed WQBELs can be achieved with the current process, due to the fact that there are prior sample analysis results that would signal violation of permit values, see table on the next page. The Authority is willing to perform additional

sampling as requested by the department, to further assess what permit values are attainable through current operational processes. None of the site-specific data listed has been conducted by the Authority.

	Copper µg/L	Proposed IMAX	Proposed Avg.	Zinc µg/L	Proposed IMAX	Proposed Avg.
1/26/2021	21.4	14	9.36	196	120	120
5/11/2021	12.2	14	9.36	51.6	120	120
8/10/2021	26.1	14	9.36	106	120	120
11/23/2021	14.8	14	9.36	90.4	120	120
1/8/2022	18.5	14	9.36	89.7	120	120
4/26/2022	9.5	14	9.36	90.9	120	120

**Highlighted - Indicates Sample Results Higher than Proposed Monthly Average and/or IMAX.

In evaluation of this table, it appears that Unity Township would not be able to meet the Zinc and Copper limit, on a regular basis, without process changes. These results span over a 15-month period with only 6 sampling events additional sampling would allow for a better understanding of concentrations being discharged through the sewage treatment plant. In addition, a limited number of samples for Lead were collected for this renewal and although found to be non-detectable, it is unknown if the proposed WQBEL can be achieved as the laboratory used a higher Reporting Limit than the proposed WQBEL. The septage that is accepted at Unity Township could be sampled for toxins to determine if that is the source of the issue. As previously mentioned, the Authority is willing to complete any sampling the department deems necessary to assist in future compliance. Unity Township would like to request additional time to perform analyses for Copper, Lead and Zinc and have these parameters included on the next permit cycle as "monitor only" to establish a baseline of information to better understand the wastewater constituents present, allow the Municipal Authority time to determine source if feasible and efficacy of the existing treatment process for each.

Sincerely,

Douglass Pike, Operations Manager
Unity Township Municipal Authority

cc (via email): Kevin Brett, P.E., LSSE (kbrett@lsse.com)
Larry Lennon Jr. P.E LSSE (ljlennonjr@lsse.com)
Ken Parks, Assistant Engineer, LSSE (kparks@lsse.com)

X:\PROJ\586 North & South Shenango JMA\NPDES Renewal

ATTACHMENT G:
RESAMPLING RESULTS

MAILING ADDRESS:
PO BOX 506
PLEASANT UNITY, PA 15676

PHONE: 724-423-6888
FAX: 724-423-6878

SHIPPING ADDRESS:
370 PLEASANT UNITY MUTUAL ROAD
GREENSBURG, PA 15601

April 24, 2023

Grace Polakoski
Clean Water Program
Pennsylvania Department of Environmental Protection
South West Regional Office
400 Waterfront Drive
Pittsburgh, Pennsylvania 15222

Subject: Draft NPDES Permit – Sewage
Pleasant Unity STP
Application No. PA0092274
Authorization ID No. 1396419
Unity Township, Westmoreland County

Dear Ms. Polakoski:

This letter is supplemental to the pre-draft survey response sent on July 6, 2022. On behalf of the Unity Township Municipal Authority, we again would like to thank the Department for your time to understand the Authority's concerns with respect to its NPDES permit renewal.

The Authority has performed additional copper and zinc sampling as approved by the department, to further assess what permit values are attainable through current operational processes. Composite sampling was conducted by the Authority and analysis completed by third party laboratory. The table below details the results of the sampling.

DATE COLLECTED	Copper µg/L	Proposed IMAX	Proposed Avg.	Zinc µg/L	Proposed IMAX	Proposed Avg.
1/26/2021	21.4	14	9.36	196	120	120
5/11/2021	12.2	14	9.36	51.6	120	120
8/10/2021	26.1	14	9.36	106	120	120
11/23/2021	14.8	14	9.36	90.4	120	120
1/18/2022	18.5	14	9.36	89.7	120	120
4/26/2022	9.5	14	9.36	90.9	120	120
1/10/2023	7.49	14	9.36	64.6	120	120
1/17/2023	8.03	14	9.36	56.5	120	120
1/23/2023	9.46	14	9.36	64.7	120	120
1/31/2023	1.76	14	9.36	75.2	120	120
2/07/2023	8.11	14	9.36	96.6	120	120
2/14/2023	8.89	14	9.36	123	120	120
2/21/2023	11.4	14	9.36	120	120	120
2/28/2023	6.43	14	9.36	73.1	120	120

**Yellow Fill - Indicates Sample Results Higher than Proposed Monthly Average and/or IMAX.

In evaluation of this table, it appears that Unity Township would not be able to meet the zinc and copper limit, on a regular basis, without process changes. These results span over a 25-month period with 14 sampling events total. The additional sampling that began on January 10, 2023, comprised of 8 sampling events took the place over a brief 2-month period. The copper results ranged from 1.76 ug/L to 26.1 ug/L and the zinc ranged from 51.6 ug/L to 196 ug/L. The average copper result of all samples is 11.7 ug/L with the 95the percentile ranging between 0.8 and 24.2 ug/L (standard deviation of 6.2). The average zinc result of all samples is 92.7 ug/L with the 95the percentile ranging between 21.4 and 164.1 ug/L (standard deviation of 35.7). This shows the variability of the results received with a difference between average and standard deviation of 53% for copper and 38% for zinc. It should be noted that there were no modifications to UTMA standard operations at this facility for the duration of this sampling.

This sampling effort confirmed that UTMA will likely exceed the proposed limits on the Draft NPDES Permit for copper and zinc with regularity.

Lead samples were also collected as part of this additional sampling effort and was detected and found to be less than 1.0 µg/L, which is below the proposed average concentration (3.19 µg/L).

The Authority requests the Department to reconsider the proposed permit limits for copper and zinc. As previously mentioned, the Authority is willing to complete further sampling and analysis which the Department deems necessary to assist in determining permit limitations and compliance. Given the variability of the results provided, additional analysis and extended sampling is required to determine the impact of these proposed effluent limits and subsequent impact to this treatment facility and feasibility to maintain compliance with effluent limits.

Sincerely,

UNITY TOWNSHIP MUNICIPAL AUTHORITY

Douglas A. Pike
Operations Manager

DAP/lsr

cc (via email): Kevin Brett, P.E., LSSE (kbrett@lsse.com)
Larry Lennon Jr. P.E LSSE (ljlennonjr@lsse.com)
Ken Parks, LSSE (kparks@lsse.com)

Polakoski, Grace

From: Larry Lennon Jr. <ljlennonjr@lsse.com>
Sent: Tuesday, April 25, 2023 10:53 AM
To: Polakoski, Grace; Doug Pike
Cc: Kevin Brett; Ken Parks
Subject: RE: [External] Pleasant Unity NPDES Permit

Grace, results below, all are below the anticipated WQBEL's in the survey letter. If you have any questions or would like to discuss please let me know. -Larry

DATE COLLECTED	Lead µg/L
1/10/2023	0.397
1/17/2023	0.288
1/23/2023	0.426
1/31/2023	0.044
2/7/2023	0.241
2/14/2023	0.296
2/21/2023	0.242
2/28/2023	0.277

Lawrence Lennon Jr., P.E.

LSSE
Civil Engineers and Surveyors
Est 1985

846 Fourth Avenue
Coraopolis, PA 15108

(412) 264-4400
www.lsse.com

ATTACHMENT H:
TOX_CONC TOTAL COPPER

Facility:	Pleasant Unity STP
NPDES #:	PA0092274
Outfall No:	001
n (Samples/Month):	4
Reviewer/Permit Engineer:	GRP

Parameter Name	Total Copper					
Units	µg/L					
Detection Limit	4					
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*					
01/26/21	21.4					
05/11/21	12.2					
08/10/21	26.1					
11/23/21	14.8					
01/18/22	18.5					
04/26/22	9.5					
05/04/22	18.5					
01/10/23	7.49					
01/17/23	8.03					
01/23/23	9.46					
01/31/23	1.76					
02/07/23	8.11					
02/14/23	8.89					
02/21/23	11.4					
02/28/23	6.43					

Reviewer/Permit Engineer: GRP

Facility:	Pleasant Unity STP
NPDES #:	PA0092274
Outfall No:	001
n (Samples/Month):	4

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Total Copper (µg/L)	Lognormal	0.7205480	27.1116988

ATTACHMENT I:
TOX_CONC TOTAL ZINC

Facility:	Pleasant Unity STP
NPDES #:	PA0092274
Outfall No:	001
n (Samples/Month):	4
Reviewer/Permit Engineer:	GRP

Parameter Name	Total Zinc					
Units	µg/L					
Detection Limit	5					
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*					
01/26/21	196					
05/11/21	51.6					
08/10/21	106					
11/23/21	90.4					
01/18/22	89.7					
04/26/22	90.6					
05/04/22	89.7					
01/10/23	64.6					
01/17/23	56.5					
01/23/23	64.7					
01/31/23	75.2					
02/07/23	96.6					
02/14/23	123					
02/21/23	120					
02/28/23	73.1					

		Reviewer/Permit Engineer:	GRP
Facility:	Pleasant Unity STP		
NPDES #:	PA0092274		
Outfall No:	001		
n (Samples/Month):	4		

Parameter	**Distribution Applied**	**Coefficient of Variation (daily)**	**Avg. Monthly**
Total Zinc (µg/L)	Lognormal	0.3508058	136.6365161

ATTACHMENT J:
TOXICS MANAGEMENT SPREADSHEET (RESAMPLING DATA)

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Pleasant Unity STP** NPDES Permit No.: **PA0092274** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **treated sewage**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.95	100	7.2						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L											
	Chloride (PWS)	mg/L		779									
	Bromide	mg/L	<	0.5									
	Sulfate (PWS)	mg/L		51.1									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L		27.11									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L		0.426									
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L		136.64									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Group 3	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										
	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										

	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										
	1,2-Diphenylhydrazine	µg/L	<										
	Fluoranthene	µg/L	<										
	Fluorene	µg/L	<										
	Hexachlorobenzene	µg/L	<										
	Hexachlorobutadiene	µg/L	<										
	Hexachlorocyclopentadiene	µg/L	<										
	Hexachloroethane	µg/L	<										
	Indeno(1,2,3-cd)Pyrene	µg/L	<										
	Isophorone	µg/L	<										
	Naphthalene	µg/L	<										
	Nitrobenzene	µg/L	<										
	n-Nitrosodimethylamine	µg/L	<										
	n-Nitrosodi-n-Propylamine	µg/L	<										
	n-Nitrosodiphenylamine	µg/L	<										
	Phenanthrene	µg/L	<										
	Pyrene	µg/L	<										
	1,2,4-Trichlorobenzene	µg/L	<										
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Pleasant Unity STP, NPDES Permit No. PA0092274, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **UNT of Sewickley Creek**

No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	037800	0.08	1009	0.63			Yes
End of Reach 1	037800	0.01	1008	0.631			Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	0.08	0.00716										100	7		
End of Reach 1	0.01	0.00716													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	0.08														
End of Reach 1	0.01														

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Pleasant Unity STP, NPDES Permit No. PA0092274, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | (•) All | ( ) Inputs | ( ) Results | ( ) Limits

☑ ***Hydrodynamics***

$Q_{7\text{-}10}$

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
0.08	0.00		0.00	1.47	0.003	0.566	9.474	16.724	0.275	0.016	0.00005
0.01	0.00		0.005								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
0.08	0.07		0.07	1.47	0.003	0.577	9.474	16.425	0.281	0.015	0.01
0.01	0.066		0.07								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.20

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	13.439	14.0	14.0	Chem Translator of 0.96 applied
Total Lead	0	0		0	64.581	81.6	81.9	Chem Translator of 0.791 applied
Total Zinc	0	0		0	117.180	120	120	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.20

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	8.956	9.33	9.36	Chem Translator of 0.96 applied

Total Lead	0	0		0	2.517	3.18	3.19	Chem Translator of 0.791 applied
Total Zinc	0	0		0	118.139	120	120	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 0.010 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	0.074	0.11	9.36	14.0	14.0	µg/L	9.36	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Lead	Report	Report	Report	Report	Report	µg/L	3.19	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	0.95	0.95	120	120	120	µg/L	120	AFC	Discharge Conc ≥ 50% WQBEL (RP)

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable