Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0098914**
Facility Type	**Non-Municipal**	APS ID	**1090318**
Major / Minor	**Minor**	Authorization ID	**1443072**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Mark & Joanne Worthing**	Facility Name	**Unionville Works STP**
Applicant Address	1376 Route 68	Facility Address	Glen Eden Road
	New Brighton, PA 15066-4125		Rochester, PA 15074
Applicant Contact	Mark & Joanne Worthing	Facility Contact	Same as Applicant
Applicant Phone	(724) 891-4999	Facility Phone	Same as Applicant
Client ID	261168	Site ID	257994
Ch 94 Load Status	Not Overloaded	Municipality	New Sewickley Township
Connection Status		County	Beaver
Date Application Received	June 6, 2023	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Application for the Renewal of a NPDES permit for the discharge of treated Sewage.

Summary of Review

The Applicant has applied for a renewal of NPDES Permit No. PA0098914, which was previously issued by the Department on November 19, 2018. That permit expired on November 30, 2023.

WQM Permit No. 8993-S was issued on January 30, 1958, authorizing the construction of an STP to treat an annual average design flow of 0.015 MGD.

The STP is an extended aeration process consisting of aeration, final clarification and chlorination.

The receiving stream, UNT to Brush Creek, is currently classified as a WWF, located in State Watershed No. 20-C.

The Applicant has complied with Act 14 Notifications and no comments were received.

Changes since the last permit include:

- Addition of *E.Coli* monitoring
- Revised WQBEL for TRC
- Revised Technology-Based Effluent Limits for DO, CBOD5, TSS, Total Nitrogen, and Total Phosphorus
- Receiving Stream has changed

The facility has not been in operation since 1992 when the Unionville School was closed. DMRs submitted to the Department indicates that there is no discharge from the STP.

Sludge use and disposal description and location(s): No sludge is being produced or wasted, as the STP is not in operation.

Approve	Deny	Signatures	Date
X		William C. Mitchell, E.I.T. / Project Manager	February 13, 2025
X		Christopher Kriley, P.E. / Program Manager	February 14, 2025

Summary of Review
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)	0.015
Latitude	40º 44' 50.00"	Longitude	-80º 12' 3.00"
Quad Name	Baden	Quad Code	1304
Wastewater Description:	Sewage Effluent		
Receiving Waters	UNT to Brush Creek (WWF)	Stream Code	34802
NHD Com ID	126216000	RMI	0.26
Drainage Area	1.33	Yield (cfs/mi^2)	0.00857
Q_{7-10} Flow (cfs)	0.0114	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)		Slope (ft/ft)	
Watershed No.	20-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	NONE	Exceptions to Criteria	NONE
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Brush Creek (Butler)

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

Nearest Downstream Public Water Supply Intake	Beaver Falls Municipal Authority		
PWS Waters	Beaver River	Flow at Intake (cfs)	640
PWS RMI	2.85	Distance from Outfall (mi)	>1 Mile

Changes Since Last Permit Issuance: The previous permit assumed that the discharge was to an UNT to Brush Creek (Stream Code 34787), which is incorrect.

The discharge is to a Dry Swale to Unnamed Undocumented Steam to Trib 34802 to Brush Creek, which flows in a north-west direction following Brush Creek Road (State Route 989).

The POFU is Trib 34802 to Brush Creek at RMI 0.26. This was confirmed via communication with the Applicant, and contour mapping (USGS StreamStats, eMapPA, and Google Earth Pro).

Updates were made to the Stream Code, Drainage Area, Q7-10 Flow, and RMI.

Other Comments: The discharge is an UNT to Brush Creek, which is tributary to Brush Creek that has a final TMDL. The TMDL was tailored for only one point-source discharge: Municipal Sewer and Water Authority of Cranberry Township, between RMIs 11.2 and 5.7. No other point sources were considered for this TMDL. The impact of this discharge on the receiving stream is insignificant, as the discharge is not active.

Treatment Facility Summary				
Treatment Facility Name: Unionville Works STP				
WQM Permit No.	**Issuance Date**			
8993-S	01/30/1958			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Extended Aeration	No Disinfection	0.015
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.015	N/A	Not Overloaded	STP not in Use	STP not in Use

Changes Since Last Permit Issuance: None

Other Comments: N/A

Compliance History

Operations Compliance Check Summary Report

Facility: Unionville Works STP

NPDES Permit No.: PA0098914

Compliance Review Period: 1/1/20-1/7/25

Inspection Summary:

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC	INSPECTION COMMENT
02/01/2023	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted	
02/03/2022	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted	
07/12/2021	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted	Remote CEI

Violation Summary:

VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE
02/01/2023	92A.62	NPDES - Failure to pay annual fee	11/27/2023
02/03/2022	92A.62	NPDES - Failure to pay annual fee	07/11/2022

Open Violations by Client ID:

No open violations for Client ID 261168

Enforcement Summary:

ENF TYPE	ENF TYPE DESC	EXECUTED DATE	VIOLATIONS	AMOUNT RECEIVED	ENF FINALSTATUS	ENF CLOSED DATE
NOV	Notice of Violation	02/01/2023	92A.62		Comply/Closed	11/27/2023
ADORD	Administrative Order	04/08/2022	92A.62		Comply/Closed	07/11/2022
NOV	Notice of Violation	02/03/2022	92A.62		Comply/Closed	07/11/2022

Effluent Violation Summary:
No effluent violations during the review period

Compliance Status: Facility is generally in compliance with no open violations or pending enforcements.

Completed by: Amanda Illar **Completed date:** 1/8/25

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.015
Latitude 40º 44' 50.00" **Longitude** -80º 12' 3.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

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

Comments: The above Technology-Based Limitations apply for pH, and Fecal Coliform.

To determine applicability of standards associated with dry streams, application managers will generally consider the following:

1. If the stream flow (Q7-10) to wastewater flow (design flow) ratio is less than 3:1, proceed to paragraph 2, otherwise skip to the next section.

2. For new or expanding discharges, apply the more stringent treatment requirements in DEP's Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers (391-2000-014).

3. For existing discharges, if the more stringent treatment requirements cannot be achieved, do not apply the standards in DEP guidance (391-2000-014) unless the receiving stream is impaired and the point source discharge contributes to the impairment. If this is the case, apply the more stringent treatment requirements and provide a schedule to meet final limitations not exceeding three years in the draft permit. Do not approve design flow increases without applying the more stringent treatment requirements where the discharge meets the criteria in the guidance for a dry stream.

The more stringent treatment requirements (for DO, CBOD5, TSS, Total Nitrogen, and Total Phosphorus) found in DEP guidance (391-2000-014) will be imposed on this facility since the discharge is to a dry swale. There is no DMR data to review to see if the facility can comply with the more stringent treatment requirements, and the receiving watershed is impaired for nutrients (Connoquenessing Basin). The Applicant will have to work with the Department if this facility is placed back into operation to comply with the revised effluent limitation contained in this permit.

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
TRC	0.08	Average Monthly	TRC_CALC

Comments: This facility will most likely not comply with the WQBEL for TRC without installing dichlorination or UV disinfection.

Best Professional Judgment (BPJ) Limitations

Comments: N/A

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.

Additional Considerations

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Departments Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits (Document No. 386-0400-001).

For existing discharges, a year-round monitoring requirement for ammonia-nitrogen, at a minimum should be established per 25 Pa. Code § 92a.061. The monitoring requirements for Ammonia Nitrogen are to be consistent with CBOD5, TSS, and Fecal Coliform.

Sewage discharges will include monitoring, at a minimum, for *E. Coli*, in new and reissued permits, with a monitoring frequency of 1/year for design flows 0.002 – 0.05 MGD per 25 Pa. Code § 92a.061 and Section I.A, Note 12, SOP No. BCW-PMT-033, Establishing Effluent Limitations for Individual Sewage Permits.

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" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	2/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.08	XXX	0.26	1/day	Grab
CBOD5	XXX	XXX	XXX	10.0	XXX	20.0	2/month	Grab
TSS	XXX	XXX	XXX	10.0	XXX	20.0	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	5.0	XXX	10.0	1/month	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	Report	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	0.5	XXX	1.0	2/month	Grab

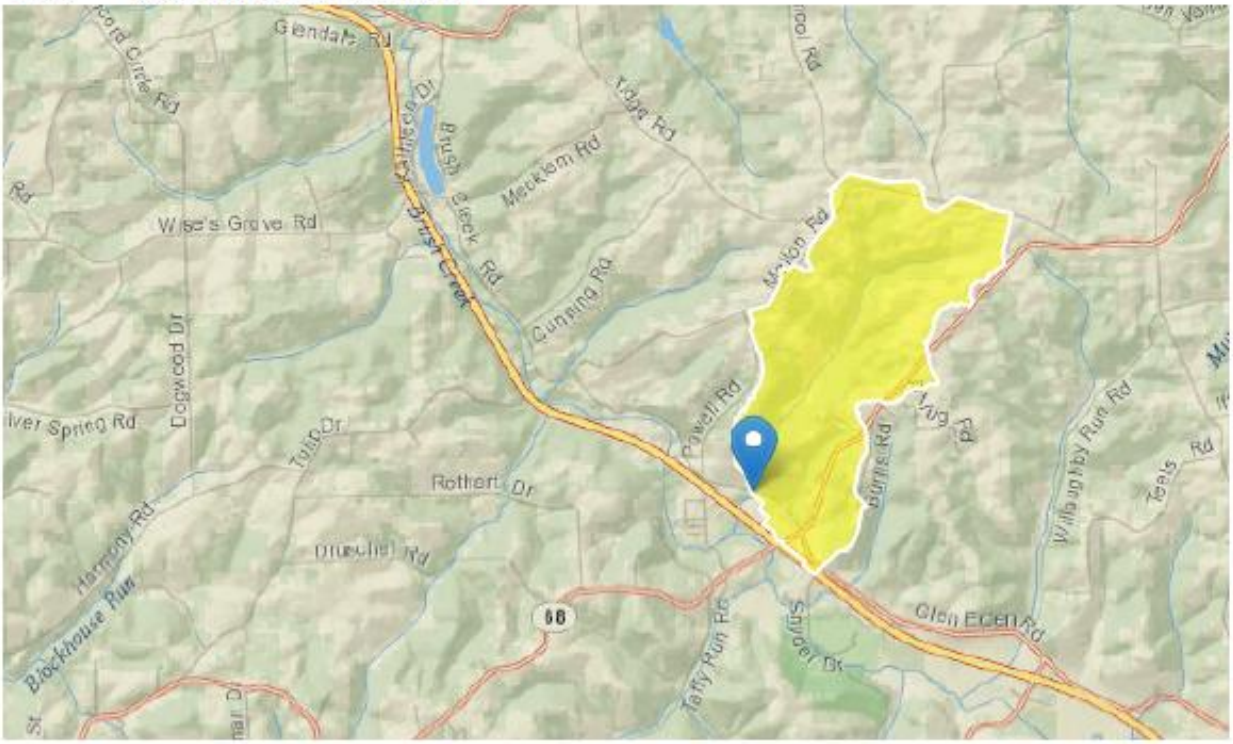
Compliance Sampling Location: Outfall 001

Other Comments: N/A

Attachment 1 – USGS StreamStats Report

StreamStats Report

Region ID: PA
Workspace ID: PA20250103190811248000
Clicked Point (Latitude, Longitude): 40.75108, -80.20586
Time: 2025-01-03 14:08:32 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.33	square miles
ELEV	Mean Basin Elevation	1148	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	1.33	square miles	2.26	1400
ELEV	Mean Basin Elevation	1148	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	0.0375	ft^3/s
30 Day 2 Year Low Flow	0.0711	ft^3/s
7 Day 10 Year Low Flow	0.0114	ft^3/s
30 Day 10 Year Low Flow	0.0238	ft^3/s
90 Day 10 Year Low Flow	0.0475	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/)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Survey (USGS). Although the software has been subjected to rigorous review, the USGS reserves the right to update the software as needed pursuant to further analysis and review. No warranty, expressed or implied, is made by the USGS or the U.S. Government as to the functionality of the software and related material nor shall the fact of release constitute any such warranty. Furthermore, the software is released on condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from its authorized or unauthorized use.

USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does

not imply endorsement by the U.S. Government.

Application Version: 4.25.0

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

Attachment 2 – TRC_CALC

TRC_CALC

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.0114	= Q stream (cfs)	0.5	= CV Daily
0.015	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	0.176	1.3.2.iii	WLA cfc =	0.164
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.065	5.1d	LTA_cfc =	0.095

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.081	AFC
		INST MAX LIMIT (mg/l) =	0.264	

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