pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0053147**
Facility Type	**Municipal**	APS ID	**832443**
Major / Minor	**Major**	Authorization ID	**1327056**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Upper Saucon Sewage Treatment Authority**	Facility Name	**Upper Saucon Township WWTP**
Applicant Address	5500 Camp Meeting Road	Facility Address	4774 Saucon Creek Road
	Center Valley, PA 18034-9444		Center Valley, PA 18034
Applicant Contact	Bruce Bush	Facility Contact	Patrick Lambert
Applicant Phone	(610) 282-1171	Facility Phone	(610) 282-1171
Client ID	309424	Site ID	270952
Ch 94 Load Status	Not Overloaded	Municipality	Upper Saucon Township
Connection Status	See below	County	Lehigh
Date Application Received	September 8, 2020	EPA Waived?	No
Date Application Accepted	September 8, 2020	If No, Reason	Major Facility

Purpose of Application .

Summary of Review

The applicant is requesting renewal of an NPDES permit to discharge 2.5 MGD of treated sewage to Saucon Creek, a CWF/MF designated receiving stream in state water plan basin 02-C (Lower Lehigh River). As per the Department's current existing use list, the receiving stream does not have an existing use classification that is more protective than its designated use. There is no Total Maximum Daily Load (TMDL) for the receiving stream.

All limitations from the previously issued permit are carried over in this renewal. The TRC, $CBOD_5$, Ammonia-Nitrogen, and Dissolved Oxygen limits are water quality-based. The pH, TSS and Fecal Coliform limits are technology-based. WQM 7.0 and the TRC Calculation Spreadsheet both indicated more stringent limitations are not necessary.

The facility utilizes ultraviolet (UV) disinfection prior to stream discharge. The monitoring frequency for TRC remains at "daily when discharging" in the event the permittee uses chlorine for backup disinfection, cleaning, or other purposes. The Part C special condition regarding UV system monitoring from the previously issued permit is replaced by the standard template condition for this renewal (see Part C.I.E).

The 0.23 cfs/mi^2 low flow yield (LFY) used for modeling is carried over from the previous renewal. The previous permit renewal also carried over the 0.23 cfs/mi^2 from previous renewals due to lack of any existing gage on the stream and hydromodification (mining) which makes PAStreamstats less reliable. The original LFY was derived from USGS Gage 01454500 "Saucon Creek at Friedensburg" ($Q_{7\text{-}10}$ of 6.0 CFS from 26.6 square mile area).

DEP's Toxics Management Spreadsheet recommended monitoring requirements and limitations for several parameters:

Total Zinc: The governing WQBEL was calculated to be 204 µg/L and the highest concentration identified in the permit renewal application was 50 µg/L. Quarterly monitoring/reporting is included in the permit.

Approve	Deny	Signatures	Date
X		*Brian Burden* Brian Burden, E.I.T. / Project Manager	January 13, 2023
X		Amy M. Bellanca (signed) Amy M. Bellanca, P.E. / Program Manager	1-17-23

Summary of Review

Total Copper: Monitoring/reporting requirements for Total Copper are carried over from the previously issued permit and in accordance with a previously submitted WER. Due to the age of the study, site-specific studies for Copper must be completed before the next permit renewal, otherwise the results from the Toxics Management Spreadsheet will be applied (see Part C.III).

Bis(2-Ethylhexyl)Phthalate: The governing WQBEL was calculated to be 2.24 µg/L during this renewal. The most stringent criterion was lowered from 1.2 µg/L to 0.32 µg/L in DEP's Chapter 93 water quality standards since the previous renewal (when limitations were established). As a result, the previously established monthly average limitation of 0.0082 µg/L will be lowered to 0.0022 µg/L for this renewal. The daily maximum and IMAX limitations are lowered as well. The lower limitations will come into effect 3 years after the permit effective date. A compliance schedule is included in Part C.VI for this parameter. The permittee may conduct site-specific studies to modify the limitations.

DRBC Docket No. D-2003-5 CP (approved on 6/26/2003) did not include any additional parameters to incorporate into the NPDES permit.

Influent monitoring requirements for BOD_5 and TSS are carried over from the previous permit. Monitoring requirements for TDS, Nitrate-Nitrite as N, TKN, TN, TP, and Total Copper are carried over from the previous permit.

The permittee was required to perform Whole Effluent Toxicity (WET) testing during the previous permit term. All reviewed results passed the T-Test between 2014 – 2021 with the exception of the 8/6/2018 test for chronic water flea survival and reproduction. A subsequent test dated 12/4/2018 passed for chronic water flea survival and reproduction. Since the last four WET tests passed for both species (including the re-test) and all tests passed the T-Test before the 8/6/2018 failure, reasonable potential has not been determined and WET limitations are not included in this renewal.

The standard Part C condition, Whole Effluent Toxicity – No Permit Limits, is carried over from the previous permit. WET testing shall be conducted annually during the upcoming permit cycle, at a minimum. The WET Analysis Spreadsheet (results attached) was used to determine that the permittee must generate chronic survival and reproduction data for the cladoceran, *Ceriodaphnia dubia*, and chronic survival and growth data for the fathead minnow, *Pimephales promelas*. The permittee shall perform testing using the following dilution series: 13%, 26%, 52%, 76%, and 100% effluent, with a control, where 52% effluent is the facility-specific Target In-Stream Waste Concentration (TIWC). Toxics management spreadsheet modeling determined that both the acute and chronic Partial Mix Factors (PMFs) are equal to 1.

Monitoring requirements for stormwater Outfall 002 are updated to the latest PAG-03 Appendix J monitoring requirements. Semiannual monitoring/reporting for pH, COD, TSS, Oil & Grease, TN and TP replace the previous semiannual monitoring requirements for pH, TSS, TKN and Total Iron. Part C.V (Requirements Applicable to Stormwater Outfalls) is carried over from the previous permit.

One entity discharges wastewater to the WWTP that is not entirely sanitary wastewater. Saucon Valley Auto Spa is a car wash that discharges approximately 6,650 gpd of wastewater.

As per the 2021 Chapter 94 Report for the WWTP:

"There is one area of the Township's Interceptor/ Collection system that are subject to restrictions on new sewer connections as outlined in either Section 94.21 or Section 94.22 of the PADEP regulations:

Area Upstream of MH# 9 (Section 94.22 Limitation)

This portion of the Township Interceptor/ Collection system is located in the SBI drainage basin. The Township has developed a Corrective Action Plan (CAP) for this area.

The USSTA and USTMA established a limitation on new sewer connections subject to regulations set forth in Title 25 PA Code 94.22. Therefore, the CAP was subsequently revised to comply with the standards established by these recent cited Environmental Hearing Board (EHB) rulings and requirements set forth in Chapter 94.22. This revised CAP was forwarded to PADEP on February 8, 2009. The CAP was approved by PADEP in their letter dated June 23, 2009.

Summary of Review

Under the terms of the Mutual Release and Settlement Agreement dated December 18, 2012, the Borough will have 70 connections available for future development. This connection allocation is based on available "Ainjar" connections in the Township's collection and interceptor system. The Borough is solely responsible for determining if sufficient capacity is available within their sanitary sewer collection system to provide service to these additional connections. The Sewer Connection Plan for this area was updated to incorporate these changes and was submitted to PADEP in December 2012.

The USTMA/USSTA has submitted quarterly reports to PADEP updating the status of the CAP program."

There are no current or projected overloads at the treatment plant as per the most recently submitted Chapter 94 report. No antidegradation analysis is required since the watershed is not high quality or exceptional value. There are no combined sewers in the collection system. None of the existing effluent limitations have been made less stringent; therefore, the antibacksliding requirement has been met.

The previously issued permit expired on February 28, 2021 and the application for permit renewal was received by DEP on September 8, 2020. There are 2 open violations for the client that could warrant withholding issuance of the permit:

- 4/19/2021: Failure to submit NPDES renewal application at least 180 days prior to expiration or later approved date.
- 4/19/2021: Violation of effluent limits in Part A of permit.

Sludge use and disposal description and location(s): As per the 2021 Chapter 94 report, the WWTP has one primary method for digested sludge disposal consisting of sludge incineration. One outside contractor, Franc Environmental Inc., is responsible for hauling sludge to the disposal sites. Sludge was hauled to the Hatfield Township Municipal Authority for incineration during 2021.

WQM Modeling.pdf TRC Calculation.pdf TMS PA0053147.pdf StreamStats Outfall 001.pdf StreamStats 2nd Point.pdf WET Dilution Series.pdf DRBC Docket.pdf

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)	2.5
Latitude	40º 33' 3"	Longitude	-75º 23' 40"
Quad Name	Allentown East	Quad Code	1442
Wastewater Description:	Sewage Effluent		

Receiving Waters	Saucon Creek (CWF, MF)	Stream Code	3345
NHD Com ID	26296293	RMI	9.4
Drainage Area	16 mi^2	Yield (cfs/mi^2)	0.23
Q_{7-10} Flow (cfs)	3.6	Q_{7-10} Basis	Gage 01454500
Elevation (ft)	354	Slope (ft/ft)	0.0022
Watershed No.	2-C	Chapter 93 Class.	CWF, MF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired		
Cause(s) of Impairment	Siltation		
Source(s) of Impairment	Agriculture, Urban Runoff / Storm Sewers		
TMDL Status	-	Name	-

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

Nearest Downstream Public Water Supply Intake	BCWSA New Hope		
PWS Waters	Delaware River	Flow at Intake (cfs)	1,541 (using 0.23 LFY & 6,700 mi^2 D.A.)
PWS RMI	73.3	Distance from Outfall (mi)	~54

Treatment Facility Summary

Treatment Facility Name: Upper Saucon Sewage Treatment Authority WWTP

WQM Permit No.	Issuance Date
3903401	8/13/2003
3904406	2/9/2005

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	UV	2.5

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
2.5	4,170	Not Overloaded	Aerobic Digestion	Offsite Disposal

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 2.5
Latitude 40º 33' 3" **Longitude** -75º 23' 40"
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
Total Suspended Solids	30.0	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45.0	Average Weekly	133.102(b)(2)	92a.47(a)(2)
	60.0	IMAX	-	-
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)
	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)
	10,000 / 100 ml	IMAX	-	92a.47(a)(5)

Water Quality-Based Limitations

The following limitations were determined through water quality modeling:

Parameter	Limit (mg/l)	SBC	Model
$CBOD_5$ (5/1 – 10/31)	10.0	Average Monthly	Previous Modeling
	15.0	Weekly Average	
	20.0	IMAX	
$CBOD_5$ (11/1 – 4/30)	20.0	Average Monthly	
	30.0	Weekly Average	
	40.0	IMAX	
Dissolved Oxygen	5.0	Minimum	Previous Modeling
Total Residual Chlorine	0.472	IMAX	Previous Modeling
Ammonia-Nitrogen (5/1 – 10/31)	3.0	Average Monthly	Previous Modeling
	6.0	IMAX	
Ammonia-Nitrogen (11/1 – 4/30)	9.0	Average Monthly	
	18.0	IMAX	
Bis(2-Ethylhexyl)Phthalate	0.0022	Average Monthly	2022 Toxics Management Spreadsheet
	0.0044	IMAX	

Comments: The revised Bis(2-Ethylhexyl)Phthalate limitations will come into effect 3 years from the permit effective date.

Whole Effluent Toxicity (WET)

For Outfall 001, ☐ **Acute** ☒ **Chronic** WET Testing was completed:

☐ For the permit renewal application (4 tests).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☒ Other: **Annually throughout the permit term.**

The dilution series used for the tests was: 100%, 76%, 52%, 26%, and 13%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 52%.

Summary of Four Most Recent Test Results

TST Data Analysis

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
September 2021	Pass	Pass	Pass	Pass
August 2020	Pass	Pass	Pass	Pass
August 2019	Pass	Pass	Pass	Pass
December 2018	Pass	Pass	Pass	Pass

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☐ **YES** ☒ **NO**

Evaluation of Test Type, IWC and Dilution Series for Renewed Permit

Acute Partial Mix Factor (PMFa): **1** Chronic Partial Mix Factor (PMFc): **1**

1. Determine IWC – Acute (IWCa):

$(Q_d \times 1.547) / ((Q_{7\text{-}10} \times PMFa) + (Q_d \times 1.547))$

[(2.5 MGD x 1.547) / ((3.6 cfs x 1) + (2.5 MGD x 1.547))] x 100 = **52%**

Is IWCa < 1%? ☐ **YES** ☒ **NO**

If the discharge is to the tidal portion of the Delaware River, indicate how the type of test was determined:

N/A

Type of Test for Permit Renewal: **Chronic**

2a. Determine Target IWCa (If Acute Tests Required)

TIWCa = IWCa / 0.3 = **% ←N/A**

2b. Determine Target IWCc (If Chronic Tests Required)

$(Q_d \times 1.547) / (Q_{7\text{-}10} \times PMFc) + (Q_d \times 1.547)$

[(2.5 MGD x 1.547) / ((3.6 cfs x 1) + (2.5 MGD x 1.547))] x 100 = **52%**

3. Determine Dilution Series

(NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).

Dilution Series = 100%, 76%, 52%, 26%, and 13%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

Will WET limits be established in the permit? ☐ YES ☒ NO

If WET limits will be established, identify the species and the limit values for the permit (TU).

N/A

If WET limits will not be established, but reasonable potential was determined, indicate the rationale for not establishing WET limits:

N/A