pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0060640**
Facility Type	**Non-Municipal**	APS ID	**555470**
Major / Minor	**Minor**	Authorization ID	**1332862**

Applicant and Facility Information

Applicant Name	**Pennsylvania American Water Company**	Facility Name	**Saw Creek Estates Wastewater Treatment Facility**
Applicant Address	852 Wesley Drive Mechanicsburg, PA 17055-4436	Facility Address	5460 Winona Falls Road Bushkill, PA 18324
Applicant Contact	Eugenia T. Roche, Senior Supervisor	Facility Contact	Kasey W. White, Production Supervisor
Applicant Phone	(570) 903-1047	Facility Phone	(570) 588-2754
Client ID	87712	Site ID	49085
Ch 94 Load Status	Not Overloaded	Municipality	Lehman Township
Connection Status	No Limitations	County	Pike
Date Application Received	October 31, 2020	EPA Waived?	Yes
Date Application Accepted	November 10, 2020	If No, Reason	-

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

Summary of Review

The applicant is requesting the renewal of an NPDES permit to discharge up to 0.750 MGD of treated sewage into Saw Creek, a High Quality, Cold-Water Fishery, Migratory Fish (HQ-CWF, MF) receiving stream in State Water Plan Basin 1-D (Shohola – Bushkill Creek). 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. This stream segment is designated as a naturally reproducing trout stream as per PA Fish & Boat Commission. This discharge is not expected to affect public water supplies.

Limitations for pH, $CBOD_5$, Total Suspended Solids (TSS), and Fecal Coliform are technology-based and carried over from the previous permit. Limitations for Ammonia-Nitrogen are water quality-based and carried over from the previous permit.

WQM 7.0 modeling recommended a stricter limit of 6.0 for Dissolved Oxygen (DO). The Total Residual Chlorine (TRC) Calculation Spreadsheet also recommends stricter water-quality limitations than the previous permit. eDMR data from June 2020 to May 2021 (seen on page 4 of this Fact Sheet) indicates that the facility is consistently meeting both the new minimum DO limitations and stricter TRC limitations. Therefore, the new TRC and DO limits will be applied at the permit effective date.

Sewage discharges now require monitoring and reporting for E. Coli. A monitoring frequency of 1/month for design flows >= 1 MGD, 1/quarter for design flows >= 0.05 and < 1 MGD, 1/year for design flows of 0.002 – 0.05 MGD will be utilized.

The latest DRBC Docket No. D-1988-089 CP-3 requires the addition of monthly monitoring and reporting for CBOD (5-Day at 20° C) percent (%) removal of the raw sewage influent.

Weekly influent monitoring requirements for TSS has been carried over from the previous permit. The weekly influent monitoring for BOD_5 has been changed to influent monitoring of $CBOD_5$ to better determine the removal percentages.

Approve	Deny	Signatures	Date
X		/s/ Allison Seyfried / Environmental Engineering Specialist	July 22, 2021
X		/s/ Amy M. Bellanca, P.E. / Environmental Engineer Manager	7-29-21

Summary of Review

The monitoring/reporting for Total Nitrogen (TN), Total Phosphorus (TP), Total Kjeldahl Nitrogen (TKN), and Nitrate-Nitrite as N has been maintained in this permit.

Pollutant sampling results submitted with the permit application were entered into the Toxic Management Spreadsheet (TMS). Since less than 10 sample results were submitted the highest reported concentration of each parameter was entered into the spreadsheet. The highest reported Total Copper concentration was 0.0229 mg/L and the highest Total Zinc concentration was 0.0652 mg/L. The TMS recommended limits for Total Copper and monitoring/reporting for Total Zinc. The permittee was emailed a Pre-Draft Permit Survey for Toxic Pollutants on November 24, 2020 to complete and return. This survey is used to help DEP understand the current capabilities of the plant and what plans the facility has to treat/ control the pollutants of concern. The email also included the preliminary new limits and offered the permittee the opportunity to conduct a minimum of 10 additional effluent samples so that the modeling could be re-ran with more data points. The email stated that if the permittee "decides not to complete and return the survey, DEP will proceed with developing the draft NPDES permit based on all available information and certain assumptions". The survey was not returned to DEP and no additional samples were received.

Therefore, Total Copper limitations were added to the permit and will come into effect four years after the permit effective date. Monitoring/reporting requirements are included in the permit until the limitations come into effect. Monthly monitoring/reporting for Total Zinc has also been added. The Part C. IV. condition regarding Toxics Reduction Evaluations (TREs) is added to the permit and applies to the Total Copper limitations. The permittee will have the option to accept the implementation of the limitations or to perform site-specific studies to verify or refine the WQBELs.

24-hour composite sampling is now required for every pollutant except pH, DO, TRC, E. Coli, and Fecal Coliform.

For this permit renewal, all monitoring frequencies for parameters with limitations are consistent with the Department's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (document no. 362-0400-001).

The Bush Kill at Shoemakers, PA stream gage (1439500) is downstream of the outfall. The gage is not located on Saw Creek and has a much larger drainage area than where the outfall actually discharges. Therefore, the USGS StreamStats generated $Q_{7\text{-}10}$ was used to calculate the Low Flow Yield (LFY) of 0.055 cfs/mi^2. River Mile Index (RMI) values were obtained using the Department's eMapPA, drainage areas were delineated using USGS's StreamStats interactive map, and elevations were obtained using the elevation profile tool on StreamStats. This LFY is very close to the LFY of 0.06 cfs/mi^2 that was used in the previous permit. A LFY was also calculated using the stream gage information and the TMS still recommended Total Copper limits and Total Zinc monitoring/reporting.

The existing permit expired on February 28, 2021 and the application for renewal was received on October 31, 2020.

A Water Management System Inspection query indicated that on June 28, 2021 a Compliance Evaluation was performed.

There are currently 13 open violations for this client, including 4 for this facility, that may need to be resolved before issuance of the final permit:

1. 02/10/2021 - Violation ID 907544 – Violation Code CSL611 – CSL-Failure to comply with terms and conditions of a WQM permit. (WPC NPDES - Program Specific ID: PA0060640).

2. 03/30/2021 - Violation ID 919457 – Violation Code 92A.44 – NPDES-Violation of effluent limits in Part A of permit (WPC NPDES - Program Specific ID: PA0060640).

3. 03/30/2021 - Violation ID 92A.41(A)12B – Violation Code 919458 – NPDES-Failure to submit monitoring report(s) or properly complete monitoring reports. (WPC NPDES - Program Specific ID: PA0060640).

4. 03/30/2021 - Violation ID 92A.41(A)8 – Violation Code 919459 – NPDES-Failure to provide information or records required by the permit or otherwise needed to determine compliance. (WPC NPDES - Program Specific ID: PA0060640).

Sludge use and disposal description and location(s): As per the permittee's Sewage Sludge and Biosolids Supplemental Report forms, sludge is hauled to the Keystone Sanitary Landfill in Dunmore/Throop, PA by JP Mascaro.

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)	0.75
Latitude	41º 6' 5.84"	Longitude	-75º 2' 21.74"
Quad Name	Bushkill	Quad Code	1045
Wastewater Description:	Sewage Effluent		
Receiving Waters	Saw Creek	Stream Code	5078
NHD Com ID	26138684	RMI	1.09
Drainage Area	28.9 mi^2	Yield (cfs/mi^2)	0.055
Q_{7-10} Flow (cfs)	1.58	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	486	Slope (ft/ft)	-
Watershed No.	01-D (Shohola – Bushkill Creeks)	Chapter 93 Class.	HQ-CWF/MF
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	-	Name	-
Nearest Downstream Public Water Supply Intake	Easton Area Water System		
PWS Waters	Delaware River	Flow at Intake (cfs)	-
PWS RMI	~110	Distance from Outfall (mi)	~46

Treatment Facility Summary

Treatment Facility Name: Saw Creek Estates Wastewater Treatment Facility

WQM Permit No.	Issuance Date
5214401	5/5/2014

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	SBRs	Chlorination	0.213 (2017-2019)

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.75	1,564	Not Overloaded	Belt Filter Press	Hauled (Landfill)

Compliance History

DMR Data for Outfall 001 (from June 1, 2020 to May 31, 2021)

Parameter	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20
Flow (MGD) Average Monthly	0.229	0.234	0.328	0.236	0.244	0.265	0.245	0.237	0.261	0.277	0.292	0.267
Flow (MGD) Daily Maximum	0.323	0.312	2.94	0.289	0.313	0.49	0.296	0.29	0.357	0.336	0.358	0.323
pH (S.U.) Minimum	6.99	6.8	6.63	6.9	6.79	6.8	6.67	6.83	6.93	6.87	7.02	6.87
pH (S.U.) Maximum	7.3	7.3	7.3	7.5	7.5	7.7	7.57	7.5	7.5	7.98	7.53	7.4
DO (mg/L) Minimum	8.3	9.1	10.4	10.23	9.57	7.8	8.31	8.08	7.4	7.2	7.27	7.2
TRC (mg/L) Average Monthly	< 0.06	< 0.06	< 0.07	< 0.05	< 0.06	< 0.08	< 0.06	0.09	0.12	0.06	0.04	0.05
TRC (mg/L) Instantaneous Maximum	0.17	0.2	0.35	0.26	0.38	0.27	0.35	0.4	0.36	0.24	0.33	0.12
CBOD5 (lbs/day) Average Monthly	6.5	9.5	13.6	24.0	8.9	< 13.2	10.8	11.0	6.9	8.9	9.5	22.2
CBOD5 (mg/L) Average Monthly	3.9	5.4	7.3	12.8	4.8	< 5.6	5.9	6.0	3.4	4.1	4.4	9.6
BOD5 (mg/L) Influent Average Monthly	251	499	307	285	302	172	324.0	264	227	178	337	356.0
TSS (lbs/day) Average Monthly	5.5	6.1	13.2	13.2	8.5	14.1	20.6	13.6	< 6.2	5.2	< 5.1	16.0
TSS (mg/L) Average Monthly	3.3	3.6	7.3	7.1	4.6	6.1	11.2	7.6	< 2.9	2.4	< 2.2	7.1
TSS (mg/L) Influent Average Monthly	116	108	158	92	104	104	198.0	108	126	206	190	270.0
Total Dissolved Solids (mg/L) Average Quarterly			406			450.0			494			436
Fecal Coliform (CFU/100 ml) Geometric Mean	< 6.0	< 1.0	< 2	7	< 1.0	< 3.0	< 2.0	5.0	3.0	91	4.0	75.0

Fecal Coliform (CFU/100 ml) Instantaneous Maximum	< 6.0	3.1	16	2419.2	2.0	7.4	10.9	8.6	6.3	1553.1	11.0	2419.2
Nitrate-Nitrite (mg/L) Average Monthly	< 4.6	< 7.9	10.2	17.1	< 8.1	< 9.4	21.2	< 9.5	9.6	8.4	5.1	8.4
Total Nitrogen (mg/L) Average Monthly	< 6.43	< 10.52	12.97	< 18.1	< 10.73	< 11.64	23.81	< 11.51	11.75	10.53	8.42	10.02
Ammonia (lbs/day) Average Monthly	< 0.2	< 0.2	< 1.1	1.3	< 0.7	< 0.6	2.2	< 0.6	< 0.4	1.1	< 0.8	< 0.4
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.6	0.7	< 0.4	< 0.2	1.2	< 0.3	< 0.2	0.5	< 0.3	< 0.2
TKN (mg/L) Average Monthly	1.79	2.59	2.76	< 1.0	2.67	2.29	2.6	2.05	2.17	2.1	3.32	1.61
Total Phosphorus (mg/L) Average Monthly	2.3	2.0	2.9	4.5	2.8	2.9	4.3	5.1	2.7	2.4	1.4	2.8

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.75
Latitude 41º 6' 5.00" **Longitude** -75º 2' 23.00"
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
$CBOD_5$	25.0	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	50.0	IMAX	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30.0	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	60.0	IMAX	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)
E. Coli	Report	Average Quarterly	-	92a.61

Water Quality-Based Limitations

The following limitations were determined through water quality modeling:

Parameter	Limit (mg/l)	SBC	Model
Ammonia-Nitrogen (5/1 – 10/31)	3.0	Average Monthly	1988 Pollution Report
	6.0	IMAX	
Ammonia-Nitrogen (11/1 – 4/30)	9.0	Average Monthly	
	18.0	IMAX	
Dissolved Oxygen	6.0	Minimum	WQM 7.0
Total Residual Chlorine	0.21	Average Monthly	TRC Calculation Spreadsheet
	0.68	IMAX	
Total Copper	0.021	Average Monthly	Toxic Management Spreadsheet
	0.033	Daily Maximum	
	0.053	IMAX	
Total Zinc	Report	Average Monthly	Toxic Management Spreadsheet
Total Dissolved Solids	Report	Average Quarterly	DRBC Docket

Anti-Backsliding

No limitations were made less stringent.

Modeling Using USGS StreamStats:

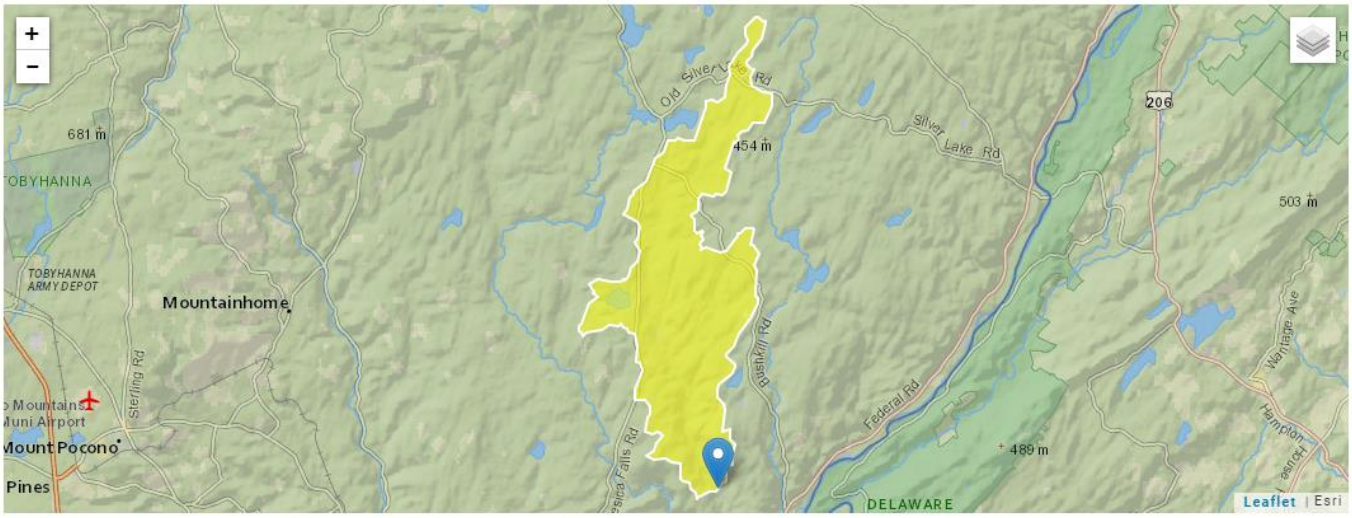
At Outfall 001 on Saw Creek:

RMI	Elevation (ft)	Drainage Area (mi^2)	Q_{7-10} Flow (cfs)
1.09	486	28.9	1.58

$$Low\ Flow\ Yield\ using\ StreamStats = \frac{1.58\ ft^3/sec}{28.9\ mi^2} = \mathbf{0.055}\ \frac{\boldsymbol{ft^3/sec}}{\boldsymbol{mi^2}}$$

StreamStats Report

Region ID: PA
Workspace ID: PA20201124151843965000
Clicked Point (Latitude, Longitude): 41.10156, -75.03932
Time: 2020-11-24 10:19:04 -0500



Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	28.9	square miles

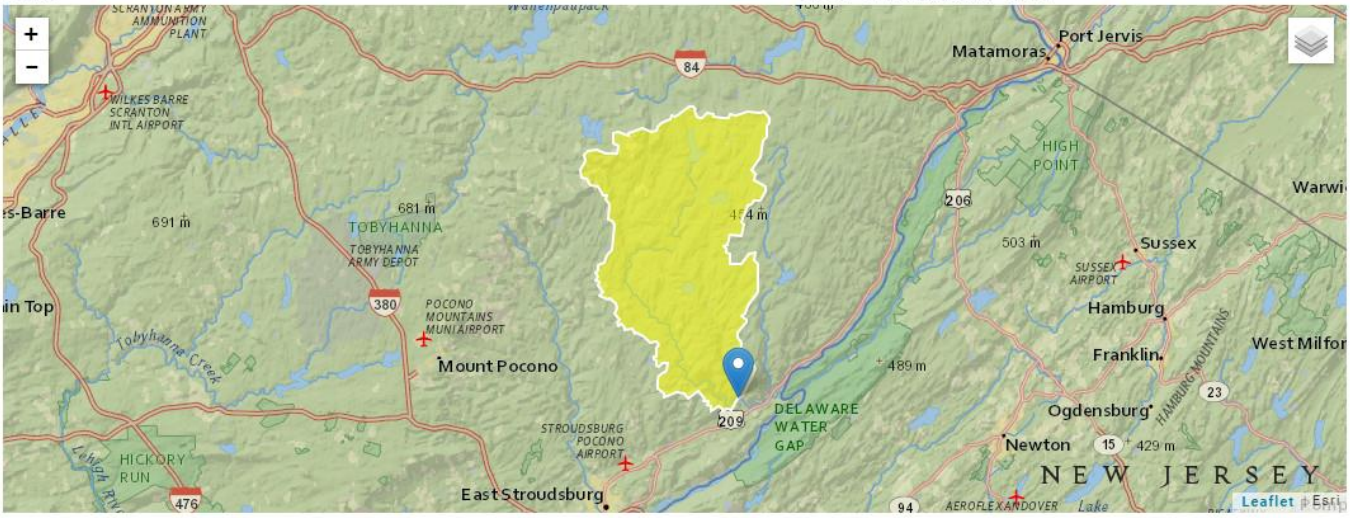
Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	3.72	ft^3/s	38	38
30 Day 2 Year Low Flow	5.11	ft^3/s	33	33
7 Day 10 Year Low Flow	1.58	ft^3/s	57	57

At confluence with Bush Kill (5054):

RMI	Elevation (ft)	Drainage Area (mi^2)
0.00 3.56 (on Bush Kill)	424	117

StreamStats Report

Region ID: PA
Workspace ID: PA20201124152636568000
Clicked Point (Latitude, Longitude): 41.08878, -75.03900
Time: 2020-11-24 10:26:54 -0500



Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	117	square miles

TMS Model Results

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

No. Samples/Month: 4

Pollutants	*Mass Limits* AML (lbs/day)	*Mass Limits* MDL (lbs/day)	*Concentration Limits* AML	*Concentration Limits* MDL	*Concentration Limits* IMAX	*Concentration Limits* Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	0.13	0.21	21.2	33.1	53.0	µg/L	21.2	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	181	AFC	Discharge Conc > 10% WQBEL (no RP)

DRBC Docket Monitoring Requirements

The following monitoring requirements and average monthly effluent limits are for DRBC parameters not listed in the NPDES Permit.

EFFLUENT TABLE C-2: DRBC Parameters Not Included in NPDES Permit

OUTFALL 001 (Treated Sewage)		
PARAMETER	LIMIT	MONITORING
$CBOD_5$ (at 20° C) Removal	Monitor and Report % Removal	Monthly

TMS Results PA0060640.pdf

DRBC Docket 1988-089 CP-3.pdf

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

1.58	= Q stream (cfs)	0.5	= CV Daily
0.75	= 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 = 0.453	1.3.2.iii	WLA cfc = 0.435
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.169	5.1d	LTA_cfc = 0.253

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.208	AFC
		INST MAX LIMIT (mg/l) = 0.680	