pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0020915**
Facility Type	**Municipal**	APS ID	**634775**
Major / Minor	**Major**	Authorization ID	**1327031**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Pine Grove Joint Treatment Authority**	Facility Name	**Pine Grove WWTP**
Applicant Address	115 Mifflin Street	Facility Address	235 Suedberg Road
	Pine Grove, PA 17963-1300		Pine Grove, PA 17963
Applicant Contact	Diane Tobin	Facility Contact	Roger Roadcap
Applicant Phone	(570) 345-6433	Facility Phone	(570) 345-6433
Client ID	208894	Site ID	614199
Ch 94 Load Status	Not Overloaded	Municipality	Pine Grove Township
Connection Status	No Limitations	County	Schuylkill
Date Application Received	September 8, 2020	EPA Waived?	No
Date Application Accepted	September 8, 2020	If No, Reason	Major Facility, Significant CB Discharge
Purpose of Application	Renewal of NPDES permit.		

Summary of Review

The applicant is requesting renewal of an NPDES permit to discharge 1.5 MGD of treated sewage to Swatara Creek, a CWF/MF designated receiving stream in state water plan basin 07-D (Swatara 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.

A Total Maximum Daily Load (TMDL) for the Upper Swatara Creek Watershed was finalized on April 9, 1999. The TMDL addresses the three primary metals associated with acid mine drainage (Iron, Manganese and Aluminum) and suspended solids. Treated sewage is not considered a major contributor of the primary metals to the affected stream. Monitoring and reporting requirements are carried over from the previous permit for Total Iron, Total Manganese and Total Aluminum. Note: Over the past two years, the highest concentration of Total Aluminum reported was 0.21 mg/L. Since the most stringent WQBEL is 1.38 mg/L, the monitoring frequency is reduced from monthly to yearly for Total Aluminum.

The pH, Fecal Coliform, TSS and $CBOD_5$ limits are technology-based limits carried over from the previous permit. Limitations for Ammonia-Nitrogen, Dissolved Oxygen and Total Phosphorus are water quality-based and carried over from the previous permit. WQM 7.0 modeling didn't recommend more stringent limitations for Ammonia-Nitrogen, $CBOD_5$ or Dissolved Oxygen (see WQM Modeling attachments).

For modeling inputs, RMI values were obtained using the "PA Historic Streams" feature of eMapPA as well as the "measure" tool. Drainage areas were delineated using USGS's StreamStats Interactive Map and elevations were obtained using the elevation profile feature of StreamStats (see StreamStats and Elevations attachments). The LFY of 0.107 cfs/mi^2 is carried over from the previous renewal. As per the fact sheet of the previous renewal: *"The Q7-10 Low Flow from the 4/1/2010 Water Pollution Control Report was retained, which was based upon the 3/16/2010 Authority (RETTEW Associates) Letter & attached 3/12/2010 RETTEW Memorandum that determined the Q7-10 via use of the SRBC November 8, 2002 "Guideline for Using and Determining Passby Flows and Conservation Releases for Surface-water and Ground-water Approvals"*

Approve	Deny	Signatures	Date
X		Brian Burden Brian Burden, E.I.T. / Project Manager	November 10, 2021
X		Amy M. Bellanca (signed) Amy M. Bellanca, P.E. / Environmental Engineer Manager	11-16-21

Summary of Review

(incorporating several different methods of estimating low flows). AMD discharges and distance to monitored USGS streamgages rendered PAStreamstats and DFLOW of unknown validity, and same as statewide default."

The TRC Calculation spreadsheet didn't recommend more stringent limitations for Total Residual Chlorine (TRC). The monitoring frequency for TRC is adjusted to "daily when discharging" and the permittee shall sample for TRC each day the WWTP utilizes chlorine for backup disinfection, cleaning, or other purposes. The permittee shall report operation of the ultraviolet (UV) disinfection system on a daily basis using the Daily Effluent Monitoring Form (3800-FM-BCW0435) and the parameter named "UV Functional" The permittee shall report values of "1" for Yes (i.e., the UV system is functional) and "< 1" for No (i.e., the UV system is not functional).

1/month influent monitoring for $CBOD_5$ and TSS is continued in this permit renewal. As per DEP guidance, 1/month E. Coli monitoring/reporting is added to the permit.

DEP's Toxics Management Spreadsheet recommends additional monitoring/reporting requirements for Total Copper and Total Zinc. Quarterly monitoring/reporting is included in the permit for those parameters. More stringent limitations for Total Phenolics were not recommended and the previously established limitations are carried over from the previous permit. The spreadsheet recommended to continue monitoring/reporting requirements for Total Dissolved Solids and Chloride. The monitoring frequency for Total Dissolved Solids and Chloride is changed from 1/month to 1/quarter. Monitoring/reporting requirements for Sulfate and Bromide are removed from the permit as per Toxics Management Spreadsheet results. Note: The Toxics Management Spreadsheet was run twice; once to model the toxics sampling results and another time to model the toxics with results dependent on the presence of a nearby downstream public water supply intake (both attached).

To quantify nutrient reduction needs, maximum nutrient loads (cap loads) for each major watershed tributary to the Chesapeake Bay were established. This included allocation of cap loads for Total Nitrogen (TN) and Total Phosphorus (TP) in Pennsylvania for the Potomac and Susquehanna watersheds. Pennsylvania's overall cap loads for TN and TP were further divided into cap loads for point and non-point sources. The method used to allocate the point source portion of the load was developed after DEP conducted an extensive stakeholder process with sewage treatment plants in 2006. The workgroup recommendation made the allocations based on the design annual average daily flow, and concentrations of 6 mg/L TN and 0.8 mg/L TP. Based on this methodology, the allocations for TN and TP for this facility are 27,397 lbs/yr and 3,653 lbs/yr, respectively. The Pine Grove WWTP is considered a Phase 2 facility in the Department's *Phase 3 Watershed Implementation Plan Wastewater Supplement (revised 9/13/2021)*.

Monitoring requirements for Nitrate-Nitrite as N, TKN and Total Nitrogen are carried over from the previous permit.

The permittee was required to conduct annual Whole Effluent Toxicity (WET) testing in the previously issued permit. All WET tests submitted by the permittee between 2014 – 2020 passed the T-test analysis of chronic survival and reproduction data for *Ceriodaphnia dubia* and chronic survival and growth data for *Pimephales promelas*.

The standard Part C condition, Whole Effluent Toxicity – No Permit Limits, is continued in this permit. WET testing shall be conducted annually during the upcoming permit cycle, at a minimum. The WET Analysis Spreadsheet (see attached) was used to determine that the permittee must generate chronic survival and reproduction data for *Ceriodaphnia dubia*, and chronic survival and growth data for *Pimephales promelas*. The permittee shall perform testing using the following dilution series: 4%, 8%, 16%, 58%, and 100% effluent, with a control, where 16% effluent is the facility-specific Target In-Stream Waste Concentration (TIWC). TMS modeling determined the acute and chronic partial mix factors (PMFs) are 0.347 and 1.0, respectively.

The permit renewal application indicates there's one categorical industrial user discharging to the WWTP (Pine Grove Landfill, Inc. – 6,680 gpd). Part C.II is added to the permit requiring the development of a pretreatment program. Note that the previous renewal did not require development/implementation of a pretreatment program.

Part C.VI.F (High Flow Management Plan implementation) and Part C.VI.G. regarding the satisfactory operation of the treatment plant are carried over from the previous permit.

There are no CSOs in the collection system. Antibacksliding requirements have been met since no limitations were made less stringent.

Summary of Review

Monitoring requirements for stormwater outfalls 002 and 003 are continued in this permit for the parameters specified in Appendix J of the most recently issued PAG-03 stormwater general permit, TSS and Oil & Grease. The annual monitoring frequency is carried over from the previous permit. The standard Part C.V "Requirements Applicable to Stormwater Outfalls" condition is included in the permit.

Sludge use and disposal description and location(s): The September 2021 DMR supplemental report for sludge/biosolids indicates 11.5 dry tons of dewatered sludge was disposed of at both C.E.S. Landfill and Ellangowan (for land application) via DMS.

There are no projected hydraulic/organic overloads at the WWTP and DMR review of the past 2 years revealed one concentration limitation exceedance.

- June 2021: Fecal Coliform IMAX – 2200 CFU/100mL (limitation was 1000 CFU/100mL)

There are three open WPC NPDES violations for the client that could warrant withholding the issuance of the final permit:

- Inspection ID 3008009, Violation ID 879473 – NPDES - Illegal discharge to waters of the Commonwealth from a sanitary sewer overflow (SSO).
- Inspection ID 3008009, Violation ID 879474 – NPDES - Violation of Part C permit condition(s)
- Inspection ID 3062855, Violation ID 890413 – NPDES - Violation of Part C permit condition(s)

As per a letter to the Department from the Authority's engineers (KPI Technology), dated November 3, 2021, Guilford Mills has not yet responded after being presented a Scope of Work and Memorandum of Understanding/Agreement prepared by the Authority Solicitor regarding a tie-in to the collection system. The Authority voted to suspend activities and sewerage services will not be provided for Guilford Mills at this time.

EPA waiver is not in effect.

StreamStats 1.pdf StreamStats 2.pdf StreamStats 3.pdf TMS PA0020915.pdf TMS PA0020915 PWS.pdf TRC Calculation.pdf Watershed Information.pdf

WET Spreadsheet.pdf WQM 1.pdf WQM 2.pdf WQM 3.pdf WQM 4.pdf WQM 5.pdf WQM 6.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)	1.5
Latitude	40º 31' 51.63"	Longitude	-76º 24' 25.52"
Quad Name	Pine Grove	Quad Code	1434
Wastewater Description:	Sewage Effluent		

Receiving Waters	Swatara Creek (CWF/MF)	Stream Code	9361
NHD Com ID	56395053	RMI	55.6
Drainage Area	117 mi^2	Yield (cfs/mi^2)	0.107
Q_{7-10} Flow (cfs)	12.53	Q_{7-10} Basis	3/2010 report/memorandum
Elevation (ft)	483	Slope (ft/ft)	0.0014
Watershed No.	7-D	Chapter 93 Class.	CWF/MF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired		
Cause(s) of Impairment	Metals		
Source(s) of Impairment	Acid Mine Drainage		
TMDL Status	Final	Name	Upper Swatara Creek Watershed

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

Nearest Downstream Public Water Supply Intake	Lebanon City Water Authority		
PWS Waters	Swatara Creek	Flow at Intake (cfs)	20.4
PWS RMI	39.6	Distance from Outfall (mi)	16

Treatment Facility Summary

Treatment Facility Name: Pine Grove Joint Treatment Authority WWTP

WQM Permit No.	Issuance Date
5404404	4/14/2005

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	SBR	Ultraviolet Radiation	1.5

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
1.5	3002.4	Not Overloaded	Aerobic Digestion / Belt Filter Press	Landfill / Land Application

Changes Since Last Permit Issuance: WQM permit 5416402 approved the installation of a new emergency generator, security fence, existing pump replacements and the general refurbishment of Pump Station #7.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 1.5
Latitude 40º 31' 51.63" **Longitude** -76º 24' 25.52"
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)
	40.0	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
	50.0	IMAX	-	-
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
Dissolved Oxygen	6.0	Instant. Minimum	Previous modeling
Total Residual Chlorine	0.75	IMAX	Previous modeling
Ammonia-Nitrogen (5/1 – 10/31)	9.6	Average Monthly	Previous modeling
	14.4	Average Weekly	
	19.2	IMAX	
Ammonia-Nitrogen (11/1 – 4/30)	29.0	Average Monthly	
Total Phosphorus	2.0	Average Monthly	Previous modeling
	3.0	Average Weekly	
	4.0	IMAX	
Total Phenolics	0.046	Average Monthly	Previous modeling
	0.072	IMAX	

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%, 58%, 15%, 8%, and 4%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 15%.

Summary of Four Most Recent Test Results

TST Data Analysis

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	**Reproduction**	**Survival**	**Growth**
2020	Pass	Pass	Pass	Pass
2019	Pass	Pass	Pass	Pass
2018	Pass	Pass	Pass	Pass
2017	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): **0.347** Chronic Partial Mix Factor (PMFc): **1.0**

1. Determine IWC – Acute (IWCa):

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

[(1.5 MGD x 1.547) / ((12.53 cfs x 0.347) + (1.5 MGD x 1.547))] x 100 = **35%**

Is IWCa < 1%? ☐ **YES** ☒ **NO (YES - Acute Tests Required OR NO - Chronic Tests Required)**

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 = **%**

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

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

[(1.5 MGD x 1.547) / ((12.53 cfs x 1.0) + (1.5 MGD x 1.547))] x 100 = **16%**

3. Determine Dilution Series

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

Dilution Series = 100%, 58%, 16%, 8%, and 4%.

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