pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**New**	Application No.	**PA0285161**
Wastewater Type	**Sewage**	APS ID	**1094049**
Facility Type	**SRSTP**	Authorization ID	**1449524**

NPDES PERMIT FACT SHEET
INDIVIDUAL SFTF/SRSTP

Applicant, Facility and Project Information

Applicant Name	**Jonathan Gilliland**	Facility Name	**Gilliland Properties SRSTP**
Applicant Address	175 Audubon Road	Facility Address	175 Audubon Road
	Sewickley, PA 15143-9013		Sewickley, PA 15143-9013
Applicant Contact	Jonathan Gilliland	Facility Contact	Jonathan Gilliland
Applicant Phone	(214) 605-8019	Facility Phone	(214) 605-8019
Client ID	378998	Site ID	866297
SIC Code	8800	Municipality	Sewickley Heights Borough
SIC Description	Private Households	County	Allegheny
Date Application Received	August 1, 2023	WQM Required	Yes
Date Application Accepted	August 8, 2023	WQM App. No.	0223403

Project Description: NPDES application to discharge from a proposed Single Residence Sewage Treatment Plant (SRSTP)

Summary of Review

PA DEP received an application package for an NPDES Permit for a new 700 GPD SRSTP to replace a malfunctioning onlot system. The facility will serve an existing five-bedroom dwelling, and a proposed powder room in an existing barn on the property. The proposed facility will be in the Borough of Sewickley Heights, Allegheny County. The package submitted to DEP included an application for a water quality management permit, WQM Permit No. 0223403, which will be issued concurrently with the NPDES Permit.

The proposed discharge is directly into Little Sewickley Creek, a High-Quality Trout Stock Fishery in Watershed 20-G.

NPDES Permit No. PA0285161 will approve the operation and discharge of treated sewage effluent from an SRSTP. The facility consists of:

- One Norweco Singulair Bio-Kinetic Model 960-1000 Three-Chamber Extended Aeration treatment system. This package plant is rated to treat 1000 gpd of domestic wastewater.
- One Norweco Hydro-Kinetic Bio-Film Reactor for further treatment, with dosing chamber. This package plant is rated to treat 800 gpd of domestic wastewater.
- One Norweco Model AT 1500 UV Disinfection system within the dosing chamber.

The Singulair Hydro-Kinetic Bio-Film Reactor is approved by DEP for replacement of onlot systems.

Approve	Deny	Signatures	Date
x		John Price Jack Price / Environmental Engineering Specialist	February 20, 2024
x		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E./Environmental Engineer Manager	February 21, 2024

Summary of Review

Sheet 3 of 4 in the plans submitted to DEP shows the system profile of the building sewers, treatment tanks, and outfall sewer as they conform to the requirements of the SFTF Manual. Additional details of the proposed treatment plant are discussed in the Internal Review & Recommendations document accompanying the WQM permit.

Act 537 Planning was approved for this project on June 22, 2023 filed under DEP Code No. 02937-23-062

Act 14 Notification was provided to Sewickley Heights and Allegheny County in the letters both dated July 10, 2023.

The application was sealed by Fred Brant, an engineer licensed in the Commonwealth of Pennsylvania, License No. PA054366E.

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.

Treatment Facility Summary

Treatment Facility Name: Gilliland Properties SRSTP.

WQM Permit No.	Issuance Date
0223403	Processing

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Extended Aeration	Ultraviolet	0.0007

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0007	0.90	Not Overloaded	Aerobic Tank	None/Semi Annual Cleaning

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0007
Latitude	40º 34' 46.93"	Longitude	-80º 8' 36.59"
Quad Name	Ambridge	Quad Code	40080E2
Wastewater Description:	Sewage Effluent		
Receiving Waters	Little Sewickley Creek (HQ-TSF)	Stream Code	36657
NHD Com ID	99682002	RMI	5.49
Drainage Area	1.79	Yield (cfs/mi^2)	0.01
Q_{7-10} Flow (cfs)	0.0164	Q_{7-10} Basis	USGS StreamStats (Attachment 1)
Elevation (ft)	914.9	Slope (ft/ft)	
Watershed No.	20-G	Chapter 93 Class.	HQ-TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	CAUSE UNKNOWN		
Source(s) of Impairment	HIGHWAY/ROAD/BRIDGE RUNOFF (NON-CONSTRUCTION RELATED)		
TMDL Status		Name	

Background/Ambient Data		Data Source:
pH (SU)	8.0	Little Sewickley Creek Stream Redesignation Evaluation Report
Temperature (°F)	6.1	
Hardness (mg/L)	136	
Other:		

Nearest Downstream Public Water Supply Intake		Center Twp Water Auth (3.0 MGD)	
PWS Waters	Ohio River	Flow at Intake (cfs)	5,880
PWS RMI	13.15	Distance from Outfall (mi)	11.6 Linear Miles 19.19 River Miles

Changes Since Last Permit Issuance: N/A. This is a new facility.

Other Comments:

Technology-Based Limitations (TBELs)

The following effluent limitations and monitoring requirements, at a minimum, will be established in all new and renewed SFTF permits based on the requirements of DEP's "Standard Operating Procedure (SOP) for Clean Water Program New and Reissuance Small Flow Treatment Facility Individual NPDES Permit Application" (SOP No. BCW-PMT-003, Version 1.8, Final, November 9, 2012, Revised May 17, 2019).

Parameter	Avg	IMAX	Sample Type	Frequency: SFTFs	Frequency: SRSTPs
Flow (GPD)	Report	XXX	Estimate (SRSTPs) Measured (SFTFs)	1/month	1/year
BOD5 (mg/L)	10	20	Grab	1/month	1/year
TSS (mg/L)	10	20	Grab	1/month	1/year
pH*	6.0 S.U. Inst. Min.	9.0 S.U.	Grab	1/month	1/year
TRC (mg/L)	Report for SRSTPs; Use TRC Spreadsheet to determine WQBELs or 0.02 mg/L for SFTFs		Grab	1/month	1/year
Fecal Coliform (No./100 ml)	200 Geometric Mean (SFTFs) / Average (SRSTPs)		Grab	1/month	1/year

***** Technology-Based effluent limits for pH will be imposed based upon Federal Regulation 133.102(c) and State Regulation 95.2(1).

Comments: This is a new SRSTP with UV disinfection. The facility will not be required to measure TRC due to the absence of chlorination facilities.

Anti-Degradation Best Available Combination of Technology (ABACT) TBELs

Outfall 001 discharges to Little Sewickley Creek, a HQ-TSF. The proposed discharge for this SRSTP is a treated residential sewage flow of 700 GPD. This discharge is proposed in order to repair a malfunctioning onlot system at an existing dwelling.

The following Antidegradation Best Available Combination of Technologies (ABACT) effluent limits, at a minimum, will be established based on the requirements of DEP's "Water Quality Antidegradation Implementation Guidance" (Doc. No. 391-0300-002; November 29, 2003).

Parameter	Treatment Process Performance Expectations (mg/L)		
	<2,000 gpd	2,000-50,000 gpd	>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*		

Development of effluent limitations:

Effluent limitations were derived from ABACT in the Antidegradation Implementation Guidance and from SFTF SOP BCW-PMT-003; for each parameter, the more stringent of either document was selected as the limitation.

Flow monitoring:
Flow monitoring will be placed in this permit in accordance with BCW-PMT-003. The reporting frequency set forth is once a year and sample type is “Estimate” (for SRSTP.)

Biochemical Oxygen Demand (BOD_5)
An average annual BOD_5 limit of 10 mg/l and IMAX limit of 20 mg/l will be placed in this permit. These limits are consistent with the SOP and are more stringent than antidegradation guidance.

Total Suspended Solids (TSS)
An average annual BOD_5 limit of 10 mg/l and IMAX limit of 20 mg/l will be placed in this permit. These limits are consistent with the SOP and are more stringent than the antidegradation ABACT.

Fecal Coliform:
A year-round annual average and IMAX limit of 200 No./100 ml will be placed in this permit. This limit is consistent with the SOP and antidegradation ABACT.

Ammonia Nitrogen:
An average annual Summer limit of 5.0 mg/l and IMAX limit of 10.0 mg/l will be placed in this permit. An average annual Summer limit of 5.0 mg/l and IMAX limit of 10.0 mg/l will be placed in this permit. The SOP for SFTFs does not require monitoring of Ammonia-Nitrogen. Antidegradation ABACT sets a limit of 5.0 mg/L in summer months, and 15.0 mg/L in winter months. The ABACT is the more stringent, therefore ABACT is chosen.

pH:
Daily minimum pH of 6.0 and Daily Maximum pH of 9.0 S.U. will be applied in this permit per Pa Code 25 Ch. 95.2(1).

UV:
The SOP indicates that it is not necessary to require UV intensity or transmittance monitoring in the permit for SRSTPs/SFTFs. This is also consistent with Antidegradation ABACT requirements for effective disinfection.

Additional Considerations:

Monitoring Frequency

Chapter 6.B. of the Permit Writer's Manual (DEP Document No. 386-0400-001, Revised June 28, 2023) describes the self-monitoring requirements for NPDES Permits. Table 6-3 outlines minimum flow-based monitoring frequencies. The SOP does not list a minimum frequency for Ammonia-Nitrogen monitoring, so Table 6-3 was used to determine 2/yr monitoring frequency.

Chapter 6.B. lists impact of discharge on receiving stream and the expense of monitoring as a factor that should be considered in establishing self-monitoring requirements. For this discharge to a High-Quality stream, the 2/yr monitoring of $CBOD_5$, Total Suspended Solids, Fecal Coliform, pH, and Flow was selected.

2/yr monitoring is established for $CBOD_5$, Total Suspended Solids, pH, Flow, and Fecal Coliform based on the following factors:

- The impact and quality of the receiving stream.
- The fact that an effluent sample will be collected at least twice per year due to Ammonia-Nitrogen monitoring per Table 6-3.

Table 6-3 – Self-Monitoring Requirements for SEWAGE Discharges

Plant Design Flow (MGD)	Flow Monitoring	C-BOD_5 or BOD_5	Suspended Solids	pH	Fecal Coliform	Chlorine Residual	NH_3-N	Phosphorus	DO	Toxics
Single Residence *(Individual Permit)*	2/year by estimate	2/year*	2/year*	1/mont h*	2/year*	1/month*	2/year*	2/year*	2/year*	N/A
.0005 to .002	weekly, using average pump rate or weir (a)	1/month*	1/month*	daily*	1/month*	daily*	1/month*	1/month*	daily*	N/A
.002 to .01	weekly, using average pump rate or weir (a)	2/month*	2/month*	daily*	2/month*	daily*	2/month*	2/month*	daily*	N/A
0.01 to 0.1	weekly, using average pump rate or weir (a)	2/month*	2/month*	daily*	2/month*	daily*	2/month*	2/month*	Daily*	1/week*
0.1 to 1.0	meter	1/week**	1/week**	daily*	1/week*	daily*	1/week**	1/week**	daily*	1/week****
1.0 to 5.0	meter	2/week***	2/week***	daily*	2/week*	daily*	2/week***	2/week***	daily*	1/week****
5.0 to 25.0	meter	daily***	daily***	daily*	daily*	1/shift*	daily***	daily***	daily*	1/week****
over 25.0	meter	daily***	daily***	1/shift*	daily*	1/shift*	1/shift***	1/shift***	1/shift*	1/week****

* Grab sample-these should be most representative of the effluent and are to be taken at a time when the normal daily maximum flow would reach the sampling point.

** 8-hour composite sample.

*** 24-hour composite sample.

**** Same sample type as for Industrial Process Wastewater (See Table 6-4).

DEP Classification of Technology

The technical specifications for the Singulair Bio-Kinetic Model 960-1000 and the Hydro-Kinetic Bio-Film systems are NSF approved to treat 1000 gpd and 800 gpd respectively. Furthermore, this combination of systems is classified by the DEP for use as an alternative onlot sewage systems when constructed and operated for flows ranging between 400 gpd and 800 gpd. The alternate technology listings may be found on the following web page: https://www.dep.pa.gov/Business/Water/CleanWater/WastewaterMgmt/Act537/OnlotDisposal/Pages/OnlotAlternateTechnologyListings.aspx

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.

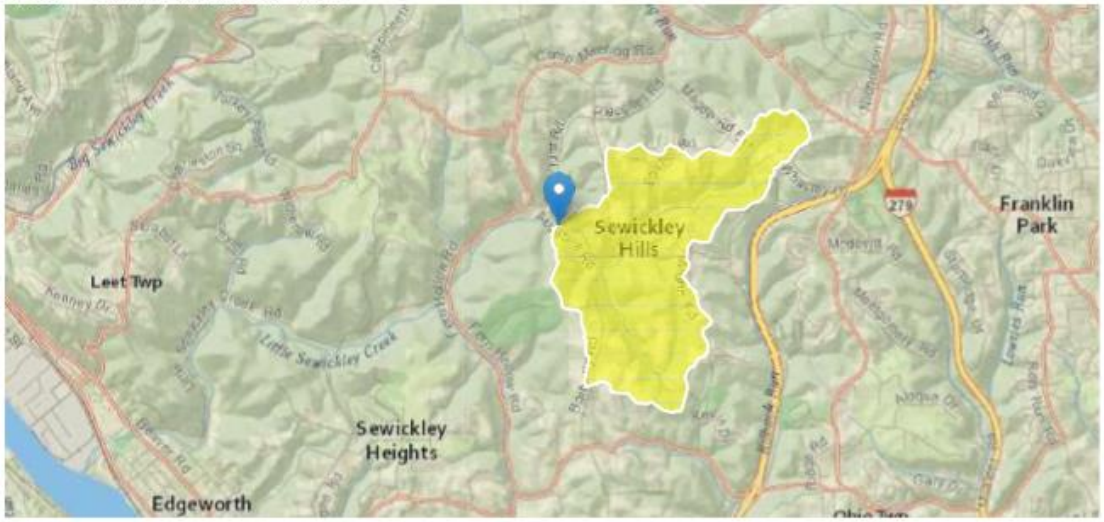
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	2/year	Estimate
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	9.0	XXX	2/year	Grab
$CBOD_5$	XXX	XXX	XXX	10.0	20.0	XXX	2/year	Grab
TSS	XXX	XXX	XXX	10.0	20.0	XXX	2/year	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	XXX	2/year	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	15.0	30.0	XXX	2/year	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	5.0	10.0	XXX	2/year	Grab

Compliance Sampling Location: Outfall 001

Attachment 1-USGS StreamStats Report

PA0285161 Upstream StreamStats Report

Region ID: PA
Workspace ID: PA20240208200835217000
Clicked Point (Latitude, Longitude): 40.57975, -80.14361
Time: 2024-02-08 15:08:58 -0500



Basin Outlet Elevation: 914.88 ft

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	9.4142	degrees
DRN	Drainage quality index from STATSGO	3.4	dimensionless
DRNAREA	Area that drains to a point on a stream	1.79	square miles
ELEV	Mean Basin Elevation	1140	feet
ELEVMAX	Maximum basin elevation	1319	feet
OUTLETXA83	X coordinate of the outlet, in NAD_1983_Albers,meters	-181453.8344	meters
OUTLETYA83	Y coordinate of the outlet, in NAD_1983_Albers, meters	177609.0398	meters
PRECIP	Mean Annual Precipitation	37	inches
ROCKDEP	Depth to rock	3.9	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	1.79	square miles	2.26	1400
ELEV	Mean Basin Elevation	1140	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	0.0522	ft^3/s
30 Day 2 Year Low Flow	0.0977	ft^3/s
7 Day 10 Year Low Flow	0.0164	ft^3/s
30 Day 10 Year Low Flow	0.0334	ft^3/s
90 Day 10 Year Low Flow	0.0656	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: 4.19.3
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1