pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES/WQM PERMITS FACT SHEET INDIVIDUAL SFTF/SRSTP

Application Type	**New**	Application No.	**PA0294187 & WQM 3123402**
Wastewater Type	**Sewage**	APS ID	**1094355**
Facility Type	**SRSTP**	Authorization ID	**1450064 & 1450072 WQM**

Applicant, Facility and Project Information

Applicant Name	**Justin K. Vreeland**	Facility Name	**Vreeland Property**
Applicant Address	7024 Willow Brook Road	Facility Address	7024 Willow Brook Road
	Alexandria, PA 16611-2014		Alexandria, PA 16611-2014
Applicant Contact	Justin Vreeland	Facility Contact	Justin Vreeland
Applicant Phone	(814) 424-5358	Facility Phone	(814) 424-5358
Client ID	379096	Site ID	865519
SIC Code	8811	Municipality	Logan Township
SIC Description	Services - Private Households	County	Huntingdon
Date Application Received	August 8, 2023	WQM Required	
Date Application Accepted	August 9, 2023	WQM App. No.	3123402

Project Description: NPDES & WQM new permits.

Summary of Review

This fact sheet supports the issuance of a new NPDES permit for discharge of treated sewage from the Single Residence Sewage Treatment Plant (SRSTP) located in Logan Township, Huntingdon County. The annual average design flow is 400 gallons per day (GPD). The discharge will be to UNT to Shaver Creek which is classified as High Quality-Cold Water & Migratory Fishes (HQ-CWF & MF).

The WQM permit for the construction of the treatment system with permit No. WQM 3123402 is concurrently under review. DEP Planning for the project was approved under Code No. A3-31922-047-3s.

DEP has prepared this report for the applications for both NPDES and WQM permits.

Based on the review outlined in this report, it is recommended that the NPDES permit be drafted and publish in the Pennsylvania Bulletin for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	September 8, 2023
X		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	September 19, 2023

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.0004
Latitude	40º 35' 53.48"	Longitude	-78º 2' 17.74"
Quad Name	Alexandria	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary of Shaver Creek (HQ-CWF, MF)	Stream Code	15585
NHD Com ID	65605388	RMI	0.80700
Drainage Area	1.32 mi.^{2}	Yield (cfs/mi^2)	See Comments below
Q_{7-10} Flow (cfs)	See Comments below	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	710.1	Slope (ft/ft)	
Watershed No.	11-B	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	Huntingdon Boro Water Dept., Huntingdon County		
PWS Waters	Juniata River	Flow at Intake (cfs)	
PWS RMI	93.9 miles	Distance from Outfall (mi)	Approximate 10.0 miles

Changes Since Last Permit Issuance: new

Drainage Area
The discharge is to Clear Run at RMI 0.807 miles. A drainage area upstream of the discharge is estimated to be 1.32 mi.^{2}, according to USGS StreamStats available at https://streamstats.usgs.gov/ss/.

Stream flows
A USGS station Juniata River at Huntingdon, PA (01559000) was used to determine the site stream flow. Based on the recent USGS StreamStats flow report available at https://streamstats.usgs.gov/ss/, the Q_{7-10} and drainage area at the station are 131 cfs and 817 mi.^{2}, respectively. The Q_{7-10} yield is 0.16 cfs/mi.^{2} (131 cfs / 817 mi.^{2}) and the Q_{7-10} at discharge is 0.2 cfs (0.16 cfs/mi.^{2} x 1.32 mi.^{2}) for the drainage area at discharge as calculated by StreamStats is 1.32 mi.^{2}.

UNT to Shaver Creek to Juniata River
Under 25 Pa Code §93.9n, UNT to Shaver Creek is designated as High Quality Cold-Water and Migratory Fishes (HQ-CWF & MF) and attaining its uses. Additionally, the dilution ratio of >100/1 is sufficient to assimilate an effluent without impact (dilution ratio is Q_{stream} / $Q_{discharge}$ = 0.2 cfs / [0.0004 MGD * (1.55 cfs/MGD)] = 322.6:1) [*Water Quality Antidegradation Implementation Guidance No. 391-0300-002/November 29, 2003/Page 60*]. Therefore, HQ limits do not apply to the discharge.

Based on integrated report 2022, UNT to Shaver Creek, assessment ID 1380, is not impaired.

This discharge is not into a watershed that has proposed or final TMDL. No Exceptional Value Waters are impacted by this discharge.

Shaver Creek does not support a Class A Wild Trout fishery. Therefore, no Class A Wild Trout fishery is impacted by this discharge.

Public Water Supply Intake
According to DEP's eMapPA available at http://www.depgis.state.pa.us/emappa/, the nearest downstream public water supply intake is Huntingdon Borough Water Dept., Huntingdon County located on Juniata river, approximately 10.0 miles. Given the nature and distance, the proposed discharge is not expected to impact the water supply.

Anti-Degradation Requirements (25 Pa Code § 93.4a)

The site-specific anti-degradation analysis was prepared as part of Act 537 planning module. In accordance with 25 Pa Code § 93.4c.(b)(1)(i)(A) and (B), this analysis included possible non-discharge alternatives (i.e., on-site sewage disposal, individual residential spray irrigation, connection to public sewer). However, the applicant indicated that these alternatives are not environmentally sound and cost-effective due to unsuitable soils, season high water table, and unavailable local wastewater treatment facilities nearby the property.

The applicant, according to social or economic justification (SEJ), determined that there is no other long term solution to the failure of the existing on-site sewage disposal system and the proposed facility is the best available and cost-effective technology to achieve water quality-based effluent limitations (WQBELs) specified in the Department's guidance, Water Quality Antidegradation Implementation Guidance-Appendix B (391-0300-002). The planning module with this SEJ and alternate analysis was approved by the Department. Based on the review, the permit will contain WQBELs specified in the Department's guidance to maintain and protect the existing water quality of the receiving stream. Therefore, no High-Quality Water are impact by this discharge.

Treatment Facility Summary

The facility is proposed to serve the existing three-bedroom single family residence (400 GPD) located at 7024 Willow Brook Road, Alexandria, PA 16611. The facility will be owned and maintained by Justin K. Vreeland. The proposed treatment process, according to the application, is as follows:

One (1) 1000-gallon dual compartment concrete septic tank (or equivalent) → Zabel A300 effluent filters → Premier Tech EC7-500-C-P Coco filter → DiUV disinfection unit → Outfall.

The proposed septic tank will have enough capacity to handle the proposed design flow. An effluent filter will be provided at the end of the septic tank to reduce settleable and floatable solids in the effluent. "A" Biotube effluent filters will be provided, which has been demonstrated to produce effluent that does not exceed 10 mg/L BOD_5 and 10 mg/L TSS. The proposed UV disinfection system will be able to provide an effluent fecal coliform concentration less than or equal to 200 No./100 ml.

The primary treatment tank sludge levels will be monitored yearly and pumped out no longer than 3-year intervals. The outlet of the tank will have an effluent filter, preventing solids from leaving the tank. The surface filter will be inspected annually. The UV unit will be accessible from the ground surface, allowing the UV bulb to be replaced or cleaned. The UV unit has an alarm-light system to alert for a treatment malfunction, and one or more spare bulbs will be kept on site for emergency replacement.

Compliance History

On August 7, 2023, DEP approved the Act 537 planning as a revision to the Act 537 official sewage facilities plan of Dublin Township (DEP Code No. A3-31922-047-3s).

This is a new facility; therefore, there are no effluent sample results / inspection reports associated with this facility. The Department's database indicates that there is currently no open violation associated with the facility or the applicant.

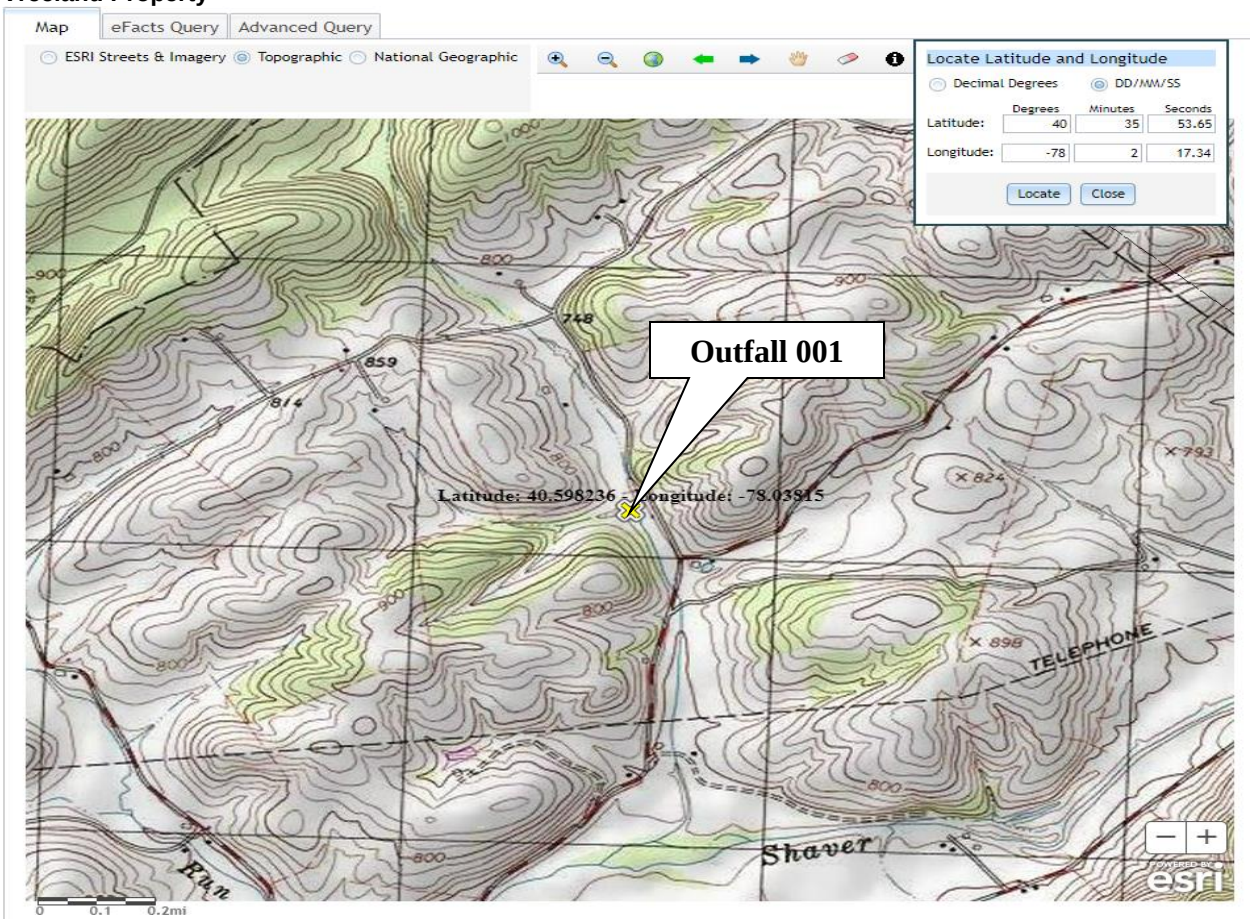
Development of Effluent Limitations and Monitoring Requirements

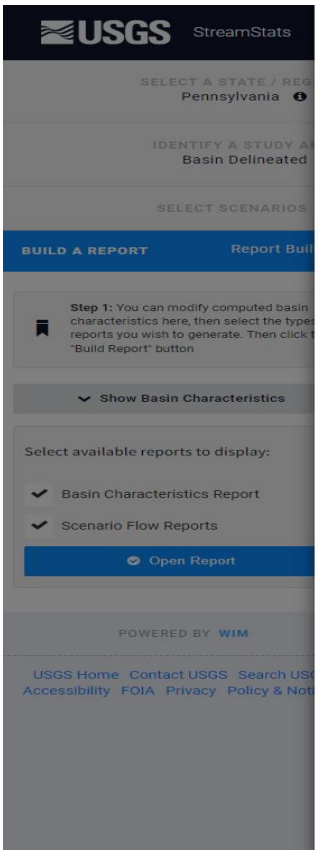
The effluent limitations and monitoring requirements are derived from DEP's Standard Operating Procedure (SOP) for New and Reissuance Small Flow Treatment Facility Individual NPDES Permit Applications (SOP No. BPNPSM-PMT-003, revised May 17, 2019). Since the facility will utilize ultraviolet (UV) disinfection, monitoring requirements for total residual chlorine are not applicable.

According to the SOP referenced above, water quality monitoring using Toxic Management Spreadsheet and/or WQM are not required for SRSTPs. The permittee will be required to submit a completed Annual Maintenance Report (AMR) as part of the permit requirements. No DMR is necessary for any facilities that are required to report effluent monitoring results on AMRs annually.

The draft permit will include the following Part C conditions:

a. Small Flow Treatment Facility Maintenance, including measurement of the depth of septage and scum, 3-year septic tank pumping requirement, reporting requirement of a completed Annual Maintenance Form.
b. Stormwater Prohibition
c. Property Rights
d. Proper Disposal of Solids





Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	0	percent
DRNAREA	Area that drains to a point on a stream	1.32	square miles
PRECIP	Mean Annual Precipitation	38	inches
ROCKDEP	Depth to rock	3.4	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.75	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

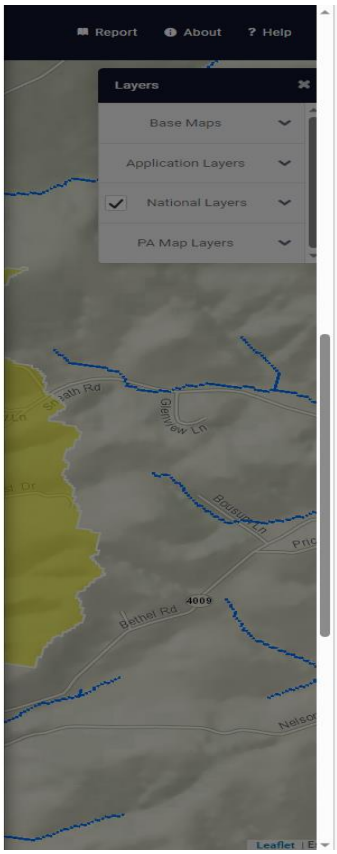
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.32	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	38	inches	35	50.4
STRDEN	Stream Density	1.75	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	3.4	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

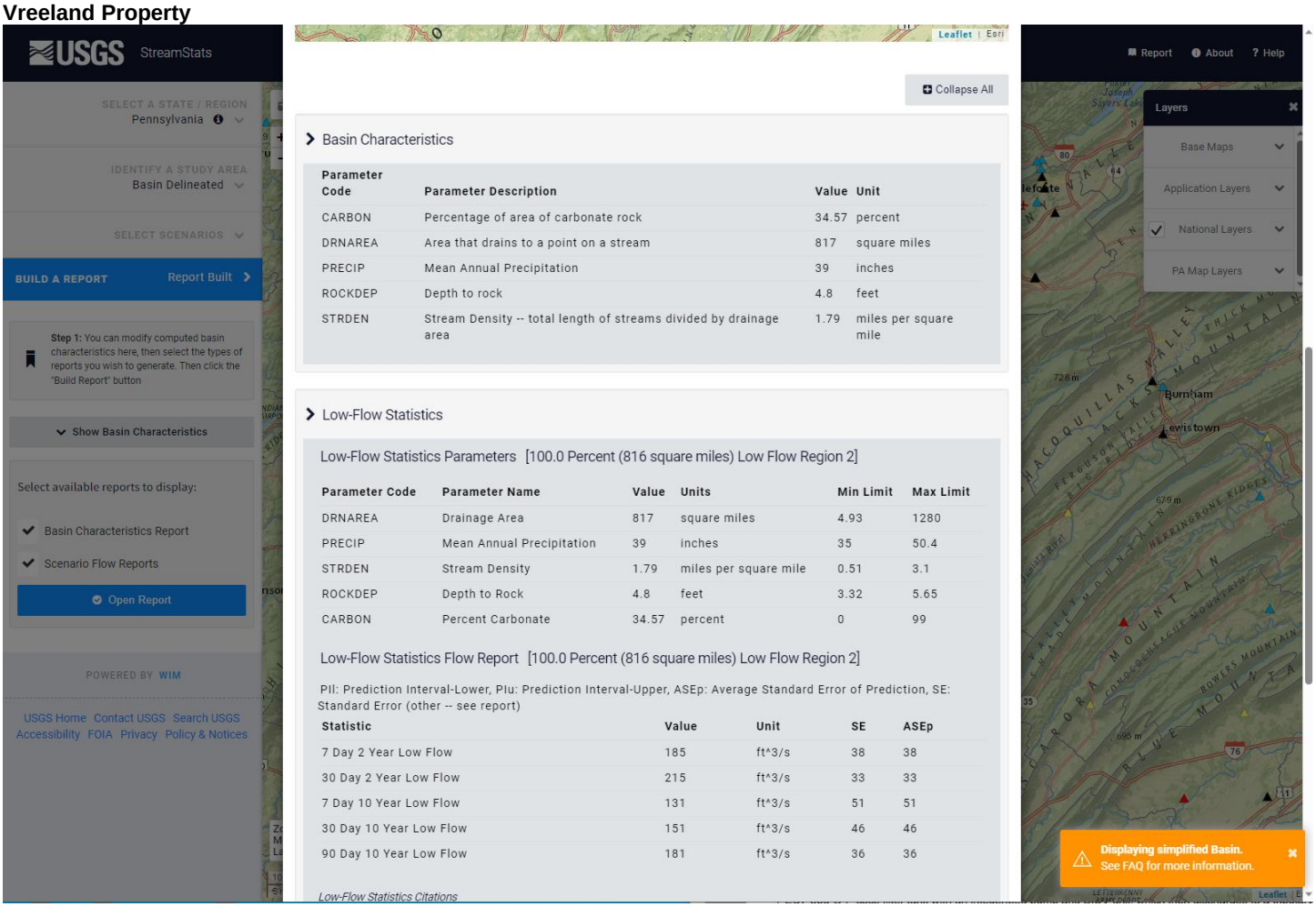
Low-Flow Statistics Disclaimers [Low Flow Region 2]

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 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0496	ft^3/s
30 Day 2 Year Low Flow	0.0801	ft^3/s
7 Day 10 Year Low Flow	0.0139	ft^3/s
30 Day 10 Year Low Flow	0.0239	ft^3/s
90 Day 10 Year Low Flow	0.0515	ft^3/s




USGS StreamStats
SELECT A STATE / REGION
Pennsylvania
IDENTIFY A STUDY AREA
Basin Delineated
SELECT SCENARIOS
BUILD A REPORT
Report Built
Step 1: You can modify computed basin characteristics here, then select the types of reports you wish to generate. Then click the "Build Report" button
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Open Report
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
Leaflet | Esri
Collapse All
Basin Characteristics
Parameter Code
Parameter Description
Value
Unit
CARBON
Percentage of area of carbonate rock
34.57
percent
DRNAREA
Area that drains to a point on a stream
817
square miles
PRECIP
Mean Annual Precipitation
39
inches
ROCKDEP
Depth to rock
4.8
feet
STRDEN
Stream Density -- total length of streams divided by drainage area
1.79
miles per square mile
Low-Flow Statistics
Low-Flow Statistics Parameters [100.0 Percent (816 square miles) Low Flow Region 2]
Parameter Code
Parameter Name
Value
Units
Min Limit
Max Limit
DRNAREA
Drainage Area
817
square miles
4.93
1280
PRECIP
Mean Annual Precipitation
39
inches
35
50.4
STRDEN
Stream Density
1.79
miles per square mile
0.51
3.1
ROCKDEP
Depth to Rock
4.8
feet
3.32
5.65
CARBON
Percent Carbonate
34.57
percent
0
99
Low-Flow Statistics Flow Report [100.0 Percent (816 square miles) Low Flow Region 2]
PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)
Statistic
Value
Unit
SE
ASEp
7 Day 2 Year Low Flow
185
ft^3/s
38
38
30 Day 2 Year Low Flow
215
ft^3/s
33
33
7 Day 10 Year Low Flow
131
ft^3/s
51
51
30 Day 10 Year Low Flow
151
ft^3/s
46
46
90 Day 10 Year Low Flow
181
ft^3/s
36
36
Low-Flow Statistics Citations
Report
About
Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
Burnham
Lewistown
Displaying simplified Basin.
See FAQ for more information.
Leaflet

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	Annual Average	Maximum	Instant. Maximum		
Flow (MGD)	Report Annl Avg	XXX	XXX	XXX	XXX	XXX	1/year	Estimate
BOD_5	XXX	XXX	XXX	10.0	XXX	20.0	1/year	Grab
TSS	XXX	XXX	XXX	10.0	XXX	20.0	1/year	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	200	XXX	XXX	1/year	Grab

Compliance Sampling Location:

Other Comments: