

Application Type New
Wastewater Type Sewage
Facility Type SRSTP

**NPDES PERMIT FACT SHEET
INDIVIDUAL SFTF/SRSTP**

Application No. PA0267511
APS ID 1043619
Authorization ID 1362238

Applicant, Facility and Project Information

Applicant Name	<u>Alan D. Mahone</u>	Facility Name	<u>Alan Mahone Residence</u>
Applicant Address	<u>531 Maple Grove Road</u> <u>Abbottstown, PA 17301</u>	Facility Address	<u>3465 Old Route 30</u> <u>Orrtanna, PA 17353-9760</u>
Applicant Contact	<u>Alan Mahone</u>	Facility Contact	<u>Alan Mahone</u>
Applicant Phone	<u>(717) 632-2197</u>	Facility Phone	<u>(717) 632-2197</u>
Client ID	<u>364304</u>	Site ID	<u>850824</u>
SIC Code	<u>8811</u>	Municipality	<u>Franklin Township</u>
SIC Description	<u>Services - Private Households</u>	County	<u>Adams</u>
Date Application Received	<u>July 20, 2021</u>	WQM Required	<u></u>
Date Application Accepted	<u>July 22, 2021</u>	WQM App. No.	<u>WQM</u>
Project Description	<u>NPDES permit application for new SRSTP.</u>		

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 Franklin Township, Adams County. The annual average design flow is 400 gallons per day. The discharge will be to Unnamed Tributary to Clear Run which is classified as High Quality-Cold Water & Migratory Fishes (HQ-CWF & MF).

The WQM permit for the construction of the treatment system is concurrently under review. DEP Planning for the project was approved under Code No. A3-01914-415-3s.

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		<i>Hilaryle</i> Hilary H. Le / Environmental Engineering Specialist	September 3, 2021
X		Daniel W. Martin Daniel W. Martin, P.E. / Environmental Engineer Manager	October 6, 2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.0004
Latitude	39° 54' 3.29"	Longitude	-77° 25' 50.60"
Quad Name	Caledonia Park	Quad Code	
Wastewater Description: Sewage Effluent			
Receiving Waters	Clear Run (HQ-CWF, MF)	Stream Code	60253
NHD Com ID	134367396	RMI	1.16 miles
Drainage Area	0.55 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)	1254.3	Slope (ft/ft)	
Watershed No.	13-C	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	Guilford Water Auth Main Sys., Franklin County		
PWS Waters	Conococheague Creek	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	Approximate 14 miles

Changes Since Last Permit Issuance: new

Drainage Area

The discharge is to Clear Run at RMI 1.16 miles. A drainage area upstream of the discharge is estimated to be 0.55 mi.², according to USGS StreamStats available at <https://streamstats.usgs.gov/ss/>.

Stream flows

A USGS station Conococheague Creek near Fayetteville, PA (01614090) was used to determine the site stream flow. Based on the recent USGS StreamStats flow report available at <https://streamstats.usgs.gov/ss/>, the Q₇₋₁₀ and drainage area at the station are 0.69 cfs and 4.98 mi.², respectively. The Q₇₋₁₀ yield is 0.14 cfs/mi.² (0.69 cfs / 4.98 mi.²) and the Q₇₋₁₀ at discharge is 0.08 cfs (0.14 cfs/mi.² x 0.55 mi.²) for the drainage area at discharge as calculated by StreamStats is 0.55 mi.².

Clear Run to Carbaugh Run to Rocky Mountain Creek

Under 25 Pa Code §93.9z, Clear Run to Carbaugh Run to Rocky Mountain Creek is designated as High Quality Cold-Water and Migratory Fishes (HQ CWF & MF), and attaining its uses. The Clear Run is a tributary to Rocky Mountain Creek. Additionally, the dilution ratio of >100/1 is sufficient to assimilate an effluent without impact (dilution ratio is $Q_{stream} / Q_{discharge} = 0.08 \text{ cfs} / [0.0004 \text{ MGD} * (1.55 \text{ cfs/MGD})] = 129:1$) [*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 2020, Clear Run, assessment IDs 9645 & 19131, 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. Rocky Mountain 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 Guilford Water Auth Main Sys., Franklin County located on Conococheague Creek, approximately 14 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 three-bedroom single family residence (400 GPD) located at 3465 Old Route 30, Orrtanna, PA 17353. The facilities will be owned and maintained by Alan D. Mahone. The proposed treatment process, according to the application, is as follows:

One (1) 1000-gallon dual compartment concrete septic tank (or equivalent) → Biotube effluent filters → Orenco Advantex AX20-RTUV 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 BOD₅ 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 June 22, 2021, DEP approved the Act 537 planning as a revision to the Act 537 official sewage facilities plan of Franklin Township (DEP Code No. A3-01914-415-3s).

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.

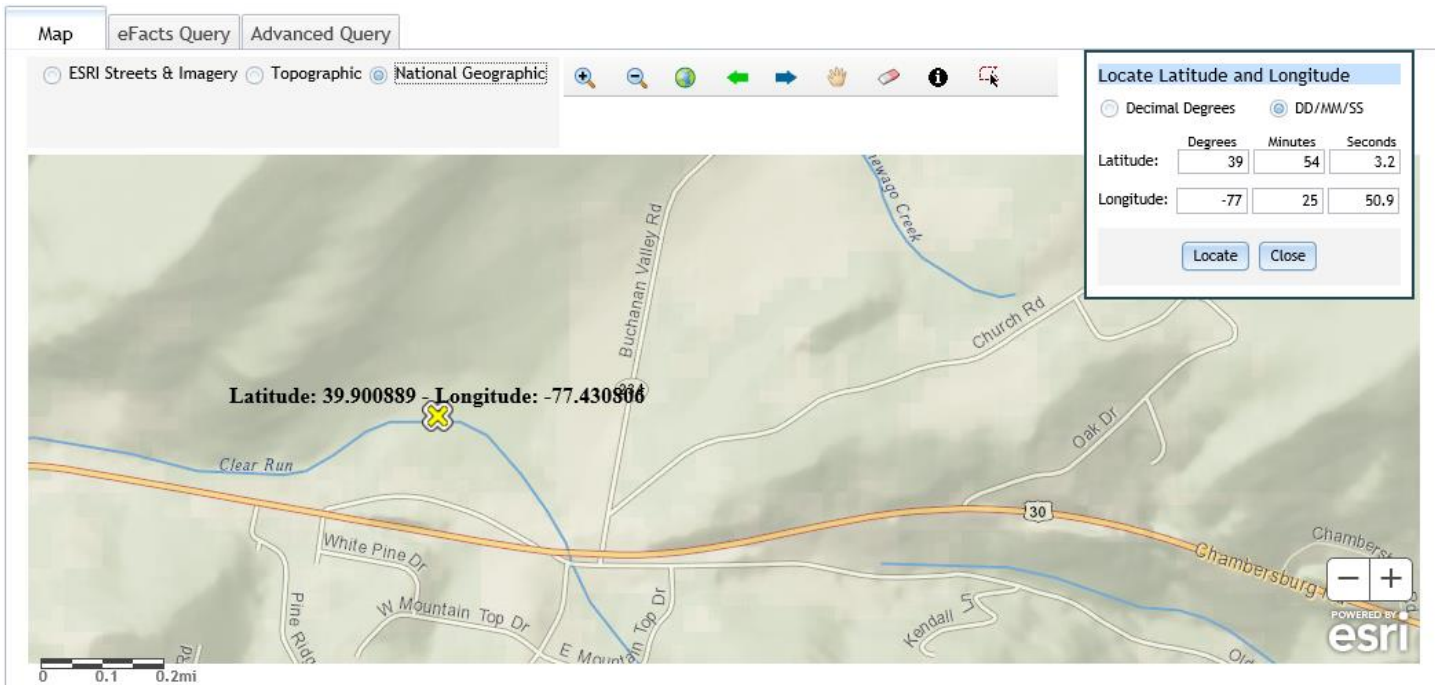
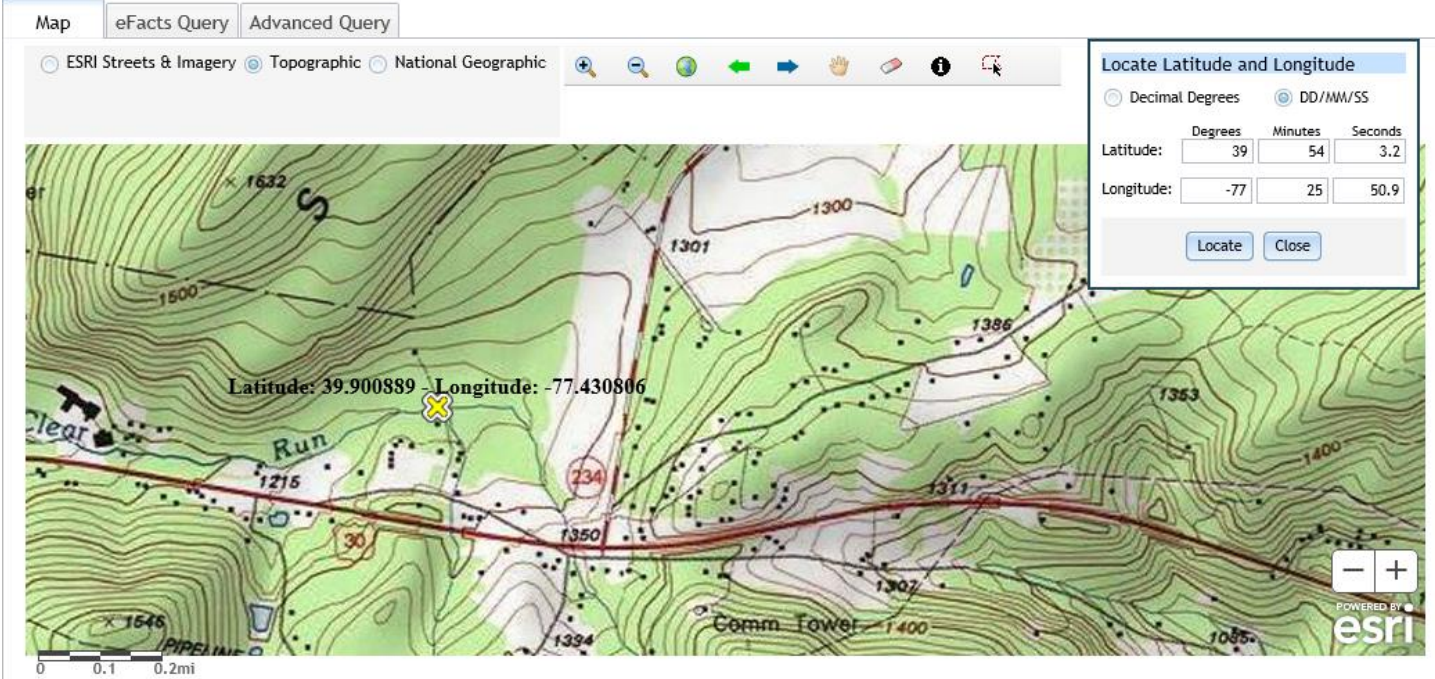
Development of Effluent Limitations and Monitoring Requirements

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



NPDES Permit Fact Sheet
Alan Mahone Residence

NPDES Permit No. PA0267511

Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.55	square miles
PRECIP	Mean Annual Precipitation	45	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.31	miles per square mile
ROCKDEP	Depth to rock	5	feet
CARBON	Percentage of area of carbonate rock	0	percent

Low-Flow Statistics Parameters [99.8 Percent (0.545 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.55	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	45	inches	35	50.4
STRDEN	Stream Density	1.31	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	5	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

Low-Flow Statistics Disclaimers [99.8 Percent (0.545 square miles) 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 [99.8 Percent (0.545 square miles) Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0955	ft ³ /s
30 Day 2 Year Low Flow	0.127	ft ³ /s
7 Day 10 Year Low Flow	0.0438	ft ³ /s
30 Day 10 Year Low Flow	0.0566	ft ³ /s
90 Day 10 Year Low Flow	0.0881	ft ³ /s

Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	4.98	square miles
PRECIP	Mean Annual Precipitation	45	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.08	miles per square mile
ROCKDEP	Depth to rock	5	feet
CARBON	Percentage of area of carbonate rock	0	percent

Low-Flow Statistics Parameters [99.9 Percent (4.97 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	4.98	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	45	inches	35	50.4
STRDEN	Stream Density	1.08	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	5	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

Low-Flow Statistics Flow Report [99.9 Percent (4.97 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	1.29	ft ³ /s	38	38
30 Day 2 Year Low Flow	1.64	ft ³ /s	33	33
7 Day 10 Year Low Flow	0.69	ft ³ /s	51	51
30 Day 10 Year Low Flow	0.851	ft ³ /s	46	46
90 Day 10 Year Low Flow	1.24	ft ³ /s	36	36

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
BOD5	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: