pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0085413**
Wastewater Type	**Sewage**	APS ID	**11082**
Facility Type	**SFTF**	Authorization ID	**1463513**

NPDES PERMIT FACT SHEET
INDIVIDUAL SFTF/SRSTP

Applicant, Facility and Project Information

Applicant Name	**Lower Marsh Creek Presbyterian Church**	Facility Name	**Lower Marsh Creek Presb. Church**
Applicant Address	1865 Knoxlyn Road	Facility Address	1865 Knoxlyn Road
	Gettysburg, PA 17325-7359		Gettysburg, PA 17325-7359
Applicant Contact	Phyllis Smith	Facility Contact	Phyllis Smith
Applicant Phone	(717) 253-3162	Facility Phone	(717) 253-3162
Client ID	4403	Site ID	444088
SIC Code	8661	Municipality	Highland Township
SIC Description	Services - Religious Organizations	County	Adams
Date Application Received	December 1, 2023	WQM Required	No
Date Application Accepted	December 20, 2023	WQM App. No.	
Project Description	NPDES permit Renewal.		

Summary of Review

Lower Marsh Creek Presbyterian Church (Permittee) had applied to the Pennsylvania Department of Environmental Protection (PADEP or Department) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit for Lower Marsh Creek Presbyterian Church STP. This permit renewal application was received on December 1, 2023. The permit was last reissued on June 28, 2019, authorizing discharge of treated sewage from the existing treatment plant located in Highland Township, Adams County into UNT to Marsh Creek in watershed 13-D. The permit was expired on July 31, 2024.

The average annual design flow and hydraulic design capacity is 0.000832 MGD

Sludge use and disposal description and location(s): N/A because sludge is hauling by Shealer's Septic Service.

Changes in this renewal: BOD_5 limits changed to $CBOD_5$ limits.

Based on the review outline in this fact sheet, it is recommended that the permit be drafted and published in the Pennsylvania Bulletin for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	April 12, 2024
X		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	April 19, 2024

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.000832
Latitude	39º 48' 39"	Longitude	-77º 19' 17"
Quad Name	Fairfield	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Marsh Creek (CWF, MF)	Stream Code	58949
NHD Com ID	53320548	RMI	1.86
Drainage Area	0.57 mi.^{2}	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)	0.0121	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)		Slope (ft/ft)	
Watershed No.	13-D	Chapter 93 Class.	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	Gettysburg Municipal Authority Water System		
PWS Waters	Marsh Creek	Flow at Intake (cfs)	
PWS RMI	8.14 miles	Distance from Outfall (mi)	Approximate 3.95 miles

Changes Since Last Permit Issuance:

Drainage Area
The discharge is to Conestoga River at RMI 1.86. The drainage area upstream of the point of discharge is 0.57 sq.mi, according to USGS PA StreamStats (https://water.usgs.gov/osw/streamstats/pennsylvania.html).

Streamflow
There are no nearby stream gages with low flow data that have adequately extensive or recent periods of record. In absence of stream gage data, PADEP utilized USGS's web based application named "StreamStats" (https://streamstats.usgs.gov/ss/), to calculate the drainage area at the discharge point and stream low flow data, Q_{7-10}. The drainage area found to be 0.57 mi^2 and Q_{7-10} found to be 0.0121 cfs.

PWS Intake
The nearest downstream public water supply is Gettysburg Municipal Authority Water System in Adams County on Marsh Creek Reservoir at RMI 8.14. It is approximately 3.95 miles downstream of the discharge. Due to the distance, dilution, and effluent limits the discharge is not expected to impact the water supply.

Treatment Facility Summary

This Small Flow Treatment Facility (SFTF) is at Highland Township, Adams County. This facility is owned and operated by Lower Marsh Creek Presbyterian Church. This is a small church with maximum flow generated on Sundays when 2-3 church services are held. The other days don't produce much of the flow, depending on church activities scheduled.

The permitted Annual Average Design Flow and Hydraulic Design Capacity is 0.000832 MGD. The facility had historically relied on volunteers to conduct daily monitoring. The monthly grab samples are collected by LABs, Inc.

The treatment plant is a septic tank sand filter system with tablet chlorinator. The facility consists of the following treatment units:

1. Two septic tanks
2. One sub-surface sand filter
3. One chlorine tablet feeder
4. One chlorine contact tank

The treated effluent is discharged to UNT to Marsh Creek through outfall 001.

Compliance History	
Summary of DMRs:	The DMRs reported 12 months is summarized in the Table below.
Summary of Inspections:	**1/26/2023**: Mr. Hoy, DEP WQS, conducted compliance evaluation inspection. There were no violations noted during inspection. DEP Recommendations were to ensure the high-level float alarm is operational, fill in all fields for future daily effluent supplemental reports. DEP requested pumping the septic tank as soon as possible and at least once every three-year, and the depth of septage and scum in all treatment units must be measured at least one a year.
Other Comments:	There are currently no open violations associated with the permittee or the facility.

AMR Data for Outfall 001 (From April 1, 2023 to March 31, 2024)

Parameter	Mar-24	Feb-24	Jan-24	Dec-23	Nov-23	Oct-23	Sep-23	Aug-23	Jul-23	Jun-23	May-23	Apr-23
Flow (MGD) Average Monthly Pump rate	0.000082	0.000093	0.000095	0.000115	0.000102	0.000102	0.000101	0.000093	0.00008	0.000099	0.000104	0.00016
CBOD5 (mg/L) Average Monthly Grab	< 2.4	< 2.4	< 2.4	<2.4	<2.4	< 2.4	< 2.4	<2.4	<2.4	< 2.4	<2.4	<2.4
TRC (mg/L) Average Monthly Grab	0.32	0.18	0.2	0.18	0.18	0.18	0.19	0.19	0.21	0.24	0.15	0.27
TSS (mg/L) Average Monthly Grab	1	2	1	2	2	1	1	4	1	1	11	2
Fecal Coliforms (No./100 mL) Geometric Mean Grab	< 1.0	<1.0	<1.0	< 1.0	1	< 1.0	< 1.0	1	< 1	<1	1	1

Development of Effluent Limitations

Outfall No.	001	Design Flow (MGD)	0.000832
Latitude	39º 48' 39"	Longitude	-77º 19' 17"
Wastewater Description:	Sewage Effluent		

Water Quality-Based Limitations

DEP's Standard Operating Procedures (SOP) for the Clean Water Program SOP No. BPNPSM-PMT-003, revised November 9, 2023, indicates that in determining effluent limitations for the reissuance of a permit for a Small Flow Treatment Facility (SFTF), water quality modeling via PentoxSD and/or WQM will not be conducted.

Additional Considerations

Flow monitoring:
Flow monitoring will be continued in this renewal in accordance with DEP's SOP BPNPSM-PMT-003, version 1.8 revised November 9, 2023. The reporting frequency will be revised to twice a month and sample type is Measured (for SFTF).

Carbon Biochemical Oxygen Demand ($CBOD_5$):
DEP's Standard Operating Procedure (SOP) No. BPNPSM-PMT-003, version 1.8 revised November 9, 2023 suggests average monthly BOD_5 limit to be 10.0 mg/L and instantaneous maximum (IMAX) limit to be 20.0 mg/L for new or renewal permits. Existing $CBOD_5$ limit is 25.0 mg/L as average monthly. However, the SOP also indicated that more stringent $CBOD_5$ limits may not be applicable for existing SFTFs that were permitted prior to the publication of the Small Flow Treatment Facilities Manual (362-0300-002), which is December 2, 2006, when such facilities are not capable of meeting tertiary treatment limits. The treatment plant was permitted prior to 1997. It is recommended that existing limits be carried over in this renewal and BOD_5 limits be replaced by $CBOD_5$ to comply with the recent SOP. The minimum monitoring frequency will remain the same as 1/month.

Total Suspended Solids (TSS):
DEP's Standard Operating Procedure (SOP) No. BPNPSM-PMT-003, , version 1.8 revised November 9, 2023 suggests average monthly TSS limit to be 10 mg/L and instantaneous maximum (IMAX) limit to be 20 mg/L. Existing limits are 30 mg/L as monthly average and 60 mg/L as IMAX. As discussed in $CBOD_5$ section above, more stringent TSS limits may not be applicable for this facility. Existing limits are recommended to be carried over in this renewal. Minimum monitoring frequency will remain the same as 1/month.

Fecal Coliform:
Per SOP, a year-round average monthly limit for fecal coliform geometric mean to be 200/100 ml for all new or renewal. The existing permit has seasonal limit which is recommended to be replaced by year-round limit. Existing permit also has IMAX limit for summer and winter which is also suggested to be removed. The unit of Fecal Coliform is changed from CFU/100 ml to No./100 ml to comply with Central Office directive. Please see attached email. The minimum monitoring frequency will remain the same as 1/month.

Chesapeake Bay Requirement:
Facilities that are designed based on a flow of equal to or less than 2,000 GPD or considered as SFTFs are exempt from the Bay requirements. Accordingly, it is not necessary for the permittee to perform nutrients monitoring.

Total Residual Chlorine:
Based on the attached TRC Excel Spreadsheet calculator, which uses the equations and calculations from the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (ID No. 391-2000-015), the facility's discharge must meet a monthly average limit of 0.5 mg/L and an instantaneous maximum limit of 1.635 mg/L for a design flow of 0.000832 MGD. The existing limit of 0.5 mg/L AML & 1.63 mg/L IMAX will remain in the proposed permit. Minimum monitoring frequency will be 2/month. These limits are the same as are in existing permit.

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.0121	= Q stream (cfs)	0.5	= CV Daily
0.000832	= 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 = 3.018	1.3.2.iii	WLA cfc = 2.935
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 1.125	5.1d	LTA_cfc = 1.706

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))... ...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))... ...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)

Anti-Degradation Requirement

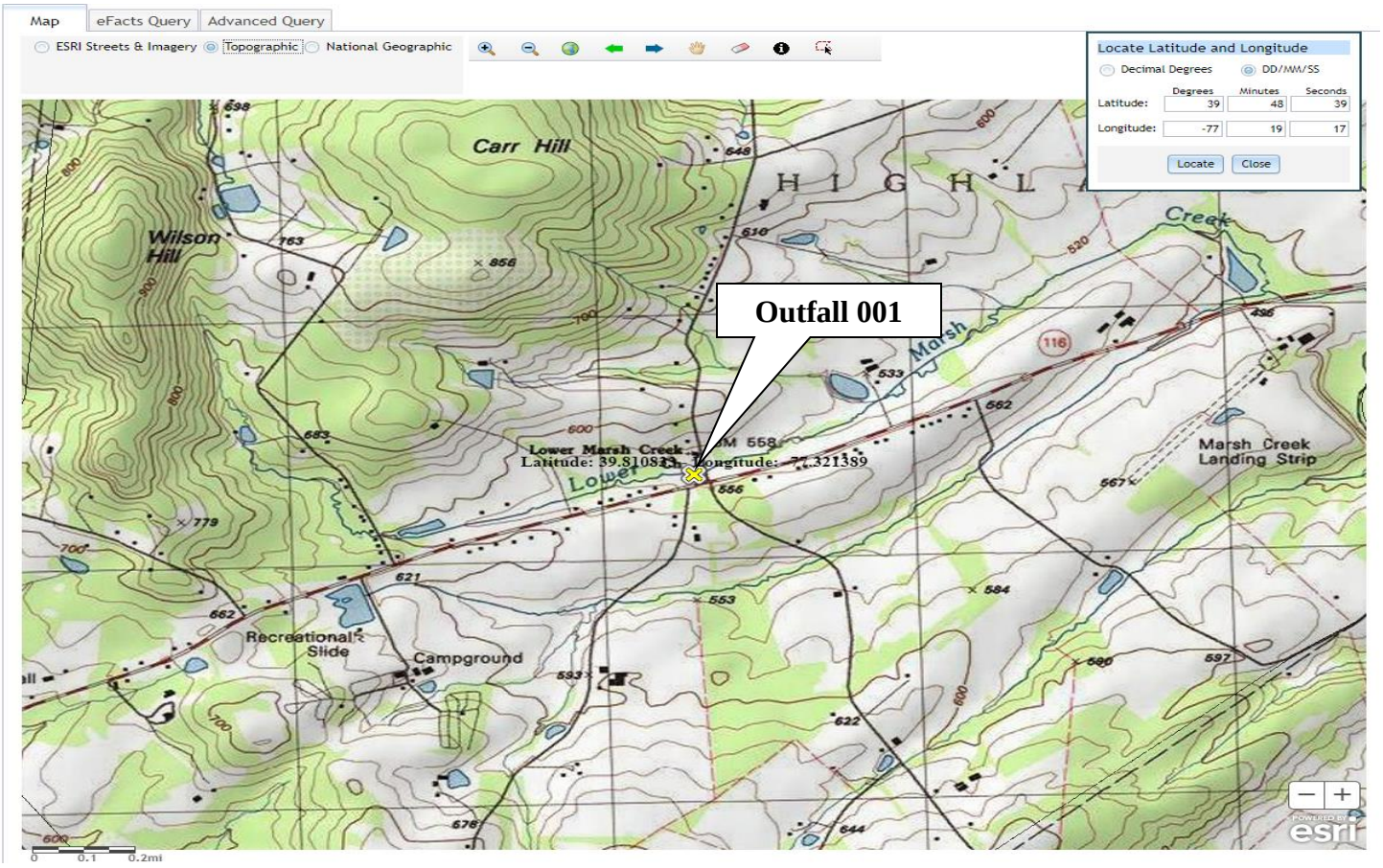
Chapter 93.4a(b) of the Department's rules and regulations require that "Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." The discharge is into a segment of UNT to Marsh Creek which is classified as Cold-Water Fishery (CWF) and Migratory Fishes (MF.) No High Quality (HQ) stream will be impacted by this discharge. No Exceptional Value (EV) water will be impacted by this discharge.

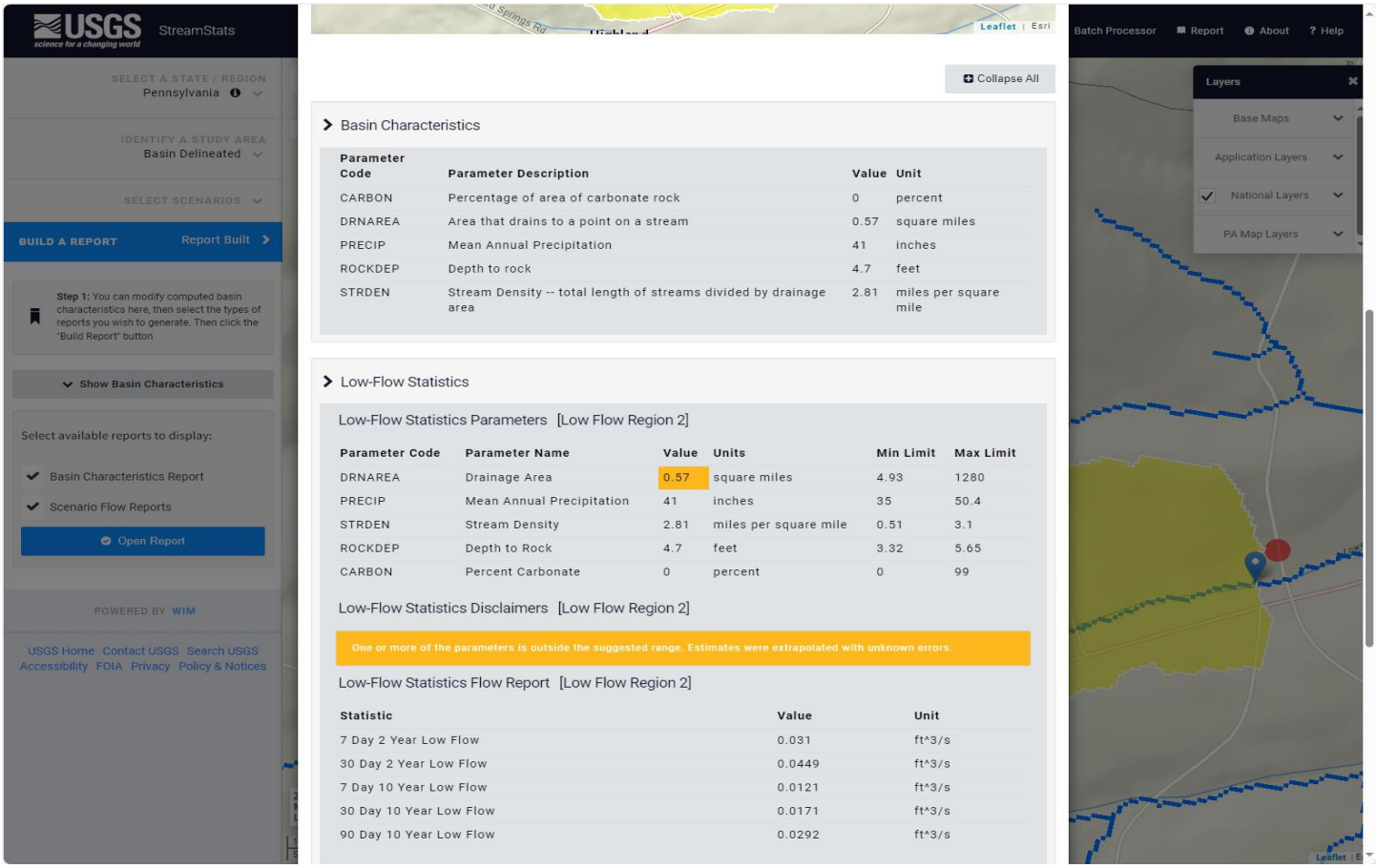
Class A Wild Trout Streams

No Class A Wild Trout Streams are impacted by this discharge.

303d Listed Streams

The discharge is in a stream segment of UNT to Marsh Creek which is attaining its designated use(s).





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	0.57	square miles
PRECIP	Mean Annual Precipitation	41	inches
ROCKDEP	Depth to rock	4.7	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	2.81	miles per square mile

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.57	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	41	inches	35	50.4
STRDEN	Stream Density	2.81	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.7	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.031	ft^3/s
30 Day 2 Year Low Flow	0.0449	ft^3/s
7 Day 10 Year Low Flow	0.0121	ft^3/s
30 Day 10 Year Low Flow	0.0171	ft^3/s
90 Day 10 Year Low Flow	0.0292	ft^3/s

Existing Effluent Limitations and Monitoring Requirements

Outfall 001,

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	Report Daily Max	XXX	XXX	XXX	XXX	2/month	Measured
TRC	XXX	XXX	Report Inst Min	0.50	XXX	1.63	2/month	Grab
BOD5	XXX	XXX	XXX	25.0	XXX	50.0	1/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	1/month	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	XXX	1/month	Grab

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	Report Daily Max	XXX	XXX	XXX	XXX	2/month	Measured
TRC	XXX	XXX	Report Inst Min	0.50	XXX	1.63	2/month	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	1/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	1/month	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	XXX	1/month	Grab

Compliance Sampling Location:

Other Comments: