pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

**Southcentral Regional Office**
**CLEAN WATER PROGRAM**

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0085405** |
| Wastewater Type | **Sewage** | APS ID | **724589** |
| Facility Type | **SFTF** | Authorization ID | **1388420** |

# NPDES PERMIT FACT SHEET
# INDIVIDUAL SFTF/SRSTP

## Applicant, Facility and Project Information

| | | | |
|---|---|---|---|
| Applicant Name | **Baladerry Inn LP** | Facility Name | **Baladerry Inn Bed & Breakfast** |
| Applicant Address | 40 Hospital Road | Facility Address | 40 Hospital Road |
| | Gettysburg, PA 17325-7798 | | Gettysburg, PA 17325-7798 |
| Applicant Contact | Kenneth Caudill | Facility Contact | Kenneth Caudill |
| Applicant Phone | (717) 752-7846 | Facility Phone | (717) 752-7846 |
| Client ID | 281673 | Site ID | 876 |
| SIC Code | 4952,7011 | Municipality | Cumberland Township |
| SIC Description | Services - Hotels And Motels,Trans. & Utilities - Sewerage Systems | County | Adams |
| Date Application Received | March 9, 2022 | WQM Required | |
| Date Application Accepted | March 18, 2022 | WQM App. No. | |
| Project Description | NPDES Renewal to new owner. | | |

## Summary of Review

Quality Water Resources, Inc., on behalf of the Baladerry Inn L.P., has applied to the Pennsylvania Department of Environmental Protection (DEP) for issuance of the NPDES permit. The permit was reissued on May 31, 2017 and became effective on June 1, 2017. The permit expired on May 31, 2022. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on March 9, 2022.

Baladerry Bed and Breakfast is located at 40 Hospital Road, Gettysburg, PA in Cumberland Township, Adams County. The facility has average annual design flow of 0.0014 MGD.

WQM Part II No. 0193405 T-1 owner transfer issued on March 5, 2002.

Changes from the previous permit: Unit of Fecal Coliform changed from CFU/100 ml to No./100 ml. The TRC limit of 0.13 mg/L monthly average & 0.42 mg/L IMAX, which is more stringent, will be replaced in the proposed permit.

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*<br>Hilary H. Le / Environmental Engineering Specialist | May 6, 2022 |
| X | | /s/<br>Daniel W. Martin, P.E. / Environmental Engineer Manager | May 27, 2022 |

| Discharge, Receiving Waters and Water Supply Information | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | 0.0014 |
| Latitude | 39º 47' 47.85" | Longitude | -77º 13' 3.06" |
| Quad Name | Gettysburg | Quad Code | |
| Wastewater Description: | Sewage Effluent | | |
| Receiving Waters | Unnamed Tributary to Rock Creek (WWF) | Stream Code | 59136 |
| NHD Com ID | 53320556 | RMI | 0.60 |
| Drainage Area | 0.21 mi.$^2$ | Yield (cfs/mi$^2$) | 0.008 |
| $Q_{7-10}$ Flow (cfs) | 0.00175 | $Q_{7-10}$ Basis | USGS StreamStats |
| Elevation (ft) | 450 | Slope (ft/ft) | |
| Watershed No. | 13-D | Chapter 93 Class. | WWF |
| 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 | City of Frederick, MD | | |
| PWS Waters | Monocacy River | Flow at Intake (cfs) | |
| PWS RMI | | Distance from Outfall (mi) | Approximate 39.0 miles |

Changes Since Last Permit Issuance: none

***Drainage Area***
The discharge is to Unnamed Tributary to Rock Creek at RMI 0.60 mile. A drainage area upstream of the discharge is estimated to be 0.21 mi.$^2$, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/. USGS StreamStats also produced a Q7-10 flow of 0.00175 cfs at the point of proposed discharge.

***Unnamed Tributary to Rock Creek***
25 Pa. Code 93.9z classifies Unnamed Tributary to Rock Creek as Warm-Water Fishes (CWF) and Migratory Fishes (MF) surface water. Based on the 2020 Integrated Report, Rock Creek, assessment unit ID 10202, is not impaired. A TMDL currently does not exist for this stream segment, therefore, no TMDL has been taken into consideration during this review.

***PWS Intake***
The nearest downstream Public Water Supply (PWS) intake is the City of Frederick intake on the Monocacy River, approximately 39.0 miles downstream of this discharge. Considering distance and dilution, the discharge is not expected to impact the water supply.

## Treatment Facility Summary

The Baladerry Inn Bed and Breakfast is a 1,400 gpd design flow facility. It treats wastewater using three (3) septic tanks, dose tank, sand filter bed, tablet chlorinator, and a chlorine contact tank for disinfection.

| Compliance History | |
|---|---|
| **Summary of DMRs:** | DMR 2021-2022 report was submitted to DEP (see table below). |
| **Summary of Inspections:** | 9/21/2021: Mr. Bettinger, DEP's WQS, conducted a compliance evaluation inspection. There was no violation noted during inspection.<br>2/16/2021: Mr. Bettinger, DEP's WQS, conducted an administrative inspection. There was no violation noted during inspection. |
| **Other Comments:** | There are no open violations associated with the permittee or the facility. |

Other Comments:

**DMR reported from June 2021 to March 2022**

| Parameter | Month | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Jun 21 | Jul 21 | Aug 21 | Sep 21 | Oct 21 | Nov 21 | Dec 21 | Jan 22 | Feb 22 | Mar 22 |
| Flow (MGD) | 0.0006 | 0.00069 | 0.00068 | 0.00040 | 0.00066 | 0.00042 | 0.00024 | 0.00028 | 0.00027 | 0.00025 |
| TRC | 0.05 | 0.1 | 0.1 | 0.06 | 0.03 | 0.02 | 0.02 | 0.025 | 0.03 | 0.03 |
| $CBOD_5$ | 3.1 | 2.8 | 2.3 | 2.0 | 2.1 | > 2.0 | 2.2 | 2.2 | 4.2 | 3.4 |
| TSS | 8.0 | < 0.5 | 7.0 | 53.0 | < 0.1 | 0.5 | < 0.5 | 8.0 | 8.0 | 11.0 |
| Fecal Coliform | < 1.0 | < 1.0 | <1.0 | < 1.0 | < 1.0 | >1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Ammonia-Nitrogen | 0.135 | < 0.1 | 1.4 | 0.123 | 0.257 | 0.834 | 0.713 | 0.826 | 6.56 | 2.05 |

## Development of Effluent Limitations and Monitoring Requirements

The proposed 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 on May 17, 2019.

pH is no longer a parameter of concern for SFTFs, so the pH monitoring requirement in the previous permit has been eliminated. The reviewer has determined that no other changes to the proposed limits and/or sampling frequencies are necessary at this time.

Ammonia-Nitrogen: while the ammonia-nitrogen limit from the existing permit was based on water quality modeling (WQM 7.0), new review procedures do not require use of WQM 7.0 for small flow treatment facilities. However, due to anti-backsliding requirements, the effluent limit of 4.5 mg/L of average monthly & 8.9 mg/L of IMAX during the summer season, and 13.5 mg/L of average monthly & 26.7 mg/L of IMAX during winter season in the existing permit will continue in the proposed permit. A review of the data supports that the facility will able to meet the limitations.

D.O. is no longer a parameter of concern for SFTFs, so the dissolved oxygen monitoring requirement in the previous permit has been eliminated. The reviewer has determined that no other changes to the proposed limits and/or sampling frequencies are necessary at this time.

The reviewer notes that the existing $BOD_5$, and TSS monitoring frequencies and limits are inconsistent with the monitoring frequencies and limits recommended in DEP SOP no. BPNPSM-PMT-003 for SFTFs revised on May 17, 2019. A review of the facility's AMR and a review of the technology on site both verify that the existing facility cannot meet the more stringent limits in the SOP without upgrading the existing facility. Therefore, the monitoring frequencies and limits from the previous permit will remain the same. Also, because the SOP, PAG-04, and pre-printed AMR form all specify $BOD_5$ instead of the parameter $CBOD_5$, then the $BOD_5$ has replaced the parameter $CBOD_5$.

Biochemical Oxygen Demand ($BOD_5$): Only the minimum treatment requirements of secondary treatment will be necessary to protect water quality. The limits of 10.0 mg/L average monthly and 20.0 mg/L instantaneous will remain in the proposed permit.

Total Suspended Solids (TSS): The existing limits of 10.0 mg/L average monthly and 20.0 mg/L instantaneous maximum will remain in the proposed permit based on the minimum level of effluent quality attainable by secondary treatment based on 25 Pa. Code § 92a.47.

Fecal Coliform: The recent coliform guidance in 25 Pa. Code § 92a.47(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean (average monthly) and not greater than 1,000/100 ml (IMAX) and 25 Pa. Code §

92a.47(a)(5) requires a winter limit of 2,000/100 ml as a geometric mean (average monthly) and not greater than 10,000/100 ml (IMAX), respectively.

Total Residual Chlorine (TRC): 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), and 0.00175 cfs of $Q_{7-10}$ at discharge indicated monthly average limit of 0.13 mg/L and an instantaneous maximum limit of 0.42 mg/L which are more stringent and will replace in the proposed permit. Based on the DMRs from the past year, the facility has been consistently achieving these limits.

Toxic: This is a minor sewage facility receiving domestic wastewater only and the current application does not require sampling of toxic pollutants (or heavy metals) for those facilities with design flows less than 0.1 MGD. Therefore, no reasonable potential analysis for toxic pollutants has been performed for this permit renewal.

Chesapeake Bay Requirements

Facilities that are designed based on a flow of 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 nutrient monitoring.

Total Maximum Daily Load (TMDL)

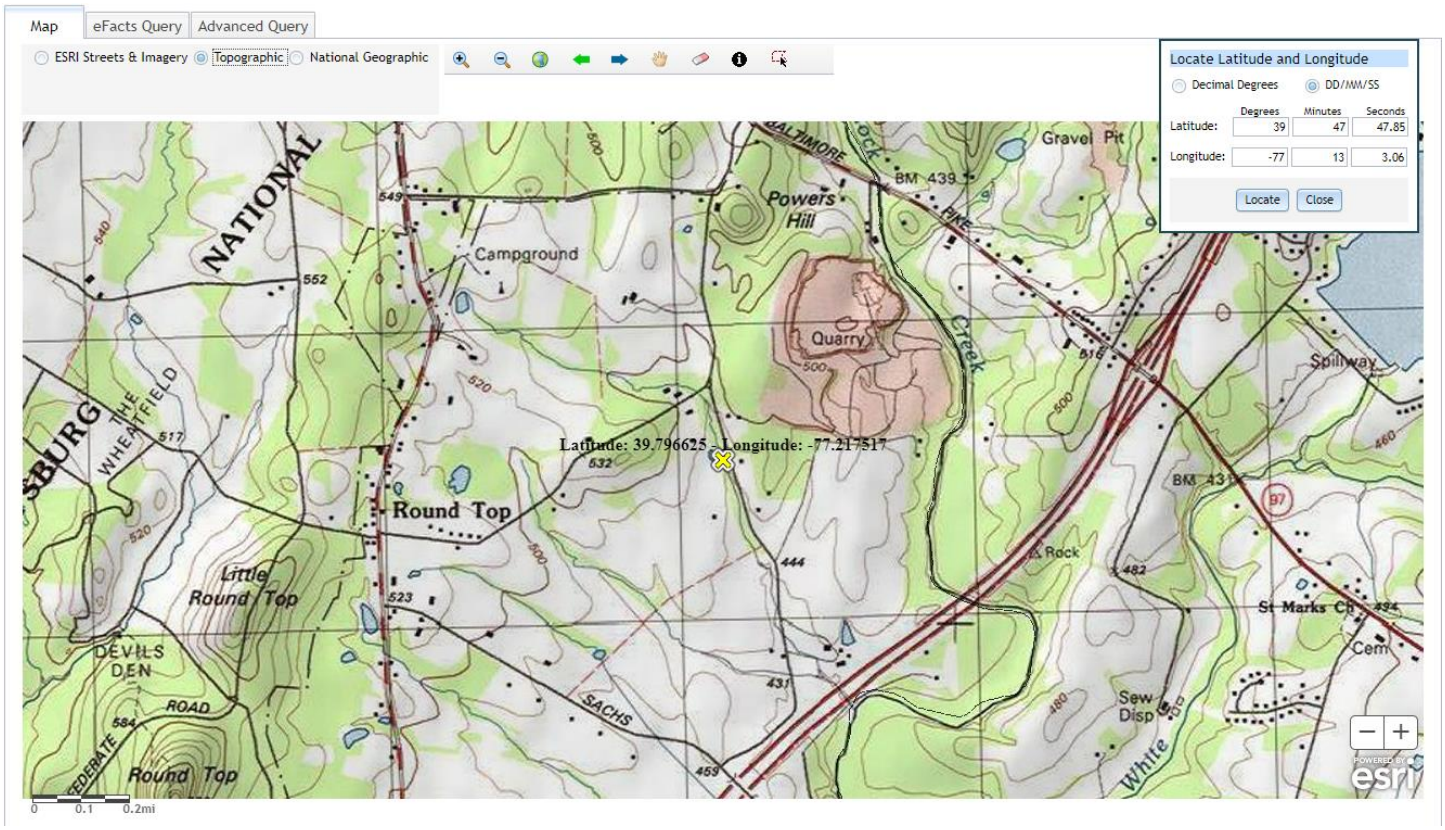
The discharge is located in a stream segment listed as attaining uses; therefore, no TMDL has been taken into consideration during this review.

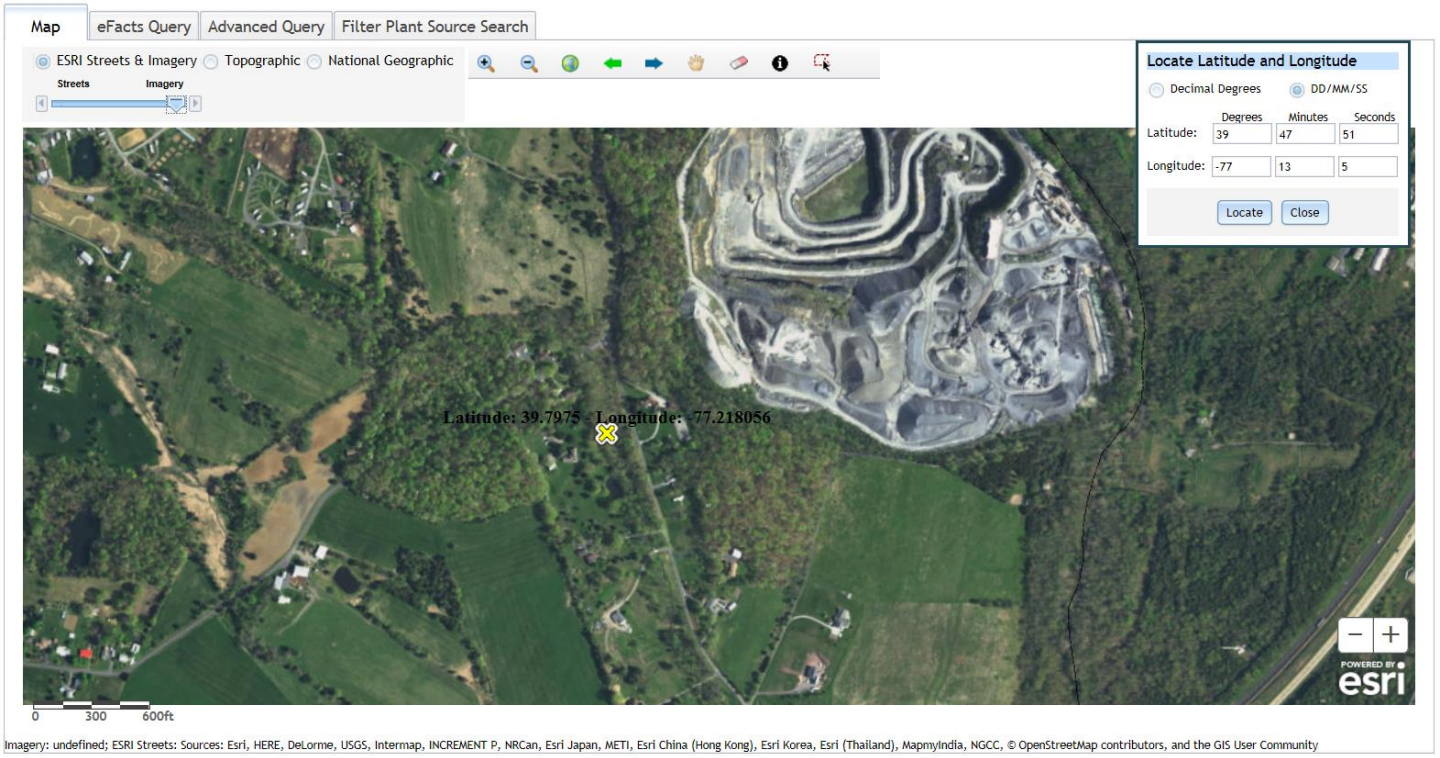
Anti-Degradation Requirements

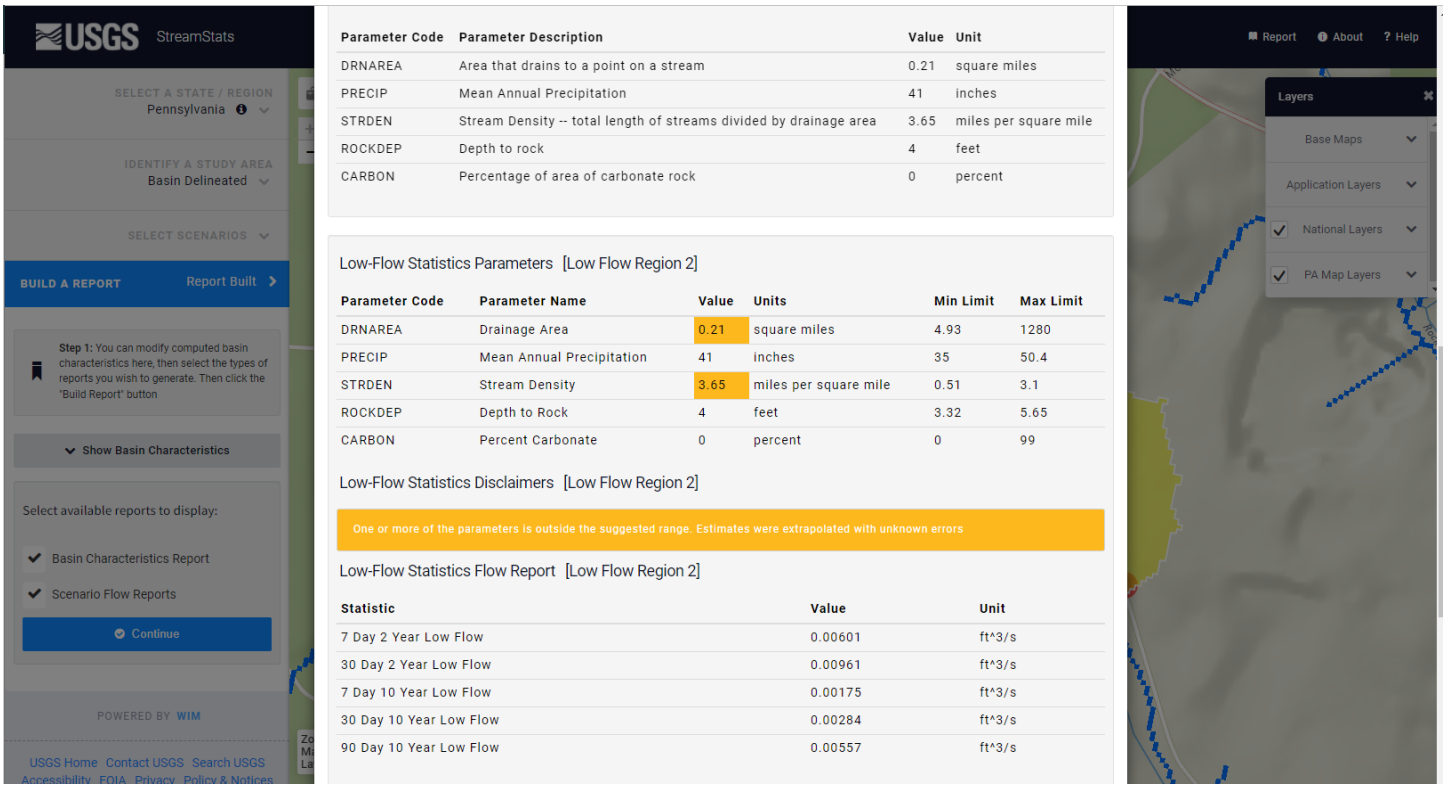
The discharge is to non-special protection waters/watershed. No HQ/EV waters are impacted by this discharge. The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected.

Class A Wild Trout Streams

No Class A Wild Trout Fishery will be impacted by this discharge.






| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| DRNAREA | Area that drains to a point on a stream | 0.21 | square miles |
| PRECIP | Mean Annual Precipitation | 41 | inches |
| STRDEN | Stream Density -- total length of streams divided by drainage area | 3.65 | miles per square mile |
| ROCKDEP | Depth to rock | 4 | feet |
| CARBON | Percentage of area of carbonate rock | 0 | percent |

Low-Flow Statistics Parameters [Low Flow Region 2]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 0.21 | square miles | 4.93 | 1280 |
| PRECIP | Mean Annual Precipitation | 41 | inches | 35 | 50.4 |
| STRDEN | Stream Density | 3.65 | miles per square mile | 0.51 | 3.1 |
| ROCKDEP | Depth to Rock | 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 | 0.00601 | ft^3/s |
| 30 Day 2 Year Low Flow | 0.00961 | ft^3/s |
| 7 Day 10 Year Low Flow | 0.00175 | ft^3/s |
| 30 Day 10 Year Low Flow | 0.00284 | ft^3/s |
| 90 Day 10 Year Low Flow | 0.00557 | ft^3/s |

## TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

| | | | |
|---|---|---|---|
| 0.00175 | = Q stream (cfs) | 0.5 | = CV Daily |
| 0.0014 | = 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 = 0.277 | 1.3.2.iii | WLA cfc = 0.262 |
| PENTOXSD TRG | 5.1a | LTAMULT afc = 0.373 | 5.1c | LTAMULT cfc = 0.581 |
| PENTOXSD TRG | 5.1b | LTA_afc= 0.103 | 5.1d | LTA_cfc = 0.152 |

| Source | | Effluent Limit Calculations | |
|---|---|---|---|
| PENTOXSD TRG | 5.1f | AML MULT = 1.231 | |
| PENTOXSD TRG | 5.1g | AVG MON LIMIT (mg/l) = 0.127 | AFC |
| | | INST MAX LIMIT (mg/l) = 0.415 | |

| | |
|---|---|
| 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)** |

## Existing Effluent Limitations and Monitoring Requirements

| 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 | Continuous | Measured |
| TRC | XXX | XXX | XXX | 0.19 | XXX | 0.63 | 1/month | Grab |
| $CBOD_5$ | XXX | XXX | XXX | 10.0 | XXX | 20 | 1/month | Grab |
| TSS | XXX | XXX | XXX | 10.0 | XXX | 20 | 1/month | Grab |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1,000 | 1/month | Grab |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2,000 Geo Mean | XXX | 10,000 | 1/month | Grab |
| Ammonia-Nitrogen May 1 – Oct 31 | XXX | XXX | XXX | 4.5 | XXX | 8.9 | 1/month | Grab |
| Ammonia-Nitrogen Nov 1 – Apr 30 | XXX | XXX | XXX | 13.5 | XXX | 26.7 | 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 | Continuous | Measured |
| TRC | XXX | XXX | XXX | 0.13 | XXX | 0.42 | 1/month | Grab |
| $BOD_5$ | XXX | XXX | XXX | 10.0 | XXX | 20 | 1/month | Grab |
| TSS | XXX | XXX | XXX | 10.0 | XXX | 20 | 1/month | Grab |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1,000 | 1/month | Grab |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2,000 Geo Mean | XXX | 10,000 | 1/month | Grab |
| Ammonia-Nitrogen May 1 – Oct 31 | XXX | XXX | XXX | 4.5 | XXX | 8.9 | 1/month | Grab |
| Ammonia-Nitrogen Nov 1 – Apr 30 | XXX | XXX | XXX | 13.5 | XXX | 26.7 | 1/month | Grab |

Compliance Sampling Location:

Other Comments: