pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

# NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0041220** |
| Facility Type | **Non-Municipal** | APS ID | **967533** |
| Major / Minor | **Minor** | Authorization ID | **1438669** |

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Hershey Rv Park & Lodging LLC** | Facility Name | **Hershey RV Park & Lodging** |
| Applicant Address | PO Box 544 | Facility Address | 1688 Hershey Road |
| | Glenmoore, PA 19343 | | Elizabethtown, PA 17022-8919 |
| Applicant Contact | Gary Ott | Facility Contact | Gary Ott |
| Applicant Phone | (610) 506-1121 | Facility Phone | (610) 506-1121 |
| Client ID | 342854 | Site ID | 2101 |
| Ch 94 Load Status | Not Overloaded | Municipality | Conewago Township |
| Connection Status | | County | Dauphin |
| Date Application Received | May 4, 2023 | EPA Waived? | Yes |
| Date Application Accepted | May 17, 2023 | If No, Reason | |

Purpose of Application: NPDES permit renewal

## Summary of Review

### 1.0 General Discussion

This fact sheet supports the renewal of an existing NPDES permit for the discharge of treated sewage from Hershey RV Park formerly known as Hershey Conewago Recreational (HRC) wastewater treatment facility. The facility was purchased by Hershey RV Park & Lodging LLC and owns and operates the facility. The facility treats sewage from the Conewago Valley Motor Inn, the Oak Knoll Estates Mobile Home Park, and the KOA Campground. A new wastewater treatment plant has been built to replace the old malfunctioning wastewater treatment during last permit cycle. The facility has a design capacity of 0.048MGD and discharges to an UNT to Conewago Creek which is classified for trout stocking (TSF). The facility owner and the other contributors to the wastewater treatment plant have addressed excessive infiltration and inflow to the wastewater treatment. The existing NPDES permit was issued on October 29, 2018 with effective date of November 1, 2018 and expiration date of October 31, 2023. The applicant submitted an administratively complete NPDES renewal application to the Department and is currently operating under the terms and conditions in the existing permit under administrative extension provisions pending Department action on the renewal application. A topographic map showing the discharge location is presented in attachment A.

### 1.1 Sludge use and disposal description and location(s):

Sludge is hold up in an aerobic digester and hauled out by a licensed hauler periodically

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| X | | *J. Pascal Kwedza*<br>J. Pascal Kwedza, P.E. / Environmental Engineer | May 15, 2024 |
| X | | *Maria D. Bebenek for*<br>Daniel W. Martin, P.E. / Environmental Engineer Manager | May 15, 2024 |
| X | | *Maria D. Bebenek*<br>Maria D. Bebenek, P.E. / Program Manager | May 15, 2024 |

**Summary of Review**

## 1.2 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.

## 1.3 Changes to the existing Permit

Annual E. Coli monitoring has been added.

**1.4 Discharge, Receiving Waters and Water Supply Information**

| | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | .048 |
| Latitude | 40º 11' 52.98" | Longitude | -76º 36' 36.67" |
| Quad Name | | Quad Code | |
| Wastewater Description: | Sewage Effluent | | |
| Receiving Waters | Unnamed Tributary to Conewago Creek | Stream Code | 09625 |
| NHD Com ID | 56404075 | RMI | 0.70 |
| Drainage Area | 1.9 | Yield (cfs/mi$^2$) | 0.11 |
| $Q_{7-10}$ Flow (cfs) | 0.21 | $Q_{7-10}$ Basis | |
| Elevation (ft) | | Slope (ft/ft) | |
| Watershed No. | 7-G | Chapter 93 Class. | TSF |
| Existing Use | | Existing Use Qualifier | |
| Exceptions to Use | | Exceptions to Criteria | |
| Assessment Status | Impaired | | |
| Cause(s) of Impairment | Nutrients, Siltation | | |
| Source(s) of Impairment | Agriculture, Agriculture | | |
| TMDL Status | Final | Name | Conewago Creek Watershed |

| Background/Ambient Data | | Data Source |
|---|---|---|
| pH (SU) | | |
| Temperature (°F) | | |
| Hardness (mg/L) | | |
| Other: | | |

| | | | |
|---|---|---|---|
| Nearest Downstream Public Water Supply Intake | Columbia Borough | | |
| PWS Waters | Susquehanna River | Flow at Intake (cfs) | |
| PWS RMI | | Distance from Outfall (mi) | 25 |

Changes Since Last Permit Issuance: None

**1.4.1 Water Supply Intake**:

The nearest water supply intake is approximately 25 miles downstream at Columbia Borough, Lancaster County located on the Susquehanna River by the Columbia Water Company. No adverse impact is expected from this discharge.

**2.1 Treatment Facility Summary**

**Treatment Facility Name:** Hershey Rv Park & Lodging

| WQM Permit No. | Issuance Date |
|---|---|
| 2218404 | 10/3/2019 |
| 2294412 | 12/28/1994 |

| Waste Type | Degree of Treatment | Process Type | Disinfection | Avg Annual Flow (MGD) |
|---|---|---|---|---|
| Sewage | Secondary With Ammonia And Phosphorus | Activated Sludge | Hypochlorite | 0.048 |

| Hydraulic Capacity (MGD) | Organic Capacity (lbs/day) | Load Status | Biosolids Treatment | Biosolids Use/Disposal |
|---|---|---|---|---|
| 0.048 | | Not Overloaded | | |

Changes Since Last Permit Issuance: A new treatment plant was built to replace the old treatment plant.

## 2.1 Treatment facility

The treatment facility consists of:

- Raw influent screening and grinding (existing)
- Influent Pumping Station (250 gpm @ 20’ TDH, duplex submersibles)
- EQ Tank (20,600-gal effective volume)
- EQ Pumping Station (90 gpm @ 15’ TDH, duplex submersibles)
- Extended Aeration Reactors (52,442-gal capacity over two trains)
- Secondary Clarifiers (168 $ft^2$) over two clarifiers
- Tablet Chlorinator (1,042 gal)
- Tablet De-Chlorinator (0.050 mgd capacity)
- Sludge Holding Tank (11,600 gal)
- Effluent Flow Metering
- Chemical Feed Systems (Alum)

## 3.0 Existing Effluent Limitations and Monitoring Requirements

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) | | Concentrations (mg/L) | | | | Minimum 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 |
| pH (S.U.) | XXX | XXX | 6.0 Daily Min | XXX | 9.0 Daily Max | XXX | 1/day | Grab |
| DO | XXX | XXX | 5.0 Daily Min | XXX | XXX | XXX | 1/day | Grab |
| TRC | XXX | XXX | XXX | 0.4 | XXX | 1.4 | 1/day | Grab |
| CBOD5 | XXX | XXX | XXX | 25 | XXX | 50 | 2/month | 24-Hr Composite |
| TSS | XXX | XXX | XXX | 30 | XXX | 60 | 2/month | 24-Hr Composite |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2000 Geo Mean | XXX | 10000 | 2/month | Grab |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1000 | 2/month | Grab |
| E. Coli (No./100 ml) | XXX | XXX | XXX | XXX | XXX | Report | 1/year | Grab |
| Nitrate-Nitrite | XXX | XXX | XXX | Report | XXX | XXX | 2/month | 24-Hr Composite |
| Total Nitrogen | XXX | XXX | XXX | Report | XXX | XXX | 2/month | Calculation |
| Ammonia Nov 1 - Apr 30 | XXX | XXX | XXX | 15.0 | XXX | 30 | 2/month | 24-Hr Composite |
| Ammonia May 1 - Oct 31 | XXX | XXX | XXX | 5.0 | XXX | 10 | 2/month | 24-Hr Composite |
| TKN | XXX | XXX | XXX | Report | XXX | XXX | 2/month | 24-Hr Composite |
| Total Phosphorus | XXX | XXX | XXX | 2.0 | XXX | 4 | 2/month | 24-Hr Composite |
| Total Phosphorus (lbs/year) | XXX | 292.1 Total Annual | XXX | XXX | XXX | XXX | 1/year | Calculation |

## 3.1 Compliance History

### 3.1.1 DMR 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 | 0.02 | 0.018 | 0.022 | 0.0019 | 0.016 | 0.017 | 0.016 | 0.015 | 0.015 | 0.011 | 0.011 | 0.013 |
| Flow (MGD) Daily Maximum | 0.026 | 0.022 | 0.032 | 0.0038 | 0.024 | 0.024 | 0.025 | 0.02 | 0.021 | 0.018 | 0.017 | 0.018 |
| pH (S.U.) Daily Minimum | 6.8 | 6.9 | 7.0 | 6.8 | 6.6 | 6.6 | 6.7 | 6.5 | 6.6 | 6.5 | 6.7 | 6.7 |
| pH (S.U.) Daily Maximum | 7.2 | 7.2 | 7.3 | 7.2 | 7.2 | 7.5 | 7.7 | 7.1 | 7.1 | 7.1 | 7.5 | 7.3 |
| DO (mg/L) Daily Minimum | 8.3 | 8.1 | 7.3 | 7.3 | 7.5 | 6.9 | 6.4 | 6.5 | 6.1 | 6.1 | 6.0 | 6.5 |
| TRC (mg/L) Average Monthly | 0.2 | < 0.17 | < 0.19 | 0.18 | 0.25 | 0.23 | 0.2 | 0.12 | 0.11 | < 0.19 | < 0.11 | 0.12 |
| TRC (mg/L) Instantaneous Maximum | 0.34 | 0.36 | 0.36 | 0.38 | 0.38 | 0.39 | 0.38 | 0.38 | 0.37 | 0.38 | 0.38 | 0.38 |
| CBOD5 (mg/L) Average Monthly | < 7.5 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2.2 |
| TSS (mg/L) Average Monthly | < 5 | < 5 | < 5 | < 5 | < 6 | < 5 | < 6 | < 6 | 6 | < 7 | < 6 | 7 |
| Fecal Coliform (No./100 ml) Geometric Mean | < 1 | < 1 | < 1 | 1 | < 1 | 3 | < 2 | 4 | 4 | < 2 | < 20 | 3 |
| Fecal Coliform (No./100 ml) Instant. Maximum | < 1 | < 1 | < 1 | 2 | < 1 | 9 | 6 | 8 | 6 | 5 | 411 | 5 |
| Nitrate-Nitrite (mg/L) Average Monthly | 26.8 | 16.6 | 10.62 | 27.2 | 22.9 | 30.2 | 31.8 | 29.5 | 28.8 | 28.2 | 17.1 | 26.3 |
| Total Nitrogen (mg/L) Average Monthly | < 27.8 | < 17.6 | < 11.6 | < 28.2 | < 23.9 | < 31.2 | < 32.8 | < 30.5 | < 29.8 | < 29.2 | < 18.1 | < 27.9 |
| Ammonia (mg/L) Average Monthly | < 0.167 | < 0.1 | < 0.1 | 0.548 | 0.289 | < 0.186 | 0.348 | < 0.1 | < 0.187 | 1.349 | 1.317 | 1.039 |
| TKN (mg/L) Average Monthly | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1.6 |
| Total Phosphorus (lbs/year) Total Annual | | | | < 12.4 | | | | | | | | |
| Total Phosphorus (mg/L) Average Monthly | 0.16 | < 0.12 | 0.15 | 0.24 | 0.51 | 0.31 | 0.53 | 0.78 | < 0.1 | 0.31 | 0.37 | 0.26 |

### 3.1.2 Summary of Discharge Monitoring Reports (DMRs):

DMRs reviewed for the facility for the last 12 months of operation, presented on the table above in section 3.1.1 indicate permit limits have been met consistently. No effluent violations were noted on DMRs for the period reviewed.

### 3.1.3 Summary of Inspections:

The facility has been inspected a couple times during last permit cycle. No effluent violations were found during plant inspections. The facility is operated and maintained well.

## 4.0 Development of Effluent Limitations

**Outfall No.** 001 **Design Flow (MGD)** .048
**Latitude** 40º 11' 52.97" **Longitude** -76º 36' 36.96"
**Wastewater Description:** Sewage Effluent

### 4.1 Basis for Effluent Limitations

In general, the Clean Water Act (CWA) requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits.

### 4.2 Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

| Pollutant | Limit (mg/l) | SBC | Federal Regulation | State Regulation |
|---|---|---|---|---|
| $CBOD_5$ | 25 | Average Monthly | 133.102(a)(4)(i) | 92a.47(a)(1) |
| | 40 | Average Weekly | 133.102(a)(4)(ii) | 92a.47(a)(2) |
| Total Suspended Solids | 30 | Average Monthly | 133.102(b)(1) | 92a.47(a)(1) |
| | 45 | Average Weekly | 133.102(b)(2) | 92a.47(a)(2) |
| pH | 6.0 – 9.0 S.U. | Min – Max | 133.102(c) | 95.2(1) |
| Fecal Coliform (5/1 – 9/30) | 200 / 100 ml | Geo Mean | - | 92a.47(a)(4) |
| Fecal Coliform (5/1 – 9/30) | 1,000 / 100 ml | IMAX | - | 92a.47(a)(4) |
| Fecal Coliform (10/1 – 4/30) | 2,000 / 100 ml | Geo Mean | - | 92a.47(a)(5) |
| Fecal Coliform (10/1 – 4/30) | 10,000 / 100 ml | IMAX | - | 92a.47(a)(5) |
| Total Residual Chlorine | 0.5 | Average Monthly | - | 92a.48(b)(2) |

Comments: Weekly averages are not applicable to this discharge.

### 4.3 Water Quality-Based Limitations

#### 4.3.1 WQM 7.0 Stream Model

WQM 7.0 is a water quality model DEP utilizes to establish appropriate effluent limits for $CBOD_5$, $NH_3$-N and DO in permits. The model simulates mixing and degradation of $NH_3$-N in the stream and compares calculated instream $NH_3$-N concentrations to $NH_3$-N water quality criteria and also simulates mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and $NH_3N$ and compares calculated instream D.O. concentrations to D.O. water quality criteria and recommends effluent limits.

#### 4.3.2 Receiving Stream

The receiving stream is an unnamed tributary of Conewago Creek. According to 25 PA § 93.9o, this stream is protected for Trout Stocking (TSF) and Migratory Fishes (MF). It is located in Drainage List O and State Watershed 7-G. It has been assigned stream code 09265. According to the Department's *Integrated Water Quality Monitoring and Assessment Report*, this segment of the stream is not attaining its designated uses. A TMDL was developed for Conewago Watershed for Total phosphorus and was approved by EPA in 2001. See further discussion under Total Phosphorus section for waste load allocation to this discharge.

### 4.3.3 Stream flows

Streamflows flows were determined by correlating with the yield of USGS gage station No. 01571500 on Susquehanna River at Harrisburg. The $Q_{7-10}$ and drainage area at the gage is 2610$ft^3/s$ and 24100$mi^2$ respectively. The resulting yields are as follows:

- $Q_{7-10}$ = (2610$ft^3/s$)/24100 $mi^2$ = 0.11 $ft^3/s/ mi^2$
- $Q_{30-10}$ / $Q_{7-10}$ = 1.17
- $Q_{1-10}$ / $Q_{7-10}$ = 0.95
- $Q_{7-10}$ (winter) / $Q_{7-10}$ =1.18

The drainage area at discharge taken from the previous permit= 1.9 $mi^2$

The $Q_{7-10}$ at discharge = 1.9 $mi^2$ x 0.110 $ft^3/s/mi^2$ = 0.21 $ft^3/s$.

### 4.3.4 $NH_3N$ Calculations

$NH_3N$ calculations will be based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the instream $NH_3N$ criteria used in the attached computer model of the stream:

| | | |
|---|---|---|
| STP pH | = | 6.6 (DMR median July-September.) |
| STP Temp | = | 25°C (Default) |
| Stream pH | = | 7.8 (Taken from the Chickies Creek and also compared with Swatara Creek) |
| Stream Temp | = | 22°C (Average between Chickies Creek and Swatara Creek) |

### 4.3.5 $CBOD_5$

The results of the WQM 7.0 stream model presented in attachment B indicates an average monthly limit (AML) of 25mg/L $CBOD_5$ is required to protect the water quality of the stream. This limit is consistent with the existing permit and past DMRs and inspection reports show that the facility has been consistently complying the limitation. Therefore, a limit of 25mg/L AML and 50 mg/L IMAX is recommended again for this permit cycle.

### 4.3.6 $NH_3$-N

The results of the WQM 7.0 stream model (attachment B) also indicates that a summer limitation of 6.27 mg/L $NH_3$-N as a monthly average is necessary to protect the aquatic life from toxicity effects. This limit is less stringent than the existing limit and will not be written in the permit due to anti-backsliding restrictions. The existing summer limitation of 5.0 mg/L with the existing the winter limit of 15 mg/L which is 3 times the summer limit will remain in the permit for the current cycle. The facility is complying with the limitation.

### 4.3.7 Dissolved Oxygen

The existing permit contains a limit of 5 mg/l for Dissolved Oxygen (DO). DEP's Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001, 10/97) suggests that either the adopted minimum stream D.O. criteria for the receiving stream or the effluent level determined through water quality modeling be used for the limit. Since the WQM 7.0 model was run using a minimum D.O. of 5.0 mg/l, this limit will be continued in the renewed permit with a daily monitoring requirement.

### 4.3.8 Phosphorus

An average monthly limit of 2 mg/L was established in the previous permits prior to TMDL development. A TMDL for the Conewago Creek basin was completed and approved on March 2, 2001. The TMDL allocates Phosphorus annual load of 292.1 lbs/yr based on the design flow of 0.048 MGD and a concentration of 2 mg/l. This allocation has been incorporated and will remain permit. Due to anti-backsliding restrictions, the existing average monthly phosphorus limitation of 2 mg/L will remain in the permit. This STP was designed to remove phosphorus and has been complying with the limits.

### 4.3.9 Total Residual Chlorine

TRC analysis was based on the equations and calculations presented in the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID No. 391-2000-015) for developing chlorine limitations. The Guidance references Chapter 92a, Section 92a.48 (b) which establishes a standard BAT limit of 0.5 mg/L unless a facility-specific BAT has been developed. The attached results presented in attachment C indicates a water quality limit of 0.40 mg/L AML and IMAX of 1.4 mg/L would be needed to prevent toxicity concerns. This recommendation is consistent with the existing permit and will remain in the permit for the current permit cycle. DMRs and inspection reports indicate the facility has been complying with the limitation.

### 4.3.10 Total Suspended Solids:

There are no water quality criteria for TSS. A limit of 30 mg/l is the required minimum level of effluent quality attainable by secondary treatment as defined in EPA's 40 CFR Chapter 1, Part 133, Section 133.102(b). in the existing permit will remain.

### 4.3.11 Toxics

The facility treats mainly domestic sewage, there are no parameters of concern associated with this discharge.

### 4.3.12 Chesapeake Bay Strategy

The Department formulated a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). Sewage discharges have been prioritized based on their delivered TN and TP loadings to the Bay. The highest priority (Phases 1, 2, and 3) dischargers will receive annual loading caps based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. These limits may be achieved through a combination of treatment technology, credits, or offsets if approved by DEP. Phase 4 (0.2 -0.4mgd) and Phase 5(below 0.2mdg) will be required to monitor and report TN and TP during permit renewal. Any facility in Phases 4 and 5 that undergoes expansion is subjected to cap load right away. This facility is a 0.048 mgd plant, classified as a phase 5, has been monitoring and reporting Nitrate-Nitrite as N, Total Kjeldahl Nitrogen and Total Nitrogen 2/month and will continue during the current permit cycle. Total Phosphorus monitoring is not required since a Total phosphorus limitation is in the permit.

### 4.3.13 Fecal Coliform and E. Coli

The existing Fecal Coliform limit is consistent with the technology limits recommended in 92a.47(a)(4) and (a)(5) and will remain in the permit. In March of 2021, EPA approved DEP's Triennial Review of Water Quality Standards, which included a new swimming season criterion for E. coli. As a result, DEP is including monitoring requirements for E. Coli in new and renewed sewage permits above 2000gpd. Monitoring frequency is based on annual average flow as follows: 1/month for design flows >= 1 MGD, 1/quarter for design flows >= 0.05 and < 1 MGD and 1/year for design flows of 0.002 – 0.05 MGD. Your discharge of 0.048 MGD requires 1/year monitoring as included in the permit

## 5.0 Other Considerations and Requirements

### 5.1 Anti-backsliding

Not applicable to this permit

### 5.2 Stormwater:

No storm water outfall is associated with this facility

### 5.3 Antidegradation (93.4):

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. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

### 5.4 Class A Wild Trout Fisheries:

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

### 5.5 303d Listed Streams:

The discharge is not located on a 303d listed stream segment. However, the main stem of the Conewago Creek downstream was listed as impaired due to excessive nutrient and sediment loads from agriculture. A TMDL for the Conewago Watershed (Watershed B) basin was completed and approved on March 2, 2001. The TMDL allocates a Phosphorus annual load of 292.1 lbs/yr based on the design flow of 0.048 MGD and a concentration of 2 mg/l. This allocation has been added to the NPDES permit during the past permit cycle and will remain in the current permit. The facility has been complying with the TMDL limitation.

### 5.6 Special Permit Conditions

The permit will contain the following special conditions:

Stormwater Prohibition, Approval Contingencies, Management of collected screenings, slurries, sludges and other solids, Requirement to connect if a public sewer becomes available in the area, Chlorine minimization and Solids Management.

### 5.7 Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs).

### 5.8 Effluent Monitoring frequency

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the Method Detection limits are less than the effluent limits. The sampling location must be after the last treatment unit and

prior to discharge to the receiving water. If no discharge occurs during the reporting period, “no discharge” shall be reported on the DMR.

## 6.0 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" (386-0400-001), 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 |
| pH (S.U.) | XXX | XXX | 6.0 Daily Min | XXX | 9.0 Daily Max | XXX | 1/day | Grab |
| DO | XXX | XXX | 5.0 Daily Min | XXX | XXX | XXX | 1/day | Grab |
| TRC | XXX | XXX | XXX | 0.4 | XXX | 1.4 | 1/day | Grab |
| CBOD5 | XXX | XXX | XXX | 25 | XXX | 50 | 2/month | 24-Hr Composite |
| TSS | XXX | XXX | XXX | 30 | XXX | 60 | 2/month | 24-Hr Composite |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2000 Geo Mean | XXX | 10000 | 2/month | Grab |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1000 | 2/month | Grab |
| E. Coli (No./100 ml) | XXX | XXX | XXX | XXX | XXX | Report | 1/year | Grab |
| Nitrate-Nitrite | XXX | XXX | XXX | Report | XXX | XXX | 2/month | 24-Hr Composite |
| Total Nitrogen | XXX | XXX | XXX | Report | XXX | XXX | 2/month | Calculation |
| Ammonia Nov 1 - Apr 30 | XXX | XXX | XXX | 15.0 | XXX | 30 | 2/month | 24-Hr Composite |
| Ammonia May 1 - Oct 31 | XXX | XXX | XXX | 5.0 | XXX | 10 | 2/month | 24-Hr Composite |

**Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date )**

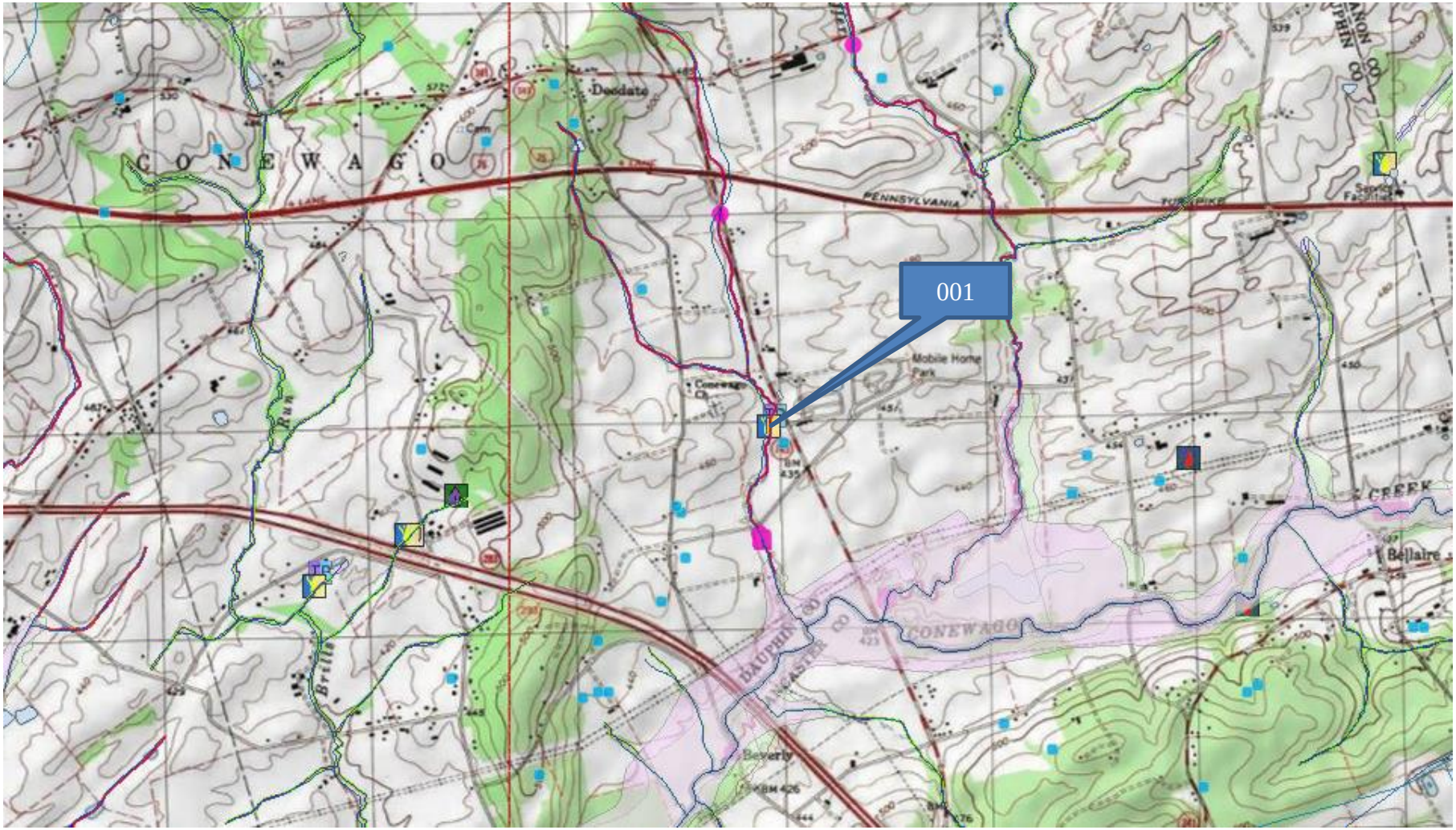
| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Average Weekly | Minimum | Average Monthly | Maximum | Instant. Maximum | | |
| TKN | XXX | XXX | XXX | Report | XXX | XXX | 2/month | 24-Hr Composite |
| Total Phosphorus | XXX | XXX | XXX | 2.0 | XXX | 4 | 2/month | 24-Hr Composite |
| Total Phosphorus (lbs/year) | XXX | 292.1 Total Annual | XXX | XXX | XXX | XXX | 1/year | Calculation |

Compliance Sampling Location: At outfall 001

| **7.0 Tools and References Used to Develop Permit** | |
|---|---|
| | |
| ☒ | WQM for Windows Model (see Attachment **B**) |
| ☐ | Toxics Management Spreadsheet (see Attachment ) |
| ☒ | TRC Model Spreadsheet (see Attachment **C**) |
| ☐ | Temperature Model Spreadsheet (see Attachment ) |
| ☒ | Water Quality Toxics Management Strategy, 361-0100-003, 4/06. |
| ☒ | Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97. |
| ☐ | Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98. |
| ☒ | Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96. |
| ☐ | Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97. |
| ☐ | Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97. |
| ☐ | Pennsylvania CSO Policy, 386-2000-002, 9/08. |
| ☒ | Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03. |
| ☐ | Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97. |
| ☒ | Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97. |
| ☐ | Implementation Guidance Design Conditions, 386-2000-007, 9/97. |
| ☒ | Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004. |
| ☐ | Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997. |
| ☐ | Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99. |
| ☐ | Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004. |
| ☒ | Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97. |
| ☒ | Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008. |
| ☒ | Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994. |
| ☐ | Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09. |
| ☒ | Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97. |
| ☐ | Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97. |
| ☐ | Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99. |
| ☐ | Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999. |
| ☐ | Design Stream Flows, 386-2000-003, 9/98. |
| ☐ | Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98. |
| ☐ | Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97. |
| ☒ | Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07. |
| ☒ | SOP: Establishing effluent limitation for individual sewage permit |
| ☐ | Other: |

## 8. Attachments

### A. Topographical Map



## B. WQM Model Results

### WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07G | 62438 | Trib 06038 to Conewago Creek |

| RMI | Name | Permit Number | Disc. Flow (mgd) | Parameter | Eff. Limit 30-day Ave. (mg/L) | Eff. Limit Maximum (mg/L) | Eff. Limit Minimum (mg/L) |
|---|---|---|---|---|---|---|---|
| 0.700 | Hershey RV Park | PA0041220 | 0.0018 | CBOD5 | 25 | | |
| | | | | NH3-N | 6.37 | 12.74 | |
| | | | | Dissolved Oxygen | | | 5 |

Friday, May 10, 2024 Version 1.1 Page 1 of 1

## Input Data WQM 7.0

| SWP Basin | Stream Code | Stream Name | RMI | Elevation (ft) | Drainage Area (sq mi) | Slope (ft/ft) | PWS Withdrawal (mgd) | Apply FC |
|---|---|---|---|---|---|---|---|---|
| 07G | 92025 | Trib 09025 to Conewago Creek | 0.7100 | 430.00 | 1.50 | 0.00000 | 0.00 | ☑ |

### Stream Data

| Design Cond. | LFY (cfsm) | Trib Flow (cfs) | Stream Flow (cfs) | Rch Trav Time (days) | Rch Velocity (fps) | WD Ratio | Rch Width (ft) | Rch Depth (ft) | Tributary Temp (°C) | Tributary pH | Stream Temp (°C) | Stream pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QT-10 | 0.110 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 22.00 | 7.00 | 0.00 | 0.00 |
| Q1-10 | | 0.00 | 0.00 | 0.000 | 0.000 | | | | | | | |
| Q30-10 | | 0.00 | 0.00 | 0.000 | 0.000 | | | | | | | |

### Discharge Data

| Name | Permit Number | Existing Disc. Flow (mgd) | Permitted Disc. Flow (mgd) | Design Disc. Flow (mgd) | Reserve Factor | Disc. Temp (°C) | Disc. pH |
|---|---|---|---|---|---|---|---|
| Hershey Rv Park | PA0041220 | 0.0160 | 0.0160 | 0.0160 | 0.000 | 25.00 | 8.00 |

### Parameter Data

| Parameter Name | Disc. Conc. (mg/L) | Trib Conc. (mg/L) | Stream Conc. (mg/L) | Fate Coef (1/days) |
|---|---|---|---|---|
| CBOD5 | 25.00 | 2.00 | 0.00 | 1.50 |
| Dissolved Oxygen | 5.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 25.00 | 0.00 | 0.00 | 0.70 |

## Input Data WQM 7.0

| SWP Basin | Stream Code | Stream Name | RMI | Elevation (ft) | Drainage Area (sq mi) | Slope (ft/ft) | PWS Withdrawal (mgd) | Apply FC |
|---|---|---|---|---|---|---|---|---|
| 07G | 92005 | Trib 09205 to Conewago Creek | 0.0 10 | 419.00 | 2.00 | 0.00000 | 0.00 | ☑ |

**Stream Data**

| Design Cond. | LFY (cfsm) | Trib Flow (cfs) | Stream Flow (cfs) | Rch Trav Time (days) | Rch Velocity (fps) | WD Ratio | Rch Width (ft) | Rch Depth (ft) | Tributary Temp (°C) | Tributary pH | Stream Temp (°C) | Stream pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QT-10 | 0.110 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 22.00 | 7.00 | 0.00 | 0.00 |
| Q1-10 | | 0.00 | 0.00 | 0.000 | 0.000 | | | | | | | |
| Q30-10 | | 0.00 | 0.00 | 0.000 | 0.000 | | | | | | | |

**Discharge Data**

| Name | Permit Number | Existing Disc. Flow (mgd) | Permitted Disc. Flow (mgd) | Design Disc. Flow (mgd) | Reserve Factor | Disc. Temp (°C) | Disc. pH |
|---|---|---|---|---|---|---|---|
| | | 0.0000 | 0.0000 | 0.0000 | 0.000 | 0.00 | 7.00 |

**Parameter Data**

| Parameter Name | Disc. Conc. (mg/L) | Trib. Conc. (mg/L) | Stream Conc. (mg/L) | Fate Coef (1/days) |
|---|---|---|---|---|
| CBOD5 | 25.00 | 2.00 | 0.00 | 1.50 |
| Dissolved Oxygen | 5.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 25.00 | 0.00 | 0.00 | 0.70 |

# WQM 7.0 Wasteload Allocations

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07G | 9265 | Trib 09265 to Conewago Creek |

**NH3-N Acute Allocations**

| RMI | Discharge Name | Baseline Criterion (mg/L) | Baseline WLA (mg/L) | Multiple Criterion (mg/L) | Multiple WLA (mg/L) | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|
| 0.700 | Hershey Rv Park | 12.11 | 44.5 | 12.11 | 44.5 | 0 | 0 |

**NH3-N Chronic Allocations**

| RMI | Discharge Name | Baseline Criterion (mg/L) | Baseline WLA (mg/L) | Multiple Criterion (mg/L) | Multiple WLA (mg/L) | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|
| 0.700 | Hershey Rv Park | 1.46 | 6.37 | 1.46 | 6.37 | 1 | 0 |

**Dissolved Oxygen Allocations**

| RMI | Discharge Name | CBOD5 | | NH3-N | | Dissolved Oxygen | | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|---|---|
| | | Baseline (mg/L) | Multiple (mg/L) | Baseline (mg/L) | Multiple (mg/L) | Baseline (mg/L) | Multiple (mg/L) | | |
| 0.70 | Hershey Rv Park | 25 | 25 | 6.37 | 6.37 | 5 | 5 | 0 | 0 |

Friday, May 10, 2024 Version 1.1 Page 1 of 1

# WQM 7.0 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07G | 92055 | Trib 92055 to Conewago Creek |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 0.700 | 0.046 | 22.780 | 7.110 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WD Ratio** | **Reach Velocity (fps)** |
| 7.000 | 0.427 | 16.394 | 0.080 |
| **Reach CBOD5 (mg/L)** | Reach Kc (1/days) | Reach NH3-N (mg/L) | Reach Kn (1/days) |
| 6.00 | 1.109 | 1.67 | 0.667 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | Reach DO Goal (mg/L) |
| 7.360 | 21.188 | Owens | 6 |

Reach Travel Time (days)
0.507

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.051 | 7.53 | 1.60 | 7.60 |
| 0.101 | 7.07 | 1.53 | 7.71 |
| 0.152 | 6.63 | 1.46 | 7.78 |
| 0.203 | 6.22 | 1.40 | 7.83 |
| 0.254 | 5.83 | 1.34 | 7.83 |
| 0.304 | 5.47 | 1.28 | 7.83 |
| 0.355 | 5.13 | 1.23 | 7.83 |
| 0.406 | 4.81 | 1.17 | 7.83 |
| 0.456 | 4.52 | 1.12 | 7.83 |
| 0.507 | 4.24 | 1.08 | 7.83 |

## WQM 7.0 Modeling Specifications

| | | | |
|---|---|---|---|
| Parameters | Both | Use Inputted Q1-10 and Q30-10 Flows | ☑ |
| WLA Method | EMPR | Use Inputted W/D Ratio | ☐ |
| Q1-10/Q7-10 Ratio | 0.95 | Use Inputted Reach Travel Times | ☐ |
| Q30-10/Q7-10 Ratio | 1.17 | Temperature Adjust Kr | ☑ |
| D.O. Saturation | 90.00% | Use Balanced Technology | ☑ |
| D.O. Goal | 6 | | |

Friday, May 10, 2024 Version 1.1 Page 1 of 1

# WQM 7.0 Hydrodynamic Outputs

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07G | 62[illegible] | Trib 62[illegible] to Conewago Creek |

| RMI | Stream Flow (cfs) | PWS Wth (cfs) | Net Stream Flow (cfs) | Disc Analysis Flow (cfs) | Reach Slope (ft/ft) | Depth (ft) | Width (ft) | W/D Ratio | Velocity (fps) | Reach Trav Time (days) | Analysis Temp (°C) | Analysis pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q7-10 Flow** | | | | | | | | | | | | |
| 0.700 | 0.21 | 0.00 | 0.21 | .0713 | 0.00192 | .427 | 7.99 | 18.73 | 0.09 | 0.507 | 22.78 | 7.11 |
| **Q1-10 Flow** | | | | | | | | | | | | |
| 0.700 | 0.20 | 0.00 | 0.20 | .0713 | 0.00192 | NA | NA | NA | 0.09 | 0.519 | 22.82 | 7.10 |
| **Q30-10 Flow** | | | | | | | | | | | | |
| 0.700 | 0.24 | 0.00 | 0.24 | .0713 | 0.00192 | NA | NA | NA | 0.09 | 0.475 | 22.70 | 7.15 |

Friday, May 10, 2024 Version 1.1 Page 1 of 1

## C. TRC Calculations

**TRC EVALUATION**

Input appropriate values in A3:A9 and D3:D9

| | | | |
|---|---|---|---|
| 0.21 | = Q stream (cfs) | 0.5 | = CV Daily |
| 0.048 | = 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) | 0 | =Decay Coefficient (K) |

| Source | Reference | AFC Calculations | | Reference | CFC Calculations | |
|---|---|---|---|---|---|---|
| TRC | 1.3.2.iii | WLA afc = | 0.921 | 1.3.2.iii | WLA cfc = | 0.891 |
| PENTOXSD TR( | 5.1a | LTAMULT afc = | 0.373 | 5.1c | LTAMULT cfc = | 0.581 |
| PENTOXSD TR( | 5.1b | LTA_afc= | 0.343 | 5.1d | LTA_cfc = | 0.518 |

| Source | | Effluent Limit Calculations | | |
|---|---|---|---|---|
| PENTOXSD TR( | 5.1f | AML MULT = | 1.231 | |
| PENTOXSD TR( | 5.1g | AVG MON LIMIT (mg/l) = | 0.422 | AFC |
| | | INST MAX LIMIT (mg/l) = | 1.382 | |

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