Pennsylvania Department of Environmental Protection

Northeast Regional Office
CLEAN WATER PROGRAM

# NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0020940** |
| Facility Type | **Municipal** | APS ID | **598462** |
| Major / Minor | **Minor** | Authorization ID | **1464225** |

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Tunkhannock Borough Municipal Authority** | Facility Name | **Tunkhannock Borough Municipal Authority** |
| Applicant Address | 201 W. Tioga Street | Facility Address | 26 McCord Street |
| | Tunkhannock, PA 18657-6655 | | Tunkhannock, PA 18657 |
| Applicant Contact | Roger E. Hadsall, Manager | Facility Contact | Roger E. Hadsall, Manager |
| Applicant Phone | (570) 836-3493 | Facility Phone | (570) 836-3493 |
| Client ID | 73970 | Site ID | 256620 |
| Ch 94 Load Status | Existing overloads | Municipality | Tunkhannock Borough |
| Connection Status | No Limitations | County | Wyoming |
| Date Application Received | November 27, 2023 | EPA Waived? | Yes |
| Date Application Accepted | December 11, 2023 | If No, Reason | - |

Purpose of Application: Renewal of NPDES permit for discharge of treated sewage.

## Summary of Review

The applicant is requesting the renewal of an NPDES permit to discharge up to 0.3 MGD of treated sewage into Tunkhannock Creek, a Trout Stocking, Migratory Fish (TSF, MF) receiving stream in State Water Plan Basin 4-F (Tunkhannock Creek). As per the Department's current existing use list, the receiving stream does not have an existing use classification that is more protective than its designated use. This stream segment is not designated as a naturally reproducing trout stream as per PA Fish & Boat Commission. This discharge is not expected to affect public water supplies. The Tunkhannock Creek is impaired for Mercury by an unknown source.

Limitations for pH, $CBOD_5$, Total Suspended Solids (TSS), and Fecal Coliform are technology-based and carried over from the previous permit.

A BPJ-based limitation of 5.0 mg/L for Dissolved Oxygen (DO) has been added to the permit. The new limit will come into effect three years after the permit effective date. Monitoring and reporting for DO will be required until the limitation becomes effective.

The BPJ based standard summertime effluent limitations for Ammonia-Nitrogen have been added to the permit. The limitations will come into effect three years after the permit effective date. Monitoring and reporting for Ammonia-Nitrogen will be required until the limitations become effective. Monitoring and reporting for Ammonia-Nitrogen in the wintertime will also be required at the permit effective date. WQM 7.0 modeling did not recommend stricter water quality limitations.

The Total Residual Chlorine (TRC) Calculation Spreadsheet did not recommend stricter limitations than the previous permit. The TRC limits from the previous permit have been maintained in this permit renewal.

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| X | | Allison Seyfried Zukosky / Project Manager | October 8, 2025 |
| X | | Edward Dudick, P.E. / Environmental Engineer Manager | October 8, 2025 |

**Summary of Review**

Sewage discharges now require monitoring and reporting for E. Coli. A monitoring frequency of 1/month for design flows >= 1 MGD, 1/quarter for design flows >= 0.05 and < 1 MGD, 1/year for design flows of 0.002 – 0.05 MGD will be utilized.

Pollutant sampling results submitted with the permit application were entered into the Toxic Management Spreadsheet (TMS). The TMS recommended monitoring and reporting for Total Copper. Therefore, quarterly monitoring and reporting has been added to the permit for Total Copper to gather more data for the next permit renewal.

The facility is a Phase 4 Non-Significant sewage facility in the Chesapeake Bay Watershed. Per the Phase 3 Watershed Implementation Plan Wastewater Supplement, the quarterly monitoring/reporting for Total Nitrogen, Total Phosphorous, Total Kjeldahl Nitrogen, and Nitrate-Nitrite as N has been increased to monthly in this permit.

Per current Standard Operating Procedures for Publicly Owned Treatment Plants, the raw sewage influent monitoring/ reporting for TSS and $BOD_5$ has been maintained in the permit.

For this permit renewal, all monitoring frequencies for parameters with limitations are consistent with the Department's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (document no. 362-0400-001).

24-hour composite sampling is now required in place of 8-hour composite sampling.

Data from the upstream stream gage 1534000 (Tunkhannock Creek near Tunkhannock, PA) was used to model the discharge, resulting in a low flow yield (LFY) of 0.045 cfs/$mi^2$ and $Q_{7\text{-}10}$ of 18.63 cfs. For modeling inputs, RMI values were obtained using the "PA Historic Streams" feature of eMapPA, drainage areas were delineated using USGS's StreamStats Interactive Map, and elevations were obtained using the elevation profile feature of StreamStats.

The 2023 Chapter 94 Reports indicate there is existing organic overloading. The Report indicates that the high $BOD_5$ loadings in January 2019 and May 2022 were temporary and not representative of the true organic loading.

The existing permit expired on July 31, 2024 and the application for renewal was received on time.

A Water Management System Inspection query indicated that on August 21, 2023 a Compliance Evaluation was performed.

There are currently no open violations for this client that warrant withholding issuance of this permit.

Sludge use and disposal description and location(s): As per the permittee's NPDES Renewal Application, sludge is hauled to the Keystone Sanitary Landfill located in Dunmore, PA by J.P. Mascaro & Sons.

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.

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

| | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | 0.3 |
| Latitude | 41º 32' 14.89" | Longitude | -75º 56' 34.88" |
| Quad Name | Tunkhannock | Quad Code | 0638 |
| Wastewater Description: | Sewage Effluent | | |
| Receiving Waters | Tunkhannock Creek (TSF, MF) | Stream Code | 28784 |
| NHD Com ID | 66407243 | RMI | 0.40 |
| Drainage Area | 414 $mi^2$ | Yield ($cfs/mi^2$) | 0.045 |
| $Q_{7-10}$ Flow (cfs) | 18.63 | $Q_{7-10}$ Basis | USGS Stream gage 1534000 |
| Elevation (ft) | 578.26 | Slope (ft/ft) | - |
| Watershed No. | 4-F | Chapter 93 Class. | TSF, MF |
| Existing Use | - | Existing Use Qualifier | - |
| Exceptions to Use | - | Exceptions to Criteria | - |
| Assessment Status | Impaired | | |
| Cause(s) of Impairment | MERCURY | | |
| Source(s) of Impairment | SOURCE UNKNOWN | | |
| TMDL Status | - | Name | - |
| Nearest Downstream Public Water Supply Intake | Danville Municipal Water Authority | | |
| PWS Waters | Susquehanna River | Flow at Intake (cfs) | - |
| PWS RMI | 122.5 | Distance from Outfall (mi) | ~ 81.5 |

**Treatment Facility Summary**

**Treatment Facility Name:** Tunkhannock Borough Municipal Authority

| WQM Permit No. | Issuance Date |
|---|---|
| 6612401 | 4/4/2012 |

| Waste Type | Degree of Treatment | Process Type | Disinfection | Avg Annual Flow (MGD) |
|---|---|---|---|---|
| Sewage | Secondary | Contact Stabilization | Chlorination | 0.215 (2020-2022) |

| Hydraulic Capacity (MGD) | Organic Capacity (lbs/day) | Load Status | Biosolids Treatment | Biosolids Use/Disposal |
|---|---|---|---|---|
| 0.3 | 620 | Existing Organic Overload | Aerobic Digestion/Press | Hauled/Landfill |

## Compliance History

**DMR Data for Outfall 001 (from August 1, 2024 to July 31, 2025)**

| Parameter | JUL-25 | JUN-25 | MAY-25 | APR-25 | MAR-25 | FEB-25 | JAN-25 | DEC-24 | NOV-24 | OCT-24 | SEP-24 | AUG-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD) Average Monthly | 0.223 | 0.259 | 0.284 | 0.244 | 0.220 | 0.191 | 0.200 | 0.206 | 0.184 | 0.169 | 0.197 | 0.440 |
| Flow (MGD) Daily Maximum | 0.934 | 1.203 | 0.423 | 0.323 | 0.419 | 0.276 | 0.249 | 0.409 | 0.286 | 0.212 | 0.258 | 3.670 |
| pH (S.U.) Instantaneous Minimum | 7.2 | 7.3 | 7.4 | 6.8 | 7.0 | 7.0 | 7.1 | 7.0 | 6.9 | 7.0 | 7.1 | 7.0 |
| pH (S.U.) Instantaneous Maximum | 7.7 | 7.7 | 7.8 | 7.6 | 7.5 | 7.7 | 7.7 | 7.4 | 7.5 | 7.6 | 7.5 | 7.5 |
| TRC (mg/L) Average Monthly | < 0.02 | < 0.04 | < 0.05 | < 0.03 | < 0.04 | < 0.1 | < 0.10 | < 0.04 | < 0.1 | < 0.04 | < 0.05 | < 0.04 |
| TRC (mg/L) Instantaneous Maximum | 0.07 | 0.18 | 0.35 | 0.11 | 0.21 | 0.39 | 0.45 | 0.20 | 0.76 | 0.16 | 0.17 | 0.09 |
| CBOD5 (lbs/day) Average Monthly | 7.9 | 13.7 | 13.6 | 10.4 | 19.8 | 9.7 | 11.6 | < 6.8 | 14.6 | 18.2 | 10.9 | 20.0 |
| CBOD5 (lbs/day) Weekly Average | 12 | 19 | 17 | 14 | 56 | 14 | 19 | 12 | 42 | 31 | 17 | 24 |
| CBOD5 (mg/L) Average Monthly | 5.0 | 7.0 | 6.0 | 5.0 | 7.0 | 6.0 | 7.0 | < 4.0 | 10.0 | 13.0 | 7.0 | 11.0 |
| CBOD5 (mg/L) Weekly Average | 7.0 | 10.0 | 7.0 | 7.0 | 16.0 | 8.0 | 11.0 | 6.0 | 31.0 | 22.0 | 10.0 | 12.0 |
| BOD5 (lbs/day) Raw Sewage Influent <br/> Average Monthly | 300 | 326 | 427 | 474 | 499 | 393 | 404 | 425 | 443 | 315 | 308 | 305 |
| BOD5 (mg/L) Raw Sewage Influent <br/> Average Monthly | 191 | 173 | 184 | 235 | 218 | 247 | 235 | 243 | 297 | 216 | 182 | 160 |
| TSS (lbs/day) Average Monthly | 8 | 16 | 15 | 12 | 20 | 22 | 21 | 18 | 17 | 14 | 9 | 11 |
| TSS (lbs/day) Raw Sewage Influent <br/> Average Monthly | 59 | 62 | 99 | 105 | 115 | 152 | 203 | 256 | 343 | 196 | 182 | 134 |
| TSS (lbs/day) Weekly Average | 12 | 19 | 21 | 16 | 45 | 27 | 31 | 27 | 24 | 19 | 10 | 13 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TSS (mg/L) Average Monthly | 5.0 | 8.0 | < 6.0 | 6.0 | 8.0 | 14.0 | 12.0 | 9.0 | 12.0 | 10.0 | 5.0 | 6.0 |
| TSS (mg/L) Raw Sewage Influent <br/> Average Monthly | 39 | 33 | 43 | 53 | 49 | 97 | 118 | 164 | 247 | 135 | 110 | 71 |
| TSS (mg/L) Weekly Average | 8.0 | 10.0 | 8.0 | 9.0 | 13.0 | 16.0 | 16.0 | 10.0 | 14.0 | 12.0 | 6.0 | 7.0 |
| Fecal Coliform (No./100 ml) Geometric Mean | 28 | 55 | < 55 | 10 | < 1 | < 1 | 7 | < 8 | 17 | 26 | 5 | 27 |
| Fecal Coliform (No./100 ml) Instantaneous Maximum | 260 | 210 | 1553 | 81 | 2 | 5 | 19 | 40 | 39 | 133 | 36 | 61 |
| Nitrate-Nitrite (lbs/day) Average Quarterly | | 7.2 | | | 7.6 | | | 15.6 | | | 18.1 | |
| Nitrate-Nitrite (mg/L) Average Quarterly | | 3.11 | | | 4.65 | | | 10.8 | | | 9.54 | |
| Total Nitrogen (lbs/day) Average Quarterly | | 45.0 | | | 49.2 | | | 39.7 | | | 23.3 | |
| Total Nitrogen (mg/L) Average Quarterly | | 19.4 | | | 30.1 | | | 27.5 | | | 12.3 | |
| TKN (lbs/day) Average Quarterly | | 37.8 | | | 41.5 | | | 24.1 | | | 5.2 | |
| TKN (mg/L) Average Quarterly | | 16.3 | | | 25.4 | | | 16.7 | | | 2.73 | |
| Total Phosphorus (lbs/day) Average Quarterly | | 5.9 | | | 4.3 | | | 4.5 | | | 3.3 | |
| Total Phosphorus (mg/L) Average Quarterly | | 2.55 | | | 2.65 | | | 3.10 | | | 1.75 | |

## Compliance History

**Effluent Violations for Outfall 001, from: September 1, 2024 To: July 31, 2025**

| Parameter | Date | SBC | DMR Value | Units | Limit Value | Units |
|---|---|---|---|---|---|---|
| Fecal Coliform | 05/31/25 | IMAX | 1553 | No./100 ml | 1000 | No./100 ml |

## Development of Effluent Limitations

**Outfall No.** 001 **Design Flow (MGD)** 0.3
**Latitude** 41º 32' 15.00" **Longitude** -75º 56' 29.00"
**Wastewater Description:** Sewage Effluent

### 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 |
|---|---|---|---|---|
| $CBOD_5$ | 25.0 | Average Monthly | 133.102(a)(4)(i) | 92a.47(a)(1) |
| | 40.0 | Average Weekly | 133.102(a)(4)(ii) | 92a.47(a)(2) |
| | 50.0 | IMAX | - | |
| Total Suspended Solids | 30.0 | Average Monthly | 133.102(b)(1) | 92a.47(a)(1) |
| | 45.0 | Average Weekly | 133.102(b)(2) | 92a.47(a)(2) |
| | 60.0 | IMAX | - | |
| 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) |
| | 1.6 | IMAX | | |
| E. Coli | Report | IMAX | - | 92a.61 |
| Dissolved Oxygen | 5.0 | Minimum | - | BPJ |
| Ammonia-Nitrogen May 1 - Oct 31 | 25.0 | Average Monthly | - | BPJ |
| | 50.0 | IMAX | | |
| Ammonia-Nitrogen Nov 1 - Apr 30 | Report | Average Monthly | | |

### Water Quality-Based Limitations

The following limitations were determined through water quality modeling:

| Parameter | Limit (mg/l) | SBC | Model |
|---|---|---|---|
| Total Copper | Report | Average Quarterly | Toxic Modeling Spreadsheet (TMS) |
| Biochemical Oxygen Demand (BOD5) Raw Sewage Influent | Report | Average Monthly | POTW Requirement |
| Total Suspended Solids Raw Sewage Influent | Report | Average Monthly | |
| Total Nitrogen | Report | Average Monthly | Phase 3 Watershed Implementation Plan Wastewater Supplement |
| Total Phosphorus | Report | Average Monthly | |
| Nitrate-Nitrite as N | Report | Average Monthly | |
| Total Kjeldahl Nitrogen | Report | Average Monthly | |

### Anti-Backsliding

No limitations were made less stringent.

## Modeling Using USGS Stream Gage

**Stream Gage:** 1534000 – Tunkhannock Creek near Tunkhannock, PA

| Name | Value |
|---|---|
| USGS Station Number | 01534000 |
| Station Name | Tunkhannock Creek near Tunkhannock, Pa. |
| Station Type | Gaging Station, continuous record |
| Latitude | 41.55841 |
| Longitude | -75.89464 |
| NWIS Latitude | 41.55841008 |
| NWIS Longitude | -75.89464168 |
| Is regulated? | false |
| Agency | United States Geological Survey |
| NWIS Discharge Period of Record | 02/01/1914 - 09/08/2025 |

| Characteristic Name | Value | Units |
|---|---|---|
| Drainage Area | 383 | square miles |

| Statistic Name | Value | Units | Preferred? | Years of Record | Standard Error, percent | Citation | Comments |
|---|---|---|---|---|---|---|---|
| 1 Day 10 Year Low Flow | 15.2 | cubic feet per second | ✓ | 94 | | 49 | Statistic Date Range 4/1/1914 - 3/31/2008 |
| 7 Day 2 Year Low Flow | 35.9 | cubic feet per second | ✓ | 94 | | 49 | Statistic Date Range 4/1/1914 - 3/31/2008 |
| 7 Day 10 Year Low Flow | 17.3 | cubic feet per second | ✓ | 94 | | 49 | Statistic Date Range 4/1/1914 - 3/31/2008 |

$$Low\ Flow\ Yield\ using\ StreamStats\ Gage\ Data = \frac{17.3\ ft^3/sec}{383\ mi^2} = \mathbf{0.045}\ \frac{\boldsymbol{ft^3/sec}}{\boldsymbol{mi^2}}$$

$$Q_{7-10}\ at\ Outfall\ 001\ using\ StreamStats\ Gage\ Data = 0.045\ \frac{ft^3/sec}{mi^2} \times 414\ mi^2 = \mathbf{18.63}\ \boldsymbol{cfs}$$

## USGS StreamStats Data:

### At Outfall 001 on the Tunkhannock Creek:

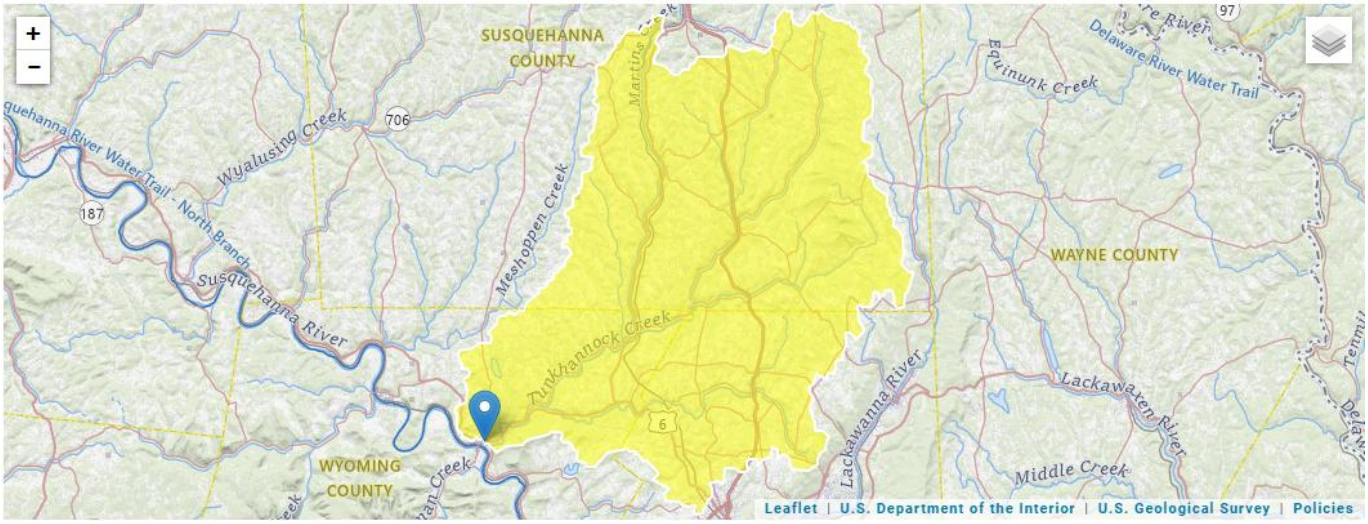
| RMI | Elevation (ft) | Drainage Area (mi²) | $Q_{7\text{-}10}$ Flow (cfs) |
|---|---|---|---|
| 0.40 | 578.26 | 414 | 19.2 |

$$Low\ Flow\ Yield\ using\ StreamStats = \frac{19.2\ ft^3/sec}{414\ mi^2} = \mathbf{0.046}\ \frac{\boldsymbol{ft^3/sec}}{\boldsymbol{mi^2}}$$

* StreamStats $Q_{7\text{-}10}$ and LFY was not used for modeling.

StreamStats Report

**Region ID:** PA
**Workspace ID:** PA20250909122410037000
**Clicked Point (Latitude, Longitude):** 41.53735, -75.94138
**Time:** 2025-09-09 08:24:35 -0400




| Parameter Code | Parameter Name | Value | Units |
|---|---|---|---|
| DRNAREA | Drainage Area | 414 | square miles |

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 7 Day 2 Year Low Flow | 40.1 | ft^3/s | 38 | 38 |
| 30 Day 2 Year Low Flow | 53.4 | ft^3/s | 33 | 33 |
| 7 Day 10 Year Low Flow | 19.2 | ft^3/s | 57 | 57 |

**At confluence with Susquehanna River (6685):**

| RMI | Elevation (ft) | Drainage Area (mi²) |
|---|---|---|
| 0.0<br>(203.56 on Susquehanna River) | 577.74 | 9,300 |

StreamStats Report

| | |
|---|---|
| **Region ID:** | PA |
| **Workspace ID:** | PA20250909123151246000 |
| **Clicked Point (Latitude, Longitude):** | 41.53436, -75.94623 |
| **Time:** | 2025-09-09 08:32:21 -0400 |


| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 9300 | square miles | 4.84 | 982 |

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

## WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07K | 6685 | SUSQUEHANNA RIVER |

| RMI | Name | Permit Number | Disc Flow (mgd) | Parameter | Effl. Limit 30-day Ave. (mg/L) | Effl. Limit Maximum (mg/L) | Effl. Limit Minimum (mg/L) |
|---|---|---|---|---|---|---|---|
| 203.960 | Tunk Boro | Pa0020940 | 0.300 | CBOD5 | 25 | | |
| | | | | NH3-N | 25 | 50 | |
| | | | | Dissolved Oxygen | | | 3 |

## TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

| | | | |
|---|---|---|---|
| 18.63 | = Q stream (cfs) | 0.5 | = CV Daily |
| 0.3 | = Q discharge (MGD) | 0.5 | = CV Hourly |
| 30 | = no. samples | 0.122 | = AFC_Partial Mix Factor |
| 0.3 | = Chlorine Demand of Stream | 0.843 | = 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 = 1.581 | 1.3.2.iii | WLA cfc = 10.535 |
| PENTOXSD TRG | 5.1a | LTAMULT afc = 0.373 | 5.1c | LTAMULT cfc = 0.581 |
| PENTOXSD TRG | 5.1b | LTA_afc= 0.589 | 5.1d | LTA_cfc = 6.125 |

| 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) |

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2015

# Discharge Information

Instructions | Discharge | Stream

Facility: Tunkhannock Borough | NPDES Permit No.: PA0020940 | Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste | Wastewater Description: Treated Sewage

| Discharge Characteristics | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Design Flow (MGD)* | Hardness (mg/l)* | pH (SU)* | Partial Mix Factors (PMFs) | | | | Complete Mix Times (min) | |
| | | | AFC | CFC | THH | CRL | $Q_{7-10}$ | $Q_h$ |
| 0.3 | 100 | 7 | | | | | | |

| | Discharge Pollutant | Units | Max. Discharge Conc | | 0 if left blank | | 0.5 if left blank | | 0 if left blank | | | 1 if left blank | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Trib Conc | Stream Conc | Daily CV | Hourly CV | Stream CV | Fate Coeff | FOS | Criteria Mod | Chem Transl |
| Group 1 | Total Dissolved Solids (PWS) | mg/L | | 404 | | | | | | | | | |
| | Chloride (PWS) | mg/L | | 109 | | | | | | | | | |
| | Bromide | mg/L | | 0.48 | | | | | | | | | |
| | Sulfate (PWS) | mg/L | | 30.1 | | | | | | | | | |
| | Fluoride (PWS) | mg/L | | | | | | | | | | | |
| Group 2 | Total Aluminum | µg/L | | | | | | | | | | | |
| | Total Antimony | µg/L | | | | | | | | | | | |
| | Total Arsenic | µg/L | | | | | | | | | | | |
| | Total Barium | µg/L | | | | | | | | | | | |
| | Total Beryllium | µg/L | | | | | | | | | | | |
| | Total Boron | µg/L | | | | | | | | | | | |
| | Total Cadmium | µg/L | | | | | | | | | | | |
| | Total Chromium (III) | µg/L | | | | | | | | | | | |
| | Hexavalent Chromium | µg/L | | | | | | | | | | | |
| | Total Cobalt | µg/L | | | | | | | | | | | |
| | Total Copper | mg/L | | 0.01 | | | | | | | | | |
| | Free Cyanide | µg/L | | | | | | | | | | | |
| | Total Cyanide | µg/L | | | | | | | | | | | |
| | Dissolved Iron | µg/L | | | | | | | | | | | |
| | Total Iron | µg/L | | | | | | | | | | | |
| | Total Lead | mg/L | < | 0.005 | | | | | | | | | |
| | Total Manganese | µg/L | | | | | | | | | | | |
| | Total Mercury | µg/L | | | | | | | | | | | |
| | Total Nickel | µg/L | | | | | | | | | | | |
| | Total Phenols (Phenolics) (PWS) | µg/L | | | | | | | | | | | |
| | Total Selenium | µg/L | | | | | | | | | | | |
| | Total Silver | µg/L | | | | | | | | | | | |
| | Total Thallium | µg/L | | | | | | | | | | | |
| | Total Zinc | mg/L | < | 0.037 | | | | | | | | | |
| | Total Molybdenum | µg/L | | | | | | | | | | | |
| | Acrolein | µg/L | < | | | | | | | | | | |
| | Acrylamide | µg/L | < | | | | | | | | | | |
| | Acrylonitrile | µg/L | < | | | | | | | | | | |
| | Benzene | µg/L | < | | | | | | | | | | |
| | Bromoform | µg/L | < | | | | | | | | | | |

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2025

## Stream / Surface Water Information

**Tunkhannock Borough, NPDES Permit No. PA0020940, Outfall 001**

Instructions | Discharge | Stream

Receiving Surface Water Name: Tunkhannook Creek

No. Reaches to Model: 1

(●) Statewide Criteria
( ) Great Lakes Criteria
( ) ORSANCO Criteria

| Location | Stream Code* | RMI* | Elevation (ft)* | DA (mi²)* | Slope (ft/ft) | PWS Withdrawal (MGD) | Apply Fish Criteria* |
|---|---|---|---|---|---|---|---|
| Point of Discharge | 028784 | 203.96 | 578.26 | 414 | | | Yes |
| End of Reach 1 | 028784 | 201.95 | 577.18 | 9420 | | | Yes |

$Q_{7-10}$

| Location | RMI | LFY (cfs/mi²)* | Flow (cfs) | | W/D Ratio | Width (ft) | Depth (ft) | Velocity (fps) | Travel Time (days) | Tributary | | Stream | | Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stream | Tributary | | | | | | Hardness | pH | Hardness* | pH* | Hardness | pH |
| Point of Discharge | 203.96 | 0.045 | | | | | | | | | | 100 | 7 | | |
| End of Reach 1 | 201.95 | 0.045 | | | | | | | | | | | | | |

$Q_h$

| Location | RMI | LFY (cfs/mi²) | Flow (cfs) | | W/D Ratio | Width (ft) | Depth (ft) | Velocity (fps) | Travel Time (days) | Tributary | | Stream | | Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stream | Tributary | | | | | | Hardness | pH | Hardness | pH | Hardness | pH |
| Point of Discharge | 203.96 | | | | | | | | | | | | | | |
| End of Reach 1 | 201.95 | | | | | | | | | | | | | | |

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 15 PMF: 0.122 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

| Pollutants | Stream Conc (µg/L) | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Copper | 0 | 0 | | 0 | 13.439 | 14.0 | 82.4 | Chem Translator of 0.96 applied |
| Total Lead | 0 | 0 | | 0 | 64.581 | 81.6 | 480 | Chem Translator of 0.791 applied |
| Total Zinc | 0 | 0 | | 0 | 117.180 | 120 | 705 | Chem Translator of 0.978 applied |

☑ *CFC* CCT (min): 720 PMF: 0.843 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

| Pollutants | Stream Conc (µg/L) | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Copper | 0 | 0 | | 0 | 8.956 | 9.33 | 325 | Chem Translator of 0.96 applied |
| Total Lead | 0 | 0 | | 0 | 2.517 | 3.18 | 111 | Chem Translator of 0.791 applied |
| Total Zinc | 0 | 0 | | 0 | 118.139 | 120 | 4,175 | Chem Translator of 0.986 applied |

☑ *THH* CCT (min): 720 PMF: 0.843 Analysis Hardness (mg/l): N/A Analysis pH: N/A

| Pollutants | Stream Conc (µg/L) | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | 500,000 | 500,000 | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | 250,000 | 250,000 | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | 250,000 | 250,000 | N/A | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total Copper | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Lead | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Zinc | 0 | 0 | | 0 | N/A | N/A | N/A | |

☑ *CRL* CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

| Pollutants | Stream Conc (µg/L) | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Copper | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Lead | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Zinc | 0 | 0 | | 0 | N/A | N/A | N/A | |

☑ ***Recommended WQBELs & Monitoring Requirements***

**No. Samples/Month:** 4

| | *Mass Limits* | | *Concentration Limits* | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Pollutants | AML (lbs/day) | MDL (lbs/day) | AML | MDL | IMAX | Units | Governing WQBEL | WQBEL Basis | Comments |
| Total Copper | Report | Report | Report | Report | Report | mg/L | 0.053 | AFC | Discharge Conc > 10% WQBEL (no RP) |

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

| Pollutants | Governing WQBEL | Units | Comments |
|---|---|---|---|
| Total Dissolved Solids (PWS) | N/A | N/A | PWS Not Applicable |
| Chloride (PWS) | N/A | N/A | PWS Not Applicable |
| Bromide | N/A | N/A | No WQS |
| Sulfate (PWS) | N/A | N/A | PWS Not Applicable |
| Total Lead | 0.11 | mg/L | Discharge Conc ≤ 10% WQBEL |
| Total Zinc | 0.45 | mg/L | Discharge Conc ≤ 10% WQBEL |

WQM 7.0.pdf TMS PA0020940.pdf