Pennsylvania Department of Environmental Protection

Northcentral Regional Office
CLEAN WATER PROGRAM

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0021881** |
| Facility Type | **Municipal** | APS ID | **1134220** |
| Major / Minor | **Minor** | Authorization ID | **1521548** |

# NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Westfield Borough Tioga County** | Facility Name | **Westfield Borough Sewer System STP** |
| Applicant Address | 429 E Main Street | Facility Address | 1488 Broughton Road |
| | Westfield, PA 16950-1610 | | Westfield, PA 16950 |
| Applicant Contact | Roger Watkins | Facility Contact | Donald Wescott |
| Applicant Phone | (814) 367-2632 | Facility Phone | (814) 367-5835 |
| Client ID | 63260 | Site ID | 255822 |
| Ch 94 Load Status | Not Overloaded | Municipality | Westfield Borough |
| Connection Status | No Limitations | County | Tioga |
| Date Application Received | March 31, 2025 | EPA Waived? | No |
| Date Application Accepted | April 2, 2025 | If No, Reason | Significant CB Discharge |

Purpose of Application: Renewal of a NPDES Permit

## Summary of Review

The subject facility is a minor Publicly Owned Treatment Works (POTW) serving Westfield Borough and neighboring portions of Westfield Township in Tioga County.

Sludge use and disposal description and location(s): The facility's dewatered sludge is disposed by landfill. Per the application 26.2 dry tons were disposed in the previous year.

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.

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| ✓ | | Keith C. Allison / Project Manager | September 25, 2025 |
| ✓ | | Nicholas W. Hartranft, P.E. / Environmental Engineer Manager | September 29, 2025 |

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

| | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | 0.46 |
| Latitude | 41º 55' 30.06" | Longitude | -77º 31' 16.37" |
| Quad Name | Potter Brook | Quad Code | |
| Wastewater Description: | Sewage Effluent | | |
| Receiving Waters | Cowanesque River (WWF) | Stream Code | 30995 |
| NHD Com ID | 57350897 | RMI | 27.6 |
| Drainage Area | 96.8 $mi^2$ | Yield ($cfs/mi^2$) | 0.01325 |
| $Q_{7-10}$ Flow (cfs) | 1.28 | $Q_{7-10}$ Basis | USGS Gage 01518862, Cowanesque River @ Westfield (1985-2008) |
| Elevation (ft) | 1311 | Slope (ft/ft) | 0.00174 |
| Watershed No. | 4-A | Chapter 93 Class. | WWF |
| Existing Use | N/A | Existing Use Qualifier | N/A |
| Exceptions to Use | None | Exceptions to Criteria | None |
| Assessment Status | Impaired | | |
| Cause(s) of Impairment | Pathogens, Siltation, and Flow Modification, | | |
| Source(s) of Impairment | Source Unknown, Agriculture, Removal of Riparian Vegetation, and Urban Runoff | | |
| TMDL Status | **Pending** | Name | |
| Nearest Downstream Public Water Supply Intake | PA-NY State Line | | |
| PWS Waters | Cowanesque River | Distance from Outfall (mi) | ~27 |

Changes Since Last Permit Issuance: None. The above stream and drainage characteristics determined for previous reviews remain adequate.

Other Comments:

The facility is not expected to be a significant contributor to the above-listed impairments to the Cowanesque River. The facility's TSS averages below 10 mg/L and it consistently meets its Fecal Coliform limitations.

No downstream water supply is expected to be affected by the discharge at this time with the limitations and monitoring proposed. The Department considers the PA/NY state line to the closest water supply due to no closer intakes.

**Treatment Facility Summary**

**Treatment Facility Name:** Westfield Borough WWTP

| WQM Permit No. | Issuance Date | Permit Coverage: |
|---|---|---|
| 5986401 | 9/26/88 | Upgrade to original plant with inclusion of experimental Submerged Fixed Film Reactor (SFFR) |
| 5986401 A-1 | 4/25/19 | Plant upgrades |
| 5986401 A-2 | 12/14/22 | Dechlorination |

| Waste Type | Degree of Treatment | Process Type | Disinfection | Avg Annual Flow (MGD) |
|---|---|---|---|---|
| Sewage | Secondary | Oxidation Ditch | Hypochlorite | 0.46 |

| Hydraulic Capacity (MGD) | Organic Capacity (lbs/day) | Load Status | Biosolids Treatment | Biosolids Use/Disposal |
|---|---|---|---|---|
| 0.46 | 539 | Not Overloaded | Dewatering | Land Application |

Changes Since Last Permit Issuance: The upgrades under WQM Permit No. 5986401 A-1 and 5986401 A-2 were completed in 2022 were completed in 2022.

Other Comments: The treatment facilities as permitted under WQM Permit 5986401 A-1 consists of mechanical screen and a manually cleaned bar, a new headworks structure, aerated grit removal system, an influent duplex pump station with a 6’ diameter wet well and two (2) 7.5 HP submersible pumps, an oxidation ditch, two (2) 52,873-gallon circular clarifiers, the existing treatment tanks will be converted into two (2) aerobic sludge digestion tanks by installing coarse bubble diffusers, positive displacement blowers, and peristaltic pumps, three (3) chemical feed systems peristaltic-type metering pumps, a new chlorine dosing pump, the existing clarifiers will be converted to chlorine contact tanks with the installation of baffles, dechlorination, and a post aeration system consisting of two (2) centrifugal blowers, fine bubble diffusers, and a post aeration tank.

**Industrial Users**

The facility has no industrial users.

**Hauled-In-Waste**

The facility receives no hauled in wastes.

## 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 | 0.150 | 0.294 | 0.340 | 0.239 | 0.234 | 0.169 | 0.133 | 0.143 | 0.113 | 0.124 | 0.144 | 0.413 |
| Flow (MGD) Daily Maximum | 0.232 | 0.524 | 0.693 | 0.344 | 0.393 | 0.384 | 0.158 | 0.222 | 0.151 | 0.186 | 0.185 | 1.87 |
| pH (S.U.) Instantaneous Minimum | 7.2 | 6.8 | 6.8 | 6.3 | 6.2 | 6.8 | 6.9 | 6.7 | 6.9 | 6.9 | 6.9 | 6.6 |
| pH (S.U.) Instantaneous Maximum | 7.8 | 8.0 | 7.8 | 7.6 | 7.9 | 7.8 | 8.2 | 8.3 | 8.4 | 8.3 | 8.2 | 8.1 |
| DO (mg/L) Instantaneous Minimum | 8.10 | 6.91 | 6.74 | 6.95 | 8.24 | 8.92 | 7.97 | 8.27 | 8.34 | 8.34 | 8.33 | 7.38 |
| TRC (mg/L) Average Monthly | 0.18 | 0.17 | 0.13 | 0.10 | 0.18 | 0.15 | 0.17 | 0.16 | 0.10 | 0.10 | 0.19 | 0.17 |
| TRC (mg/L) Instantaneous Maximum | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| CBOD5 (lbs/day) Average Monthly | < 4.0 | < 7.0 | < 9.1 | < 5.3 | < 2.3 | 4.1 | 2.7 | 3.2 | < 2.7 | < 1.9 | < 2.0 | < 10.4 |
| CBOD5 (lbs/day) Weekly Average | < 4.76 | < 12.61 | < 15.56 | 7.51 | 4.6 | 4.89 | 3.47 | 5.24 | 5.35 | 3.7 | 2.39 | 21.14 |
| CBOD5 (mg/L) Average Monthly | < 3.00 | < 3.0 | < 3.0 | < 2.5 | 3.2 | 3.4 | 2.6 | 2.7 | < 3.4 | < 1.8 | < 1.7 | < 3.3 |
| CBOD5 (mg/L) Weekly Average | < 3.00 | < 3.0 | < 3.0 | 3.0 | 8.73 | 3.7 | 3.3 | 4.8 | 6.9 | 2.7 | 2.2 | < 4.0 |
| BOD5 (lbs/day) Raw Sewage Influent Average Monthly | 128 | 139 | 241 | 94 | 131 | 104 | 143 | 95 | 65 | 87 | 57 | 132 |
| BOD5 (lbs/day) Raw Sewage Influent Daily Maximum | 235 | 233 | 4.4 | 160 | 189 | 109 | 223 | 138 | 93 | 124 | 84 | 259 |
| BOD5 (mg/L) Raw Sewage Influent Average Monthly | 92 | 63 | 85 | 43 | 75 | 79 | 137 | 79 | 76 | 84 | 50 | 54 |
| TSS (lbs/day) Average Monthly | < 5.0 | < 9.0 | < 12.1 | < 3.7 | < 4.0 | < 5.4 | < 4.5 | < 5.0 | < 3.3 | < 4.0 | < 4.9 | 23.5 |
| TSS (lbs/day) Raw Sewage Influent Average Monthly | 55 | 94 | 89 | 165 | 87 | 61 | 99 | 80 | 70 | 88 | 68 | 66 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TSS (lbs/day) Raw Sewage Influent Daily Maximum | 90 | 177 | 135 | 261 | 145 | 71 | 201 | 121 | 120 | 133 | 83 | 78 |
| TSS (lbs/day) Weekly Average | < 6.34 | < 16.8 | < 20.75 | 11.38 | < 7.5 | < 6.44 | 4.92 | 5.84 | 3.8 | 5.4 | 6.0 | 33.38 |
| TSS (mg/L) Average Monthly | < 4.0 | < 4.2 | < 4.0 | < 4.3 | < 4.0 | < 4.5 | < 4.3 | < 4.2 | < 4.0 | < 4.0 | < 4.2 | 7.5 |
| TSS (mg/L) Raw Sewage Influent Average Monthly | 43 | 42 | 30 | 76 | 49 | 53 | 96 | 65 | 85 | 90 | 58 | 26 |
| TSS (mg/L) Weekly Average | < 4.0 | 5.0 | < 4.0 | 5.0 | < 10.91 | 6.0 | 5.0 | 5.0 | < 4.0 | 4.0 | 5.0 | 13.0 |
| Fecal Coliform (No./100 ml) Geometric Mean | 5 | 6 | 18 | < 1.0 | 4.0 | 4.4 | < 1.2 | < 1.0 | < 1.0 | < 1.2 | < 1.0 | < 4 |
| Fecal Coliform (No./100 ml) Instantaneous Maximum | 23.8 | 10.9 | 26.2 | 2.0 | 17.1 | 17.1 | 2.0 | 2.0 | 1.0 | 2.0 | 2.0 | 13.5 |
| Nitrate-Nitrite (mg/L) Average Monthly | 14.8 | 9.0 | 9.6 | 9.2 | 4.9 | 7.6 | 12.2 | 5.4 | 5.5 | 6.3 | 6.6 | 8.5 |
| Nitrate-Nitrite (lbs) Total Monthly | 458.4 | 590.8 | 880 | 540.2 | 314.1 | 258.7 | 406.5 | 210.4 | 144.2 | 193.2 | 230.8 | 784.3 |
| Total Nitrogen (mg/L) Average Monthly | < 14.4 | < 10.4 | < 10.6 | < 11.80 | < 6.4 | < 8.8 | < 13.6 | < 6.9 | < 7.6 | < 7.7 | < 7.6 | < 10.1 |
| Total Nitrogen (lbs) Total Monthly | < 536.5 | 697.5 | < 975.8 | < 697.80 | < 402.8 | < 304.5 | < 453.6 | < 267.2 | < 196.3 | < 236.1 | < 267.2 | < 959.2 |
| Ammonia (lbs/day) Average Monthly | < 0.13 | < 0.26 | < 0.30 | < 0.21 | < 0.31 | < 0.13 | < 0.10 | < 0.11 | < 0.10 | < 0.10 | < 0.20 | < 0.39 |
| Ammonia (lbs/day) Weekly Average | < 0.2 | < 0.4 | < 0.5 | < 0.3 | 1.2 | < 0.2 | < 0.1 | < 0.2 | < 0.10 | 0.10 | 0.8 | 0.7 |
| Ammonia (mg/L) Average Monthly | < 0.10 | < 0.11 | < 0.10 | < 0.10 | < 0.13 | < 0.10 | < 0.1 | < 0.1 | < 0.11 | < 0.10 | < 0.17 | < 0.12 |
| Ammonia (mg/L) Weekly Average | 0.11 | 0.20 | < 0.10 | < 0.10 | 0.38 | < 0.1 | < 0.10 | < 0.10 | 0.13 | 0.11 | 0.64 | 0.20 |
| Ammonia (lbs) Total Monthly | < 3.9 | < 7.6 | < 9.6 | < 5.9 | < 9.4 | < 3.7 | < 3.3 | < 3.9 | < 2.7 | < 3.2 | < 6.1 | < 11.3 |
| TKN (mg/L) Average Monthly | < 2.0 | < 1.4 | < 1.0 | < 2.6 | < 1.4 | < 1.2 | < 1.4 | < 1.5 | < 2.1 | < 1.4 | < 1.0 | < 1.6 |
| TKN (lbs) Total Monthly | < 78.1 | < 106.7 | < 95.8 | < 157.6 | < 88.7 | < 45.8 | < 47.2 | < 56.9 | < 52.1 | < 42.9 | < 36.4 | < 175 |
| Total Phosphorus (lbs/day) Average Monthly | 0.58 | 0.64 | 0.71 | 0.41 | 0.3 | 0.21 | 0.15 | 0.21 | 0.15 | 0.22 | < 0.24 | 1.28 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Phosphorus (lbs/day) Weekly Average | 0.9 | 1.4 | 1.3 | 1.6 | 1.1 | 0.4 | 0.2 | 0.5 | 0.3 | 0.3 | 0.4 | 1.6 |
| Total Phosphorus (mg/L) Average Monthly | 0.477 | 0.281 | 0.23 | 0.232 | 0.15 | 0.165 | 0.135 | 0.16 | 0.18 | 0.22 | < 0.22 | 0.43 |
| Total Phosphorus (mg/L) Weekly Average | 0.58 | 0.34 | 0.29 | 0.99 | 0.48 | 0.33 | 0.17 | 0.25 | 0.40 | 0.27 | 0.28 | 0.80 |
| Total Phosphorus (lbs) Total Monthly | 18.1 | 19.7 | 22.5 | 12.6 | 9.9 | 5.8 | 4.4 | 6.5 | 4.7 | 6.8 | < 7.7 | 39.3 |

| **Compliance History** | |
|---|---|
| | |
| **Summary of Inspections:** | The most recent inspection by the Department of the facility on May 7, 2025 identified no violations. |
| **Other Comments:** | There are no open violations in eFACTS for Westfield Borough, Tioga County. |

**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 | Weekly Average | Minimum | Average Monthly | Weekly Average | Instant. Maximum | | |
| Flow (MGD) | Report | Report Daily Max | XXX | XXX | XXX | XXX | Continuous | Metered |
| pH (S.U.) | XXX | XXX | 6.0 Inst Min | XXX | XXX | 9.0 | 1/day | Grab |
| Dissolved Oxygen | XXX | XXX | Report Inst Min | XXX | XXX | XXX | 1/day | Grab |
| Total Residual Chlorine (TRC) | XXX | XXX | XXX | 0.27 | XXX | 0.88 | 1/day | Grab |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - May 31 | 41 | 62 | XXX | 20 | 30 | 40 | 1/week | 8-Hr Composite |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) Jun 1 - Oct 31 | 21 | 31 | XXX | 10 | 15 | 20 | 1/week | 8-Hr Composite |
| Biochemical Oxygen Demand (BOD5) Raw Sewage Influent | Report | Report Daily Max | XXX | Report | XXX | XXX | 1/week | 8-Hr Composite |
| Total Suspended Solids Raw Sewage Influent | Report | Report Daily Max | XXX | Report | XXX | XXX | 1/week | 8-Hr Composite |
| Total Suspended Solids | 62 | 93 | XXX | 30 | 45 | 60 | 1/week | 8-Hr Composite |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2000 Geo Mean | XXX | 10000 | 1/week | Grab |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1000 | 1/week | Grab |
| Ammonia-Nitrogen Nov 1 - May 31 | 19 | 27 | XXX | 9.0 | 13.5 | 18 | 2/week | 8-Hr Composite |
| Ammonia-Nitrogen Jun 1 - Oct 31 | 6.0 | 9.0 | XXX | 3.0 | 4.5 | 6 | 2/week | 8-Hr Composite |
| Total Phosphorus | 4.1 | 6.2 | XXX | 2.0 | 3.0 | 4 | 2/week | 8-Hr Composite |

| Existing Effluent Limitations and Monitoring Requirements – Chesapeake Bay | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Effluent Limitations** | | | | | | **Monitoring Requirements** | |
| | **Mass Units (lbs/day) (1)** | | **Concentrations (mg/L)** | | | | **Minimum (2) Measurement Frequency** | **Required Sample Type** |
| | **Monthly** | **Annual** | **Monthly** | **Monthly Average** | **Maximum** | **Instant. Maximum** | | |
| Ammonia--N | Report | Report | XXX | Report | XXX | XXX | 2/week | 8-Hr Composite |
| Kjeldahl--N | Report | XXX | XXX | Report | XXX | XXX | 2/week | 8-Hr Composite |
| Nitrate-Nitrite as N | Report | XXX | XXX | Report | XXX | XXX | 2/week | 8-Hr Composite |
| Total Nitrogen | Report | Report | XXX | Report | XXX | XXX | 1/month | Calculation |
| Total Phosphorus | Report | Report | XXX | Report | XXX | XXX | 2/week | 8-Hr Composite |
| Net Total Nitrogen | XXX | 8402 | XXX | XXX | XXX | XXX | 1/year | Calculation |
| Net Total Phosphorus | XXX | 1120 | XXX | XXX | XXX | XXX | 1/year | Calculation |

## Development of Effluent Limitations

**Outfall No.** 001 **Design Flow (MGD)** 0.46
**Latitude** 41º 55' 28.90" **Longitude** -77º 31' 17.75"
**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 | 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: The above limitations are applicable and are included in the existing permit except for more stringent water quality-based $CBOD_5$ and TRC limits.

### Water Quality-Based Limitations

#### DO, CBOD5 and NH3-N

The WQM7.0 model allows the Department to evaluate point source discharges of dissolved oxygen (DO), carbonaceous BOD ($CBOD_5$), and ammonia-nitrogen ($NH_3$-N) into free-flowing streams and rivers. To accomplish this, the model simulates two basic processes: the mixing and degradation of $NH_3$-N in the stream and the mixing and consumption of DO in the stream due to the degradation of $CBOD_5$ and $NH_3$-N. The discharge has existing water quality-based limitations for $CBOD_5$ and $NH_3$-N as noted on the previous page. WQM7.0 modeling was performed (see Attachment B) for the discharge to the Cowanesque River and showed that a more stringent ammonia limitation is required beyond the existing limits from 3.0 mg/L to 2.6 mg/L. This more stringent limitation is due to changes to the Department's $NH_3$-N criteria since the previous review. Based on the existing data listed above this limit is achievable. The Department applies a multiplier of x3 for the winter (November through May) limitations.

The exiting mass loading limitations for ammonia-nitrogen, CBOD5, and TSS, Total Phosphorus were based an actual average flow of 0.247 MGD per the Fact Sheet and Addendum for the 2010 NPDES renewal. The loading limitations that would result from the permitted annual average flow of 0.46 MGD (as is typical Department practice for sewage treatment discharges) would result in higher (less stringent) loadings than the current limitations, including for the new $NH_3$-N limit. The existing achievable loading limits will remain pursuant to Best Professional Judgment.

### Total Residual Chlorine

The Department uses a modeling spreadsheet to analyze the toxicity of a discharge's TRC in a receiving stream, accounting for available dilution. The attached results of the TRC spreadsheet (see Attachment C) show that the existing limit of 0.27 mg/l is adequate to protect the receiving stream.

#### Water Quality Toxics Management

No "Reasonable Potential Analysis" was performed to determine additional parameters with the reasonable potential to violate water quality standards for this minor STP discharge with no industrial influent.

**Chesapeake Bay/Nutrient Requirements**

A portion of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the Water Pollution Control Act, 33 U.S.C. §1313(d). Total Nitrogen and Total Phosphorus cap loads have been established for significant dischargers in Pennsylvania in order to reduce the total nutrient load to the Bay and meet State of Maryland Water Quality Standards. BAJSA is considered a Phase 3, Significant Chesapeake Bay discharger. Nutrient cap loads have previously been established for this facility pursuant to the Phase III Watershed Implementation Plan.

The discharge's cap loadings as well as the actual Total Nitrogen and Total Phosphorus loadings for the past two cycle years are listed in the table below.

| Nutrient | Total Nitrogen (lbs) | Total Phosphorus (lbs) |
|---|---|---|
| **Nutrient Cap Loads for PA0020567** | 8,402 | 1,120 |
| **10/1/22 – 9/30/23 Net Loadings** | < 5,654 | 118 |
| **10/1/22 – 9/30/23 Total Mass Load** | < 5,654 | 118 |
| | | |
| **10/1/23 – 9/30/24 Net Loadings** | < 6,408 | < 234 |
| **10/1/23 – 9/30/24 Total Mass Load** | < 6,048 | < 234 |

**E. Coli Monitoring**

Quarterly E. Coli monitoring will be included in the draft permit consistent with recent changes to Chapter 93 of the Department's regulations and Departmental policy.

**Best Professional Judgment (BPJ) Limitations**

Comments: The exiting mass loading limitations for TSS, $CBOD_5$, $NH_3$-N, and TP are being kept pursuant to BPJ as noted above. No additional BPJ limitations are necessary at this time beyond the technology and water quality-based limitations noted above.

**Anti-Backsliding**

No proposed technology or BPJ-based limitations have been made less stringent consistent with the Anti-degradation requirements of The Clean Water Act and 40 CFR 122.44(I).

## 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 | Weekly Average | Minimum | Average Monthly | Weekly Average | Instant. Maximum | | |
| Flow (MGD) | Report | Report Daily Max | XXX | XXX | XXX | XXX | Continuous | Metered |
| pH (S.U.) | XXX | XXX | 6.0 Inst Min | XXX | XXX | 9.0 | 1/day | Grab |
| Dissolved Oxygen | XXX | XXX | Report Inst Min | XXX | XXX | XXX | 1/day | Grab |
| Total Residual Chlorine (TRC) | XXX | XXX | XXX | 0.27 | XXX | 0.88 | 1/day | Grab |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - May 31 | 41 | 62 | XXX | 20 | 30 | 40 | 1/week | 8-Hr Composite |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) Jun 1 - Oct 31 | 21 | 31 | XXX | 10 | 15 | 20 | 1/week | 8-Hr Composite |
| Biochemical Oxygen Demand (BOD5) Raw Sewage Influent | Report | Report Daily Max | XXX | Report | XXX | XXX | 1/week | 8-Hr Composite |
| Total Suspended Solids Raw Sewage Influent | Report | Report Daily Max | XXX | Report | XXX | XXX | 1/week | 8-Hr Composite |
| Total Suspended Solids | 62 | 93 | XXX | 30 | 45 | 60 | 1/week | 8-Hr Composite |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2000 Geo Mean | XXX | 10000 | 1/week | Grab |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1000 | 1/week | Grab |
| Ammonia-Nitrogen Nov 1 - May 31 | 19 | 27 | XXX | 8.0 | 12.1 | 16.0 | 2/week | 8-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 | Weekly Average | Minimum | Average Monthly | Weekly Average | Instant. Maximum | | |
| Ammonia-Nitrogen Jun 1 - Oct 31 | 6.0 | 9.0 | XXX | 2.6 | 4.0 | 5.3 | 2/week | 8-Hr Composite |
| Total Phosphorus | 4.1 | 6.2 | XXX | 2.0 | 3.0 | 4 | 2/week | 8-Hr Composite |
| E. Coli (No./100 ml) | XXX | XXX | XXX | XXX | Report Daily Max | XXX | 1/quarter | Grab |

Compliance Sampling Location: Outfall 001

Other Comments: E. Coli monitoring is new as mentioned above. Ammonia-Nitrogen concentration limitations have changed as mentioned above.

## Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

**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 |
| | Monthly | Annual | Monthly | Monthly Average | Maximum | Instant. Maximum | | |
| Ammonia--N | Report | Report | XXX | Report | XXX | XXX | 2/week | 8-Hr Composite |
| Kjeldahl--N | Report | XXX | XXX | Report | XXX | XXX | 2/week | 8-Hr Composite |
| Nitrate-Nitrite as N | Report | XXX | XXX | Report | XXX | XXX | 2/week | 8-Hr Composite |
| Total Nitrogen | Report | Report | XXX | Report | XXX | XXX | 1/month | Calculation |
| Total Phosphorus | Report | Report | XXX | Report | XXX | XXX | 2/week | 8-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 |
| | Monthly | Annual | Monthly | Monthly Average | Maximum | Instant. Maximum | | |
| Net Total Nitrogen | XXX | 8402 | XXX | XXX | XXX | XXX | 1/year | Calculation |
| Net Total Phosphorus | XXX | 1120 | XXX | XXX | XXX | XXX | 1/year | Calculation |

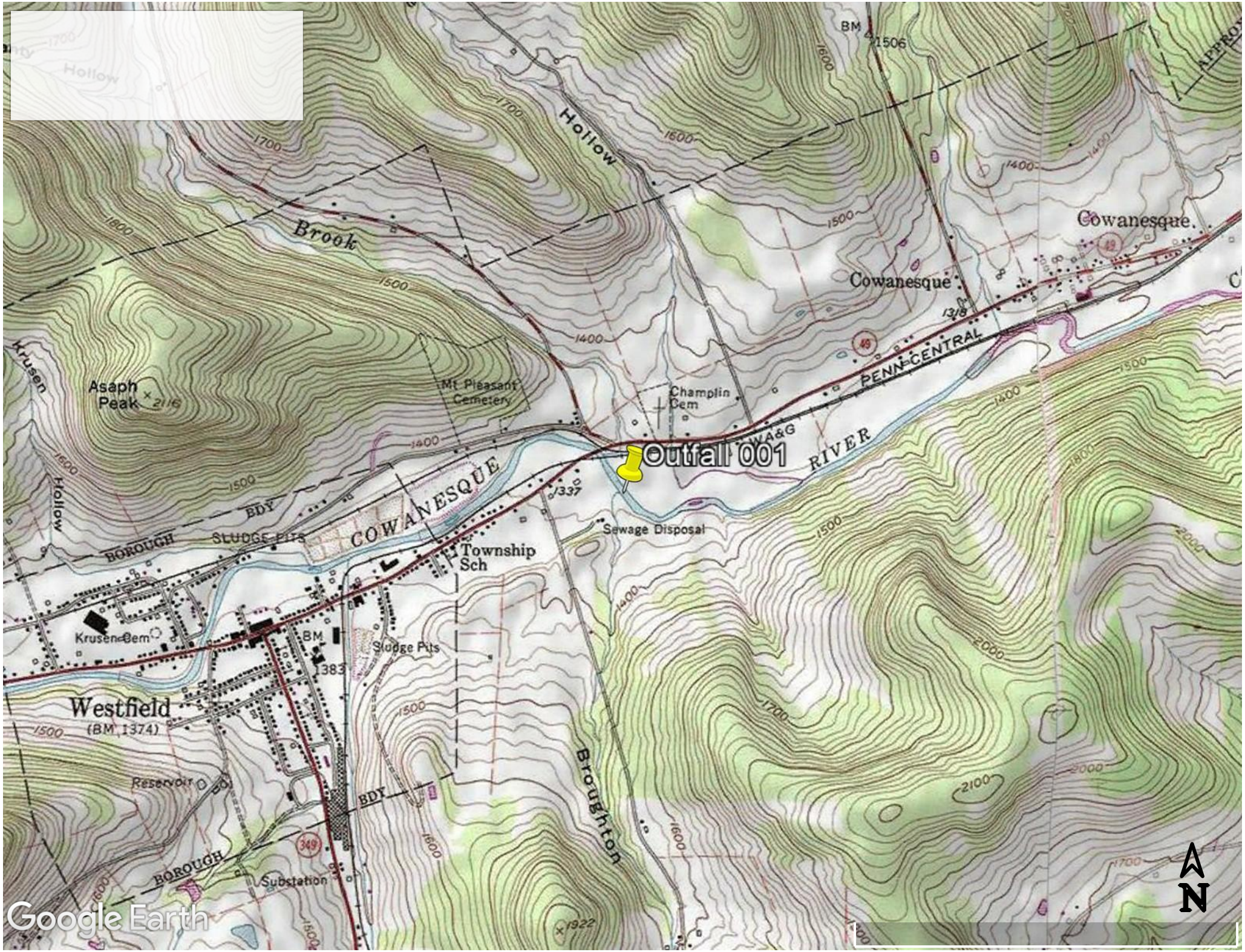
Compliance Sampling Location: Outfall 001

Other Comments: None

| 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: |
| ☐ | Other: |

Attachments:

A. Discharge Location Map
B. WQM7.0 Model
C. TRC Model


Outfall 001
Hollow
Brook
Cowanesque
Asaph Peak
Mt Pleasant Cemetery
Champlin Cem
PENN CENTRAL
RIVER
COWANESQUE
BOROUGH
SLUDGE PITS
Sewage Disposal
Township Sch
Krusen Cem
Sludge Pits
Westfield
(BM 1374)
Reservoir
Substation
Broughton
Google Earth
N

# 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 |
|---|---|---|---|---|---|---|---|---|
| 04A | 30995 | COWANESQUE RIVER | **27.600** | 1311.00 | 96.80 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q7-10** | 0.013 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 20.00 | 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 |
|---|---|---|---|---|---|---|---|
| Westfield Boro | PA0021881 | 0.4600 | 0.0000 | 0.0000 | 0.000 | 25.00 | 7.00 |

**Parameter Data**

| Parameter Name | Disc Conc (mg/L) | Trib Conc (mg/L) | Stream Conc (mg/L) | Fate Coef (1/days) |
|---|---|---|---|---|
| CBOD5 | 10.00 | 2.00 | 0.00 | 1.50 |
| Dissolved Oxygen | 3.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 3.00 | 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 |
|---|---|---|---|---|---|---|---|---|
| 04A | 30995 | COWANESQUE RIVER | **26.400** | 1300.00 | 100.00 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q7-10** | 0.013 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 20.00 | 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 | 25.00 | 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 | 3.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 25.00 | 0.00 | 0.00 | 0.70 |

# WQM 7.0 Hydrodynamic Outputs

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 04A | 30995 | COWANESQUE RIVER |

| RMI | Stream Flow (cfs) | PWS With (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 (ºC) | Analysis pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q7-10 Flow** | | | | | | | | | | | | |
| 27.600 | 1.28 | 0.00 | 1.28 | .7116 | 0.00174 | .654 | 29.45 | 45.05 | 0.10 | 0.708 | 21.78 | 7.00 |
| **Q1-10 Flow** | | | | | | | | | | | | |
| 27.600 | 0.82 | 0.00 | 0.82 | .7116 | 0.00174 | NA | NA | NA | 0.09 | 0.821 | 22.32 | 7.00 |
| **Q30-10 Flow** | | | | | | | | | | | | |
| 27.600 | 1.74 | 0.00 | 1.74 | .7116 | 0.00174 | NA | NA | NA | 0.12 | 0.630 | 21.45 | 7.00 |

# 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 | 0.64 | Use Inputted Reach Travel Times | ☐ |
| Q30-10/Q7-10 Ratio | 1.36 | Temperature Adjust Kr | ☑ |
| D.O. Saturation | 90.00% | Use Balanced Technology | ☑ |
| D.O. Goal | 5 | | |

# WQM 7.0 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 04A | 30995 | COWANESQUE RIVER |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 27.600 | 0.460 | 21.784 | 7.000 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 29.450 | 0.654 | 45.048 | 0.104 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 4.85 | 0.910 | 0.96 | 0.803 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 6.372 | 1.783 | Tsivoglou | 5 |
| **Reach Travel Time (days)** | | | |
| 0.708 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.071 | 4.53 | 0.91 | 5.98 |
| 0.142 | 4.22 | 0.86 | 5.68 |
| 0.212 | 3.94 | 0.81 | 5.45 |
| 0.283 | 3.67 | 0.76 | 5.29 |
| 0.354 | 3.42 | 0.72 | 5.18 |
| 0.425 | 3.19 | 0.68 | 5.12 |
| 0.496 | 2.98 | 0.64 | 5.10 |
| 0.566 | 2.78 | 0.61 | 5.11 |
| 0.637 | 2.59 | 0.57 | 5.15 |
| 0.708 | 2.41 | 0.54 | 5.21 |

# WQM 7.0 Wasteload Allocations

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 04A | 30995 | COWANESQUE RIVER |

## 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 |
|---|---|---|---|---|---|---|---|
| 27.600 | Westfield Boro | 13.83 | 6 | 13.83 | 6 | 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 |
|---|---|---|---|---|---|---|---|
| 27.600 | Westfield Boro | 1.72 | 3 | 1.72 | 3 | 0 | 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) | | |
| 27.60 | Westfield Boro | 10 | 10 | 2.69 | 2.69 | 3 | 3 | 0 | 0 |

# WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 04A | 30995 | COWANESQUE 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) |
|---|---|---|---|---|---|---|---|
| 27.600 | Westfield Boro | PA0021881 | 0.460 | CBOD5 | 10 | | |
| | | | | NH3-N | 2.69 | 5.38 | |
| | | | | Dissolved Oxygen | | | 3 |

# TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

| | | | |
|---|---|---|---|
| 1.28 | = Q stream (cfs) | 0.5 | = CV Daily |
| 0.46 | = 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 = 0.593 | 1.3.2.iii | WLA cfc = 0.570 |
| PENTOXSD TRG | 5.1a | LTAMULT afc = 0.373 | 5.1c | LTAMULT cfc = 0.581 |
| PENTOXSD TRG | 5.1b | LTA_afc= 0.221 | 5.1d | LTA_cfc = 0.332 |

| Source | | Effluent Limit Calculations | |
|---|---|---|---|
| PENTOXSD TRG | 5.1f | AML MULT = 1.231 | |
| PENTOXSD TRG | 5.1g | AVG MON LIMIT (mg/l) = 0.272 | AFC |
| | | INST MAX LIMIT (mg/l) = 0.889 | |

| | |
|---|---|
| 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) |