pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0084425** |
| Facility Type | **Municipal** | APS ID | **275692** |
| Major / Minor | **Minor** | Authorization ID | **1338434** |

# NPDES PERMIT FACT SHEET
# INDIVIDUAL SEWAGE

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Conewago Township Sewer Authority**<br>**York County** | Facility Name | **Conewago Township STP** |
| Applicant Address | 600 Locust Point Road<br>York, PA 17406-6056 | Facility Address | 600 Locust Point Road<br>York, PA 17406-6056 |
| Applicant Contact | Pamela Mease | Facility Contact | Pamela Mease |
| Applicant Phone | (717) 266-5518 | Facility Phone | (717) 266-5518 |
| Client ID | 3571 | Site ID | 252946 |
| Ch 94 Load Status | Not Overloaded | Municipality | Conewago Township |
| Connection Status | No Limitations | County | York |
| Date Application Received | December 21, 2020 | EPA Waived? | No |
| Date Application Accepted | January 12, 2021 | If No, Reason | Significant CB Discharge |
| Purpose of Application | NPDES Renewal. | | |

## Summary of Review

Buchart-Horn, Inc., on behalf of Conewago Township Sewer Authority (CTSA), has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of the NPDES permit. This permit renewal application was received on December 21, 2020. The permit was last reissued on June 22, 2016 and became effective on July 1, 2016. The permit expired on June 30, 2021. The permit NPDES PA0084425 A-1 amendment was issued on 1/24/2020 to request a delay to the Start of Construction date until the Summer of 2020 (previously Summer of 2016) with an End of Construction Date of Spring 2022 (previously Spring of 2018) scheduled due to financial difficulties, however to present, there has been no start to the construction upgrade.

This facility is owned and operated by CTSA and serves Conewago Township (100 %). The annual average design flow and hydraulic design capacity are 0.5 MGD, and the organic capacity is 1,364 lbs/day.

The WQM Part II permit No. 6790418 was issued on January 30, 1991, and 6790418 07-1 amendment was issued on January 30, 2008. The WQM Part II permit No. 6716401 was issued on June 22, 2016 to upgrade the CTSA existing treatment plant capacity to 0.840 MGD. However, the CTSA hasn't moved forward with the upgrade due to the proposed development of 2500 EDUs will cause the STP to be overloaded even at the new capacity of 0.84 MGD, and the new planning will establish the needed capacity for the future (*this factsheet, pages # 26*).

Sludge use and disposal description and location(s): N/A due to hauled by Kline's Services LLC and the Harrisburg AWTF.

Changes from the previous permit: Unit of Fecal Coliform changed from CFU/100 ml to No./100 ml. The E. Coli. monitoring and report requirements will add to the permit. The upgrade flow of 0.84 MGD pollutants limits and Schedule of Compliance in previous permit will remove in the proposed permit.

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

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| X | | *Hilaryle*<br>Hilary H. Le / Environmental Engineering Specialist | October 28, 2022 |
| X | | /s/<br>Daniel W. Martin, P.E. / Environmental Engineer Manager | November 16, 2022 |

| Discharge, Receiving Waters and Water Supply Information | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | 0.5 |
| Latitude | 40º 4' 17.28" | Longitude | -76º 45' 5.15" |
| Quad Name | Dover | Quad Code | |
| Wastewater Description: | Sewage Effluent | | |
| Receiving Waters | Little Conewago Creek (TSF & MF) | Stream Code | 08309 |
| NHD Com ID | 57465183 | RMI | 4.18 miles |
| Drainage Area | 60.7 mi.$^2$ | Yield (cfs/mi$^2$) | 0.04 |
| $Q_{7-10}$ Flow (cfs) | 2.34 | $Q_{7-10}$ Basis | USGS StreamStats |
| Elevation (ft) | 300 | Slope (ft/ft) | |
| Watershed No. | 7-F | Chapter 93 Class. | TSF & MF |
| Existing Use | | Existing Use Qualifier | |
| Exceptions to Use | | Exceptions to Criteria | |
| Assessment Status | Impaired | | |
| Cause(s) of Impairment | FLOW REGIME MODIFICATION | | |
| Source(s) of Impairment | URBAN RUNOFF/STORM SEWERS | | |
| TMDL Status | Name | | |
| Nearest Downstream Public Water Supply Intake | Wrightsville Borough Municipal Authority, York County | | |
| PWS Waters | Susquehanna River | Flow at Intake (cfs) | |
| PWS RMI | 43.54 miles | Distance from Outfall (mi) | Approximate 21.0 miles |

Changes Since Last Permit Issuance:

**Drainage Area**
The discharge is to Gardner Run at RMI 4.18 miles. A drainage area upstream of the discharge is estimated to be 60.7 mi.$^2$, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

**Stream Flow**
According to USGS StreamStats, the discharge point has a $Q_{7-10}$ of 2.34 cfs and a drainage area of 60.7 mi.$^2$, which results in a $Q_{7-10}$ low flow yield of 0.039 (0.04) cfs/mi.$^2$. This information is used to obtain a chronic or 30-day ($Q_{30-10}$), and an acute or 1-day ($Q_{1-10}$) exposure stream flow for the discharge point as follows (Guidance No. 391-2000-023):

$Q_{7-10}$ = 2.34 cfs
Low Flow Yield = 2.34 cfs / 60.7 mi.$^2$ = 0.04 cfs/mi.$^2$
$Q_{30-10}$ = 1.36 * 2.34 cfs = 3.18 cfs
$Q_{1-10}$ = 0.64 * 2.34 cfs = 1.5 cfs

The resulting $Q_{7-10}$ dilution ratio is: $Q_{stream}$ / $Q_{discharge}$ = 2.34 cfs / [0.50 MGD * (1.547 cfs/MGD)] = 3.03:1

**Public Water Supply**
The closest water supply intake is located downstream from the discharge in the Wrightsville Water Supply Co., York County approximately 21.0 miles from the point of discharge. Given the nature and dilution, the discharge is not expected to significantly impact the water supply.

**Little Conewago Creek**
Little Conewago Creek (08309) is a tributary of West Conewago Creek (08303). Under 25 Pa Code §93.9o, it is designated as trout stocking & migratory fishes (TSF & MF). It is not classified as a Class A Trout stream. DEP's 2022 PA Integrated Water Quality Monitoring and Assessment report provides the following stream impairment information:

| Category | Use Assessed | RMI | Source | Cause | Date Listed | TMDL Date |
|---|---|---|---|---|---|---|
| Category 4c – Impaired, not needing TMDL | Aquatic Life | 0.469 | Surface Mining | Other Habitat Alterations | 2006 | N/A |
| | Aquatic Life | 2.185 | Surface Mining | Other Habitat Alterations | 2006 | N/A |
| | Aquatic Life | 0.092 | Flow Regulation/Modification | Flow Regime Modification | 2006 | N/A |
| | Aquatic Life | 0.868 | Flow Regulation/Modification | Flow Regime Modification | 2006 | N/A |
| | Aquatic Life | 1.433 | Rural (Residential Area) | Flow Regime Modification | 2006 | N/A |
| | Aquatic Life | 0.04 | Rural (Residential Area) | Flow Regime Modification | 2006 | N/A |
| | Aquatic Life | 0.191 | Rural (Residential Area) | Flow Regime Modification | 2006 | N/A |
| | Aquatic Life | 0.261 | Rural (Residential Area) | Flow Regime Modification | 2006 | N/A |
| | Aquatic Life | 0.07 | Rural (Residential Area) | Flow Regime Modification | 2006 | N/A |
| | Aquatic Life | 1.058 | Rural (Residential Area) | Flow Regime Modification | 2006 | N/A |
| | Aquatic Life | 1.130 | Rural (Residential Area) | Flow Regime Modification | 2006 | N/A |
| | Aquatic Life | 0.209 | Rural (Residential Area) | Flow Regime Modification | 2006 | N/A |
| | Aquatic Life | 1.659 | Rural (Residential Area) | Flow Regime Modification | 2006 | N/A |
| Category 5 – Impaired, Requiring TMDL | Aquatic Life | 2.674 | Agriculture | Siltation | 2006 | |
| | Aquatic Life | 0.469 | Surface Mining | Siltation | 2006 | |
| | Aquatic Life | 2.185 | Surface Mining | Siltation | 2006 | |
| | Aquatic Life | 0.092 | Crop Production | Siltation | 2006 | |
| | Aquatic Life | 0.868 | Crop Production | Siltation | 2006 | |
| | Aquatic Life | 1.43 | Land Development | Siltation | 2006 | |
| | Aquatic Life | 0.04 | Land Development | Siltation | 2006 | |
| | Aquatic Life | 1.659 | Land Development | Siltation | 2006 | |
| | Aquatic Life | 0.209 | Flow Regulation/Modification | Siltation | 2006 | |
| | Aquatic Life | 1.130 | Golf Courses | Siltation | 2006 | |
| | Aquatic Life | 1.058 | Golf Courses | Siltation | 2006 | |
| | Aquatic Life | 0.07 | Land Development | Siltation | 2006 | |
| | Aquatic Life | 0.261 | Land Development | Siltation | 2006 | |
| | Aquatic Life | 0.191 | Land Development | Siltation | 2006 | |

As shown above, none of the sources identified is directly related to the facility. A Total Maximum Daily Load (TMDL) is expected to be developed to address siltation (suspended solids) impairment in 2019. Appropriate permit requirements for Total Suspended Solids (TSS) will be established in the draft permit to ensure that the discharge will not contribute significantly to this impairment. Based on the current status of stream uses, no special protection waters (HQ & EV) will be impacted by this discharge. No Class A Wild Trout Fishery will be impacted by this discharge.

For modeling purposes, background stream data from water quality network station No. 210 on the West Conewago Creek was obtained from http://waterqualitydata.us/portal/. Although the station collects West Conewago Creek samples, the distance from this station to the mouth of the receiving stream is less than a mile which is relatively close enough to have representative stream samples of Little Conewago Creek. As shown below, the collected data have been averaged in accordance with DEP's guidance 391-2000-006.

- pH = 7.7 SU; the 2020 renewal application data is on page 6 (total 974 data),
- Hardness = 100 mg/L; default
- Temperature = 62.8 °F; the 2020 renewal application data is on page 6.

| Treatment Facility Summary | | | | |
|---|---|---|---|---|
| **Treatment Facility Name:** Conewago Township STP | | | | |
| **WQM Permit No.** | **Issuance Date** | | | |
| 6790418 | 01/1991 | | | |
| 6790418 07-1 | 07/2008 | | | |
| **Waste Type** | **Degree of Treatment** | **Process Type** | **Disinfection** | **Avg Annual Flow (MGD)** |
| Sewage | Secondary | Sequencing Batch Reactor | Gas Chlorine | 0.5 |
| | | | | |
| **Hydraulic Capacity (MGD)** | **Organic Capacity (lbs/day)** | **Load Status** | **Biosolids Treatment** | **Biosolids Use/Disposal** |
| 0.5 | 1,364 | Not Overloaded | Aerobic Digestion | Combination of methods |

Changes Since Last Permit Issuance: The CTSA hasn't moved forward with the upgrade WQM No. 6716401 A-2 (which was issued on 6/22/2016) because proposed development of 2500 Equivalent Dwelling Units (EDUs) will cause the STP to be overloaded even at the new capacity of 0.84 MGD, (*this factsheet, pages # 26*).

The current treatment process is as follows:

Influent pump station → mechanical bar screen → Sequencing Batch Reactors (2) → Chlorine Contact Tank → Cascade → Outfall to Little Conewago Creek

Alum is added for phosphorous removal & aid in sludge setting, and Polymer is used for settling control.

| Compliance History | |
|---|---|
| **Summary of DMRs:** | A summary of past 12-month DMR from September 1, 2021 to August 31, 2022 data is presented on the next page. |
| **Summary of Inspections:** | 05/14/2019: Austen Randecker, DEP Water Quality Specialist, conducted a compliance evaluation inspection. There were no violations noted during inspection. The recommendation was please update (notify) the Department on the progress of the future upgrades. The field test results were within permitted limits. The future upgrade is to be completed at the treatment plant, which includes replacing three (3) pumps at the Locust Point influent pump station, construction of new screening building, two (2) new SBR units, new blower building, covert existing digesters to Post EQ tanks, convert existing SBRs to digesters, and construct a new UV disinfection system. The part 2 permit has been administratively extended from June 22, 2018 and June 22, 2020. If no construction or modification has begun by June 22, 2020, then the Part 2 permit will terminate. No construction had been started at the time of the inspection.<br><br>7/27/2020: Michael Benham, DEP WQS, conducted an incident inspection. The incident report received by the Department on 7/27/2020 at 820 hours described a sewer main break. The sanitary sewer overflow (SSO) was an 8" force-main break located at GPS coordinates 40.064162, -76.766728. There was violation noted – 25 Pa Code 92a.47(c)-NPDES -Illegal discharge to waters of the Commonwealth from a sanitary sewer overflow force main break along N. Susquehanna Trail that discharged to UNT of Little Conewago Creek. |
| **Other Comments:** | There are no open violations associated with the permittee or the facility. |

Other Comments:

## Compliance History

**DMR Data for Outfall 001 (from September 1, 2021 to August 31, 2022)**

| Parameter | AUG-22 | JUL-22 | JUN-22 | MAY-22 | APR-22 | MAR-22 | FEB-22 | JAN-22 | DEC-21 | NOV-21 | OCT-21 | SEP-21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD) Average Monthly | 0.3106 | 0.2904 | 0.2966 | 0.4809 | 0.4466 | 0.3746 | 0.3769 | 0.4167 | 0.3085 | 0.3357 | 0.3300 | 0.5727 |
| Flow (MGD) Daily Maximum | 0.3580 | 0.3259 | 0.3500 | 1.8066 | 1.2215 | 0.4804 | 0.8477 | 0.6465 | 0.3493 | 0.4095 | 0.7011 | 2.2908 |
| pH (S.U.) Instantaneous Minimum | 6.8 | 6.8 | 6.8 | 6.9 | 6.8 | 6.9 | 7.1 | 6.8 | 6.8 | 6.9 | 6.9 | 7.0 |
| pH (S.U.) Instantaneous Maximum | 7.4 | 7.2 | 7.9 | 7.4 | 7.2 | 7.1 | 6.7 | 7.3 | 7.3 | 7.4 | 7.3 | 7.5 |
| DO (mg/L) Instantaneous Minimum | 5.0 | 5.1 | 5.6 | 5.9 | 5.6 | 5.4 | 5.3 | 5.4 | 5.8 | 5.3 | 5.3 | 5.2 |
| TRC (mg/L) Average Monthly | 0.16 | 0.09 | 0.11 | 0.09 | 0.07 | 0.06 | 0.07 | 0.07 | 0.1 | 0.08 | 0.07 | 0.06 |
| TRC (mg/L) Instantaneous Maximum | 0.60 | 0.17 | 0.28 | 0.32 | 0.20 | 0.10 | 0.17 | 0.21 | 0.45 | 0.21 | 0.28 | 0.34 |
| CBOD5 (lbs/day) Average Monthly | < 6.63 | < 7.98 | 8.98 | < 7.29 | < 12.32 | 20.01 | < 12.71 | 11.87 | < 8.0 | < 6.68 | < 6.09 | < 22.96 |
| CBOD5 (lbs/day) Weekly Average | 7.30 | 9.06 | 10.57 | < 8.48 | 23.58 | 24.71 | 23.23 | 15.72 | 10.23 | < 7.61 | 6.44 | 64.96 |
| CBOD5 (mg/L) Average Monthly | < 2.5 | < 3.2 | 3.5 | < 2.4 | < 3.6 | 6.5 | < 4.4 | 3.6 | < 3.1 | < 2.4 | < 2.5 | < 2.9 |
| CBOD5 (mg/L) Weekly Average | 2.9 | 3.5 | 4.1 | < 2.4 | 5.5 | 7.7 | 7.7 | 3.9 | 4.0 | 2.5 | 2.6 | 3.4 |
| BOD5 (lbs/day) Raw Sewage Influent Average Monthly | 610.9 | 615.8 | 703.3 | 597.3 | 629.5 | 676.7 | 686.2 | 849.8 | 765.5 | 699.6 | 636.1 | 1525.8 |
| BOD5 (lbs/day) Raw Sewage Influent <br/> Daily Maximum | 703.7 | 747.7 | 870.5 | 711.2 | 814.6 | 836.2 | 775.3 | 883.7 | 812.2 | 866.1 | 854.8 | 4222.3 |
| BOD5 (mg/L) Raw Sewage Influent Average Monthly | 231 | 246 | 275 | 203 | 194 | 221 | 245 | 260 | 293 | 253 | 345 | 202 |
| TSS (lbs/day) Average Monthly | 15.04 | 11.3 | 7.69 | 13.32 | 18.9 | 25.71 | 24.58 | 16.53 | 16.9 | 10.34 | 13.09 | 9.52 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TSS (lbs/day) Raw Sewage Influent Average Monthly | 661.8 | 659.7 | 882.0 | 907.2 | 820.3 | 892.0 | 863.4 | 994.7 | 1442.2 | 985.7 | 886.5 | 1770.0 |
| TSS (lbs/day) Raw Sewage Influent <br/> Daily Maximum | 750.6 | 849.1 | 1208.5 | 1272.1 | 1217.7 | 1217.6 | 1013.6 | 1148.8 | 3135.4 | 1201.6 | 951.0 | 4623.5 |
| TSS (lbs/day) Weekly Average | 34.52 | 17.74 | 8.11 | 34.01 | 30.01 | 39.39 | 30.17 | 29.74 | 28.3 | 24.70 | 25.22 | 19.11 |
| TSS (mg/L) Average Monthly | 5.6 | 4.5 | 3.0 | 4.3 | 5.5 | 8.0 | 8.5 | 4.8 | 6.0 | 4.0 | 5.3 | 1.4 |
| TSS (mg/L) Raw Sewage Influent Average Monthly | 249 | 262 | 343 | 302 | 247 | 286 | 310 | 309 | 540 | 361 | 388 | 242 |
| TSS (mg/L) Weekly Average | 13.0 | 7.0 | 3.0 | 10.0 | 7.0 | 11.0 | 11.0 | 7.0 | 10.0 | 10.0 | 10.0 | 2.0 |
| Fecal Coliform (No./100 ml) Geometric Mean | < 3.5 | 12.5 | < 2.2 | < 1.3 | < 1.2 | < 1.0 | < 1.0 | < 2.7 | < 2.2 | < 1.3 | 1.2 | < 2.0 |
| Fecal Coliform (No./100 ml) Instantaneous Maximum | 12 | 119 | 17 | 3 | 2.0 | 1.0 | 1 | 50 | 27 | 3.0 | 2.0 | 12 |
| Nitrate-Nitrite (mg/L) Average Monthly | 4.5 | 6.1 | 4.2 | 4.31 | 4.04 | 3.94 | 4.61 | 4.26 | 2.79 | 3.12 | 3.93 | 4.32 |
| Nitrate-Nitrite (lbs) Total Monthly | 368.5 | 465.8 | 317.2 | 393.6 | 405.3 | 356.7 | 350.0 | 428.2 | 227.1 | 258.9 | 294.7 | 659.4 |
| Total Nitrogen (mg/L) Average Monthly | 5.71 | 7.85 | 6.23 | 6.37 | 7.27 | 7.66 | 9.68 | 7.01 | 6.27 | 4.66 | < 5.69 | 6.69 |
| Total Nitrogen (lbs) Effluent Net <br/> Total Monthly | 471.9 | 604.0 | 470.1 | 587.9 | 744 | 690.1 | 728.6 | 705.2 | 508.6 | 382.5 | 429.3 | 1020.9 |
| Total Nitrogen (lbs) Total Monthly | 471.9 | 604.0 | 470.1 | 587.9 | 744.0 | 690.1 | 728.6 | 705.2 | 508.6 | 328.5 | < 429.3 | 1020.9 |
| Total Nitrogen (lbs) Effluent Net <br/> Total Annual | | | | | | | | | | | | < 9132 |
| Total Nitrogen (lbs) Total Annual | | | | | | | | | | | | < 9132 |
| Ammonia (lbs/day) Average Monthly | < 0.91 | 1.20 | 1.06 | < 1.19 | 3.88 | 2.57 | 5.77 | 2.6 | 3.47 | < 0.76 | < 0.7 | 2.82 |
| Ammonia (mg/L) Average Monthly | < 0.33 | 0.481 | 0.421 | < 0.346 | 1.0 | 0.933 | 2.22 | 0.81 | 1.33 | < 0.284 | < 0.284 | 0.647 |
| Ammonia (lbs) Total Monthly | < 28.3 | 37.1 | 31.9 | < 36.8 | 116.5 | 79.5 | 161.5 | 81.1 | 107.5 | 22.8 | < 21.7 | 84.6 |
| Ammonia (lbs) Total Annual | | | | | | | | | | | | < 1992 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TKN (mg/L)<br>Average Monthly | 1.2 | 1.8 | 2.0 | 2.1 | 3.2 | 3.7 | 5.1 | 2.8 | 3.49 | 1.5 | 1.8 | 2.4 |
| TKN (lbs)<br>Total Monthly | 103.5 | 138.2 | 153.0 | 194.3 | 338.7 | 333.3 | 378.6 | 277 | 281.5 | 123.6 | 134.6 | 361.5 |
| Total Phosphorus (lbs/day)<br>Average Monthly | 1.48 | 1.46 | 0.91 | 0.8 | 1.67 | 2.52 | 2.06 | 1.9 | 0.71 | 0.50 | 0.81 | 3.03 |
| Total Phosphorus (mg/L)<br>Average Monthly | 0.55 | 0.59 | 0.36 | 0.28 | 0.5 | 0.86 | 0.76 | 0.57 | 0.28 | 0.18 | 0.33 | 0.64 |
| Total Phosphorus (lbs) Effluent Net <br/><br>Total Monthly | 45.8 | 45.2 | 27.3 | 24.8 | 50 | 78.1 | 57.6 | 59.4 | 22.1 | 15.1 | 25.1 | 90.9 |
| Total Phosphorus (lbs)<br>Total Monthly | 45.8 | 45.2 | 27.3 | 24.8 | 50 | 78.1 | 57.6 | 59.4 | 22.1 | 15.1 | 25.1 | 90.9 |
| Total Phosphorus (lbs) Effluent Net <br/><br>Total Annual | | | | | | | | | | | | < 609 |
| Total Phosphorus (lbs)<br>Total Annual | | | | | | | | | | | | < 609 |

## Development of Effluent Limitations

**Outfall No.** 001 **Design Flow (MGD)** 0.5
**Latitude** 40º 4' 17.28" **Longitude** -76º 45' 5.15"
**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:

### Water Quality-Based Limitations

**Ammonia ($NH_3$-N):**
$NH_3$-N calculations were based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (Document No. 391-2000-013). The following data is necessary to determine the in-stream $NH_3$-N criteria used in the attached computer model of the stream:

- Discharge pH 7.0 (Default per 391-2000-007)
- Discharge Temperature 20°C (Default per 391-2000-007)
- Stream pH 7.0 (Default per 391-2000-006)
- Stream Temperature 20°C (Default for WWF per 391-2000-003)
- Background $NH_3$-N 0 mg/L (Assumed since no upstream WWTPs)

The detailed model results are attached. The above method indicates that at a discharge of 0.50 MGD, limits (rounded according to the NPDES Technical Guidance 362-0400-001) of 1.5 mg/L $NH_3$-N as a monthly average (AML) and 3.0 mg/L $NH_3$-N instantaneous maximum (IMAX) are necessary to protect the aquatic life from toxicity effects. However, the existing permit of 1.5 mg/L $NH_3$-N AML and 3.0 mg/L $NH_3$-N IMAX are same and will remain unchanged in the proposed permit. Recent DMR and inspection data indicate that the facility is consistently meeting these limits under proper operation. Mass limits are calculated as follows:

Summer average monthly mass limit: 1.5 mg/L x 0.50 MGD x 8.34 = 6.26 (6.0) lbs/day
Winter average monthly mass limit: 4.5 mg/L x 0.50 MGD x 8.34 = 18.77 (18.0) lbs/day

**Dissolved Oxygen (D.O.):**
A minimum of 5.0 mg/L for D.O. is an existing effluent limit and will remain unchanged in the draft permit as recommended by DEP's SOP No. BCW-PMT-033, version 1.9 revised March 22, 2021. This requirement has also been assigned to other major sewage facilities in the region. 5.0 mg/L is taken directly from 25 Pa. Code § 93.7(a) (i.e., water quality criteria for TSF waters) and it is also determined to be appropriate according to water quality modeling.

**Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):**
The attached computer printout of the WQM 7.0 stream model indicates that an average monthly limit of 10.0 mg/L, or secondary treatment, is adequate to protect the water quality of the stream. Due to anti-backsliding policy, the existing Nov 1 – Apr 30 average monthly limit (AML) of 20.0 mg/L, average weekly limit (AWL) of 30.0 mg/L and IMAX of 40.0 mg/L; and May 1-Oct 31 average monthly limit (AML) of 10.0 mg/L, average weekly limit (AWL) of 15.0 mg/L and IMAX of 20.0 mg/L will remain in the proposed permit. Recent DMRs and inspection reports show that the facility has been consistently achieving concentrations below this limit. Mass limits are calculated as follows:

**Nov 1 – Apr 30**: Average monthly mass limit: 20.0 mg/L x 0.50 MGD x 8.34 = 83.4 (80.0) lbs/day
Average weekly mass limit: 30.0 mg/L x 0.50 MGD x 8.34 = 125.1 (125.0) lbs/day
**May 1 – Oct 30**: Average monthly mass limit: 10.0 mg/L x 0.50 MGD x 8.34 = 41.7 (41.0) lbs/day
Average weekly mass limit: 15.0 mg/L x 0.50 MGD x 8.34 = 62.55 (60.0) lbs/day

**pH:**
The effluent discharge pH should remain above 6.0 and below 9.0 standard units according to 25 Pa. Code § 95.2(1).

**Total Suspended Solids (TSS):**
The existing limits of 30.0 mg/L average monthly, 45.0 mg/L average weekly, and 60.00 mg/L instantaneous maximum will remain in the proposed permit based on the minimum level of effluent quality attainable by secondary treatment based on 25 Pa. Code § 92a.47. Recent DMRs and inspection reports show that the facility has been consistently achieving concentrations below these limits. Mass limits are calculated as follows:

Average monthly mass limit: 30.0 mg/L x 0.50 MGD x 8.34 = 125.1 (125.0) lbs/day
Average weekly mass limit: 45.0 mg/L x 0.50 MGD x 8.34 = 187.7 (185.0) lbs/day

**Fecal Coliform:**
The recent coliform guidance in 25 Pa. Code § 92a.47(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and 25 Pa. Code § 92a.47(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml.

**E. Coli:**
As recommended by DEP's SOP No. BCW-PMT-033, version 1.9 revised March 22, 2021, a routine monitoring for E. Coli will be included in the permit under 25 Pa. Code § 92a.61. This requirement applies to all sewage dischargers greater than 0.002 MGD in their new and reissued permits. A monitoring frequency of 1/quarter will be included in the permit to be consistent with the recommendation from this SOP.

**Total Residual Chlorine (TRC):**
The attached printout indicates that an average monthly water quality limit of 0.45 mg/l and instantaneous maximum limit of 1.48 mg/l would be needed to prevent toxicity concerns (*this factsheet, pages # 16*). However, the existing TRC limits of 0.2 mg/L of monthly average & 0.66 mg/L of IMAX were more stringent and will remain in the proposed permit. Minimum monitoring frequency will be 1/day.

**Influent $BOD_5$ and TSS Monitoring:**
The permit will include influent $BOD_5$ and TSS monitoring at the same frequency as is done for effluent in order to implement 25 Pa. Code § 94.12 and assess percent removal requirements, per DEP policy.

**Total Phosphorus:**
The existing permit has phosphorus limitations of 2.0 mg/L average monthly and 4.0 mg/L instantaneous maximum. The most recent 12 months of DMR data indicate consistent compliance with the existing limits, which will remain in the proposed permit. Mass limit is calculated as follows:

Average monthly mass limit: 2.0 mg/L x 0.50 MGD x 8.34 = 8.34 (8.0) lbs/day

The table below summarizes the influent/effluent testing results submitted along with the application.

| *Influent Testing Results* | | | *Effluent Testing Results* | | |
|---|---|---|---|---|---|
| **Parameter** | **Min/Max Value** | **Average Value** | **Parameter** | **Min/Max Value** | **Average Value** |
| $BOD_5$ (mg/L) | 496 mg/L | 225.23 mg/L | pH (minimum) | 6.6 S.U. | |
| $BOD_5$ (lbs/day) | 1679 lbs/day | 697 lbs/day | pH (maximum) | 7.7 S.U. | |
| TSS (mg/L) | 797 mg/L | 117 mg/L | D.O (minimum) | 5.2 mg/L | 6.8 mg/L |
| TSS (lbs/day) | 102 lbs/day | 281.1 lbs/day | TRC | 0.7 mg/L | 0.12 mg/L |
| TN (mg/L) | 45.3 mg/L | 45.3 mg/L | Fecal Coliform | 11000 No./100mL | 111.4 No./100 mL |
| TN (lbs/day) | 85.0lbs/day | 23.0lbs/day | $CBOD_5$ | 13.1 mg/L | 4.56 mg/L |
| TP (mg/L) | 9.0 mg/L | 6.32 mg/L | TSS | 19.0 mg/L | 6.73 mg/L |
| TP (lbs/day) | 12.0 lbs/day | 1.4 lbs/day | $NH_3$-N | 11.0 mg/L | 1.16 mg/L |
| $NH_3$-N (mg/L) | 60.6 mg/L | 33.39 mg/L | TN | 14.9 mg/L | 6.92 mg/L |
| $NH_3$-N (lbs/day) | 29.0 lbs/day | 3.7 lbs/day | TP | 2.5 mg/L | 0.42 mg/L |
| TDS (mg/L) | 426 mg/L | 426 mg/L | Temp | 62.8 F | 62.8 F |
| TDS (lbs/day) | 1,189 lbs/day | 1,189 lbs/day | TKN | 12.9 mg/L | 2.74 mg/L |
| TKN | 65.1 mg/L | 48.09 mg/L | $NO_2$-N + $NO_3$-N | 12.6 mg/L | 4.2 mg/L |
| $NO_2$-N + $NO_3$-N | 0.2 mg/L | 0.2 mg/L | TDS | 464 mg/L | 464 mg/L |
| | | | Chloride | 93.2 mg/L | 93.2 mg/L |
| | | | Bromide | 0.2 mg/L | 0.2 mg/L |
| | | | Sulfate | 62.5 mg/L | 62.5 mg/L |
| | | | Oil and Grease | 3.9 mg/L | 3.9 mg/L |
| | | | Total Copper | 0.0025 mg/L | 0.0025 mg/L |
| | | | Total Lead | 0.001 mg/L | 0.001 mg/L |
| | | | Total Zinc | 0.056 mg/L | 0.056 mg/L |

**Toxics:**
Total Copper, Total Lead, and Total Zinc samples results were reported on the renewal application. These results were entered into DEP's Toxics Screening Analysis and DEP has determined that none of these toxic pollutants is a pollutant of concern (*this factsheet, pages # 24-25*). No requirements for toxic pollutants are therefore needed for this permit renewal.

**Stormwater:**
There is no stormwater outfall associated with this facility.

**Chesapeake Bay Strategy:**
In the Phase 3 WIP Wastewater Supplement revised on July 29, 2022, Table 5, page 13, of this document shows that Conewago Township Sewer Authority has been allocated 9,132 lbs/year of TN and 1,218 lbs/year of TP. This approach is consistent with the Chesapeake Bay TMDL was based on the actual performance data previously evaluated by the Department. Since the permittee is easily capable of achieving compliance with these loads, the Department determines that no "compliance schedule" for the requirements associated with the Chesapeake Bay Strategy is necessary. Accordingly, the Chesapeake Bay nutrient existing limitations and monitoring requirements will remain in the proposed permit.

**Phase 3 WIP Wastewater Supplement**
**Revised, July 29, 2022**

| NPDES Permit No. | Phase | Facility | Latest Permit Issuance Date | Permit Expiration Date | Cap Load Compliance Start Date | TN Cap Load (lbs/yr) | TN Offsets Included in Cap Load (lbs/yr) | TP Cap Load (lbs/yr) | TN Delivery Ratio | TP Delivery Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| PA0080225 | 3 | Washington Township Municipal Authority | 1/12/2018 | 1/31/2023 | 10/1/2013 | 35,433 | - | 4,724 | 0.908 | 0.725 |
| PA0080314 | 1 | Hampden Township Sewer Authority | 7/1/2019 | 6/30/2024 | 10/1/2014 | 117,696 | - | 14,441 | 0.831 | 0.492 |
| PA0080438 | 3 | Northern Lancaster County Authority | 1/1/2019 | 12/31/2023 | 10/1/2013 | 8,219 | - | 1,096 | 0.552 | 0.563 |
| PA0080519 | 3 | Antrim Township | 2/21/2020 | 4/30/2023 | 10/1/2011 | 21,918 | - | 2,922 | 0.987 | 0.802 |
| PA0080748 | 2 | Northern Lebanon County Authority | 6/23/2022 | 6/30/2027 | 10/1/2013 | 7,397 | - | 989 | 0.745 | 0.434 |
| PA0081001 | 3 | St. Thomas Township Municipal Authority | 8/8/2017 | 8/31/2022 | 10/1/2013 | 7,306 | - | 974 | 0.921 | 0.742 |
| PA0081574 | 2 | Salisbury Township | 12/13/2019 | 12/31/2024 | 10/1/2012 | 13,150 | - | 1,643 | 0.552 | 0.553 |
| PA0081591 | 2 | Eastern York County Sewer Authority | 11/16/2021 | 11/30/2026 | 10/1/2012 | 9,132 | - | 1,218 | 0.711 | 0.387 |
| PA0081868 | 1 | Fairview Township | 4/29/2022 | 1/31/2027 | 10/1/2010 | 14,322 | - | 2,262 | 0.791 | 0.504 |
| PA0081949 | 3 | Lancaster Area Sewer Authority – Brownstown WWTP | 1/14/2021 | 12/31/2023 | 10/1/2010 | 8,219 | - | 1,096 | 0.632 | 0.563 |
| PA0082392 | 2 | Derry Township Municipal Authority – Southwest | 5/26/2022 | 5/31/2027 | 10/1/2012 | 10,959 | - | 1,461 | 0.808 | 0.468 |
| PA0082589 | 2 | Fairview Township | 4/26/2021 | 8/31/2021 | 10/1/2012 | 9,132 | - | 1,218 | 0.680 | 0.410 |
| PA0083011 | 2 | Newberry Township | 2/23/2017 | 2/28/2022 | 10/1/2012 | 23,744 | - | 3,166 | 0.828 | 0.464 |
| PA0083593 | 3 | Silver Spring Township | 6/3/2021 | 6/30/2026 | 10/1/2010 | 21,918 | - | 2,922 | 0.831 | 0.492 |
| PA0084026 | 2 | Northwestern Lancaster County Authority | 8/12/2020 | 8/31/2025 | 10/1/2008 | 14,612 | - | 1,827 | 0.819 | 0.477 |
| PA0084212 | 3 | Leacock Township | 11/16/2021 | 11/30/2026 | 10/1/2012 | 7,306 | - | 974 | 0.502 | 0.571 |
| PA0084425 | 3 | Conewago Township Sewer Authority | 1/24/2020 | 6/30/2021 | 10/1/2011 | 9,132 | - | 1,218 | 0.617 | 0.185 |
| PA0085511 | 2 | West Hanover | 10/12/2016 | 10/31/2021 | 10/1/2012 | 14,246 | - | 1,900 | 0.681 | 0.409 |
| PA0086304 | 3 | Earl Township STP | 1/14/2022 | 1/31/2027 | 10/1/2018 | 7,306 | - | 974 | 0.563 | 0.571 |
| PA0086860 | 3 | Springfield Township Sewer Authority | 1/30/2020 | 1/31/2025 | 10/1/2012 | 12,785 | - | 1,704 | 0.685 | 0.397 |
| PA0087181 | 1 | Ephrata Borough Authority (#2) | 7/28/2021 | 7/31/2026 | 10/1/2008 | 54,550 | - | 6,818 | 0.628 | 0.552 |

- 13 -

**Biosolids Management:**
Digested Sludge is sent out periodically to the drying beds.

**Antidegradation (93.4):**
The effluent limits for this discharge have been developed to ensure that existing in-stream 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.

**303d Listed Streams:**
The discharge is not located on a 303d listed stream segment. The stream segment that receive the discharge is listed as attaining its used for aquatic life and fish consumption.

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

**WQM 7.0 Data:**

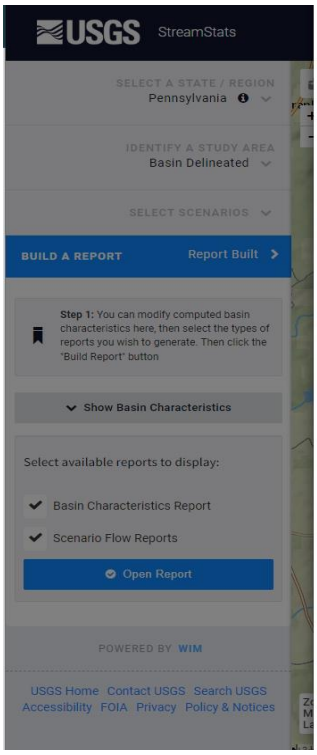
The following data is necessary to determine the in-stream $NH_3$-N criteria used in the attached computer model of the stream:

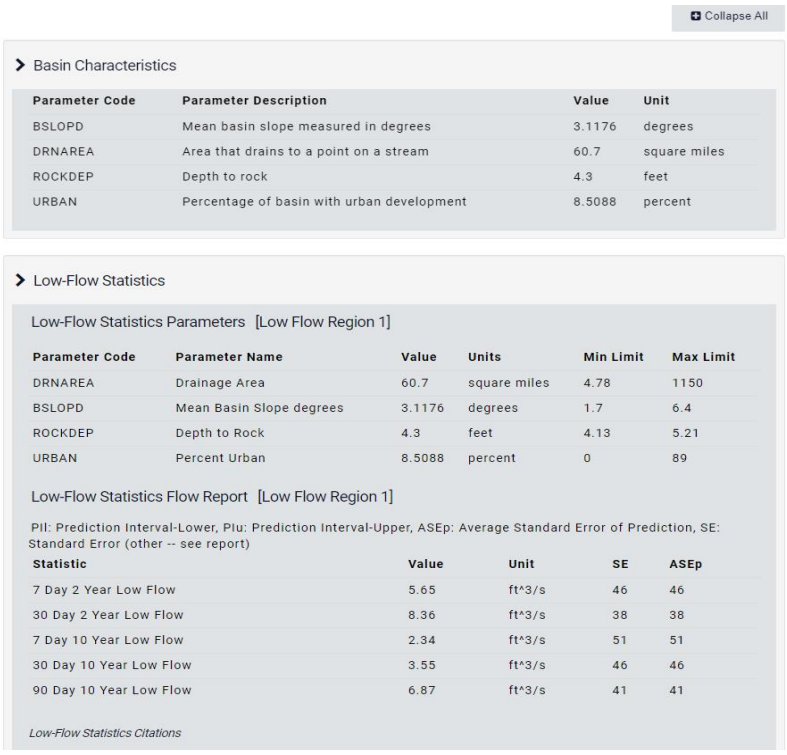
| | | | |
|---|---|---|---|
| * | Discharge pH | 7.0 | (Default per 391-2000-007) |
| * | Discharge Temperature | 20°C | (Default per 391-2000-007) |
| * | Stream pH | 7.0 | (Default per 391-2000-006) |
| * | Stream Temperature | 20°C | (Default for WWF per 391-2000-003) |
| * | Background $NH_3$-N | 0 mg/L | (Assumed since no upstream WWTPs) |

DO Goal: 5.0 mg/L

Node 1: Outfall 001 on Little Conewago Creek (08309)
Elevation: 300 ft (USGS National Map Viewer)
Drainage Area: 60.7 $mi.^2$ (USGS PA StreamStats)
River Mile Index: 4.18 (PA DEP eMapPA)
Low Flow Yield: 0.04 $cfs/mi.^2$
Discharge Flow: 0.5 MGD

Node 2: Just before confluence with UNT 08313 to Little Conewago Creek
Elevation: 299 ft (USGS National Map Viewer)
Drainage Area: 63.7 $mi.^2$ (USGS PA StreamStats)
River Mile Index: 4.12 (PA DEP eMapPA)
Low Flow Yield: 0.04 $cfs/mi.^2$
Discharge Flow: 0.0 MGD





Collapse All

Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| BSLOPD | Mean basin slope measured in degrees | 3.1176 | degrees |
| DRNAREA | Area that drains to a point on a stream | 60.7 | square miles |
| ROCKDEP | Depth to rock | 4.3 | feet |
| URBAN | Percentage of basin with urban development | 8.5088 | percent |

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

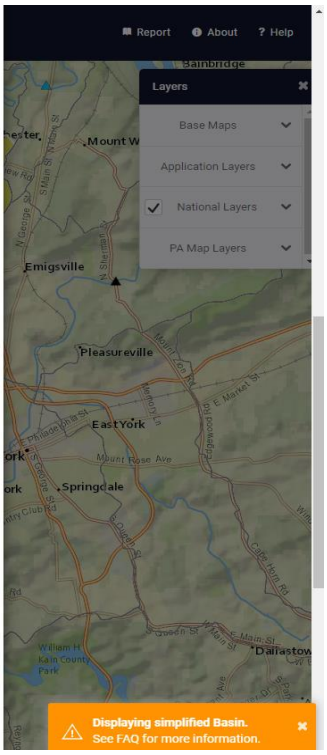
| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 60.7 | square miles | 4.78 | 1150 |
| BSLOPD | Mean Basin Slope degrees | 3.1176 | degrees | 1.7 | 6.4 |
| ROCKDEP | Depth to Rock | 4.3 | feet | 4.13 | 5.21 |
| URBAN | Percent Urban | 8.5088 | percent | 0 | 89 |

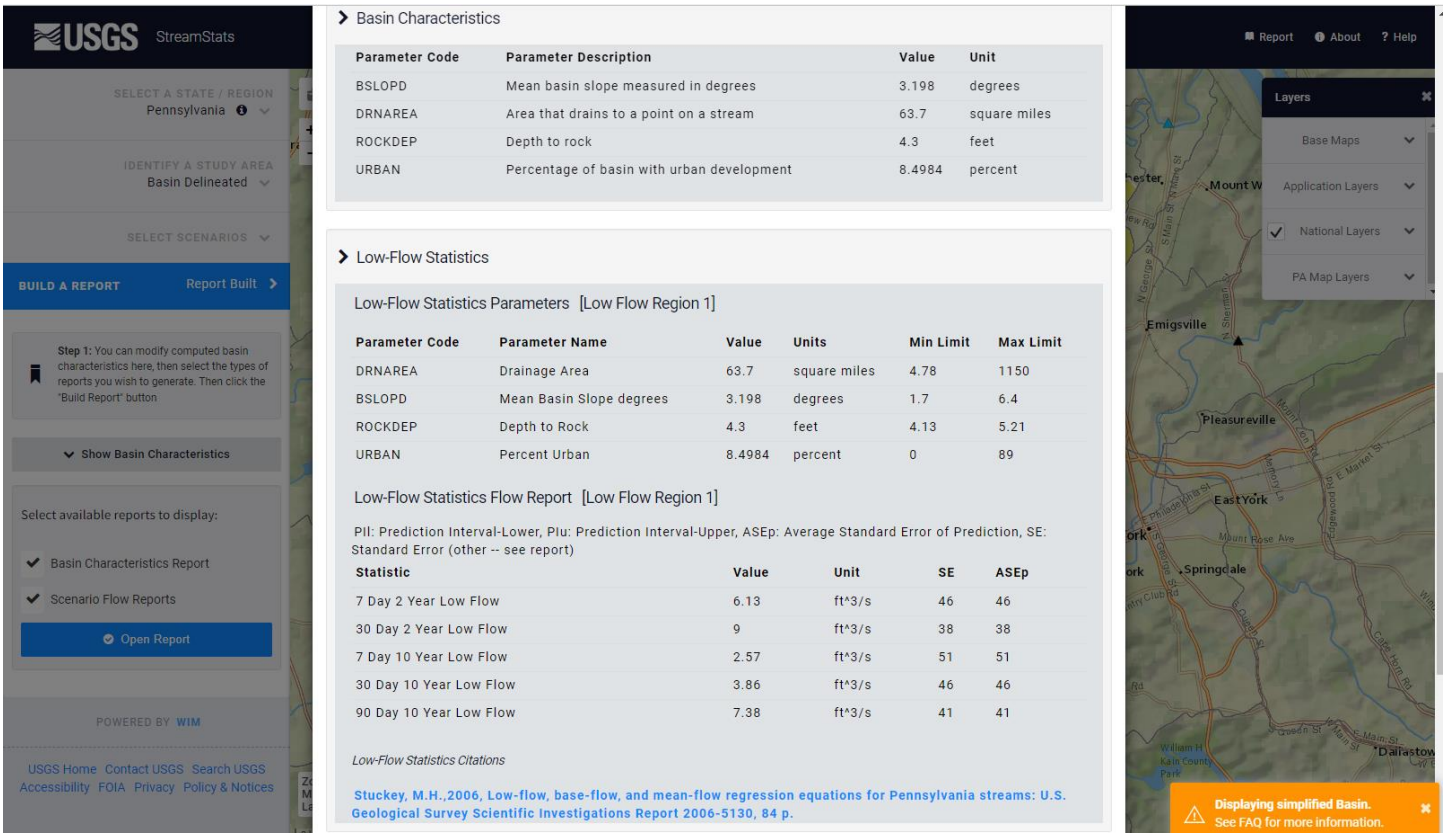
Low-Flow Statistics Flow Report [Low Flow Region 1]

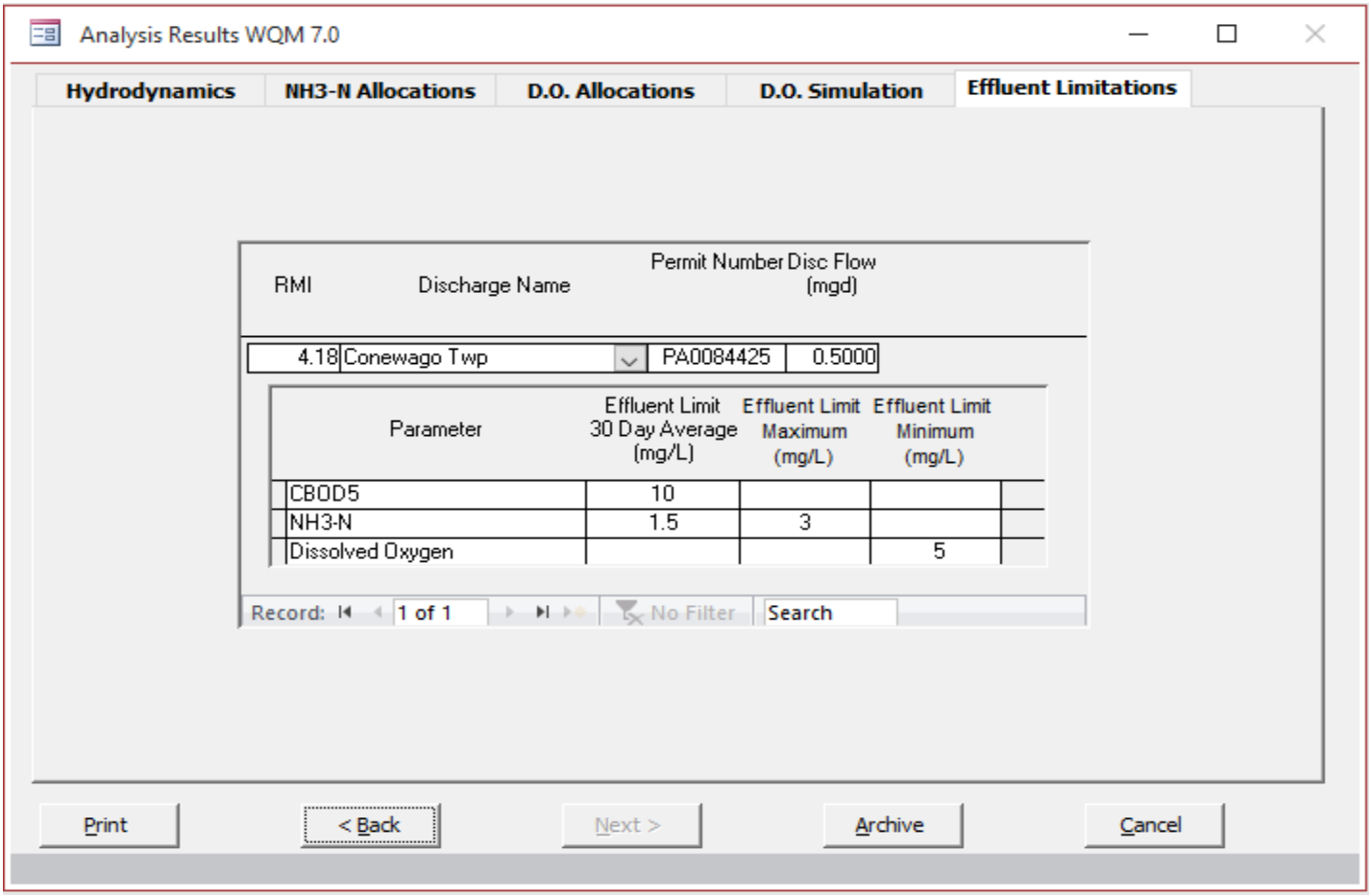
PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 7 Day 2 Year Low Flow | 5.65 | ft^3/s | 46 | 46 |
| 30 Day 2 Year Low Flow | 8.36 | ft^3/s | 38 | 38 |
| 7 Day 10 Year Low Flow | 2.34 | ft^3/s | 51 | 51 |
| 30 Day 10 Year Low Flow | 3.55 | ft^3/s | 46 | 46 |
| 90 Day 10 Year Low Flow | 6.87 | ft^3/s | 41 | 41 |

*Low-Flow Statistics Citations*




USGS StreamStats
SELECT A STATE / REGION
Pennsylvania
IDENTIFY A STUDY AREA
Basin Delineated
SELECT SCENARIOS
BUILD A REPORT
Report Built
Step 1: You can modify computed basin characteristics here, then select the types of reports you wish to generate. Then click the "Build Report" button
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Open Report
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
BSLOPD | Mean basin slope measured in degrees | 3.198 | degrees
DRNAREA | Area that drains to a point on a stream | 63.7 | square miles
ROCKDEP | Depth to rock | 4.3 | feet
URBAN | Percentage of basin with urban development | 8.4984 | percent
Low-Flow Statistics
Low-Flow Statistics Parameters [Low Flow Region 1]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
DRNAREA | Drainage Area | 63.7 | square miles | 4.78 | 1150
BSLOPD | Mean Basin Slope degrees | 3.198 | degrees | 1.7 | 6.4
ROCKDEP | Depth to Rock | 4.3 | feet | 4.13 | 5.21
URBAN | Percent Urban | 8.4984 | percent | 0 | 89
Low-Flow Statistics Flow Report [Low Flow Region 1]
PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)
Statistic | Value | Unit | SE | ASEp
7 Day 2 Year Low Flow | 6.13 | ft^3/s | 46 | 46
30 Day 2 Year Low Flow | 9 | ft^3/s | 38 | 38
7 Day 10 Year Low Flow | 2.57 | ft^3/s | 51 | 51
30 Day 10 Year Low Flow | 3.86 | ft^3/s | 46 | 46
90 Day 10 Year Low Flow | 7.38 | ft^3/s | 41 | 41
Low-Flow Statistics Citations
Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p.
Report
About
Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
Emigsville
Pleasureville
East York
Springdale
Displaying simplified Basin.
See FAQ for more information.


Analysis Results WQM 7.0
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
Discharge Name
Permit Number
Disc Flow (mgd)
4.18
Conewago Twp
PA0084425
0.5000
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
10
NH3-N
1.5
3
Dissolved Oxygen
5
Record: 1 of 1
No Filter
Search
Print
< Back
Next >
Archive
Cancel

rptEffLimits

## WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07F | 8309 | LITTLE 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) |
|---|---|---|---|---|---|---|---|
| 4.180 | Conewago Twp | PA0084425 | 0.500 | CBOD5 | 10 | | |
| | | | | NH3-N | 1.5 | 3 | |
| | | | | Dissolved Oxygen | | | 5 |

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rpt_WLA

## WQM 7.0 Wasteload Allocations

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07F | 8309 | LITTLE 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 |
|---|---|---|---|---|---|---|---|
| 4.180 | Conewago Twp | 16.76 | 3 | 16.76 | 3 | 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 |
|---|---|---|---|---|---|---|---|
| 4.180 | Conewago Twp | 1.89 | 1.5 | 1.89 | 1.5 | 0 | 0 |

**Dissolved Oxygen Allocations**

| | | CBOD5 | | NH3-N | | Dissolved Oxygen | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMI | Discharge Name | Baseline (mg/L) | Multiple (mg/L) | Baseline (mg/L) | Multiple (mg/L) | Baseline (mg/L) | Multiple (mg/L) | Critical Reach | Percent Reduction |
| 4.18 | Conewago Twp | 10 | 10 | 1.5 | 1.5 | 5 | 5 | 0 | 0 |

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rptDOSim

## WQM 7.0 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07F | 8309 | LITTLE CONEWAGO CREEK |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 4.180 | 0.500 | 20.000 | 7.000 |
| Reach Width (ft) | Reach Depth (ft) | Reach WD Ratio | Reach Velocity (fps) |
| 70.919 | 0.939 | 75.564 | 0.922 |
| Reach CBOD5 (mg/L) | Reach Kc (1/days) | Reach NH3-N (mg/L) | Reach Kn (1/days) |
| 2.10 | 0.090 | 0.02 | 0.700 |
| Reach DO (mg/L) | Reach Kr (1/days) | Kr Equation | Reach DO Goal (mg/L) |
| 8.202 | 54.308 | Tsivoglou | 6 |
| Reach Travel Time (days) | | | |
| 0.004 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.000 | 2.10 | 0.02 | 8.22 |
| 0.001 | 2.10 | 0.02 | 8.24 |
| 0.001 | 2.10 | 0.02 | 8.24 |
| 0.002 | 2.10 | 0.02 | 8.24 |
| 0.002 | 2.10 | 0.02 | 8.24 |
| 0.002 | 2.10 | 0.02 | 8.24 |
| 0.003 | 2.10 | 0.02 | 8.24 |
| 0.003 | 2.10 | 0.02 | 8.24 |
| 0.004 | 2.10 | 0.02 | 8.24 |
| 0.004 | 2.10 | 0.02 | 8.24 |

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rptModelSpecs

## WQM 7.0 Modeling Specifications

| | | | |
|---|---|---|---|
| Parameters | Both | Use Inputted Q1-10 and Q30-10 Flows | ☑ |
| WLA Method | EMPR | Use Inputted WD 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 | 6 | | |

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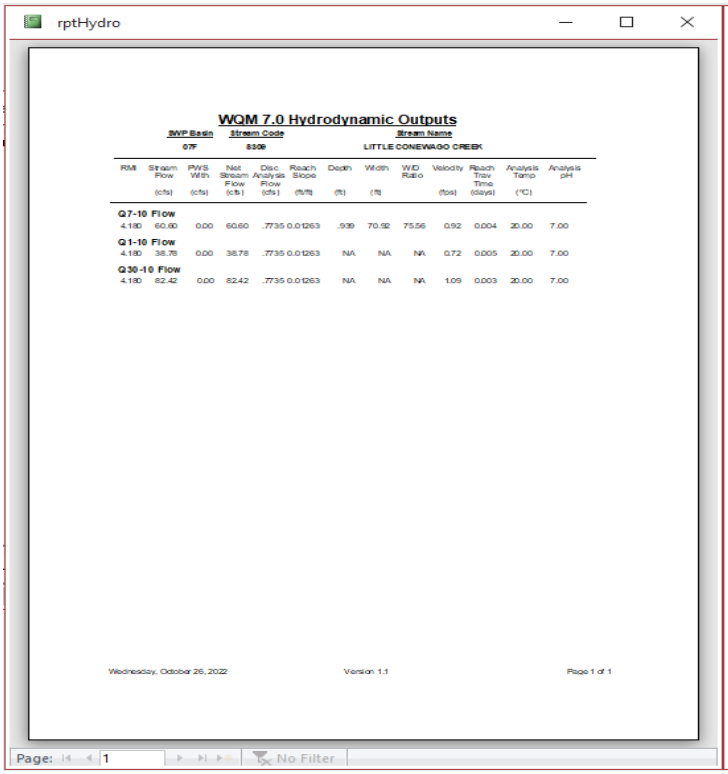

rptHydro

**WQM 7.0 Hydrodynamic Outputs**

SWP Basin: 07F | Stream Code: 8309 | Stream Name: LITTLE CONEWAGO CREEK

| RMI | Stream Flow (cfs) | PWS With (cfs) | Net Stream Flow (cfs) | Disc Analysis Flow (cfs) | Reach Slope (ft/ft) | Depth (ft) | Width (ft) | WD Ratio | Velocity (fps) | Reach Trav Time (days) | Analysis Temp (°C) | Analysis pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q7-10 Flow** | | | | | | | | | | | | |
| 4.180 | 60.60 | 0.00 | 60.60 | .7735 | 0.01263 | .939 | 70.92 | 75.56 | 0.92 | 0.004 | 20.00 | 7.00 |
| **Q1-10 Flow** | | | | | | | | | | | | |
| 4.180 | 38.78 | 0.00 | 38.78 | .7735 | 0.01263 | NA | NA | NA | 0.72 | 0.005 | 20.00 | 7.00 |
| **Q30-10 Flow** | | | | | | | | | | | | |
| 4.180 | 82.42 | 0.00 | 82.42 | .7735 | 0.01263 | NA | NA | NA | 1.09 | 0.003 | 20.00 | 7.00 |

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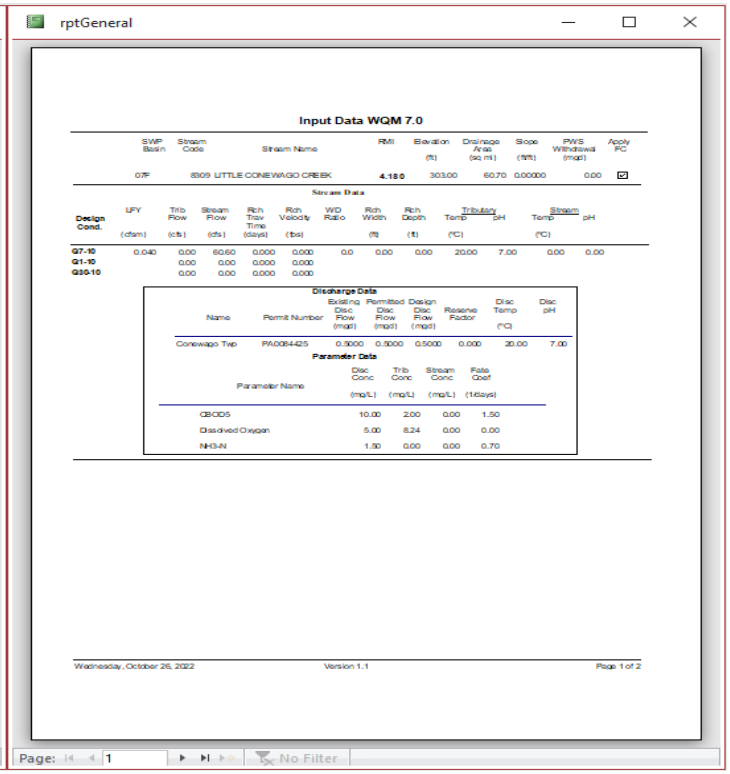
Page: 1 No Filter



rptGeneral

**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 |
|---|---|---|---|---|---|---|---|---|
| 07F | 8309 | LITTLE CONEWAGO CREEK | 4.180 | 303.00 | 60.70 | 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 | 0.040 | 0.00 | 60.60 | 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 |
|---|---|---|---|---|---|---|---|
| Conewago Twp | PA0084425 | 0.5000 | 0.5000 | 0.5000 | 0.000 | 20.00 | 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 | 5.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 1.50 | 0.00 | 0.00 | 0.70 |

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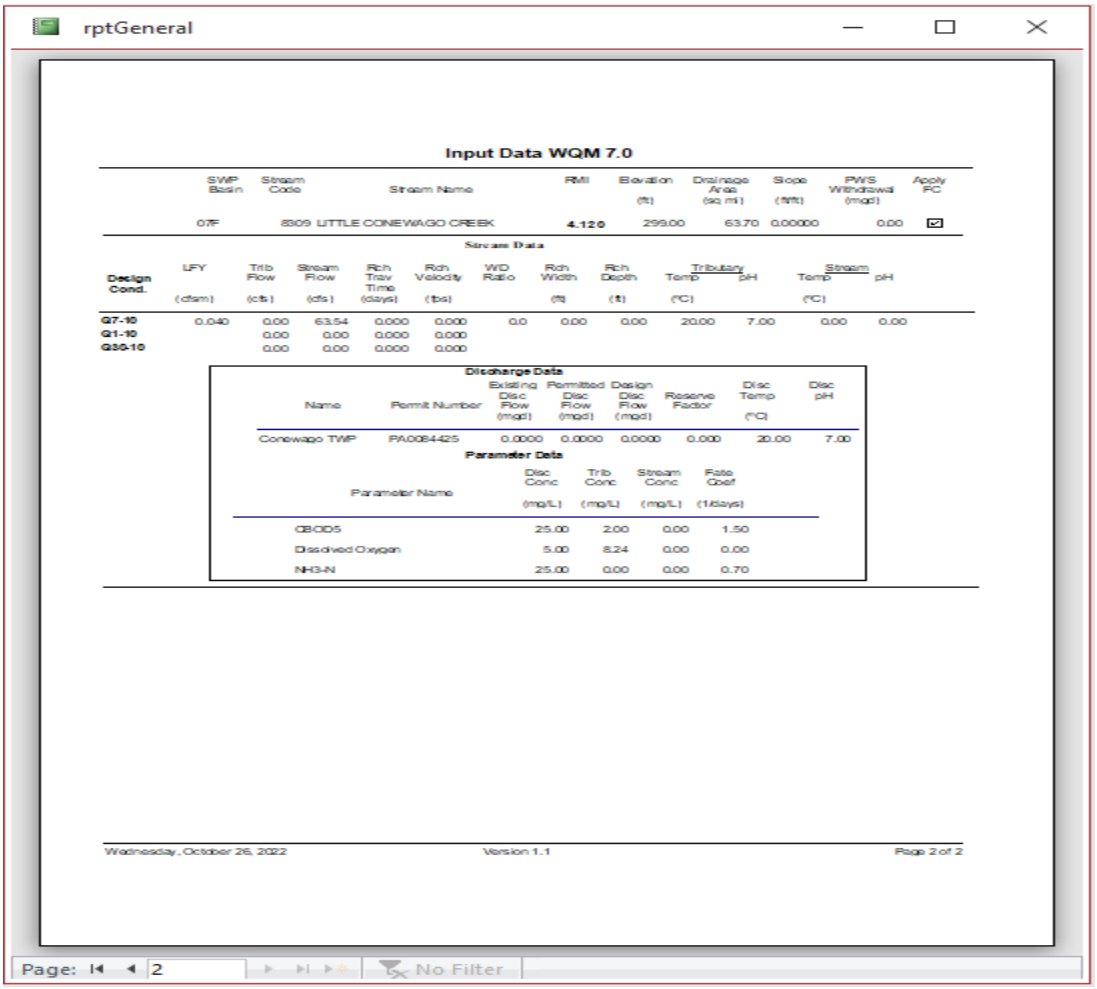

rptGeneral

**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 |
|---|---|---|---|---|---|---|---|---|
| 07F | 8309 | LITTLE CONEWAGO CREEK | 4.120 | 299.00 | 63.70 | 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 | 0.040 | 0.00 | 63.54 | 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 |
|---|---|---|---|---|---|---|---|
| Conewago TWP | PA0084425 | 0.0000 | 0.0000 | 0.0000 | 0.000 | 20.00 | 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 |

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## TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

| | | | |
|---|---|---|---|
| 2.34 | = Q stream (cfs) | 0.5 | = CV Daily |
| 0.5 | = 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 = 0.984 | 1.3.2.iii | WLA cfc = 0.952 |
| PENTOXSD TRG | 5.1a | LTAMULT afc = 0.373 | 5.1c | LTAMULT cfc = 0.581 |
| PENTOXSD TRG | 5.1b | LTA_afc= 0.367 | 5.1d | LTA_cfc = 0.553 |

| Source | | Effluent Limit Calculations | |
|---|---|---|---|
| PENTOXSD TRG | 5.1f | AML MULT = 1.231 | |
| PENTOXSD TRG | 5.1g | AVG MON LIMIT (mg/l) = 0.451 | AFC |
| | | INST MAX LIMIT (mg/l) = 1.476 | |

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

## Existing Effluent Limitations and Monitoring Requirements

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Weekly Average | Minimum | Average Monthly | Weekly Average | Instant. Maximum | | |
| Flow (MGD) | Report | Report Daily Max | XXX | XXX | XXX | XXX | Continuous | Measured |
| pH (S.U.) | XXX | XXX | 6.0 | XXX | XXX | 9.0 | 1/day | Grab |
| DO | XXX | XXX | 5.0 | XXX | XXX | XXX | 1/day | Grab |
| TRC | XXX | XXX | XXX | 0.2 | XXX | 0.66 | 1/day | Grab |
| $CBOD_5$ May 1 - Oct 31 | 41 | 60 | XXX | 10.0 | 15.0 | 20 | 1/week | 24-Hr Composite |
| $CBOD_5$ Nov 1 - Apr 30 | 80 | 125 | XXX | 20.0 | 30.0 | 40 | 1/week | 24-Hr Composite |
| $BOD_5$ Raw Sewage Influent | Report | Report Daily Max | XXX | Report | XXX | XXX | 1/week | 24-Hr Composite |
| TSS Raw Sewage Influent | Report | Report Daily Max | XXX | Report | XXX | XXX | 1/week | 24-Hr Composite |
| TSS | 125 | 185 | XXX | 30.0 | 45.0 | 60 | 1/week | 24-Hr Composite |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1000 | 1/week | Grab |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2000 Geo Mean | XXX | 10000 | 1/week | Grab |
| Ammonia May 1 - Oct 31 | 6.0 | XXX | XXX | 1.5 | XXX | 3 | 2/week | 24-Hr Composite |
| Ammonia Nov 1 - Apr 30 | 18 | XXX | XXX | 4.5 | XXX | 9 | 2/week | 24-Hr Composite |
| Total Phosphorus | 8.0 | XXX | XXX | 2.0 | XXX | 4 | 2/week | 24-Hr Composite |

## 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 |
| | Monthly | Annual | Monthly | Monthly Average | Maximum | Instant. Maximum | | |
| Ammonia (lbs) | Report | Report | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| Kjeldahl--N | Report | XXX | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| Nitrate-Nitrite as N | Report | XXX | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| Total Nitrogen | Report | Report | XXX | Report | XXX | XXX | 1/month | Calculation |
| Total Phosphorus | Report | Report | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| Net Total Nitrogen | Report | 9,132 | XXX | XXX | XXX | XXX | 1/month | Calculation |
| Net Total Phosphorus | Report | 1,218 | XXX | XXX | XXX | XXX | 1/month | Calculation |

## 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 | Measured |
| pH (S.U.) | XXX | XXX | 6.0 | XXX | XXX | 9.0 | 1/day | Grab |
| DO | XXX | XXX | 5.0 | XXX | XXX | XXX | 1/day | Grab |
| TRC | XXX | XXX | XXX | 0.2 | XXX | 0.66 | 1/day | Grab |
| $CBOD_5$ May 1 - Oct 31 | 41.0 | 60.0 | XXX | 10.0 | 15.0 | 20.0 | 1/week | 24-Hr Composite |
| $CBOD_5$ Nov 1 - Apr 30 | 80.0 | 125.0 | XXX | 20.0 | 30.0 | 40.0 | 1/week | 24-Hr Composite |
| $BOD_5$ Raw Sewage Influent | Report | Report Daily Max | XXX | Report | XXX | XXX | 1/week | 24-Hr Composite |
| TSS Raw Sewage Influent | Report | Report Daily Max | XXX | Report | XXX | XXX | 1/week | 24-Hr Composite |
| TSS | 125.0 | 185.0 | XXX | 30.0 | 45.0 | 60.0 | 1/week | 24-Hr Composite |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1,000 | 1/week | Grab |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2,000 Geo Mean | XXX | 10,000 | 1/week | Grab |
| E. Coli (No./100 ml) | XXX | XXX | XXX | XXX | XXX | Report | 1/quarter | Grab |
| Ammonia May 1 - Oct 31 | 6.0 | XXX | XXX | 1.5 | XXX | 3.0 | 2/week | 24-Hr Composite |
| Ammonia Nov 1 - Apr 30 | 18.0 | XXX | XXX | 4.5 | XXX | 9.0 | 2/week | 24-Hr Composite |
| Total Phosphorus | 8.0 | XXX | XXX | 2.0 | XXX | 4.0 | 2/week | 24-Hr Composite |

Compliance Sampling Location:

## 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.

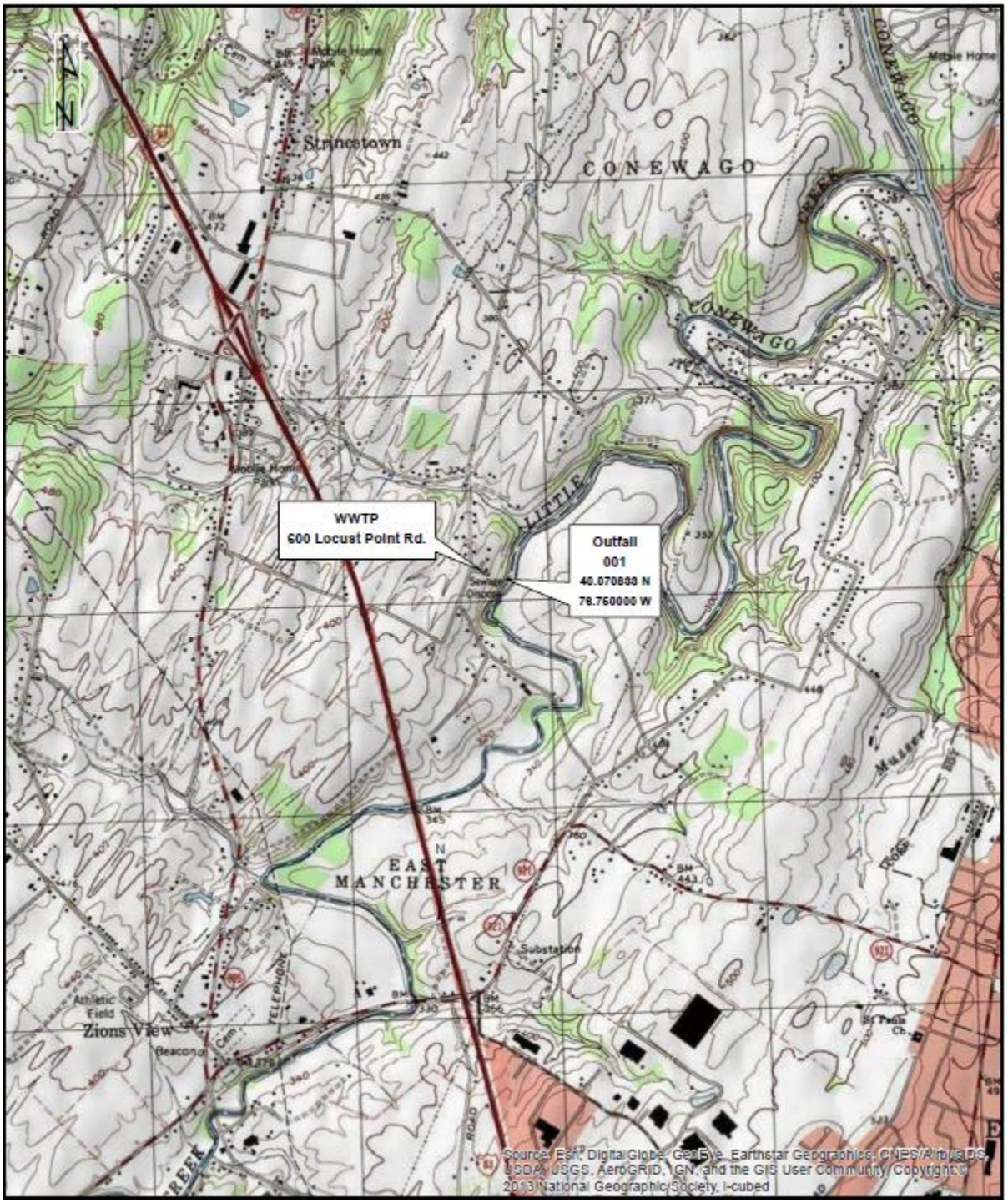
**Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.**

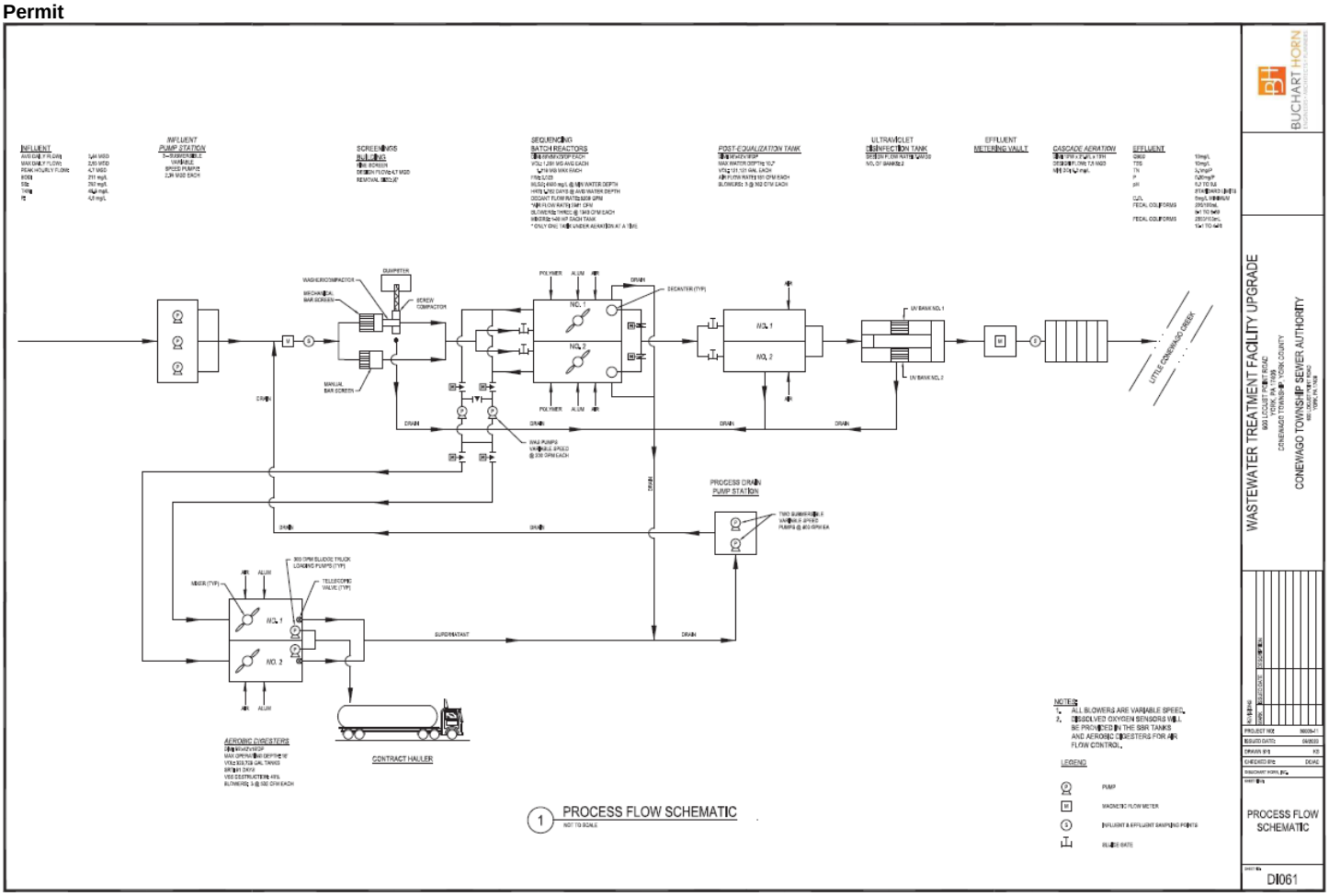
| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Monthly | Annual | Monthly | Monthly Average | Maximum | Instant. Maximum | | |
| Ammonia (lbs) | Report | Report | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| Kjeldahl--N | Report | XXX | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| Nitrate-Nitrite as N | Report | XXX | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| Total Nitrogen | Report | Report | XXX | Report | XXX | XXX | 1/month | Calculation |
| Total Phosphorus | Report | Report | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| Net Total Nitrogen | Report | 9,132 | XXX | XXX | XXX | XXX | 1/month | Calculation |
| Net Total Phosphorus | Report | 1,218 | XXX | XXX | XXX | XXX | 1/month | Calculation |

Compliance Sampling Location:

Other Comments:

| Tools and References Used to Develop Permit | |
|---|---|
| | |
| ☒ | WQM for Windows Model (see Attachment ) |
| ☒ | Toxics Management Spreadsheet (see Attachment ) |
| ☒ | TRC Model Spreadsheet (see Attachment ) |
| ☐ | 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, 362-0400-001, 10/97. |
| ☐ | Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98. |
| ☐ | Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96. |
| ☐ | Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97. |
| ☐ | Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97. |
| ☐ | Pennsylvania CSO Policy, 385-2000-011, 9/08. |
| ☒ | Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03. |
| ☐ | Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97. |
| ☐ | Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97. |
| ☐ | Implementation Guidance Design Conditions, 391-2000-006, 9/97. |
| ☒ | Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004. |
| ☐ | Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997. |
| ☐ | Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99. |
| ☐ | Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004. |
| ☒ | Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97. |
| ☐ | Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008. |
| ☒ | Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994. |
| ☐ | Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09. |
| ☐ | Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 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, 391-2000-019, 10/97. |
| ☐ | Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 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, 391-2000-022, 3/1999. |
| ☐ | Design Stream Flows, 391-2000-023, 9/98. |
| ☐ | Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98. |
| ☐ | Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97. |
| ☒ | Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07. |
| ☐ | SOP: |
| ☐ | Other: |


WWTP
600 Locust Point Rd.
Outfall
001
40.070833 N
78.760000 W
Strinestown
CONEWAGO
CREEK
LITTLE
CONEWAGO
EAST
MANCHESTER
Substation
Zions View
Athletic Field
Source: Esri, Digital Globe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Copyright © 2013 National Geographic Society, i-cubed


INFLUENT
INFLUENT PUMP STATION
SCREENINGS BUILDING
SEQUENCING BATCH REACTORS
POST-EQUALIZATION TANK
ULTRAVIOLET DISINFECTION TANK
EFFLUENT METERING VAULT
CASCADE AERATION
EFFLUENT
DUMPSTER
WASHER/COMPACTOR
MECHANICAL BAR SCREEN
SCREW COMPACTOR
MANUAL BAR SCREEN
POLYMER
ALUM
AIR
DRAIN
DECANTER (TYP)
NO. 1
NO. 2
UV BANK NO. 1
UV BANK NO. 2
LITTLE CONEWAGO CREEK
PROCESS DRAIN PUMP STATION
MIXER (TYP)
TELESCOPING VALVE (TYP)
SUPERNATANT
AEROBIC DIGESTERS
CONTRACT HAULER
NOTES:
1. ALL BLOWERS ARE VARIABLE SPEED.
2. DISSOLVED OXYGEN SENSORS WILL BE PROVIDED IN THE SBR TANKS AND AEROBIC DIGESTERS FOR AIR FLOW CONTROL.
LEGEND
PUMP
MAGNETIC FLOW METER
INFLUENT & EFFLUENT SAMPLING POINTS
RULER RATE
1 PROCESS FLOW SCHEMATIC
NOT TO SCALE
BUCHART HORN
WASTEWATER TREATMENT FACILITY UPGRADE
CONEWAGO TOWNSHIP SEWER AUTHORITY
PROCESS FLOW SCHEMATIC
DI061

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.1, October 2020

## Discharge Information

Instructions | Discharge | Stream

Facility: Conewago Township WWTP NPDES Permit No.: PA0084425 Outfall No.: 001

Evaluation Type: Custom / Additives Wastewater Description: Little Conewago Creek

| Discharge Characteristics | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Flow (MGD)* | Hardness (mg/l)* | pH (SU)* | Partial Mix Factors (PMFs) | | | | Complete Mix Times (min) | |
| | | | AFC | CFC | THH | CRL | $Q_{7-10}$ | $Q_h$ |
| 0.5 | 100 | 7.7 | | | | | | |

| 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 |
| Total Copper | mg/L | 0.0025 | | | | | | | | | |
| Total Lead | mg/L | 0.001 | | | | | | | | | |
| Total Zinc | mg/L | 0.056 | | | | | | | | | |



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Toxics Management Spreadsheet
Version 1.1, October 2020

## Stream / Surface Water Information

Conewago Township WWTP, NPDES Permit No. PA0084425, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: Little Conewago Creek No. Reaches to Model: 1

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

| Location | Stream Code* | RMI* | Elevation (ft)* | DA ($mi^2$)* | Slope (ft/ft) | PWS Withdrawal (MGD) | Apply Fish Criteria* |
|---|---|---|---|---|---|---|---|
| Point of Discharge | 008309 | 4.18 | 300 | 60.7 | | | Yes |
| End of Reach 1 | 008309 | 4.12 | 299 | 63.7 | | | Yes |

$Q_{7-10}$

| Location | RMI | LFY ($cfs/mi^2$)* | 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 | 4.18 | 0.04 | | | | | | | | | | 100 | 7 | | |
| End of Reach 1 | 4.12 | 0.04 | | | | | | | | | | | | | |

$Q_h$

| Location | RMI | LFY ($cfs/mi^2$) | 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 | 4.18 | | | | | | | | | | | | | | |
| End of Reach 1 | 4.12 | | | | | | | | | | | | | | |

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Toxics Management Spreadsheet
Version 1.1, October 2020

# Model Results

**Conewago Township WWTP, NPDES Permit No. PA0084425, Outfall 001**

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All ○ Inputs ○ Results ○ Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.773 Analysis Hardness (mg/l): 100 Analysis pH: 7.12

| 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 Copper | 0 | 0 | | 0 | 13.439 | 14.0 | 48.0 | Chem Translator of 0.96 applied |
| Total Lead | 0 | 0 | | 0 | 64.581 | 81.6 | 280 | Chem Translator of 0.791 applied |
| Total Zinc | 0 | 0 | | 0 | 117.180 | 120 | 410 | Chem Translator of 0.978 applied |

☑ ***CFC*** CCT (min): 25.113 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.09

| 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 Copper | 0 | 0 | | 0 | 8.956 | 9.33 | 38.6 | Chem Translator of 0.96 applied |
| Total Lead | 0 | 0 | | 0 | 2.517 | 3.18 | 13.2 | Chem Translator of 0.791 applied |
| Total Zinc | 0 | 0 | | 0 | 118.139 | 120 | 496 | Chem Translator of 0.986 applied |

☑ ***THH*** CCT (min): 25.113 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 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): 13.257 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 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***

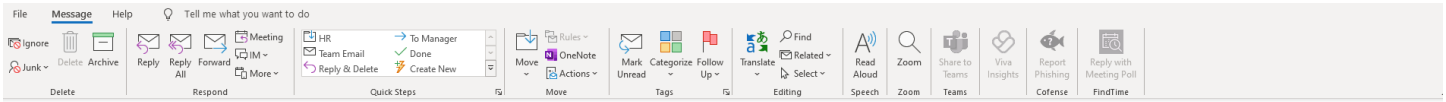
**No. Samples/Month:** 4

| | *Mass Limits* | | *Concentration Limits* | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Pollutants | AML (lbs/day) | MDL (lbs/day) | AML | MDL | IMAX | Units | Governing WQBEL | WQBEL Basis | Comments |
| #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! |

☑ ***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 Copper | 30.7 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Lead | 13.2 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Zinc | 263 | µg/L | Discharge Conc ≤ 10% WQBEL |




## [External] Re: act 537 amendment to create the freedom Square sewer treatment plant

Reply | Reply All | Forward

Timothy Pasch <Tim@paschcompanies.com>
To Derek Rinaldo
Cc Stephen R. McDonald; Terry Myers; jkopp@conewagotwp.com; Fritz Neufeld (ctwpfritz@conewagotwp.com); Dan Hershey (dhershey@hersheyeng.com); Tshudy, David J.; Chris Venarchick; Nick Grandi; Len Bradley; Wagner, Timothy
You forwarded this message on 9/8/2022 8:51 AM.

Wed 9/7/2022 6:57 PM

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Thanks Derek

We will work on that info and get it to you and DEP as soon as it is available

As you know the biggest issue is under the current act 537 plan the sewer authority was supposed to build an expansion in 2018 that would've provided 500 Edus for my site

They haven't done anything and there are saying that they might get to some of that capacity by 2025 which is in direct violation of the DEP rules and as you know they still have not provided a detailed information of how many ED use they even have at the present time
Because it fluctuates every time we speak to them

So I don't think it will be difficult to provide information for DEP
As to why it would be better served for the township and freedom Square community to build a private facility for this community so we can progress and not wait 10 more years for the sewer authority to even act

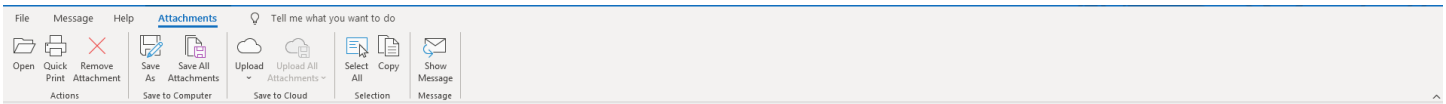
Please excuse the spelling this is a voice email I'm driving

Thanks again Derek for moving this along as we've discussed previously

**Tim Pasch**
President
717-757-4859 Ext. 303
www.PaschCompanies.com

*This message was sent from the road*

> On Sep 7, 2022, at 5:32 PM, Derek Rinaldo <djr@csdavidson.com> wrote:
>
> Hi Tim,
>
> I spoke with Tim Wagner at DEP this afternoon, who I have copied on this correspondence. Tim and I discussed that the most appropriate route for the Freedom Square project to proceed is through the submission of a planning module for the entire buildout of the site. The planning module needs to identify the amount of capacity that currently exists to serve the project and at what point in the development additional capacity will be needed. To achieve the additional capacity, an alternative analysis may be presented as part of the planning module to justify the need for a private plant. Tim mentioned that DEP is traditionally not in favor of private plants in areas designated for public sewer service, so the alternative analysis will need to make a strong case for why upgrades to the existing system and plant are not physically or economically feasible.
>
> Please let me know if you would like to discuss further,
>
> Derek
>
> Derek J. Rinaldo, E.I.T.
> *Client Representative*
> **C.S. DAVIDSON, INC.**




## RE: Conewago Township Sewer Authority NPDES PA0084425 renewal question on schedule of compliance

Reply | Reply All | Forward

Wagner, Timothy
To Martin, Daniel; Kumar, Dharmendra
Cc Le, Hilary
[External] Re: act 537 amendment to create the freedom Square sewer treatment plant
Outlook item

Thu 9/22/2022 10:33 AM

Attached e-mail is why they haven't moved forward with the upgrade. Proposed development of 2500 EDUs will cause STP to be overloaded even at the new capacity of 0.84 mgd. Hopefully the new planning will establish the needed capacity for the future.

---

**From:** Martin, Daniel <daniemarti@pa.gov>
**Sent:** Wednesday, September 21, 2022 11:21 AM
**To:** Kumar, Dharmendra <dkumar@pa.gov>
**Cc:** Le, Hilary <hle@pa.gov>; Wagner, Timothy <tiwagner@pa.gov>
**Subject:** RE: Conewago Township Sewer Authority NPDES PA0084425 renewal question on schedule of compliance

I'm not sure why they haven't moved forward with it. We gave them a two year extension on the WQM in 2018 but that has since expired in 2020 so they would need to submit a new WQM application. The engineer informed me Monday that they plan to submit new planning for an even higher MGD because the proposed future development has expanded. They currently have their NPDES permit in for renewal. I guess we all need to collectively decide what we want to do to move this forward. Maybe we can discuss when we are in the office this week. I can set something up.

---

**From:** Kumar, Dharmendra <dkumar@pa.gov>
**Sent:** Wednesday, September 21, 2022 11:10 AM
**To:** Martin, Daniel <daniemarti@pa.gov>
**Cc:** Le, Hilary <hle@pa.gov>; Wagner, Timothy <tiwagner@pa.gov>
**Subject:** RE: Conewago Township Sewer Authority NPDES PA0084425 renewal question on schedule of compliance

See our review letter to them. The one organic loading exceedance was considered anomaly. They had an approved WQM in issued on 26/22/2016 (attached). I do not know why are they not moving with this. MMF is the Hydraulic design Capacity. They have used 1 in the spreadsheet. It is hard to understand their plan and consistency with the issued permit.

Hydraulic overload definition in the Chapter 94 is as under

"*Hydraulic overload*—The condition that occurs when the monthly average flow entering a plant exceeds the hydraulic design capacity for 3-consecutive months out of the preceding 12 months or when the flow in a portion of the sewer system exceeds its hydraulic carrying capacity."

So even if they have more monthly average flow beyond the hydraulic design capacity but if they are not for three consecutive months during 12 months they are fine. Meaning no overload condition.

---

**From:** Martin, Daniel <daniemarti@pa.gov>
**Sent:** Wednesday, September 21, 2022 10:27 AM
**To:** Kumar, Dharmendra <dkumar@pa.gov>
**Cc:** Le, Hilary <hle@pa.gov>
**Subject:** RE: Conewago Township Sewer Authority NPDES PA0084425 renewal question on schedule of compliance

Is the projected overload only because of the planned development? Yes Summer initially told us they were not under a COA with them see her email below. It looks like they had 4 hydraulics and 1 organic overload in past 5 years. Isn't a corrective action plan only required if they show a project overload in next 5 years or have 3 or more Hydraulic or only 1 or more BOD overloads in the past year, or is that past 5 years? That one high BOD they had last year just doesn't look right or something must have gone wrong at the plant because all the others are nowhere near it. Please see our letter to them