Pennsylvania Department of Environmental Protection

**Northcentral Regional Office**
**CLEAN WATER PROGRAM**

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0027359** |
| Facility Type | **Industrial** | APS ID | **1087483** |
| Major / Minor | **Minor** | Authorization ID | **1437691** |

# NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Danville Municipal Authority** | Facility Name | **Danville Water Treatment Plant** |
| Applicant Address | 463 Mill Street | Facility Address | 1424 E Market Street |
| | Danville, PA 17821-1012 | | Danville, PA 17821-1842 |
| Applicant Contact | Peter Rickert | Facility Contact | Peter Rickert |
| Applicant Phone | (570) 275-3091 | Facility Phone | (570) 275-3091 |
| Client ID | 162979 | Site ID | 449 |
| SIC Code | 4941 | Municipality | Danville Borough |
| SIC Description | Trans. & Utilities - Water Supply | County | Montour |
| Date Application Received | April 25, 2023 | EPA Waived? | Yes |
| Date Application Accepted | May 8, 2023 | If No, Reason | |

Purpose of Application: Application for the renewal of the existing individual NPDES IW permit.

## Summary of Review

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 |
|---|---|---|---|
| X | | Jonathan P. Peterman / Project Manager | January 10, 2025 |
| X | | Nicholas W. Hartranft, P.E. / Environmental Engineer Manager | January 13, 2025 |

| Discharge, Receiving Waters and Water Supply Information | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | 0.25 |
| Latitude | 40º 56' 52.03" | Longitude | -76º 36' 20.90" |
| Quad Name | Danville | Quad Code | 1133 |
| Wastewater Description: | IW Process Effluent without ELG | | |
| Receiving Waters | Susquehanna River (WWF) | Stream Code | 6685 |
| NHD Com ID | 65641819 | RMI | 138 |
| Drainage Area | 11,220 | Yield (cfs/mi$^2$) | 0.1 |
| $Q_{7-10}$ Flow (cfs) | 1,120 | $Q_{7-10}$ Basis | Gage No. 01540500 |
| Elevation (ft) | 438 | Slope (ft/ft) | 0.0007 |
| Watershed No. | 5-E | Chapter 93 Class. | WWF |
| Existing Use | WWF | Existing Use Qualifier | N/A |
| Exceptions to Use | None | Exceptions to Criteria | None |
| Assessment Status | Impaired, See TMDL Impairment Section Below | | |
| Cause(s) of Impairment | Metals, PCB, Mercury | | |
| Source(s) of Impairment | Source Unknown | | |
| TMDL Status | Final, 03/12/1999 | Name | Susquehanna River PCB |
| Nearest Downstream Public Water Supply Intake | Cherokee Pharmaceuticals, LLC. | | |
| PWS Waters | Susquehanna River | Flow at Intake (cfs) | 1,125 |
| PWS RMI | 135.7 | Distance from Outfall (mi) | 0.9 |

Changes Since Last Permit Issuance: None.

**Other Comments:** The updated $Q_{7-10}$ data was obtained from the updated stream gage information obtained from *Stuckey, M.H., and Roland, M.A., 2011, Selected Streamflow Statistics for Streamgage Locations In and Near Pennsylvania*. This report indicates that the $Q_{7-10}$ is 1,120 cfs. Given that the associated stream gage (01540500) is located approximately 0.5 river miles upstream of the discharge location, no comparative gage analysis is needed. The flows measured at the gage will be used directly and will be minimally conservative. $Q_{7-10}$ calculations are attached in Appendix A.

## Treatment Facility Summary

**Treatment Facility Name:** Danville Water Treatment Plant

| WQM Permit No. | Issuance Date | Notes: |
|---|---|---|
| 4772201 | 3/9/72 | Initial construction. |

**Treatment System Components for Outfall 001:**
The filters are backwashed as needed into two (2) backwash lagoons and the overflow from the lagoons discharges into a culvert in the flood control dike. Outfall 001 discharges supernatant from the sludge lagoons approximately 4 hours a day, 7 days a week.

Changes Since Last Permit Issuance: None.

## TMDL Impairment

The Department's Geographic Information System (GIS) shows that the Susquehanna River is impaired and a TMDL exists for the stream segment for PCB's. Given the nature of this facility and the associated discharges, it can be reasonable determined that this facility will not contribute to the impairment of the river. Therefore, no TMDL was considered when establishing effluent limits.

## Chesapeake Bay Requirements

In accordance with the Phase III WIP Chesapeake Bay Strategy this facility has been identified previously by DEP as "insignificant dischargers" by virtue of having gross effluent discharges that do not exceed 75 lbs/day of TN or 25 lbs/day of TP. For these non-significant IW facilities, monitoring and reporting of TN and TP will be required throughout the permit term in renewed or amended permits anytime the facility has the potential to introduce a net TN or TP increase to the load contained within the intake water used in processing. No nutrient monitoring is required for this facility.

## Existing Effluent Limitations and Monitoring Requirements

**Existing Limits – Outfall 001**

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Average Weekly | Minimum | Average Monthly | Maximum | Instant. Maximum | | |
| Flow (MGD) | Report | Report Daily Max | XXX | XXX | XXX | XXX | 2/month | Estimate |
| pH (S.U.) | XXX | XXX | 6.0 Inst Min | XXX | XXX | 9.0 | 1/day | Grab |
| Total Residual Chlorine (TRC) | XXX | XXX | XXX | 0.5 | XXX | 1.6 | 1/day | Grab |
| Total Suspended Solids | XXX | XXX | XXX | 30 | XXX | 60 | 1/month | Grab |
| Aluminum, Total | XXX | XXX | XXX | 4.0 | XXX | 8.0 | 1/month | Grab |
| Iron, Total | XXX | XXX | XXX | 2.0 | XXX | 4.0 | 1/month | Grab |
| Manganese, Total | XXX | XXX | XXX | 1.0 | XXX | 2.0 | 1/month | Grab |

*The existing effluent limits for Outfall 001 were based on a design flow of 0.25 MGD.

## Development of Effluent Limitations

**Outfall No.** 001 **Design Flow (MGD)** 0.25
**Latitude** 40º 56' 52.20" **Longitude** -76º 36' 20.90"
**Wastewater Description:** IW Process Effluent without ELG

**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 |
|---|---|---|---|---|
| pH | 6.0 – 9.0 S.U. | Min – Max | 133.102(c) | 95.2(1) |
| Total Residual Chlorine | 0.5 | Average Monthly | - | 92a.48(b)(2) |
| Total Suspended Solids | 30 | Average Monthly | | |
| | 60 | Daily Maximum | | |

| | | | |
|---|---|---|---|
| Iron, Total | 2.0 | Average Monthly | Technology-Based Control Requirements for Water Treatment Plant Wastes (362-2183-003, 10/1/97)* |
| | 4.0 | Daily Maximum | |
| Aluminum, Total | 4.0 | Average Monthly | |
| | 8.0 | Daily Maximum | |
| Manganese, Total | 1.0 | Average Monthly | |
| | 2.0 | Daily Maximum | |

*The abovementioned effluent limits are recommended by DEP guidance *"Technology-Based Control Requirements for Water Treatment Plant Wastes" (362-2183-003) as* best practicable control technology currently available (BPT) for water treatment plant wastewater.

**Water Quality-Based Limitations**
To establish whether or not water-quality based effluent limitations (WQBELs) are required, the Department models in-stream conditions. In order to determine limitations for toxics, the Department utilizes the PENTOXSD v2.0d model. The use of a WQM7.0 analysis is not required for this discharge type.

**Toxics Management Spreadsheet**
This model is a single discharge wasteload allocation program for toxics that uses a mass-balance water quality analysis to determine recommended water quality-based effluent limits. The model incorporates consideration for mixing, first-order decay and other factors to computes a Wasteload Allocation (WLA) for each applicable criterion. Finally, the model determines a maximum water quality-based effluent limitation (WQBEL) for each parameter and outputs the more stringent of the WQBEL or the input concentration. The output of which is the recommends average monthly and maximum daily effluent limitations.

Sampling for pollutant Groups was submitted with the application. This sampling information and the receiving stream information was entered into the Toxics Management Spreadsheet. This "Reasonable Potential Analysis" (See Appendix C) determined that there were no parameters that were considered candidates for monitoring or limitations.

**Best Professional Judgement (BPJ) Limitations**
Comments: None Required.

## Anti-Backsliding

In accordance with 40 CFR 122.44(l)(1) and (2), this permit does not contain effluent limitations, standards, or conditions that are less stringent than the previous permit.

## 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 the abovementioned 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) and/or BPJ.

**Proposed Limits - Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date**

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Average Weekly | Minimum | Average Monthly | Maximum | Instant. Maximum | | |
| Flow (MGD) | Report | Report Daily Max | XXX | XXX | XXX | XXX | 2/month | Estimate |
| pH (S.U.) | XXX | XXX | 6.0 Inst Min | XXX | XXX | 9.0 | 1/day | Grab |
| Total Residual Chlorine (TRC) | XXX | XXX | XXX | 0.5 | XXX | 1.6 | 1/day | Grab |

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Average Weekly | Minimum | Average Monthly | Maximum | Instant. Maximum | | |
| Total Suspended Solids | XXX | XXX | XXX | 30 | XXX | 60 | 1/month | Grab |
| Aluminum, Total | XXX | XXX | XXX | 4.0 | XXX | 8.0 | 1/month | Grab |
| Iron, Total | XXX | XXX | XXX | 2.0 | XXX | 4.0 | 1/month | Grab |
| Manganese, Total | XXX | XXX | XXX | 1.0 | XXX | 2.0 | 1/month | Grab |

*The proposed effluent limits for Outfall 001 were based on a design flow of 0.25 MGD.

## Effluent Limit Determination for Outfall 001

**pH, Total Suspended Solids (TSS), Aluminum, Total Iron, and Total Manganese**
The effluent limits for pH, TSS, Aluminum, Manganese, and total iron were previously derived directly from *Technology-Based Control Requirements for Water Treatment Plant Wastes* (362-2183-003, 10/1/97). These technology-based effluent limits are considered to be best practicable control technology currently available (BPT) for water treatment plant wastewater. Additionally, the effluent limits for aluminum, manganese, and iron were verified by imputing them into the TMS model. The results indicated that more stringent water quality-based limits are not required. (See Appendix C for modeling results) The existing technology-based effluent limits are protective of water quality and will remain.

**Total Residual Chlorine (TRC)**
In accordance with 25 Pa. 92a.48(b)(2) and *Technology-Based Control Requirements for Water Treatment Plant Wastes* (362-2183-003, 10/1/97), a best available technology (BAT) value of 0.5 mg/l was used in the TRC model evaluation. (See Appendix D for the spreadsheet results.) The attached TRC model indicates that the technology based effluent limit of 0.5 mg/L (Average Monthly) and 1.6 mg/L (Instantaneous Maximum) are protective of water quality and will remain.

**Monitoring Frequencies**
The existing monitoring frequencies and sample types for the abovementioned parameters are consistent with other water treatment plant wastewater discharges and will remain.

## Compliance History

**Summary of Inspections** -The last inspection of the facilities was conducted on 2/9/24 by the Department which reveals the facility was operating normally. No issues were noted for this facility.
**WMS Query Summary** - A WMS Query was run at *Reports - Violations & Enforcements – Open Violations for Client Report* to determine whether there are any unresolved violations associated with the client that will affect issuance of the permit (per CSL Section 609). This query revealed that there were no unresolved violations.
**DMRs Summary** - Upon review of the last year of DMR's (provided below), the facility appears to be operating within the given effluent limits.

## Compliance History

**DMR Data for Outfall 001 (from December 1, 2023 to November 30, 2024)**

| Parameter | NOV-24 | OCT-24 | SEP-24 | AUG-24 | JUL-24 | JUN-24 | MAY-24 | APR-24 | MAR-24 | FEB-24 | JAN-24 | DEC-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD) Average Monthly | 0.052 | 0.041 | 0.039 | 0.037 | 0.046 | 0.043 | 0.036 | 0.046 | 0.04 | 0.053 | 0.039 | 0.037 |
| Flow (MGD) Daily Maximum | 0.136 | 0.075 | 0.075 | 0.037 | 0.098 | 0.072 | 0.036 | 0.072 | 0.072 | 0.216 | 0.072 | 0.047 |
| pH (S.U.) Instantaneous Minimum | 7.3 | 7.4 | 7.5 | 7.1 | 7.4 | 7.4 | 7.4 | 7.0 | 7.1 | 6.6 | 7.0 | 6.8 |
| pH (S.U.) Instantaneous Maximum | 7.9 | 7.9 | 8.4 | 8.0 | 8.1 | 8.0 | 8.7 | 7.7 | 7.7 | 7.6 | 7.6 | 7.6 |
| TRC (mg/L) Average Monthly | 0.09 | 0.06 | 0.05 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 | 0.08 | 0.065 | 0.11 | 0.13 |
| TRC (mg/L) Instantaneous Maximum | 0.26 | 0.13 | 0.17 | 0.15 | 0.11 | 0.15 | 0.15 | 0.21 | 0.19 | 0.19 | 0.2 | 0.34 |
| TSS (mg/L) Average Monthly | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | 22 | < 5 | < 5 |
| TSS (mg/L) Instantaneous Maximum | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | 22 | < 5 | < 5 |
| Total Aluminum (mg/L) Average Monthly | 0.301 | 0.47 | 0.424 | 0.625 | 0.305 | 0.501 | 0.341 | 0.189 | 0.122 | 2.91 | 0.328 | 0.463 |
| Total Aluminum (mg/L) Instantaneous Maximum | 0.301 | 0.47 | 0.424 | 0.625 | 0.305 | 0.501 | 0.341 | 0.189 | 0.122 | 2.91 | 0.328 | 0.463 |
| Total Iron (mg/L) Average Monthly | < 0.04 | 0.067 | < 0.04 | 0.052 | < 0.04 | 0.06 | 0.067 | 0.044 | < 0.02 | 0.951 | 0.061 | 0.0790 |
| Total Iron (mg/L) Instantaneous Maximum | < 0.04 | 0.067 | < 0.04 | 0.052 | < 0.04 | 0.06 | 0.067 | 0.044 | < 0.02 | 0.951 | 0.061 | 0.0790 |
| Total Manganese (mg/L) Average Monthly | < 0.02 | < 0.020 | < 0.02 | 0.025 | 0.025 | 0.347 | 0.027 | 0.023 | 0.029 | 0.095 | 0.02 | < 0.02 |
| Total Manganese (mg/L) Instantaneous Maximum | < 0.02 | < 0.020 | < 0.02 | 0.025 | 0.025 | 0.347 | 0.027 | 0.023 | 0.029 | 0.095 | 0.02 | < 0.02 |

| Tools and References Used to Develop Permit | |
|---|---|
| | |
| ☐ | WQM for Windows Model (see Attachment ) |
| ☒ | Toxics Management Spreadsheet (see Attachment **B**) |
| ☒ | 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: |

# APPENDIX A

## $Q_{7-10}$ ANALYSIS AND STREAM DATA

USGS
science for a changing world

Prepared in cooperation with the Pennsylvania Department of Environmental Protection

# Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

Open-File Report 2011–1070

U.S. Department of the Interior
U.S. Geological Survey

**Table 1.** List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

| Streamgage number | Streamgage name | Latitude | Longitude | Drainage area (mi²) | Regulated[1] |
|---|---|---|---|---|---|
| 01508803 | West Branch Tioughnioga River at Homer, N.Y. | 42.638 | -76.176 | 71.5 | N |
| 01509000 | Tioughnioga River at Cortland, N.Y. | 42.603 | -76.159 | 292 | N |
| 01510000 | Otselic River at Cincinnatus, N.Y. | 42.541 | -75.900 | 147 | N |
| 01512500 | Chenango River near Chenango Forks, N.Y. | 42.218 | -75.848 | 1,483 | N |
| 01515000 | Susquehanna River near Waverly, N.Y. | 41.985 | -76.501 | 4,773 | N |
| 01516350 | Tioga River near Mansfield, Pa. | 41.797 | -77.080 | 153 | N |
| 01516500 | Corey Creek near Mainesburg, Pa. | 41.791 | -77.015 | 12.2 | N |
| 01518000 | Tioga River at Tioga, Pa. | 41.908 | -77.129 | 282 | Y |
| 01518700 | Tioga River at Tioga Junction, Pa. | 41.953 | -77.115 | 446 | Y |
| 01518862 | Cowanesque River at Westfield, Pa. | 41.923 | -77.532 | 90.6 | N |
| 01520000 | Cowanesque River near Lawrenceville, Pa. | 41.997 | -77.140 | 298 | Y |
| 01520500 | Tioga River at Lindley, N.Y. | 42.029 | -77.132 | 771 | Y |
| 01521500 | Canisteo River at Arkport, N.Y. | 42.396 | -77.711 | 30.6 | Y |
| 01523500 | Canacadea Creek near Hornell, N.Y. | 42.335 | -77.683 | 57.9 | Y |
| 01524500 | Canisteo River below Canacadea Creek at Hornell, N.Y. | 42.314 | -77.651 | 158 | Y |
| 01526500 | Tioga River near Erwins, N.Y. | 42.121 | -77.129 | 1,377 | Y |
| 01527000 | Cohocton River at Cohocton, N.Y. | 42.500 | -77.500 | 52.2 | N |
| 01527500 | Cohocton River at Avoca, N.Y. | 42.398 | -77.417 | 152 | N |
| 01528000 | Fivemile Creek near Kanona, N.Y. | 42.388 | -77.358 | 66.8 | N |
| 01529000 | Mud Creek near Savona, N.Y. | 42.308 | -77.197 | 76.6 | Y |
| 01529500 | Cohocton River near Campbell, N.Y. | 42.253 | -77.217 | 470 | N |
| 01529950 | Chemung River at Corning, N.Y. | 42.146 | -77.057 | 2,006 | Y |
| 01530332 | Chemung River at Elmira, N.Y. | 42.086 | -76.801 | 2,162 | Y |
| 01530500 | Newtown Creek at Elmira, N.Y. | 42.105 | -76.798 | 77.5 | Y |
| 01531000 | Chemung River at Chemung, N.Y. | 42.002 | -76.635 | 2,506 | Y |
| 01531500 | Susquehanna River at Towanda, Pa. | 41.765 | -76.441 | 7,797 | Y |
| 01532000 | Towanda Creek near Monroeton, Pa. | 41.707 | -76.485 | 215 | N |
| 01532850 | MB Wyalusing Creek near Birchardville, Pa. | 41.863 | -76.007 | 5.67 | N |
| 01533400 | Susquehanna River at Meshoppen, Pa. | 41.607 | -76.050 | 8,720 | Y |
| 01533500 | North Branch Mehoopany Creek near Lovelton, Pa. | 41.531 | -76.156 | 35.2 | N |
| 01533950 | SB Tunkhannock Creek near Montdale, Pa. | 41.575 | -75.642 | 12.6 | N |
| 01534000 | Tunkhannock Creek near Tunkhannock, Pa. | 41.558 | -75.895 | 383 | N |
| 01534300 | Lackawanna River near Forest City, Pa. | 41.680 | -75.472 | 38.8 | Y |
| 01534500 | Lackawanna River at Archbald, Pa. | 41.505 | -75.542 | 108 | Y |
| 01536000 | Lackawanna River at Old Forge, Pa. | 41.359 | -75.744 | 332 | Y |
| 01536500 | Susquehanna River at Wilkes-Barre, Pa. | 41.251 | -75.881 | 9,960 | Y |
| 01537000 | Toby Creek at Luzerne, Pa. | 41.281 | -75.896 | 32.4 | Y |
| 01537500 | Solomon Creek at Wilkes-Barre, Pa. | 41.228 | -75.904 | 15.7 | N |
| 01538000 | Wapwallopen Creek near Wapwallopen, Pa. | 41.059 | -76.094 | 43.8 | N |
| 01539000 | Fishing Creek near Bloomsburg, Pa. | 41.078 | -76.431 | 274 | N |
| 01539500 | Little Fishing Creek at Eyers Grove, Pa. | 41.080 | -76.511 | 56.5 | N |
| 01540200 | Trexler Run near Ringtown, Pa. | 40.853 | -76.280 | 1.77 | N |
| 01540500 | Susquehanna River at Danville, Pa. | 40.958 | -76.619 | 11,220 | Y |
| 01541000 | West Branch Susquehanna River at Bower, Pa. | 40.897 | -78.677 | 315 | N |
| 01541200 | West Branch Susquehanna River near Curwensville, Pa. | 40.961 | -78.519 | 367 | Y |

**Table 2.** Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s; cubic feet per second; —, statistic not computed; <, less than]

| Streamgage number | Period of record used in analysis[1] | Number of years used in analysis | 1-day, 10-year (ft³/s) | 7-day, 10-year (ft³/s) | 7-day, 2-year (ft³/s) | 30-day, 10-year (ft³/s) | 30-day, 2-year (ft³/s) | 90-day, 10-year (ft³/s) |
|---|---|---|---|---|---|---|---|---|
| 01530500 | 1940–2008 | 69 | 5.0 | 6.1 | 11.0 | 7.6 | 13 | 9.0 |
| 01531000 | [2]1981–2008 | 28 | 138 | 147 | 237 | 169 | 296 | 203 |
| 01531000 | [3]1905–1979 | 68 | 86.3 | 97.0 | 175 | 116 | 219 | 161 |
| 01531500 | [2]1981–2008 | 28 | 550 | 592 | 1,030 | 733 | 1,340 | 952 |
| 01531500 | [3]1915–1979 | 65 | 539 | 571 | 990 | 675 | 1,230 | 928 |
| 01532000 | 1915–2008 | 94 | 2.2 | 2.8 | 9.7 | 4.6 | 14.4 | 9.4 |
| 01532850 | 1967–1979 | 13 | .1 | .2 | .4 | .3 | .8 | .7 |
| 01533400 | [2]1981–2008 | 28 | 602 | 648 | 1,110 | 790 | 1,430 | 1,060 |
| 01533500 | 1942–1958 | 17 | .4 | .6 | 1.5 | .8 | 2.0 | 1.7 |
| 01533950 | 1962–1978 | 17 | .2 | .3 | 1.0 | .6 | 1.4 | 1.0 |
| 01534000 | 1915–2008 | 94 | 15.2 | 17.3 | 35.9 | 24.2 | 51.0 | 38.7 |
| 01534300 | 1960–2008 | 49 | 1.1 | 1.7 | 5.1 | 2.8 | 7.6 | 4.8 |
| 01534500 | [2]1961–2008 | 48 | 16.7 | 18.8 | 29.2 | 21.9 | 35.8 | 27.6 |
| 01534500 | [3]1941–1959 | 19 | 18.8 | 23.0 | 33.3 | 25.6 | 39.2 | 34.9 |
| 01536000 | [2]1961–2008 | 48 | 28.7 | 32.7 | 51.7 | 40.8 | 68.1 | 54.3 |
| 01536000 | [3]1940–1959 | 20 | 77.8 | 93.9 | 119 | 105 | 138 | 124 |
| 01536500 | [2]1981–2008 | 28 | 828 | 872 | 1,450 | 1,030 | 1,830 | 1,350 |
| 01536500 | [3]1901–1979 | 79 | 778 | 811 | 1,350 | 927 | 1,640 | 1,260 |
| 01537000 | 1943–1993 | 51 | 1.3 | 2.0 | 4.9 | 3.1 | 6.4 | 4.7 |
| 01537500 | 1941–1990 | 50 | .2 | .3 | 1.9 | .5 | 3.1 | 1.6 |
| 01538000 | 1921–2008 | 88 | 3.1 | 3.6 | 7.1 | 5.0 | 9.3 | 7.5 |
| 01539000 | 1940–2008 | 69 | 15.4 | 16.8 | 36.8 | 21.1 | 51.1 | 36.8 |
| 01539500 | 1942–1958 | 17 | .1 | .3 | 1.4 | 1.0 | 3.3 | 2.3 |
| 01540200 | 1965–1981 | 17 | 0 | 0 | .3 | .1 | .3 | .1 |
| 01540500 | [2]1981–2008 | 28 | 1,080 | 1,120 | 1,870 | 1,320 | 2,330 | 1,690 |
| 01540500 | [3]1906–1979 | 74 | 927 | 978 | 1,660 | 1,160 | 2,050 | 1,590 |
| 01541000 | 1915–2008 | 94 | 25.3 | 27.9 | 50.7 | 35.3 | 66.6 | 49.6 |
| 01541200 | [2]1967–2008 | 40 | 34.6 | 45.2 | 66.0 | 63.1 | 100 | 92.4 |
| 01541200 | [3]1957–1965 | 9 | 22.9 | 24.7 | 44.7 | 27.7 | 58.2 | 36.4 |
| 01541303 | 1980–2008 | 29 | 53.4 | 58.5 | 94.0 | 74.4 | 123 | 102 |
| 01541308 | 1969–1979 | 11 | 1.3 | 1.3 | 1.9 | 1.6 | 2.4 | 2.1 |
| 01541500 | [2]1962–2008 | 47 | 39.0 | 41.9 | 66.5 | 51.9 | 86.3 | 70.6 |
| 01541500 | [3]1915–1960 | 46 | 14.9 | 21.3 | 41.9 | 28.5 | 55.0 | 42.9 |
| 01542000 | 1942–1993 | 52 | 8.1 | 9.1 | 14.8 | 11.3 | 17.8 | 14.6 |
| 01542500 | [2]1967–2008 | 33 | 216 | 235 | 326 | 285 | 435 | 402 |
| 01542500 | [3]1941–1965 | 20 | — | 131 | 189 | 152 | 243 | 221 |
| 01542810 | 1966–2008 | 43 | .1 | .1 | .3 | .2 | .5 | .3 |
| 01543000 | 1915–2008 | 94 | 2.9 | 4.2 | 16.0 | 9.6 | 27.4 | 19.2 |
| 01543500 | 1940–2008 | 69 | 10.7 | 14.5 | 44.9 | 26.6 | 74.9 | 50.5 |
| 01544000 | [2]1957–2008 | 52 | 3.3 | 6.9 | 19.0 | 11.2 | 31.1 | 19.0 |
| 01544500 | 1942–2008 | 67 | 4.2 | 4.9 | 12.5 | 7.5 | 17.4 | 11.7 |
| 01545000 | [2]1964–2008 | 45 | 6.8 | 8.2 | 21.2 | 12.0 | 32.7 | 20.7 |
| 01545500 | [2]1963–2008 | 46 | 217 | 238 | 446 | 306 | 629 | 428 |
| 01545500 | [3]1909–1961 | 53 | 125 | 141 | 278 | 190 | 387 | 296 |
| 01545600 | 1966–2008 | 43 | 1.2 | 1.5 | 4.4 | 2.4 | 6.7 | 4.2 |

# APPENDIX B

TOXICS MANAGEMENT SPREADSHEET

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

# Discharge Information

Instructions | Discharge | Stream

Facility: **Danville Municipal Authority** NPDES Permit No.: **PA0027359** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Water Treatment Plant Backwash**

| Discharge Characteristics | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Design Flow (MGD)* | Hardness (mg/l)* | pH (SU)* | Partial Mix Factors (PMFs) | | | | Complete Mix Times (min) | |
| | | | AFC | CFC | THH | CRL | $Q_{7-10}$ | $Q_h$ |
| 0.25 | 100 | 7 | | | | | | |

| | | | | | *0 if left blank* | | *0.5 if left blank* | | *0 if left blank* | | | *1 if left blank* | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Discharge Pollutant | Units | Max Discharge Conc | | Trib Conc | Stream Conc | Daily CV | Hourly CV | Stream CV | Fate Coeff | FOS | Criteria Mod | Chem Transl |
| Group 1 | Total Dissolved Solids (PWS) | mg/L | | 132 | | | | | | | | | |
| | Chloride (PWS) | mg/L | | 36.1 | | | | | | | | | |
| | Bromide | mg/L | < | 1 | | | | | | | | | |
| | Sulfate (PWS) | mg/L | | 20.8 | | | | | | | | | |
| | Fluoride (PWS) | mg/L | < | 0.2 | | | | | | | | | |
| Group 2 | Total Aluminum | µg/L | | 300 | | | | | | | | | |
| | Total Antimony | µg/L | < | 1 | | | | | | | | | |
| | Total Arsenic | µg/L | < | 1 | | | | | | | | | |
| | Total Barium | µg/L | | 21 | | | | | | | | | |
| | Total Beryllium | µg/L | < | 1 | | | | | | | | | |
| | Total Boron | µg/L | < | 10 | | | | | | | | | |
| | Total Cadmium | µg/L | < | 1 | | | | | | | | | |
| | Total Chromium (III) | µg/L | < | 1 | | | | | | | | | |
| | Hexavalent Chromium | µg/L | | 0.00048 | | | | | | | | | |
| | Total Cobalt | µg/L | | 0.17 | | | | | | | | | |
| | Total Copper | µg/L | | 1.05 | | | | | | | | | |
| | Free Cyanide | µg/L | | | | | | | | | | | |
| | Total Cyanide | µg/L | < | 10 | | | | | | | | | |
| | Dissolved Iron | µg/L | < | 20 | | | | | | | | | |
| | Total Iron | µg/L | | 41 | | | | | | | | | |
| | Total Lead | µg/L | | 1 | | | | | | | | | |
| | Total Manganese | µg/L | | 91 | | | | | | | | | |
| | Total Mercury | µg/L | < | 0.1 | | | | | | | | | |
| | Total Nickel | µg/L | | 1.57 | | | | | | | | | |
| | Total Phenols (Phenolics) (PWS) | µg/L | < | 2 | | | | | | | | | |
| | Total Selenium | µg/L | | 1.27 | | | | | | | | | |
| | Total Silver | µg/L | < | 5 | | | | | | | | | |
| | Total Thallium | µg/L | | 0.27 | | | | | | | | | |
| | Total Zinc | µg/L | | 27.7 | | | | | | | | | |
| | Total Molybdenum | µg/L | | 0.49 | | | | | | | | | |
| | Acrolein | µg/L | < | | | | | | | | | | |
| | Acrylamide | µg/L | < | | | | | | | | | | |
| | Acrylonitrile | µg/L | < | | | | | | | | | | |
| | Benzene | µg/L | < | | | | | | | | | | |
| | Bromoform | µg/L | < | | | | | | | | | | |

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Toxics Management Spreadsheet
Version 1.3, March 2021

## Stream / Surface Water Information

Danville Municipal Authority, NPDES Permit No. PA0027359, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: _____ 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 | 006685 | 136.6 | 438 | 11220 | | | Yes |
| End of Reach 1 | 006685 | 136.24 | 437 | 11270 | | | 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 | 136.6 | 0.1 | 1120 | | | | | | | | | 100 | 7 | | |
| End of Reach 1 | 136.24 | 0.1 | 1125 | | | | | | | | | | | | |

$Q_h$

| 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 | 136.6 | | | | | | | | | | | | | | |
| End of Reach 1 | 136.24 | | | | | | | | | | | | | | |

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Toxics Management Spreadsheet
Version 1.3, March 2021

## Model Results

Danville Municipal Authority, NPDES Permit No. PA0027359, Outfall 001

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

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 15 PMF: 0.023 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

| Pollutants | Stream Conc (µg/L) | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Fluoride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Aluminum | 0 | 0 | | 0 | 750 | 750 | 49,708 | |
| Total Antimony | 0 | 0 | | 0 | 1,100 | 1,100 | 72,905 | |
| Total Arsenic | 0 | 0 | | 0 | 340 | 340 | 22,534 | Chem Translator of 1 applied |
| Total Barium | 0 | 0 | | 0 | 21,000 | 21,000 | 1,391,820 | |
| Total Boron | 0 | 0 | | 0 | 8,100 | 8,100 | 536,845 | |
| Total Cadmium | 0 | 0 | | 0 | 2.014 | 2.13 | 141 | Chem Translator of 0.944 applied |
| Total Chromium (III) | 0 | 0 | | 0 | 569.763 | 1,803 | 119,501 | Chem Translator of 0.316 applied |
| Hexavalent Chromium | 0 | 0 | | 0 | 16 | 16.3 | 1,080 | Chem Translator of 0.982 applied |
| Total Cobalt | 0 | 0 | | 0 | 95 | 95.0 | 6,296 | |
| Total Copper | 0 | 0 | | 0 | 13.439 | 14.0 | 928 | Chem Translator of 0.96 applied |
| Dissolved Iron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Iron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Lead | 0 | 0 | | 0 | 64.581 | 81.6 | 5,411 | Chem Translator of 0.791 applied |
| Total Manganese | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Mercury | 0 | 0 | | 0 | 1.400 | 1.65 | 109 | Chem Translator of 0.85 applied |
| Total Nickel | 0 | 0 | | 0 | 468.236 | 469 | 31,096 | Chem Translator of 0.998 applied |
| Total Phenols (Phenolics) (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Selenium | 0 | 0 | | 0 | N/A | N/A | N/A | Chem Translator of 0.922 applied |
| Total Silver | 0 | 0 | | 0 | 3.217 | 3.78 | 251 | Chem Translator of 0.85 applied |
| Total Thallium | 0 | 0 | | 0 | 65 | 65.0 | 4,308 | |
| Total Zinc | 0 | 0 | | 0 | 117.180 | 120 | 7,941 | Chem Translator of 0.978 applied |

☑ *CFC* CCT (min): 720 PMF: 0.156 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

| Pollutants | Stream Conc (µg/L) | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Fluoride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Aluminum | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Antimony | 0 | 0 | | 0 | 220 | 220 | 99,716 | |
| Total Arsenic | 0 | 0 | | 0 | 150 | 150 | 67,988 | Chem Translator of 1 applied |
| Total Barium | 0 | 0 | | 0 | 4,100 | 4,100 | 1,858,339 | |
| Total Boron | 0 | 0 | | 0 | 1,600 | 1,600 | 725,205 | |
| Total Cadmium | 0 | 0 | | 0 | 0.246 | 0.27 | 123 | Chem Translator of 0.909 applied |
| Total Chromium (III) | 0 | 0 | | 0 | 74.115 | 86.2 | 39,061 | Chem Translator of 0.86 applied |
| Hexavalent Chromium | 0 | 0 | | 0 | 10 | 10.4 | 4,712 | Chem Translator of 0.962 applied |
| Total Cobalt | 0 | 0 | | 0 | 19 | 19.0 | 8,612 | |
| Total Copper | 0 | 0 | | 0 | 8.956 | 9.33 | 4,228 | Chem Translator of 0.96 applied |
| Dissolved Iron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Iron | 0 | 0 | | 0 | 1,500 | 1,500 | 4,345,391 | WQC = 30 day average; PMF = 1 |
| Total Lead | 0 | 0 | | 0 | 2.517 | 3.18 | 1,442 | Chem Translator of 0.791 applied |
| Total Manganese | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Mercury | 0 | 0 | | 0 | 0.770 | 0.91 | 411 | Chem Translator of 0.85 applied |
| Total Nickel | 0 | 0 | | 0 | 52.007 | 52.2 | 23,643 | Chem Translator of 0.997 applied |
| Total Phenols (Phenolics) (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Selenium | 0 | 0 | | 0 | 4.600 | 4.99 | 2,261 | Chem Translator of 0.922 applied |
| Total Silver | 0 | 0 | | 0 | N/A | N/A | N/A | Chem Translator of 1 applied |
| Total Thallium | 0 | 0 | | 0 | 13 | 13.0 | 5,892 | |
| Total Zinc | 0 | 0 | | 0 | 118.139 | 120 | 54,307 | Chem Translator of 0.986 applied |

☑ *THH* CCT (min): 720 PMF: 0.156 Analysis Hardness (mg/l): N/A Analysis pH: N/A

| Pollutants | Stream Conc (µg/L) | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | 500,000 | 500,000 | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | 250,000 | 250,000 | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | 250,000 | 250,000 | N/A | |
| Fluoride (PWS) | 0 | 0 | | 0 | 2,000 | 2,000 | N/A | |
| Total Aluminum | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Antimony | 0 | 0 | | 0 | 5.6 | 5.6 | 2,538 | |
| Total Arsenic | 0 | 0 | | 0 | 10 | 10.0 | 4,533 | |
| Total Barium | 0 | 0 | | 0 | 2,400 | 2,400 | 1,087,808 | |
| Total Boron | 0 | 0 | | 0 | 3,100 | 3,100 | 1,405,085 | |
| Total Cadmium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Chromium (III) | 0 | 0 | | 0 | N/A | N/A | N/A | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Cobalt | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Copper | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dissolved Iron | 0 | 0 | | 0 | 300 | 300 | 135,976 | |
| Total Iron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Lead | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Manganese | 0 | 0 | | 0 | 1,000 | 1,000 | 453,253 | |
| Total Mercury | 0 | 0 | | 0 | 0.050 | 0.05 | 22.7 | |
| Total Nickel | 0 | 0 | | 0 | 610 | 610 | 276,485 | |
| Total Phenols (Phenolics) (PWS) | 0 | 0 | | 0 | 5 | 5.0 | N/A | |
| Total Selenium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Silver | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Thallium | 0 | 0 | | 0 | 0.24 | 0.24 | 109 | |
| Total Zinc | 0 | 0 | | 0 | N/A | N/A | N/A | |

☑ *CRL* CCT (min): 720 PMF: 0.226 Analysis Hardness (mg/l): N/A Analysis pH: N/A

| Pollutants | Stream Conc (µg/L) | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Fluoride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Aluminum | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Antimony | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Arsenic | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Barium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Boron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Cadmium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Chromium (III) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexavalent Chromium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Cobalt | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Copper | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dissolved Iron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Iron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Lead | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Manganese | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Mercury | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Nickel | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Phenols (Phenolics) (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Selenium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Silver | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Thallium | 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

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

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

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

| Pollutants | Governing WQBEL | Units | Comments |
|---|---|---|---|
| Total Dissolved Solids (PWS) | N/A | N/A | PWS Not Applicable |
| Chloride (PWS) | N/A | N/A | PWS Not Applicable |
| Bromide | N/A | N/A | No WQS |
| Sulfate (PWS) | N/A | N/A | PWS Not Applicable |
| Fluoride (PWS) | N/A | N/A | Discharge Conc < TQL |
| Total Aluminum | 31,861 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Antimony | N/A | N/A | Discharge Conc < TQL |
| Total Arsenic | N/A | N/A | Discharge Conc < TQL |
| Total Barium | 892,100 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Beryllium | N/A | N/A | No WQS |
| Total Boron | 344,096 | µg/L | Discharge Conc < TQL |
| Total Cadmium | 90.6 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Chromium (III) | 39,061 | µg/L | Discharge Conc < TQL |
| Hexavalent Chromium | 692 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Cobalt | 4,036 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Copper | 595 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Cyanide | N/A | N/A | No WQS |
| Dissolved Iron | 135,976 | µg/L | Discharge Conc < TQL |
| Total Iron | 4,345,391 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Lead | 1,442 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Manganese | 453,253 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Mercury | 22.7 | µg/L | Discharge Conc < TQL |
| Total Nickel | 19,931 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Phenols (Phenolics) (PWS) | | µg/L | Discharge Conc < TQL |
| Total Selenium | 2,261 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Silver | 161 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Thallium | 109 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Zinc | 5,090 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Molybdenum | N/A | N/A | No WQS |

# APPENDIX C

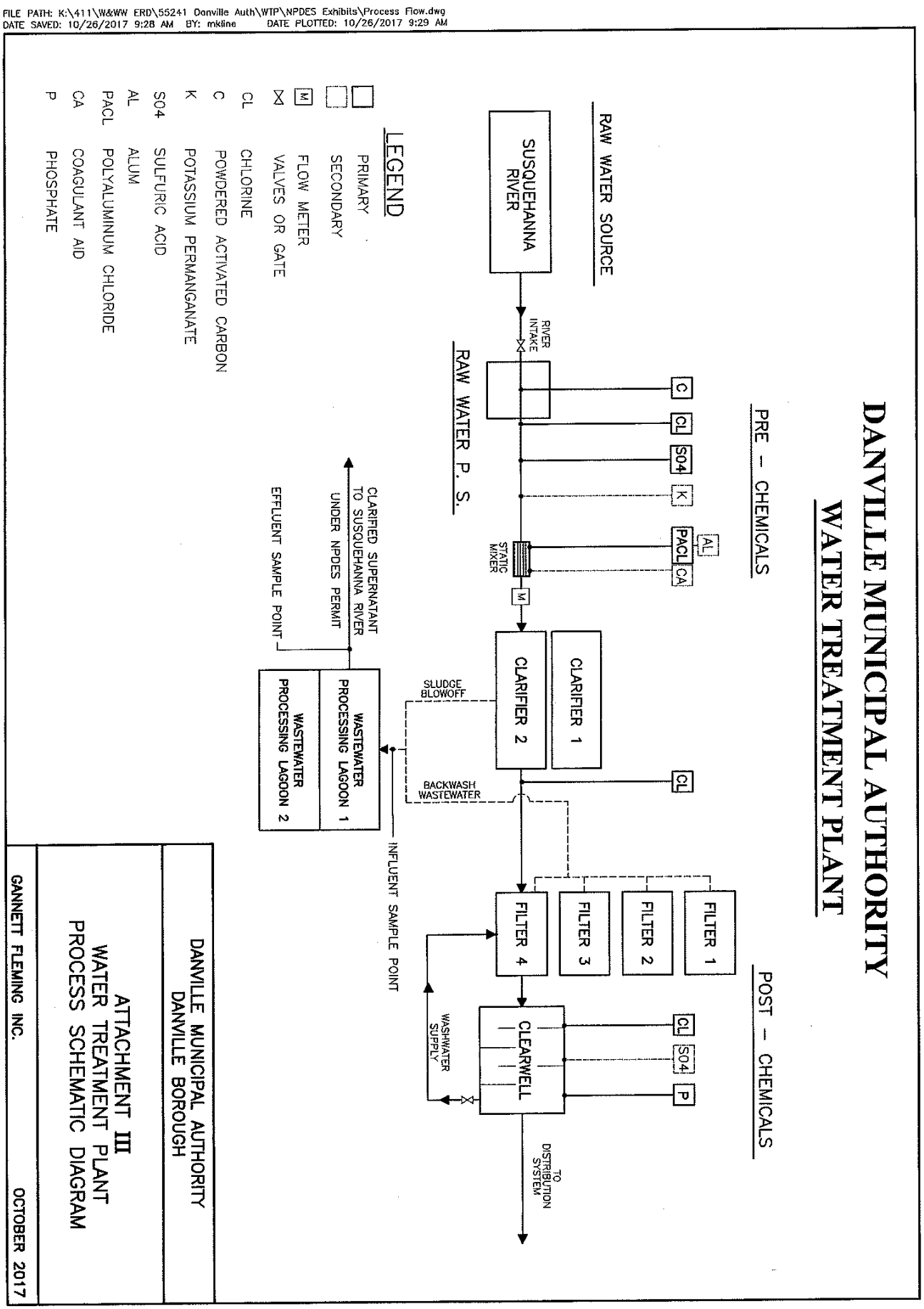
TRC SPREADSHEET

| | B | C | D | E | F | G |
|---|---|---|---|---|---|---|
| 1A | | | | | | |
| 2 | **TRC EVALUATION** | | | **Danville MA PA0027359** | | |
| 3 | Input appropriate values in B4:B8 and E4:E7 | | | | | |
| 4 | 1120 | = Q stream (cfs) | | 0.5 | = CV Daily | |
| 5 | 0.25 | = Q discharge (MGD) | | 0.5 | = CV Hourly | |
| 6 | 30 | = no. samples | | 1 | = AFC_Partial Mix Factor | |
| 7 | 0.3 | = Chlorine Demand of Stream | | 1 | = CFC_Partial Mix Factor | |
| 8 | 0 | = Chlorine Demand of Discharge | | 15 | = AFC_Criteria Compliance Time (min) | |
| 9 | 0.6 | = BAT/BPJ Value | | 720 | = CFC_Criteria Compliance Time (min) | |
| | 0 | = % Factor of Safety (FOS) | | 0 | =Decay Coefficient (K) | |
| 10 | Source | Reference | AFC Calculations | | Reference | CFC Calculations |
| 11 | TRC | 1.3.2.III | WLA afc = 923.820 | | 1.3.2.III | WLA cfc = 900.644 |
| 12 | PENTOXSD TRG | 5.1a | LTAMULT afc = 0.373 | | 5.1c | LTAMULT cfc = 0.681 |
| 13 | PENTOXSD TRG | 5.1b | LTA_afc= 344.237 | | 5.1d | LTA_cfc = 623.692 |
| 14 | | | | | | |
| 15 | Source | | Effluent Limit Calculations | | | |
| 16 | PENTOXSD TRG | 5.1f | AML MULT = 1.231 | | | |
| 17 | PENTOXSD TRG | 5.1g | AVG MON LIMIT (mg/l) = 0.500 | | BAT/BPJ | |
| 18 | | | INST MAX LIMIT (mg/l) = 1.635 | | | |

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

# APPENDIX D

## FACILITY MAP AND SCHEMATIC


FILE PATH: K:\411\W&WW ERD\55241 Danville Auth\WTP\NPDES Exhibits\Process Flow.dwg
DATE SAVED: 10/26/2017 9:28 AM BY: mkline DATE PLOTTED: 10/26/2017 9:29 AM
DANVILLE MUNICIPAL AUTHORITY
WATER TREATMENT PLANT
RAW WATER SOURCE
SUSQUEHANNA RIVER
RIVER INTAKE
RAW WATER P. S.
PRE – CHEMICALS
C
CL
SO4
K
AL
PACL
CA
STATIC MIXER
M
CLARIFIER 2
CLARIFIER 1
SLUDGE BLOWOFF
BACKWASH WASTEWATER
CL
POST – CHEMICALS
FILTER 1
FILTER 2
FILTER 3
FILTER 4
WASHWATER SUPPLY
CLEARWELL
CL
SO4
P
TO DISTRIBUTION SYSTEM
INFLUENT SAMPLE POINT
WASTEWATER PROCESSING LAGOON 1
WASTEWATER PROCESSING LAGOON 2
CLARIFIED SUPERNATANT TO SUSQUEHANNA RIVER UNDER NPDES PERMIT
EFFLUENT SAMPLE POINT
LEGEND
PRIMARY
SECONDARY
M FLOW METER
VALVES OR GATE
CL CHLORINE
C POWDERED ACTIVATED CARBON
K POTASSIUM PERMANGANATE
SO4 SULFURIC ACID
AL ALUM
PACL POLYALUMINUM CHLORIDE
CA COAGULANT AID
P PHOSPHATE
DANVILLE MUNICIPAL AUTHORITY
DANVILLE BOROUGH
ATTACHMENT III
WATER TREATMENT PLANT
PROCESS SCHEMATIC DIAGRAM
GANNETT FLEMING INC.
OCTOBER 2017