



Application Type
Facility Type
Major / Minor

Renewal
Industrial
Minor

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

Application No. **PA0217468**
APS ID **1128855**
Authorization ID **1512280**

Applicant and Facility Information

| | | | |
|---------------------------|--|------------------|---------------------------------------|
| Applicant Name | Beaver Falls Municipal Authority | Facility Name | Eastvale Water Treatment Plant |
| Applicant Address | 1425 Eighth Avenue PO Box 400 | Facility Address | 101 2nd Avenue E |
| Applicant Contact | Beaver Falls, PA 15010-0400 | Facility Contact | Beaver Falls, PA 15010-0400 |
| Applicant Phone | (724) 846-2400 | Facility Phone | 724-846-2400 |
| Client ID | 39435 | Site ID | 630214 |
| SIC Code | 4941 | Municipality | Eastvale Borough |
| SIC Description | Trans. & Utilities - Water Supply | County | Beaver |
| Date Application Received | December 31, 2024 | EPA Waived? | Yes |
| Date Application Accepted | January 14, 2025 | If No, Reason | |
| Purpose of Application | Renewal of NPDES Permit coverage for discharge of treated Industrial wastewater. | | |

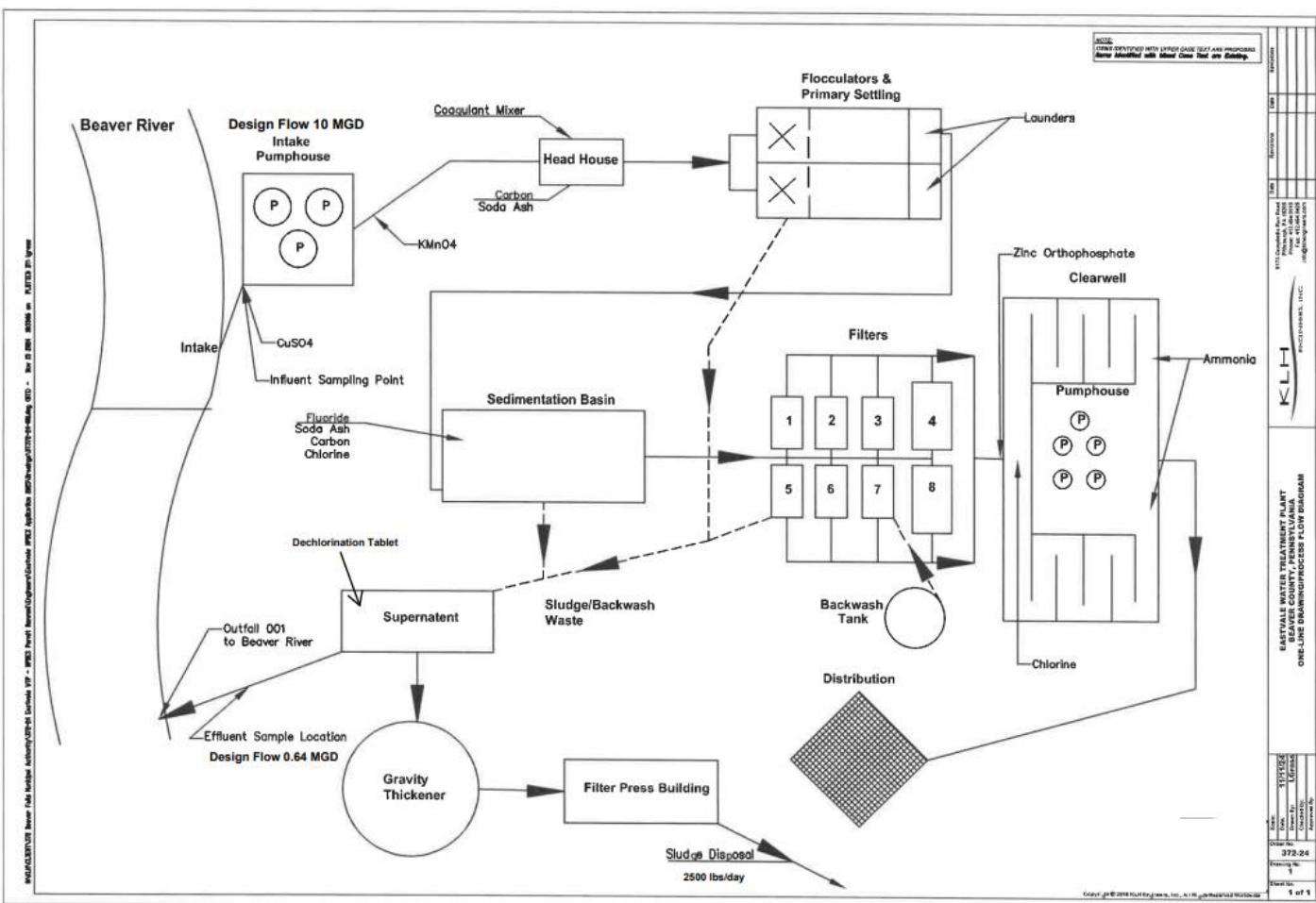
Summary of Review

The Department received an NPDES permit renewal application from Beaver Falls Municipal Authority on December 31, 2024, for coverage of its Eastvale Water Treatment Plant. The facility is a water treatment plant, owned and operated by the Beaver Falls Municipal Authority (BFMA). The plant serves approximately 50,000 customers in several municipalities in Beaver County. The standard industrial classification (SIC) code for this type of facility is 4941, water supply.

Wastewater generated at the site is filter backwash and sludge thickener supernatant. The filter backwash and sludge thickener supernatant is collected in an equalization basin to allow settling prior to discharging via Outfall 001 to the Beaver River, designated in 25 Pa Code Chapter 93 as a Warm Water Fishery. Sludge is generated during the flocculation and primary settling portion of the potable water treatment process, as well as the wastewater equalization basin. The sludge is treated in a sludge thickener to further reduce the water contained in the sludge prior to the solids being pressed and disposed of offsite.

| Approve | Deny | Signatures | Date |
|---------|------|---|----------------|
| X | | Alexa Howard Alexa Howard / Environmental Engineering Trainee | April 10, 2025 |
| X | | Michael E. Fifth Michael E. Fifth, P.E. / Environmental Engineer Manager | April 10, 2025 |

Summary of Review



The site was last inspected on August 6, 2021; no violations were noted.

Draft Permit issuance is recommended.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

| Discharge, Receiving Waters and Water Supply Information | | | |
|--|--|------------------------------|---------------------------|
| Outfall No. | 001 | Design Flow (MGD) | 1.8 |
| Latitude | 40° 45' 43" | Longitude | -80° 18' 48" |
| Quad Name | Beaver Falls | Quad Code | 1203 |
| Wastewater Description: | Treated industrial wastewater associated with potable water treatment plant. | | |
| Receiving Waters | Beaver River (WWF) | Stream Code | 33953 |
| NHD Com ID | 123918321 | RMI | 4.489681 |
| Drainage Area | 3110 mi ² | Yield (cfs/mi ²) | 0.205 |
| Q ₇₋₁₀ Flow (cfs) | 640 | Q ₇₋₁₀ Basis | US Army Corp of Engineers |
| Elevation (ft) | 1128 | Slope (ft/ft) | 0.0561 |
| Watershed No. | 20-B | Chapter 93 Class. | WWF |
| Existing Use | N/A | Existing Use Qualifier | N/A |
| Exceptions to Use | N/A | Exceptions to Criteria | N/A |
| Assessment Status | Impaired | | |
| Cause(s) of Impairment | METALS, POLYCHLORINATED BIPHENYLS (PCBS) | | |
| Source(s) of Impairment | SOURCE UNKNOWN | | |
| TMDL Status | Final | Name | Beaver River |
| Nearest Downstream Public Water Supply Intake | Beaver Falls Municipal Authority | | |
| PWS Waters | Beaver River | Flow at Intake (cfs) | 640 |
| PWS RMI | 3.06 | Distance from Outfall (mi) | 2.15 |

Changes Since Last Permit Issuance: No significant changes.

| Development of Effluent Limitations | | | |
|-------------------------------------|--|-------------------|--------------|
| Outfall No. | 001 | Design Flow (MGD) | 1.8 |
| Latitude | 40° 45' 43" | Longitude | -80° 18' 48" |
| Wastewater Description: | Supernatant from Wastewater Equalization Basin | | |

Technology-Based Limitations

The Eastvale Water Treatment Plant is not subject to Federal Effluent Limitation Guidelines (ELGs) as the SIC code is not listed under 40 CFR parts 405 through 471.

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) which is displayed in **Table 1** below.

Effluent standards for pH are also imposed on industrial wastes by 25 Pa. Code §§ 95.2(1) which is displayed in **Table 1** below.

Pennsylvania regulations at 25 Pa. Code § 92a.48(b) require the imposition of technology-based TRC limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELGs or a facility-specific BPJ evaluation which is displayed in **Table 1** below.

Table 1. Regulatory Effluent Standards

| Parameter | Monthly Avg | Daily Max | IMAX |
|-----------|------------------------|-----------|----------|
| Flow | Monitor | Monitor | ---- |
| pH | 6.0 – 9.0 at all times | | ---- |
| TRC | 0.5 mg/l | ---- | 1.6 mg/l |

Best Practicable Control Technology Currently Achievable (BPT)

BPT for wastewater from treatment of WTP sludges and filter backwash is found in DEPs Technology-Based Control Requirements for Water Treatment Plant Wastes Document which falls under Best Professional Judgement under 40 CFR § 125.3 and the limits imposed are displayed in **Table 2** below.

Table 2. BPT Limits for WTP sludge and filter backwash wastewater

| Parameter | Monthly Avg (mg/l) | Daily Max (mg/l) |
|-------------------------|------------------------|------------------|
| Suspended solids | 30.0 | 60.0 |
| Iron (total) | 2.0 | 4.0 |
| Aluminum (total) | 4.0 | 8.0 |
| Manganese (total) | 1.0 | 2.0 |
| Flow | Monitor | ---- |
| pH | 6.0 – 9.0 at all times | |
| Total Residual Chlorine | 0.5 | 1.0 |

Water Quality-Based Limitations

Toxics Management Spread Sheet

The Department of Environmental Protection has developed the DEP Toxics Management Spreadsheet ("TMS") to facilitate calculations necessary for completing a reasonable potential (RP) analysis and determining water quality-based effluent limitations for discharges of toxic pollutants. The TMS is a macro-enabled Excel binary file that combines the functions of the PENTOXSD model and the Toxics Screening Analysis spreadsheet to evaluate the reasonable potential for discharges to cause excursions above water quality standards and to determine WQBELs. The TMS is a single discharge, mass-balance water quality calculation spread sheet that includes consideration for mixing, first-order decay and other factors to determine recommended WQBELs for toxic substances and several non-toxic substances. Required

input data including stream code, river mile index, elevation, drainage area, discharge name, NPDES permit number, discharge flow rate and the discharge concentrations for parameters in the permit application or in DMRs, which are entered into the spread sheet to establish site-specific discharge conditions. Other data such as low flow yield, reach dimensions and partial mix factors may also be entered to further characterize the conditions of the discharge and receiving water. Discharge concentrations for the parameters are chosen to represent the "worst case" quality of the discharge (i.e., maximum reported discharge concentrations). The spread sheet then evaluates each parameter by computing a Waste Load Allocation for each applicable criterion, determining a recommended maximum WQBEL and comparing that recommended WQBEL with the input discharge concentration to determine which is more stringent. Based on this evaluation, the TMS recommends average monthly and maximum daily WQBELs.

Reasonable Potential Analysis and WQBEL Development for Outfall 001

Discharges from Outfall 001 are evaluated based on concentrations reported on the application and on DMRs; data from those sources are entered into the TMS. The maximum reported value of the parameters from the application form or from previous DMRs is used as the input concentration in the TMS. All toxic pollutants whose maximum concentrations, as reported in the permit application or on DMRs, are greater than the most stringent applicable water quality criterion are considered to be pollutants of concern. This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion. The TMS is run with the discharge and receiving stream characteristics shown in **Table 3**. Pollutants for which water quality standards have not been promulgated (e.g., TSS, oil and grease) are excluded from the analysis. All the parameters are evaluated using the model to determine the water quality-based effluent limits applicable to the discharge and the receiving stream. The spreadsheet then compares the reported discharge concentrations to the calculated water quality-based effluent limitations to determine if a reasonable potential exists to exceed the calculated WQBELs. Effluent limitations are established in the draft permit where a pollutant's maximum reported discharge concentration equals or exceeds 50% of the WQBEL. For non-conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 25% - 50% of the WQBEL. For conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 10% - 50% of the WQBEL.

Effluent limitations recommended by the TMS are shown in **Table 4**. The Output from the TMS is included in **Attachment A**.

Table 3. TMS Inputs for Outfall 001

| Discharge Information | |
|---------------------------------------|--------|
| Parameter | Value |
| River Mile Index | 4.49 |
| Discharge Flow (MGD) | 0.64 |
| Basin/Stream Information | |
| Parameter | Value |
| Drainage Area (mi ²) | 3110 |
| Q ₇₋₁₀ (cfs) | 640 |
| Low-flow yield (cfs/mi ²) | 0.205 |
| Elevation (ft) | 1128 |
| Slope (ft/ft) | 0.0561 |

Table 4. WQBELs from TMS

| Parameter | Monthly Avg (lbs/day) | Daily Max (lbs/day) |
|----------------|--------------------------|------------------------|
| Total Aluminum | Report | Report |

Total Residual Chlorine

To determine if WQBELs are required for discharges containing total residual chlorine (TRC), a discharge evaluation is performed using a DEP program called TRC_CALC created with Microsoft Excel for Windows. TRC_CALC calculates TRC Waste Load Allocations (WLAs) through the application of a mass balance model which considers TRC losses due to stream and discharge chlorine demands and first-order chlorine decay. Input values for the program include flow rates and chlorine demands for the receiving stream and the discharge, the number of samples taken per month, coefficients of TRC variability, partial mix factors, and an optional factor of safety. The mass balance model calculates WLAs for acute and chronic criteria

that are then converted to long term averages using calculated multipliers. The multipliers are functions of the number of samples taken per month and the TRC variability coefficients (normally kept at default values unless site specific information is available). The most stringent limitation between the acute and chronic long-term averages is converted to an average monthly limit for comparison to the BAT average monthly limit of 0.5 mg/l from 25 Pa. Code § 92a.48(b)(2). The more stringent of these average monthly TRC limitations is imposed in the permit. The results of the modeling, included in **Attachment B**, indicate that no WQBELs are required for TRC.

Table 5. TRC limits from TRC_CALC

| Parameter | Monthly Avg (mg/L) | Daily Max (mg/L) |
|-------------------------|--------------------|------------------|
| Total Residual Chlorine | 0.5 | 1.170 |

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l). The limits below in **Table 6** are from the current permit. The parameters listed are from the Departments Technical Support Document (TSD) "Development of Technology-Based Control Requirements for Water Treatment Plant Wastes in Pennsylvania".

Table 6: Current Permit Effluent Limits

| Parameters | Mass (lb/day) | | Concentration (mg/l) | | | |
|-------------------------|-----------------|---------------|----------------------|-----------------|---------------|------------------|
| | Average Monthly | Daily Maximum | Minimum | Average Monthly | Daily Maximum | Instant. Maximum |
| Flow (MGD) | Report | Report | XXX | XXX | XXX | XXX |
| Total Suspended Solids | XXX | XXX | XXX | 30.0 | XXX | 60.0 |
| Total Residual Chlorine | XXX | XXX | XXX | 0.5 | XXX | 1.0 |
| Total Aluminum | XXX | XXX | XXX | 4.0 | XXX | 8.0 |
| Total Iron | XXX | XXX | XXX | 2.0 | XXX | 4.0 |
| Total Manganese | XXX | XXX | XXX | 1.0 | XXX | 2.0 |
| pH (S.U.) | XXX | XXX | 6.0 | XXX | XXX | 9.0 |

Proposed Effluent Limitations for Outfall 001

The proposed effluent limitations and monitoring requirements for Outfall 001 are shown below in **Table 7**. The monitoring frequency will remain the same as the current permit, twice per month.

Table 7: Proposed Effluent Limitation for Outfall 001

| Parameters | Mass (lb/day) | | Concentration | | | | Monitoring Requirements | |
|--------------------------------|-----------------|---------------|------------------|-----------------|---------------|------------------|-------------------------|-------------|
| | Average Monthly | Daily Maximum | Instant. Minimum | Average Monthly | Daily Maximum | Instant. Maximum | Frequency | Sample Type |
| Flow (MGD) | Report | Report | XXX | XXX | XXX | XXX | 2/Month | Measured |
| Total Suspended Solids (mg/L) | XXX | XXX | XXX | 30.0 | 60.0 | XXX | 2/Month | Grab |
| Total Residual Chlorine (mg/L) | XXX | XXX | XXX | 0.5 | 1.0 | XXX | 2/Month | Grab |
| Total Aluminum (mg/L) | XXX | XXX | XXX | 4.0 | 8.0 | XXX | 2/Month | Grab |
| Total Iron (mg/L) | XXX | XXX | XXX | 2.0 | 4.0 | XXX | 2/Month | Grab |
| Total Manganese (mg/L) | XXX | XXX | XXX | 1.0 | 2.0 | XXX | 2/Month | Grab |
| pH (S.U.) | XXX | XXX | 6.0 | XXX | XXX | 9.0 | 2/Month | Grab |

| Tools and References Used to Develop Permit | |
|---|--|
| <input type="checkbox"/> | WQM for Windows Model |
| <input checked="" type="checkbox"/> | Toxics Management Spreadsheet (see Attachment A) |
| <input checked="" type="checkbox"/> | TRC Model Spreadsheet (see Attachment B) |
| <input type="checkbox"/> | Temperature Model Spreadsheet |
| <input type="checkbox"/> | Water Quality Toxics Management Strategy, 361-0100-003, 4/06. |
| <input type="checkbox"/> | Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97. |
| <input type="checkbox"/> | Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98. |
| <input type="checkbox"/> | Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96. |
| <input checked="" type="checkbox"/> | Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97. |
| <input type="checkbox"/> | Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97. |
| <input type="checkbox"/> | Pennsylvania CSO Policy, 386-2000-002, 9/08. |
| <input type="checkbox"/> | Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03. |
| <input type="checkbox"/> | Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97. |
| <input type="checkbox"/> | Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97. |
| <input type="checkbox"/> | Implementation Guidance Design Conditions, 386-2000-007, 9/97. |
| <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997. |
| <input type="checkbox"/> | Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99. |
| <input type="checkbox"/> | Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004. |
| <input type="checkbox"/> | Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97. |
| <input type="checkbox"/> | Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008. |
| <input type="checkbox"/> | Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994. |
| <input type="checkbox"/> | Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09. |
| <input type="checkbox"/> | Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97. |
| <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99. |
| <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | Design Stream Flows, 386-2000-003, 9/98. |
| <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97. |
| <input type="checkbox"/> | Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07. |
| <input checked="" type="checkbox"/> | SOP: Establishing Effluent Limits for Individual Industrial Permits (BCW-PMT-032) |
| <input checked="" type="checkbox"/> | Other: USGS Stream Stats (See Attachment C) |

Attachments

Attachment A: Toxics Management Spreadsheet

Attachment B: TRC Model Spreadsheet

Attachment C: USGS Stream Stats

Attachment D: Aerial Site Map

**Attachment A:
Toxics Management Spreadsheet**

Discharge Information

Instructions Discharge Stream

Facility: Eastvale Water Treatment Plant

NPDES Permit No.: PA0217468

Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste

Wastewater Description: Supernatant from Wastewater Equalization

| 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 | |
| 0.64 | 156 | 7.73 | | | | | | | |

| | | | 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 | Criteri a Mod | Chem Transl |
| Total Dissolved Solids (PWS) | mg/L | | 20 | | | | | | | | | |
| Chloride (PWS) | mg/L | | 54.5 | | | | | | | | | |
| Bromide | mg/L | < | 0.1 | | | | | | | | | |
| Sulfate (PWS) | mg/L | | 78.6 | | | | | | | | | |
| Fluoride (PWS) | mg/L | | 0.53 | | | | | | | | | |
| Total Aluminum | µg/L | | 2200 | | | | | | | | | |
| Total Antimony | µg/L | < | 2 | | | | | | | | | |
| Total Arsenic | µg/L | < | 2 | | | | | | | | | |
| Total Barium | µg/L | | 32.9 | | | | | | | | | |
| Total Beryllium | µg/L | < | 1 | | | | | | | | | |
| Total Boron | µg/L | < | 100 | | | | | | | | | |
| Total Cadmium | µg/L | < | 0.2 | | | | | | | | | |
| Total Chromium (III) | µg/L | < | 2 | | | | | | | | | |
| Hexavalent Chromium | µg/L | < | 5 | | | | | | | | | |
| Total Cobalt | µg/L | < | 1 | | | | | | | | | |
| Total Copper | mg/L | | 0.0239 | | | | | | | | | |
| Free Cyanide | µg/L | | | | | | | | | | | |
| Total Cyanide | µg/L | < | 5 | | | | | | | | | |
| Dissolved Iron | µg/L | < | 20 | | | | | | | | | |
| Total Iron | µg/L | | 230 | | | | | | | | | |
| Total Lead | µg/L | < | 1 | | | | | | | | | |
| Total Manganese | µg/L | | 940 | | | | | | | | | |
| Total Mercury | µg/L | < | 0.2 | | | | | | | | | |
| Total Nickel | µg/L | | 2.94 | | | | | | | | | |
| Total Phenols (Phenolics) (PWS) | µg/L | < | 30 | | | | | | | | | |
| Total Selenium | µg/L | < | 5 | | | | | | | | | |
| Total Silver | µg/L | < | 0.4 | | | | | | | | | |
| Total Thallium | µg/L | < | 2 | | | | | | | | | |
| Total Zinc | mg/L | | 0.00956 | | | | | | | | | |
| Total Molybdenum | µg/L | | 2.37 | | | | | | | | | |
| Acrolein | µg/L | < | | | | | | | | | | |
| Acrylamide | µg/L | < | | | | | | | | | | |
| Acrylonitrile | µg/L | < | | | | | | | | | | |
| Benzene | µg/L | < | | | | | | | | | | |
| Bromoform | µg/L | < | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---------|-----------------------------|------|---|--|--|--|--|--|--|--|--|--|--|
| Group 3 | Carbon Tetrachloride | µg/L | < | | | | | | | | | | |
| | Chlorobenzene | µg/L | | | | | | | | | | | |
| | Chlorodibromomethane | µg/L | < | | | | | | | | | | |
| | Chloroethane | µg/L | < | | | | | | | | | | |
| | 2-Chloroethyl Vinyl Ether | µg/L | < | | | | | | | | | | |
| | Chloroform | µg/L | < | | | | | | | | | | |
| | Dichlorobromomethane | µg/L | < | | | | | | | | | | |
| | 1,1-Dichloroethane | µg/L | < | | | | | | | | | | |
| | 1,2-Dichloroethane | µg/L | < | | | | | | | | | | |
| | 1,1-Dichloroethylene | µg/L | < | | | | | | | | | | |
| | 1,2-Dichloropropane | µg/L | < | | | | | | | | | | |
| | 1,3-Dichloropropylene | µg/L | < | | | | | | | | | | |
| | 1,4-Dioxane | µg/L | < | | | | | | | | | | |
| | Ethylbenzene | µg/L | < | | | | | | | | | | |
| | Methyl Bromide | µg/L | < | | | | | | | | | | |
| | Methyl Chloride | µg/L | < | | | | | | | | | | |
| | Methylene Chloride | µg/L | < | | | | | | | | | | |
| | 1,1,2,2-Tetrachloroethane | µg/L | < | | | | | | | | | | |
| | Tetrachloroethylene | µg/L | < | | | | | | | | | | |
| | Toluene | µg/L | < | | | | | | | | | | |
| | 1,2-trans-Dichloroethylene | µg/L | < | | | | | | | | | | |
| | 1,1,1-Trichloroethane | µg/L | < | | | | | | | | | | |
| | 1,1,2-Trichloroethane | µg/L | < | | | | | | | | | | |
| | Trichloroethylene | µg/L | < | | | | | | | | | | |
| | Vinyl Chloride | µg/L | < | | | | | | | | | | |
| Group 4 | 2-Chlorophenol | µg/L | < | | | | | | | | | | |
| | 2,4-Dichlorophenol | µg/L | < | | | | | | | | | | |
| | 2,4-Dimethylphenol | µg/L | < | | | | | | | | | | |
| | 4,6-Dinitro-o-Cresol | µg/L | < | | | | | | | | | | |
| | 2,4-Dinitrophenol | µg/L | < | | | | | | | | | | |
| | 2-Nitrophenol | µg/L | < | | | | | | | | | | |
| | 4-Nitrophenol | µg/L | < | | | | | | | | | | |
| | p-Chloro-m-Cresol | µg/L | < | | | | | | | | | | |
| | Pentachlorophenol | µg/L | < | | | | | | | | | | |
| | Phenol | µg/L | < | | | | | | | | | | |
| Group 5 | 2,4,6-Trichlorophenol | µg/L | < | | | | | | | | | | |
| | Acenaphthene | µg/L | < | | | | | | | | | | |
| | Acenaphthylene | µg/L | < | | | | | | | | | | |
| | Anthracene | µg/L | < | | | | | | | | | | |
| | Benzidine | µg/L | < | | | | | | | | | | |
| | Benzo(a)Anthracene | µg/L | < | | | | | | | | | | |
| | Benzo(a)Pyrene | µg/L | < | | | | | | | | | | |
| | 3,4-Benzofluoranthene | µg/L | < | | | | | | | | | | |
| | Benzo(ghi)Perylene | µg/L | < | | | | | | | | | | |
| | Benzo(k)Fluoranthene | µg/L | < | | | | | | | | | | |
| | Bis(2-Chloroethoxy)Methane | µg/L | < | | | | | | | | | | |
| | Bis(2-Chloroethyl)Ether | µg/L | < | | | | | | | | | | |
| | Bis(2-Chloroisopropyl)Ether | µg/L | < | | | | | | | | | | |
| | Bis(2-Ethylhexyl)Phthalate | µg/L | < | | | | | | | | | | |
| | 4-Bromophenyl Phenyl Ether | µg/L | < | | | | | | | | | | |
| | Butyl Benzyl Phthalate | µg/L | < | | | | | | | | | | |
| | 2-Chloronaphthalene | µg/L | < | | | | | | | | | | |
| | 4-Chlorophenyl Phenyl Ether | µg/L | < | | | | | | | | | | |
| | Chrysene | µg/L | < | | | | | | | | | | |
| | Dibenzo(a,h)Anthracene | µg/L | < | | | | | | | | | | |
| | 1,2-Dichlorobenzene | µg/L | < | | | | | | | | | | |
| | 1,3-Dichlorobenzene | µg/L | < | | | | | | | | | | |
| | 1,4-Dichlorobenzene | µg/L | < | | | | | | | | | | |
| | 3,3-Dichlorobenzidine | µg/L | < | | | | | | | | | | |
| | Diethyl Phthalate | µg/L | < | | | | | | | | | | |
| | Dimethyl Phthalate | µg/L | < | | | | | | | | | | |
| | Di-n-Butyl Phthalate | µg/L | < | | | | | | | | | | |
| | 2,4-Dinitrotoluene | µg/L | < | | | | | | | | | | |

Stream / Surface Water Information

Eastvale Water Treatment Plant, NPDES Permit No. PA0217468, Outfall 001

Instructions **Discharge** Stream

Receiving Surface Water Name: **Beaver River**

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 | 033953 | 4.489681 | 1128 | 3110 | | | Yes |
| End of Reach 1 | 033953 | 3.579354 | 1115 | 3110.1 | | | Yes |

Q₇₋₁₀

| 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 | 4.489681 | 0.205 | | | | | | | | | | 100 | 7 | | |
| End of Reach 1 | 3.579354 | 0.205 | | | | | | | | | | | | | |

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 | 4.489681 | | | | | | | | | | | | | | |
| End of Reach 1 | 3.579354 | | | | | | | | | | | | | | |

Model Results

Eastvale Water Treatment Plant, NPDES Permit No. PA0217468, Outfall 001

Instructions **Results**

[RETURN TO INPUTS](#)

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[PRINT](#)

All Inputs Results Limits

Hydrodynamics

Wasteload Allocations

AFC

CCT (min): **15**

PMF: **0.063**

Analysis Hardness (mg/l): **101.34**

Analysis pH: **7.01**

| 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 | 31,335 | |
| Total Antimony | 0 | 0 | | 0 | 1,100 | 1,100 | 45,959 | |
| Total Arsenic | 0 | 0 | | 0 | 340 | 340 | 14,205 | Chem Translator of 1 applied |
| Total Barium | 0 | 0 | | 0 | 21,000 | 21,000 | 877,393 | |
| Total Boron | 0 | 0 | | 0 | 8,100 | 8,100 | 338,423 | |
| Total Cadmium | 0 | 0 | | 0 | 2,040 | 2.16 | 90.3 | Chem Translator of 0.943 applied |
| Total Chromium (III) | 0 | 0 | | 0 | 576.010 | 1,823 | 76,158 | Chem Translator of 0.316 applied |
| Hexavalent Chromium | 0 | 0 | | 0 | 16 | 16.3 | 681 | Chem Translator of 0.982 applied |
| Total Cobalt | 0 | 0 | | 0 | 95 | 95.0 | 3,969 | |
| Total Copper | 0 | 0 | | 0 | 13.609 | 14.2 | 592 | 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 | 65.524 | 83.0 | 3,469 | Chem Translator of 0.789 applied |
| Total Manganese | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Mercury | 0 | 0 | | 0 | 1,400 | 1.65 | 68.8 | Chem Translator of 0.85 applied |
| Total Nickel | 0 | 0 | | 0 | 473.540 | 474 | 19,824 | 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 | 3.291 | 3.87 | 162 | Chem Translator of 0.85 applied |
| Total Thallium | 0 | 0 | | 0 | 65 | 65.0 | 2,716 | |
| Total Zinc | 0 | 0 | | 0 | 118.510 | 121 | 5,063 | Chem Translator of 0.978 applied |

NPDES Permit Fact Sheet
Beaver Falls Municipal Authority

NPDES Permit No. PA0217468

CFC CCT (min): **720** PMF: **0.439** Analysis Hardness (mg/l): **100.2** 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 | 62,378 | |
| Total Arsenic | 0 | 0 | | 0 | 150 | 150 | 42,530 | Chem Translator of 1 applied |
| Total Barium | 0 | 0 | | 0 | 4,100 | 4,100 | 1,162,500 | |
| Total Boron | 0 | 0 | | 0 | 1,600 | 1,600 | 453,658 | |
| Total Cadmium | 0 | 0 | | 0 | 0.246 | 0.27 | 76.8 | Chem Translator of 0.909 applied |
| Total Chromium (III) | 0 | 0 | | 0 | 74.234 | 86.3 | 24,475 | Chem Translator of 0.86 applied |
| Hexavalent Chromium | 0 | 0 | | 0 | 10 | 10.4 | 2,947 | Chem Translator of 0.962 applied |
| Total Cobalt | 0 | 0 | | 0 | 19 | 19.0 | 5,387 | |
| Total Copper | 0 | 0 | | 0 | 8.971 | 9.34 | 2,650 | 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 | 967,407 | WQC = 30 day average; PMF = 1 |
| Total Lead | 0 | 0 | | 0 | 2.522 | 3.19 | 904 | 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 | 257 | Chem Translator of 0.85 applied |
| Total Nickel | 0 | 0 | | 0 | 52.093 | 52.3 | 14,815 | 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 | 1,415 | 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 | 3,686 | |
| Total Zinc | 0 | 0 | | 0 | 118.337 | 120 | 34,029 | Chem Translator of 0.986 applied |

THH CCT (min): **720** PMF: **0.439** 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 | 1,588 | |
| Total Arsenic | 0 | 0 | | 0 | 10 | 10.0 | 2,835 | |
| Total Barium | 0 | 0 | | 0 | 2,400 | 2,400 | 680,488 | |
| Total Boron | 0 | 0 | | 0 | 3,100 | 3,100 | 878,963 | |
| Total Cadmium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Chromium (III) | 0 | 0 | | 0 | N/A | N/A | N/A | |

NPDES Permit Fact Sheet
Beaver Falls Municipal Authority

NPDES Permit No. PA0217468

| | | | | | | | |
|---------------------------------|---|---|--|---|-------|-------|---------|
| 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 | 85,061 |
| 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 | 283,537 |
| Total Mercury | 0 | 0 | | 0 | 0.050 | 0.05 | 14.2 |
| Total Nickel | 0 | 0 | | 0 | 610 | 610 | 172,957 |
| 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 | 68.0 |
| Total Zinc | 0 | 0 | | 0 | N/A | N/A | N/A |

CRL CCT (min): 720 PMF: 0.649 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 | |

NPDES Permit Fact Sheet
Beaver Falls Municipal Authority

NPDES Permit No. PA0217468

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 | | | |
| Total Aluminum | Report | Report | Report | Report | Report | µg/L | 20,085 | AFC | Discharge Conc > 10% WQBEL (no RP) |

Other Pollutants without Limits or Monitoring

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

| Pollutants | Governing WQBEL | Units | Comments |
|---------------------------------|-----------------|-------|----------------------------|
| Total Dissolved Solids (PWS) | N/A | N/A | PWS Not Applicable |
| Chloride (PWS) | N/A | N/A | PWS Not Applicable |
| Bromide | N/A | N/A | No WQS |
| Sulfate (PWS) | N/A | N/A | PWS Not Applicable |
| Fluoride (PWS) | N/A | N/A | PWS Not Applicable |
| Total Antimony | N/A | N/A | Discharge Conc < TQL |
| Total Arsenic | N/A | N/A | Discharge Conc < TQL |
| Total Barium | 562,374 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Beryllium | N/A | N/A | No WQS |
| Total Boron | 216,916 | µg/L | Discharge Conc < TQL |
| Total Cadmium | 57.9 | µg/L | Discharge Conc < TQL |
| Total Chromium (III) | 24,475 | µg/L | Discharge Conc < TQL |
| Hexavalent Chromium | 436 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Cobalt | 2,544 | µg/L | Discharge Conc < TQL |
| Total Copper | 0.38 | mg/L | Discharge Conc ≤ 10% WQBEL |
| Total Cyanide | N/A | N/A | No WQS |
| Dissolved Iron | 85,061 | µg/L | Discharge Conc < TQL |
| Total Iron | 967,407 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Lead | 904 | µg/L | Discharge Conc < TQL |
| Total Manganese | 283,537 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Mercury | 14.2 | µg/L | Discharge Conc < TQL |
| Total Nickel | 12,707 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Phenols (Phenolics) (PWS) | | µg/L | PWS Not Applicable |
| Total Selenium | 1,415 | µg/L | Discharge Conc < TQL |
| Total Silver | 104 | µg/L | Discharge Conc < TQL |
| Total Thallium | 68.0 | µg/L | Discharge Conc < TQL |
| Total Zinc | 3.25 | mg/L | Discharge Conc ≤ 10% WQBEL |
| Total Molybdenum | N/A | N/A | No WQS |

**Attachment B:
TRC Model Spreadsheet**

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

| | | | |
|------|--------------------------------|-----|--------------------------------------|
| 640 | = Q stream (cfs) | 0.5 | = CV Daily |
| 0.64 | = Q discharge (MGD) | 0.5 | = CV Hourly |
| 4 | = 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 = 206.225 | 1.3.2.iii | WLA_cfc = 201.045 |
| PENTOXSD TRG | 5.1a | LTAMULT_afc = 0.373 | 5.1c | LTAMULT_cfc = 0.581 |
| PENTOXSD TRG | 5.1b | LTA_afc = 76.844 | 5.1d | LTA_cfc = 116.878 |

| Effluent Limit Calculations | | | | |
|-----------------------------|------|-------------------------------|---------|--|
| PENTOXSD TRG | 5.1f | AML MULT = 1.720 | | |
| PENTOXSD TRG | 5.1g | AVG MON LIMIT (mg/l) = 0.500 | BAT/BPJ | |
| | | INST MAX LIMIT (mg/l) = 1.170 | | |

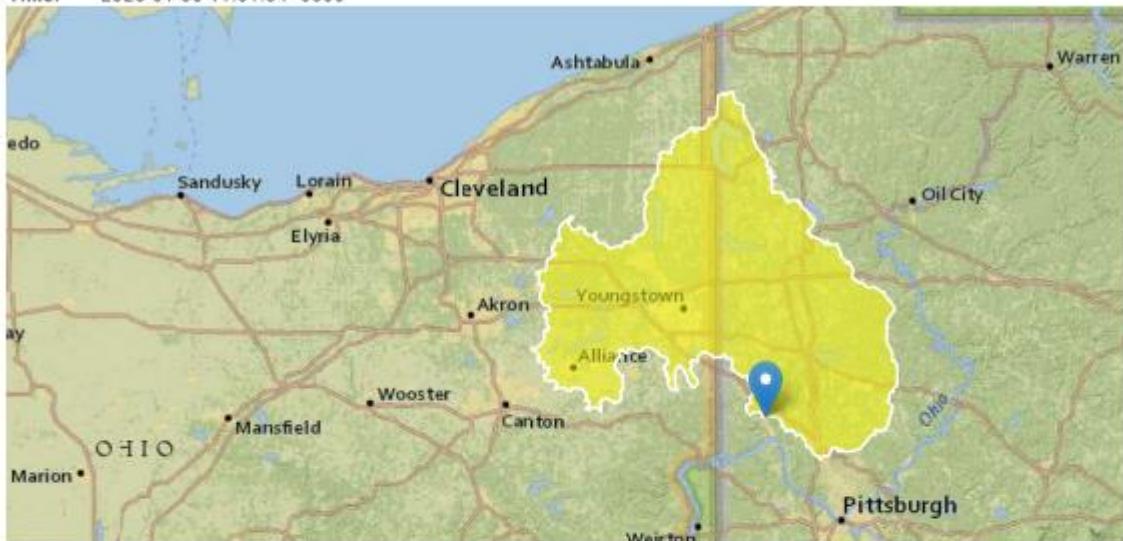
| | |
|----------------|---|
| WLA_afc | $(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...\\... + Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)$ |
| LTAMULT_afc | $EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)$ |
| LTA_afc | wla_afc*LTAMULT_afc |
| WLA_cfc | $(.011/e(-k*CFC_tc)) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...\\... + Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)$ |
| 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 | $1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)$ |

| |
|---|
| (0.011/EXP(-K*CFC_tc/1440))+(((CFC_Yc*Qs*0.011)/(1.547*Qd)....\\....*EXP(-K*CFC_tc/1440)))+Xd+(CFC_Yc*Qs*Xs/1.547*Qd))* (1-FOS/100) |
|---|

**Attachment C:
USGS Stream Stats**

StreamStats Report

Region ID: PA
Workspace ID: PA20250130160110045000
Clicked Point (Latitude, Longitude): 40.76412, -80.31642
Time: 2025-01-30 11:01:34 -0500



[Collapse All](#)

► Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|----------------|---|--------|--------------|
| BSLOPD | Mean basin slope measured in degrees | 3.2135 | degrees |
| DRNAREA | Area that drains to a point on a stream | 3110 | square miles |
| ELEV | Mean Basin Elevation | 1128 | feet |

► Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|----------------|----------------------|-------|--------------|-----------|-----------|
| DRNAREA | Drainage Area | 3110 | square miles | 2.26 | 1400 |
| ELEV | Mean Basin Elevation | 1128 | feet | 1050 | 2580 |

Low-Flow Statistics Disclaimers [Low Flow Region 4]

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

Low-Flow Statistics Flow Report [Low Flow Region 4]

| Statistic | Value | Unit |
|-------------------------|-------|--------------------|
| 7 Day 2 Year Low Flow | 254 | ft ³ /s |
| 30 Day 2 Year Low Flow | 336 | ft ³ /s |
| 7 Day 10 Year Low Flow | 161 | ft ³ /s |
| 30 Day 10 Year Low Flow | 187 | ft ³ /s |
| 90 Day 10 Year Low Flow | 256 | ft ³ /s |

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. (<http://pubs.usgs.gov/sir/2006/5130/>)

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Application Version: 4.26.0

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

**Attachment D:
Aerial Site Map**

