pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

**Southwest Regional Office**
**CLEAN WATER PROGRAM**

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0111279** |
| Facility Type | **Industrial** | APS ID | **986864** |
| Major / Minor | **Minor** | Authorization ID | **1262357** |

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

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Hooversville Borough** | Facility Name | **Hooversville Borough WTP** |
| Applicant Address | PO Box 176 50 Main Street | Facility Address | 822 Hooversville Road |
| | Hooversville, PA 15936-0176 | | Hooversville, PA 15936 |
| Applicant Contact | Kenneth Karashowsky | Facility Contact | Kenneth Karashowsky |
| Applicant Phone | (814) 798-8001 | Facility Phone | (814) 798-8001 |
| Client ID | 74441 | Site ID | 4435 |
| SIC Code | 4941 | Municipality | Quemahoning Township |
| SIC Description | Trans. & Utilities - Water Supply | County | Somerset |
| Date Application Received | February 4, 2019 | EPA Waived? | Yes |
| Date Application Accepted | May 3, 2019 | If No, Reason | |

Purpose of Application: Renewal of NPDES Permit for the discharge of WTP treated wastewater

## Summary of Review

Background

The permittee submitted an NPDES permit renewal application to the Department on February 4, 2019. However, deficiencies required further submissions. The required renewal information was later received, and the application accepted on May 3, 2019. The application is for discharges from the Hooversville Borough Water Treatment Plant (HBWTP).

The HBWTP facility is a water treatment plant (SIC 4941) which treats surface water from Stony Creek (a.k.a. Stonycreek River) for community potable water use. The water plant has a rated capacity of just over 0.20 MGD and a safe yield of 0.16 MGD, but currently treats a design daily intake flow of 0.115 MGD. HBMA's renewal application documents that the plant discharges in 2-hour batches, 5 days per week with an average flow rate of 0.0036 MGD and a maximum flow rate of 0.0083 MGD.

As noted, HBWTP's source of intake water is from Stony Creek. River intake pumps convey the raw water approximately 3000 linear feet to the HBWTP location. HBWTP also has two installed wells that act as a backup source. The previous NPDES permit was issued by the Department's Safe Drinking Water program on July 29, 2014 and its term ran from August 1, 2014 to July 31, 2019. This permit has been administratively extended until this renewal is processed.

The Hooversville Borough Municipal Authority (HBMA) was created in 1976 to provide potable water service to Hooversville Borough and its immediate environs. HBMA applied for a Water Quality Management (WQM) Part II permit for the HBWTP circa 1977 and WQM **5677204** was issued on March 30, 1978. However, after some delays and changes occurred, another WQM permit application was required and a new application received by the Department on May 22, 1981. In response, WQM permit **5681203** was issued on August 24, 1981 and NPDES permit **PA0111279** was issued on September 1, 1981.

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| X | | John L Duryea, Jr., P.E. / Environmental Engineer | April 29, 2022 |
| X | | Michael E. Fifth, P.E. / Environmental Engineer Manager | April 29, 2022 |

**Summary of Review**

Today, HBMA is planning to install piping for an interconnection to the Conemaugh Township Municipal Authority's system. After completion, HBMA plans to decommission the HBWTP.

HBWTP is a conventional type treatment plant, operating under PWS Permit No. 4560037. HBWTP treatment consists of chemical feed/pH adjustment, flash tank mixing, flocculation, chlorination, sedimentation and pressure filtration. A corrosion inhibitor can be added to the distribution system. Sedimentation sludge is conveyed to a settling lagoon. Wastewater is mostly generated during filter backwash, but also includes supernatant from the settling lagoons. The wastewater treatment equipment consists of the two settling lagoons and a drying bed. Solids are removed for offsite disposal. Lagoon supernatant is discharged at Outfall 001, aka "TRTD EFF 001". This treated wastewater effluent is then discharged to an unnamed tributary (UNT) to Stony Creek and is the subject of this NPDES permit. An annotated image of the HBWTP facility is shown in Figure 1 below:


**Figure 1: Satellite Image of the Hooversville Borough WTP and Outfall 001**

The receiving surface water is the UNT (45611), known locally as Kiems Run, of Stony Creek (a.k.a. Stonycreek River). This surface water is listed in 25 PA Code Chapter 93 as a cold water fishery (CWF). Although this segment is listed as supporting its aquatic use, nearby downstream segments are impaired for a number of causes, most significantly for abandoned mine drainage (AMD), AMD associated metals (especially aluminum, iron and manganese), nutrients, low pH, siltation and the associated total suspended solids (TSS).

**Summary of Review**

In a telecom on April 28, 2022, the Borough's consultant requested that the permittee be Hooversville Borough, rather than HBMA. This change was made.

The permitted complied with Act 14 notifications.

It is recommended that this permit be published as a draft to solicit public comments.

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.

## Compliance History

**Table 1: DMR Data for Outfall 001 (from March 1, 2021 to February 28, 2022)**

| Parameter | FEB-22 | JAN-22 | DEC-21 | NOV-21 | OCT-21 | SEP-21 | AUG-21 | JUL-21 | JUN-21 | MAY-21 | APR-21 | MAR-21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD) Average Monthly | 0.0031 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.07 | 0.004 | 0.004 |
| Flow (MGD) Daily Maximum | 0.0032 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.05 | 0.004 | 0.004 |
| pH (S.U.) Minimum | 7.22 | 7.48 | 7.46 | 7.37 | 7.48 | 7.28 | 7.31 | 7.32 | 7.43 | 7.38 | 7.14 | 6.88 |
| pH (S.U.) Maximum | 7.33 | 7.68 | 7.85 | 7.58 | 7.65 | 7.4 | 7.38 | 7.41 | 7.54 | 7.48 | 7.32 | 7.40 |
| TRC (mg/L) Average Monthly | 0.14 | 0.22 | 0.16 | 0.23 | 0.22 | 0.13 | 0.4 | 0.12 | 0.14 | 0.12 | 0.15 | 0.13 |
| TRC (mg/L) Instantaneous Maximum | 0.18 | 0.40 | 0.18 | 0.24 | 0.28 | 0.15 | 0.4 | 0.12 | 0.23 | 0.18 | 0.18 | 0.13 |
| TSS (mg/L) Average Monthly | < 2 | < 2 | < 2 | 5 | 2 | < 2 | 2.0 | 2 | < 2.0 | < 2 | < 2 | < 6.0 |
| TSS (mg/L) Instantaneous Maximum | < 2 | < 2 | < 2 | 6 | 2 | < 2 | 2.0 | 2 | < 2.0 | 2 | < 2 | 10 |
| Total Aluminum (mg/L) Average Monthly | 0.20 | 0.20 | < 0.20 | 0.70 | 0.20 | 0.10 | 0.30 | 0.40 | 0.40 | < 0.20 | 0.20 | **1.00** |
| Total Aluminum (mg/L) Instantaneous Maximum | 0.2 | 0.20 | < 0.2 | 0.80 | 0.20 | 0.10 | 0.30 | 0.5 | 0.40 | 0.20 | 0.20 | **1.7** |
| Total Iron (mg/L) Average Monthly | 0.12 | 0.07 | 0.06 | 0.20 | < 0.05 | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.3 |
| Total Iron (mg/L) Instantaneous Maximum | 0.15 | 0.08 | 0.09 | 0.23 | 0.05 | 0.05 | < 0.05 | 0.05 | < 0.05 | < 0.05 | 0.05 | 0.38 |
| Total Manganese (mg/L) Average Monthly | 0.07 | 0.44 | 0.05 | 0.17 | 0.07 | 0.12 | 0.3 | 0.33 | 0.32 | 0.13 | 0.11 | 0.15 |
| Total Manganese (mg/L) Instantaneous Maximum | 0.07 | 0.74 | 0.06 | 0.2 | 0.07 | 0.13 | 0.42 | 0.38 | 0.36 | 0.23 | 0.14 | 0.23 |

| Compliance History | |
|---|---|
| | |
| **Summary of DMRs:** | A review by the compliance specialist noted that there were no unresolved violations and no pending enforcement actions in early 2022. There were three effluent limitation exceedances for Aluminum in February and March 2021, but these were not enough to trigger an enforcement action. The last of these is shown in bold in Table 1 above. |
| **Summary of Inspections:** | Since the last permit issuance in August 2014, inspections were conducted on July 2, 2015 and again on July 12, 2018. These inspection reports identified no violations. |

Other Comments:

Since the issuance of its renewed NPDES permit in August 2014, there have been no cited permit violations and very few effluent limitation exceedances.

| **Discharge, Receiving Waters and Water Supply Information** | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | .0083 |
| Latitude | 40º 08' 26.56" | Longitude | -78º 55' 55.12" |
| Quad Name | Hooversville | Quad Code | 1714 |
| Wastewater Description: | Filter backwash, sludge settling lagoon overflow and sludge drying bed under flow without ELG | | |
| Receiving Waters | Unnamed Tributary to Stonycreek River (CWF) | Stream Code | 45611 |
| NHD Com ID | 123719220 | RMI | 0.238 |
| Drainage Area | 2 sq. miles | Yield (cfs/mi$^2$) | 0.7045 |
| $Q_{7-10}$ Flow (cfs) | 0.141 | $Q_{7-10}$ Basis | USGS StreamStats |
| Elevation (ft) | 1704 | Slope (ft/ft) | 0.023 |
| Watershed No. | 18-E | Chapter 93 Class. | CWF |
| Existing Use | Aquatic Life, PWS source | Existing Use Qualifier | |
| Exceptions to Use | none | Exceptions to Criteria | none |
| Assessment Status | Attaining Use(s); Aquatic Life, PWS source | | |
| Cause(s) of Impairment | none | | |
| Source(s) of Impairment | none | | |
| TMDL Status | Final | Name | Kiskiminetas-Conemaugh River Watersheds TMDL |
| Nearest Downstream Public Water Supply Intake | Buffalo Township Water Authority | | |
| PWS Waters | Allegheny River | Flow at Intake (cfs) | 2,250 |
| PWS RMI | 29.4 | Distance from Outfall (mi) | > 50 miles |

a

Changes Since Last Permit Issuance: None

Other Comments: None


**Figure 2: USGS StreamStats Image Showing HBWTP Location and Receiving Surface Waters**

| Treatment Facility Summary | | | | |
|---|---|---|---|---|
| **Treatment Facility Name:** Hooversville Borough WTP | | | | |
| **WQM Permit No.** | **Issuance Date** | | | |
| 5681203 | August 24, 1981 | | | |
| 5677204 | March 30, 1978 | | | |
| **Waste Type** | **Degree of Treatment** | **Process Type** | **Disinfection** | **Avg Annual Flow (MGD)** |
| Industrial | Secondary | Settling and filtration | Chlorination | 0.0036 |
| | | | | |
| **Hydraulic Capacity (MGD)** | **Organic Capacity (lbs/day)** | **Load Status** | **Biosolids Treatment** | **Biosolids Use/Disposal** |
| 0.0083 | N/A | Not Overloaded | N/A | N/A |

Changes Since Last Permit Issuance: None

Other Comments: The process is illustrated below in Figure 3:

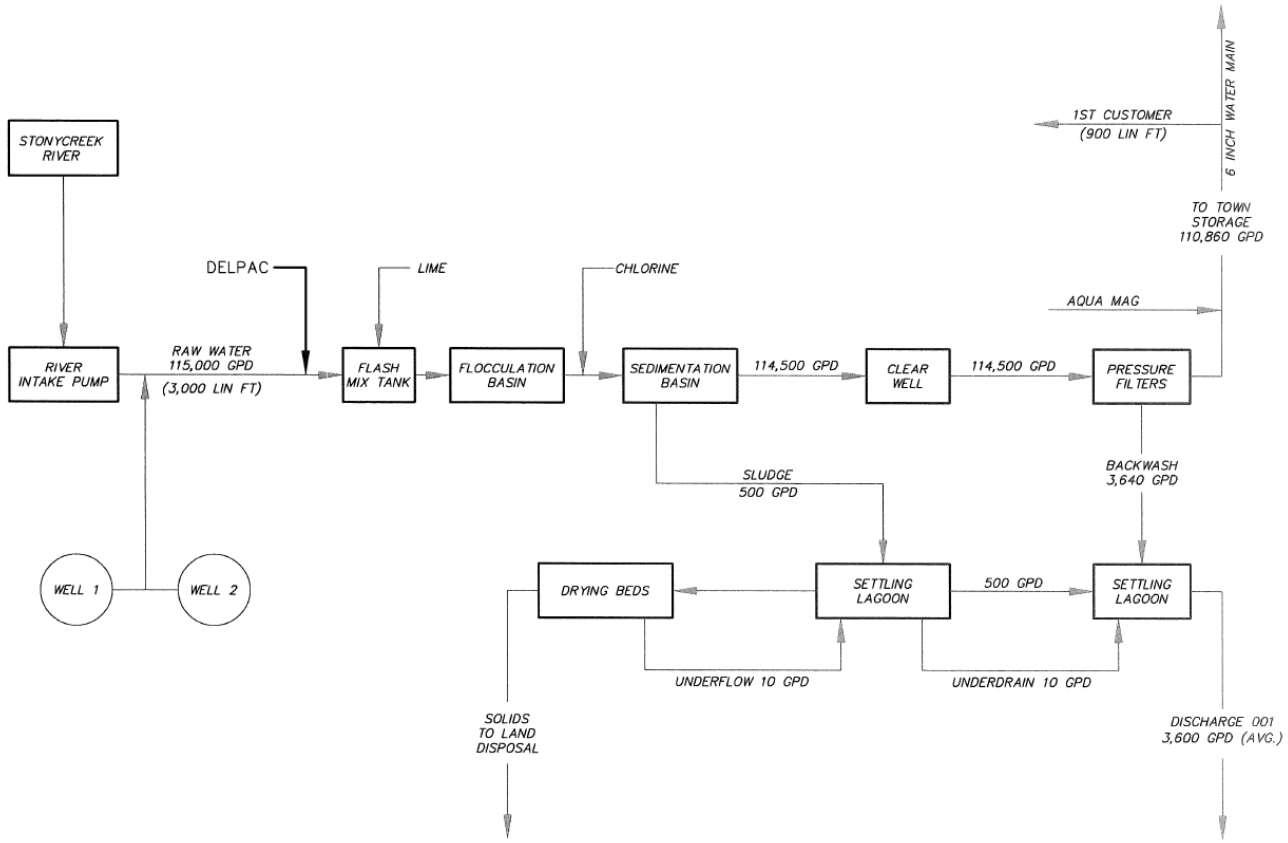


**Figure 3: Process Flow Diagram for the Water and Wastewater Treatment at HBWTP**

## Development of Effluent Limitations

**Outfall No.** 001 **Design Flow (MGD)** .0036
**Latitude** 40º 08' 26" **Longitude** -78º 55' 55"
**Wastewater Description:** Existing outfall for filter backwash, sludge settling lagoon overflow and sludge drying bed under flow

### Technology-Based Limitations

The HBMA facility is not subject to Federal Effluent Limitation Guidelines (ELGs) as the SIC code (4941) is not listed under 40 CFR parts 405 through 471.

Regulatory Effluent Standards and Monitoring Requirements

The pH effluent range for all Industrial waste process and non-process discharges pursuant of 25 Pa. Code § 92a.48(a)(2) and 25 Pa. Code § 95.2 is indicated in Table 2 below. Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) as indicated in Table 2 below.

Pursuant to 25 Pa. Code § 95.2(4) effluent standards for industrial wastes may not contain more than 7 mg/L of dissolved iron as indicated in Table 2 below.

Pursuant to 25 Pa. Code § 92a.48(b) 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 ELG's or a facility specific BPJ evaluation as indicated in Table 2 below.

**Table 2. Regulatory Effluent Standards**

| Parameter | Monthly Avg. | Daily Max | IMAX |
|---|---|---|---|
| Flow (MGD) | Monitor | Monitor | ---- |
| Iron, Dissolved | ---- | ---- | 7.0 mg/L |
| pH (S.U.) | 6-9 at all times | | |
| TRC | 0.5 mg/L | ---- | 1.6 mg/L |

Total Dissolved Solids (TDS)

Integral to the implementation of 25 Pa. Code § 95.10 is the principle that existing, authorized mass loadings of TDS are exempt from any treatment requirements under these provisions. Existing mass loadings of TDS up to and including the maximum daily discharge loading for any existing discharge, provided that the loading was authorized prior to August 21, 2010 are exempt. Discharge loadings of TDS authorized by the Department are typically exempt from the treatment requirements of Chapter 95.10 until the net TDS loading is increased, an existing discharge proposes a hydraulic expansion or a change in the waste stream. If there are existing mass or production-based TDS effluent limits, then these are used as the basis for the existing mass loading. In this context, The HBMA facility is neither new nor expanding its waste loading of TDS, therefore, the facility is exempt from 25 Pa. Code § 95.10 treatment requirements.

Best Practicable Control Technology Currently Achievable (BPT)

The Department's reference document *Technology-Based Control Requirements for Water Treatment Plant Wastes* (DEP-ID 362-2183-003) established BPT for discharges of WTPs wastewater, which are illustrated in Table 3 below.

**Table 3. BPT Limits for WTP Filter Backwash Wastewater**

| Parameter | Monthly Avg. (mg/L) | Daily Max (mg/L) |
|---|---|---|
| Total Suspended Solids (TSS) | 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 (S.U.) | 6-9 at all times | |
| TRC | 0.5 | 1.0 |

## Water Quality-Based Limitations

Total Maximum Daily Load (TMDL)

Wastewater discharges from the facility are located within the Kiskiminetas-Conemaugh River Watersheds for which the Department has developed a TMDL. The TMDL was finalized on January 29, 2010 and establishes waste load allocations for the discharge of aluminum, iron and manganese within the Kiskiminetas-Conemaugh River Watersheds. The facility permit, **PA0111279**, is explicitly listed in the Appendix G of the Kiskiminetas-Conemaugh River Watershed TMDL. Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's Water Quality Planning and Management Regulations (codified at Title 40 of the *Code of Federal Regulations* Part 130) require states to develop a TMDL for impaired water bodies. A TMDL establishes the amount of a pollutant that a water body can assimilate without exceeding the water quality criteria for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and non-point sources in order to restore and maintain the quality of the state's water resources (USEPA 1991a). Stream reaches within the Kiskiminetas-Conemaugh River Watersheds are included in the state's 2008 Section 303(d) list because of various impairments, including metals, pH and sediment. The TMDL includes consideration for each river and tributary within the target watershed and its impairment sources. Stream data is then used to calculate minimum pollutant reductions that are necessary to attain water quality criteria levels. Target concentrations published in the TMDL were based on established water quality criteria of 0.750 mg/L total recoverable aluminum, 1.5 mg/L total recoverable iron based on a 30-day average and 1.0 mg/L total recoverable manganese. The reduction needed to meet the minimum water quality standards is then divided between each known point and non-point pollutant source in the form of a watershed allocation. TMDLs prescribe allocations that minimally achieve water quality criteria (i.e., 100 percent use of a stream's assimilative capacity).

All new or revised NPDES permits discharging into the Kiskiminetas-Conemaugh River Watershed have to be consistent with the TMDL Waste Load Allocation based on 40 CFR 122.44(d)(1)(vii)(B). The Department reviewed the effluent concentrations of pollutants from the facility and determined that effluent limitations are required in order to meet the requirements of the TMDL.

**Aluminum:** The specific water quality criterion for aluminum is expressed as an acute or maximum daily in 25 Pa. Code Chapter 93. Discharges of aluminum may only be authorized to the extent that they will not cause or contribute to any violation of the water quality standards. Therefore, the water quality criterion for aluminum (0.75 mg/L) is imposed as a maximum daily effluent limit (MDL). Whenever the most stringent criterion is selected for the MDL, the Department should also impose an average monthly limit (AML) and instantaneous maximum limit (IMAX) if applicable. The imposition of an AML that is more stringent than the MDL is typically not appropriate because the water quality concerns have already been fully addressed by setting the MDL equal to the most stringent applicable criterion. Therefore, where the MDL is set at the value of the most stringent applicable criterion, the AML should be set equal to the MDL. Accordingly, TMDL aluminum limits are proposed for the Outfalls.

**Iron:** The specific water quality criterion for iron is expressed as a 30-day average of 1.5 mg/L in 25 Pa. Code § 93.7(a). The criterion is based on the protection of aquatic life and is associated with chronic exposure. There are no other criteria for total iron. Since the duration of the total iron criterion coincides with the 30-day duration of the AML, the 30-day average criterion for total iron is set equal to the AML. In addition, because the total iron criterion is associated with chronic exposure, the MDL (representing acute exposure) and the IMAX may be made less stringent according to established procedures described in Section III.C.3.h on Page 13 of the Water Quality Toxics Management Strategy (Doc. # 361-0100-003). These procedures state that a MDL and IMAX may be set at 2 times and 2.5 times the AML, respectively, or there is the option to use multipliers from EPA's Technical Support Document for Water Quality-based Toxics Control, if data are available to support the use of alternative multipliers. Accordingly, TMDL iron limits are proposed for the Outfalls.

**Manganese:** The specific water quality criterion for manganese is expressed as an acute or maximum daily of 1.0 mg/L in 25 Pa. Code § 93.7(a). The criterion is based on the protection of human health and is associated with chronic exposure associated with a potable water supply (PWS). Since no duration is given in Chapter 93 for the manganese criterion, a duration of 30 days is used based on the water quality criteria duration for Threshold Human Health (THH) criteria given in Section III.C.3.a., Table 3 on Page 9 of DEP's Water Quality Toxics Management Strategy. The 30-day duration for THH criteria coincides with the 30-day duration of an AML, which is why the manganese criterion is set equal to the AML for a "permitting at criteria" scenario. Because the manganese criterion is interpreted as having chronic exposure, the manganese MDL and IMAX may be made less stringent according to procedures established in Section III.C.2.h. of the Water Quality Toxics Management Strategy (AML multipliers of 2.0 and 2.5 for the MDL and IMAX respectively). Accordingly, TMDL manganese limits are proposed for the Outfalls.

All new or revised NPDES permits discharging into the Kiskiminetas-Conemaugh River Watershed have to be consistent with the TMDL Waste Load Allocation based on 40 CFR 122.44(d)(1)(vii)(B). The Department reviewed the TMDL and this facility has an explicit Waste Load Allocation (WLA) under the major, non-mining Wasteload Allocation tables under this permit number and the applicable stream segment (4212) is listed as contributing to impairments in the downstream Kiskiminetas and Conemaugh Rivers. Therefore, effluent limitations are required in order to meet the requirements of the TMDL and have been set in accordance with the WLAs established for Outfall 001 of permit **PA0111279** in the TMDL. Refer to Table 4 below, for a summary of the TMDL effluent concentrations.

**Table 4: Summary of the TMDL effluent concentrations**

| Parameter | Monthly Average ($^{mg}/_{L}$) | Daily Maximum ($^{mg}/_{L}$) |
|---|---|---|
| Aluminum | 0.75 | 0.75 |
| Iron | 1.5 | 3.0 |
| Manganese | 1.0 | 2.0 |

In this case, aluminum, iron and manganese were previous water quality limits and will be re-imposed, to ensure compliance with the TMDL. However the Daily Maximum limit for aluminum is more stringent than in the current NPDES permit.

Toxics Screening Analysis – Procedures for Evaluating Reasonable Potential and Developing WQBELs

Pursuant to consideration of the Water Quality Based Effluent Limitations (WQBELs) at Outfall 001, water quality modeling was created following DEP's procedures for evaluating reasonable potential which are as follows:

1. For IW discharges, the design flow used in the modeling is the average flow during production or operation and may be taken from the permit application.

2. All toxic pollutants with discharge concentrations reported in the permit application or on DMRs, are modeled and compared to the most stringent applicable water quality criterion as potential 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 highest reported concentration is entered into the most recent version of the Department's Toxics Management Spreadsheet (TMS) analysis (refer to Attachment A).

3. For any outfall with an applicable design flow, perform TMS modeling for all pollutants reported in the discharge. Use the maximum reported value from the application form or from DMRs as the input concentration for the TMS model.

4. Compare the actual WQBEL from TMS with the maximum concentration reported on DMRs or the permit application. Use WQN data or another source to establish the existing or background concentration for naturally occurring pollutants, but generally assume zero background concentration for non-naturally occurring pollutants

    - Establish limits in the draft permit where the maximum reported concentration equals or exceeds 50% of the WQBEL. Use the average monthly and maximum daily limits for the permit as recommended by TMS. In some cases, establish an IMAX limit at 2.5 times the average monthly limit.

    - For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.

    - For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

The information described above including the maximum reported discharge concentrations, the most stringent water quality criteria, the pollutant-of-concern (reasonable potential) determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations are displayed in the results presentation from TMS spreadsheet (refer to Attachment A).

Water Quality Modeling Programs

Toxics Management Spreadsheet Version 1.3 is a single discharge, mass-balance water quality modeling program 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 and discharge flow rate are entered into TMS 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. The modeling approach outlined above is used to determine if any pollutants are present or likely to be present in a discharge at levels that may cause, have the reasonable potential to cause, or contribute to excursions above state water quality standards (i.e., a reasonable potential analysis). Discharge concentrations for the selected pollutants are chosen to represent the "worst case" quality of the discharge (i.e., maximum reported discharge concentrations). TMS evaluates each pollutant by computing a Waste Load Allocation (WLA) for each applicable criterion and associated WQ objective, 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, TMS recommends average monthly and maximum daily WQBELs.

Reasonable Potential Analysis and WQBEL Development for the HBWTP discharge at Outfall 001

Discharges from Outfall 001 were evaluated based on concentrations reported on the application. The TMS model was run for Outfall 001 using the modeled discharge and receiving stream characteristics shown in Table 5

**Table 5: TMS Inputs**

| Parameter | Value |
|---|---|
| River Mile Index | 0.238 |
| Discharge Flow (MGD) | 0.0036 |
| **Basin/Stream Characteristics** | |
| **Parameter** | **Value** |
| Area ($mi^2$) | 2 |
| $Q_{7-10}$ (cfs) | 0.141 |
| Low-flow yield ($cfs/mi^2$) | 0.7045 |
| Elevation (ft.) | 1704 |
| Slope | 0.023 |

WQBELs are calculated by TMS by allocating the established Water Quality (WQ) criteria for the receiving surface water from 25 PA Code § 93. The criteria are then converted to a WQ objective. For metals with criteria established for its dissolved form, a translator is used to determine the criteria for the total metal which is then used as the WQ objective.

From this calculated objective for each pollutant concentration the discharge allocation is then reduced by available data of existing pollutant loads in the receiving waters using actual concentration data from instream monitoring. In this case, no upstream water quality data was available, so none was entered. The assumption of zero background concentration is therefore used for non-naturally occurring pollutants or where background data is insufficient to determine the background concentration.

The TMS model calculates and applies partial mixing factors for CFC, THH and CRL. The most limiting criteria is selected and, finally, WLAs are calculated for the IW discharger and compared to its reported discharge concentrations.

Note that the downstream public water intakes including the Saltsburg Municipal Waterworks (a Type C plant intake) and the nearest Type A plant intake for the Buffalo Township Municipal Authority near Freeport are many miles away. In the latter case, this intake is greater than 50 miles downstream from the HBWTP discharge which is considered sufficient for PWS related pollutants (e.g. phenolics) to dissipate. The TMS model results did not recommend any additional effluent limits nor reporting requirements. These results are included as Attachment A.

WQM 7.0 Model

The computer model WQM 7.0 is run to determine wasteload allocations and effluent limitations for $CBOD_5$, $NH_3$-N and Dissolved Oxygen for single and multiple point source discharge scenarios. In general, WQM 7.0 is run if the maximum $BOD_5$/$CBOD_5$ concentrations exceeds 30/25 mg/L respectively in the permit application or the DMRs. The permit application reports a peak $BOD_5$ concentration as being 1.83 mg/L, and a peak COD concentration as undetectable at an MDL of 10 mg/L. As this industrial discharger does not approach the criteria requiring the use of the WQM 7.0 Model, no run was made, and no related effluent limitations imposed.

Total Residual Chlorine

To determine if WQBELs are required for discharges containing 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 discharge chlorine demands for the receiving stream, 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 then proposed. The results of the modeling, included in Attachment B, indicate that the BAT and BPJ, independently calculated are equivalent. Based on this the average monthly TRC limitation is proposed. The results of the modeling, included in Attachment B, indicate that AFC limits are required for TRC including an average monthly concentration of 0.500 mg/L (which matches the BAT value) and also calculated an instantaneous maximum concentration (IMAX) of 1.170 mg/L.

**Anti-Backsliding**

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

The HBMA facility is not seeking to revise the previously permitted effluent limits. Therefore, the prior permit values or those calculated in the previous sections whichever is more protective will be imposed.

**Table 6: Effluent Limitations in Force for NPDES Permit PA0111279**

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) | | Concentrations (mg/L) | | | | Minimum Measurement Frequency | Required Sample Type |
| | Average Monthly | Daily Maximum | Minimum | Average Monthly | Daily Maximum | Instant. Maximum | | |
| Flow (MGD) | Report | Report | XXX | XXX | XXX | XXX | 2/month | Measured |
| pH (S.U.) | XXX | XXX | 6.0 | XXX | XXX | 9.0 | 2/month | Grab |
| TRC | XXX | XXX | XXX | 0.5 | XXX | 1.0 | 2/month | Grab |
| TSS | XXX | XXX | XXX | 30.0 | XXX | 60.0 | 2/month | Grab |
| Total Aluminum | XXX | XXX | XXX | 0.75 | XXX | 1.5 | 2/month | Grab |
| Total Iron | XXX | XXX | XXX | 1.5 | XXX | 3.0 | 2/month | Grab |
| Total Manganese | XXX | XXX | XXX | 1.0 | XXX | 2.0 | 2/month | Grab |

**Effluent Limitations and Monitoring Requirements for Outfall 001**

Effluent limits applicable at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in Table 7 below. The applicable limits and monitoring requirements provided below are based on those listed in Tables 2, 3 and 6 of this Fact Sheet. The Instantaneous Maximum values have been converted to Daily Maximum values to be consisted with current practice and guidance. Note that some values were incorrectly labeled as IMAX values in the previous permit.

**Table 7. Effluent limits and monitoring requirements for Outfall 001**

| Parameter | Mass (pounds) | | Concentration (mg/L) | | | Basis |
|---|---|---|---|---|---|---|
| | Average Monthly | Daily Maximum | Average Monthly | Daily Maximum | Instant Maximum | |
| Flow (MGD) | Report | Report | — | — | — | 25 Pa. Code § 92a.61(d)(1) |
| TRC | — | — | 0.5 | 1.0 | — | 25 Pa. Code § 92a.48(b) |
| TSS | — | — | 30.0 | 60.0 | — | 40 CFR § 125.3 |
| Iron (total) | — | — | 1.5 | 3.0 | — | TMDL, 40 CFR 122.44 |
| Aluminum (total) | — | — | 0.75 | **0.75** | — | TMDL, 40 CFR 122.44 |
| Manganese (total) | — | — | 1.0 | 2.0 | — | TMDL, 40 CFR 122.44 |
| pH (S.U.) | Within the range of 6.0 to 9.0 | | | | | 25 Pa. Code § 95.2 |

The item displayed in bold in **Table 7** is both new and more stringent than effluent limits enforced in the previous HBWTP permit. Concurrent with issuance of the draft of this renewal, a survey will be issued in order to determine if the permittee believes current controls are sufficient to meet this new limit. A copy of this survey is included with the Department's draft transmittal letter. The HBMA response, in the form of their completed survey responses will be considered before finalizing this renewed permit. Monitoring requirements are based on the previous permit's monitoring requirements for the facility are displayed in Table 8 below.

**Table 8. Monitoring Requirements for Outfall 001**

| Parameter | Sample Type | Minimum Sample Frequency |
|---|---|---|
| Flow (MGD) | Meter | 2/Month |
| TRC | Grab | 2/Month |
| TSS | Grab | 2/Month |
| Iron (total) | Grab | 2/Month |
| Aluminum (total) | Grab | 2/Month |
| Manganese (total) | Grab | 2/Month |
| pH (S.U.) | Grab | 2/Month |

**Effluent Limitation Compliance Schedule**

Whenever the Department proposes the imposition of water quality based effluent limitations on existing sources, the NPDES permit may include a schedule of compliance to achieve the WQBELs. Any compliance schedule contained in an NPDES permit must be an "enforceable sequence of actions or operations leading to compliance with the water quality-based effluent limitations ("WQBELs"). In accordance with 40 CFR 122.47(a)(3) and PA Code, Chapter 92a.51, compliance schedules that are longer than one year in duration must set forth interim requirements and dates for their achievement. In order to grant a compliance schedule in an NPDES permit, the permitting authority has to make a reasonable finding, adequately supported by the administrative record and described in the fact sheet, that a compliance schedule is "appropriate" and that compliance with the final WQBEL is required "as soon as possible".

In this case, since a more stringent Effluent Limitation has been proposed for aluminum, the Department will presume that the permittee will need and therefore has established a compliance schedule for HBWTP's next permit term. This compliance schedule will include interim actions and reporting by the permittee during the 3-year interim period. After this 3-year period after the permit effective date, the final permit limits will take effect.

| Tools and References Used to Develop Permit | |
|---|---|
| | |
| ☐ | WQM for Windows Model |
| ☒ | Toxics Management Spreadsheet (see Attachment A) |
| ☒ | TRC Model Spreadsheet (see Attachment B) |
| ☐ | Temperature Model Spreadsheet |
| ☐ | 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: Technology-Based Control Requirements for Water Treatment Plant Wastes (DEP-ID 362-2183-003), effective 10/1/1997 |

# ATTACHMENTS

ATTACHMENT A: TOXICS MANAGEMENT SPREADSHEET

ATTACHMENT B: TRC MODELING SPREADSHEET

# ATTACHMENT A

## TOXICS MANAGEMENT SPREADSHEET

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

# Model Results

**Hooversville Boro WTP, NPDES Permit No. PA0111279, Outfall 001**

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

☑ ***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 |
| | | | | | | | | | |

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

# Model Results

**Hooversville Boro WTP, NPDES Permit No. PA0111279, Outfall 001**

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

***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 | N/A | N/A | Discharge Conc < TQL |
| Total Antimony | N/A | N/A | Discharge Conc < TQL |
| Total Arsenic | N/A | N/A | Discharge Conc < TQL |
| Total Barium | 63,163 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Beryllium | N/A | N/A | No WQS |
| Total Boron | 42,109 | µg/L | Discharge Conc < TQL |
| Total Cadmium | 7.13 | µg/L | Discharge Conc < TQL |
| Total Chromium (III) | 2,272 | µg/L | Discharge Conc < TQL |
| Hexavalent Chromium | 274 | µg/L | Discharge Conc < TQL |
| Total Cobalt | 500 | µg/L | Discharge Conc < TQL |
| Total Copper | 237 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Cyanide | N/A | N/A | No WQS |
| Dissolved Iron | 7,895 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Iron | 39,477 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Lead | 83.9 | µg/L | Discharge Conc < TQL |
| Total Manganese | 26,318 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Mercury | 1.32 | µg/L | Discharge Conc < TQL |
| Total Nickel | 1,375 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Phenols (Phenolics) (PWS) | | µg/L | PWS Not Applicable |
| Total Selenium | 131 | µg/L | Discharge Conc < TQL |
| Total Silver | 64.1 | µg/L | Discharge Conc < TQL |
| Total Thallium | 6.32 | µg/L | Discharge Conc < TQL |
| Total Zinc | 2,024 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Molybdenum | N/A | N/A | No WQS |

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

# Model Results

**Hooversville Boro WTP, NPDES Permit No. PA0111279, Outfall 001**

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

☑ ***Hydrodynamics***

$Q_{7-10}$

| RMI | Stream Flow (cfs) | PWS Withdrawal (cfs) | Net Stream Flow (cfs) | Discharge Analysis Flow (cfs) | Slope (ft/ft) | Depth (ft) | Width (ft) | W/D Ratio | Velocity (fps) | Travel Time (days) | Complete Mix Time (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.238 | 0.14 | | 0.14 | 0.006 | 0.023 | 0.7 | 2.6 | 3.714 | 0.081 | 0.181 | 0.096 |
| 0 | 0.15 | | 0.146 | | | | | | | | |

$Q_h$

| RMI | Stream Flow (cfs) | PWS Withdrawal (cfs) | Net Stream Flow (cfs) | Discharge Analysis Flow (cfs) | Slope (ft/ft) | Depth (ft) | Width (ft) | W/D Ratio | Velocity (fps) | Travel Time (days) | Complete Mix Time (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.238 | 1.34 | | 1.34 | 0.006 | 0.023 | 1.857 | 2.6 | 1.4 | 0.279 | 0.052 | 0.024 |
| 0 | 1.382 | | 1.38 | | | | | | | | |

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

# Model Results

**Hooversville Boro WTP, NPDES Permit No. PA0111279, Outfall 001**

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

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.096 PMF: 1 Analysis Hardness (mg/l): 100.19 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 | 19,738 | |
| Total Antimony | 0 | 0 | | 0 | 1,100 | 1,100 | 28,950 | |
| Total Arsenic | 0 | 0 | | 0 | 340 | 340 | 8,948 | Chem Translator of 1 applied |
| Total Barium | 0 | 0 | | 0 | 21,000 | 21,000 | 552,674 | |
| Total Boron | 0 | 0 | | 0 | 8,100 | 8,100 | 213,174 | |
| Total Cadmium | 0 | 0 | | 0 | 2.018 | 2.14 | 56.3 | Chem Translator of 0.944 applied |
| Total Chromium (III) | 0 | 0 | | 0 | 570.668 | 1,806 | 47,528 | Chem Translator of 0.316 applied |
| Hexavalent Chromium | 0 | 0 | | 0 | 16 | 16.3 | 429 | Chem Translator of 0.982 applied |
| Total Cobalt | 0 | 0 | | 0 | 95 | 95.0 | 2,500 | |
| Total Copper | 0 | 0 | | 0 | 13.464 | 14.0 | 369 | 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 | 64.718 | 81.8 | 2,154 | 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 | 43.3 | Chem Translator of 0.85 applied |
| Total Nickel | 0 | 0 | | 0 | 469.003 | 470 | 12,368 | 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 | 3.227 | 3.8 | 99.9 | Chem Translator of 0.85 applied |
| Total Thallium | 0 | 0 | | 0 | 65 | 65.0 | 1,711 | |
| Total Zinc | 0 | 0 | | 0 | 117.373 | 120 | 3,158 | Chem Translator of 0.978 applied |

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

# Model Results

**Hooversville Boro WTP, NPDES Permit No. PA0111279, Outfall 001**

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

☑ ***CFC*** CCT (min): 0.096 PMF: 1 Analysis Hardness (mg/l): 100.19 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 | 5,790 | |
| Total Arsenic | 0 | 0 | | 0 | 150 | 150 | 3,948 | Chem Translator of 1 applied |
| Total Barium | 0 | 0 | | 0 | 4,100 | 4,100 | 107,903 | |
| Total Boron | 0 | 0 | | 0 | 1,600 | 1,600 | 42,109 | |
| Total Cadmium | 0 | 0 | | 0 | 0.246 | 0.27 | 7.13 | Chem Translator of 0.909 applied |
| Total Chromium (III) | 0 | 0 | | 0 | 74.232 | 86.3 | 2,272 | Chem Translator of 0.86 applied |
| Hexavalent Chromium | 0 | 0 | | 0 | 10 | 10.4 | 274 | Chem Translator of 0.962 applied |
| Total Cobalt | 0 | 0 | | 0 | 19 | 19.0 | 500 | |
| Total Copper | 0 | 0 | | 0 | 8.971 | 9.34 | 246 | 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 | 39,477 | WQC = 30 day average; PMF = 1 |
| Total Lead | 0 | 0 | | 0 | 2.522 | 3.19 | 83.9 | 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 | 23.8 | Chem Translator of 0.85 applied |
| Total Nickel | 0 | 0 | | 0 | 52.092 | 52.2 | 1,375 | 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 | 131 | 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 | 342 | |
| Total Zinc | 0 | 0 | | 0 | 118.333 | 120 | 3,158 | Chem Translator of 0.986 applied |

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

# Model Results

**Hooversville Boro WTP, NPDES Permit No. PA0111279, Outfall 001**

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

☑ ***THH*** CCT (min): 0.096 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

| Pollutants | Stream Conc (µg/L) | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | 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 | 147 | |
| Total Arsenic | 0 | 0 | | 0 | 10 | 10.0 | 263 | |
| Total Barium | 0 | 0 | | 0 | 2,400 | 2,400 | 63,163 | |
| Total Boron | 0 | 0 | | 0 | 3,100 | 3,100 | 81,585 | |
| 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 | 7,895 | |
| 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 | 26,318 | |
| Total Mercury | 0 | 0 | | 0 | 0.050 | 0.05 | 1.32 | |
| Total Nickel | 0 | 0 | | 0 | 610 | 610 | 16,054 | |
| 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 | 6.32 | |
| Total Zinc | 0 | 0 | | 0 | N/A | N/A | N/A | |

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

# Model Results

**Hooversville Boro WTP, NPDES Permit No. PA0111279, Outfall 001**

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

☑ ***CRL*** CCT (min): 0.024 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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

## ATTACHMENT B

## TRC MODELING SPREADSHEET

TRC_CALC_external HBWTP PA0111279 Run Outfall 001

## TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

| | | | |
|---|---|---|---|
| 0.141 | = Q stream (cfs) | 0.5 | = CV Daily |
| 0.0036 | = 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 = 8.095 | 1.3.2.iii | WLA cfc = 7.885 |
| PENTOXSD TRG | 5.1a | LTAMULT afc = 0.373 | 5.1c | LTAMULT cfc = 0.581 |
| PENTOXSD TRG | 5.1b | LTA_afc= 3.017 | 5.1d | LTA_cfc = 4.584 |

| Source | | 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) |