pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

**Southeast Regional Office**
**CLEAN WATER PROGRAM**

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0039004** |
| Facility Type | **Municipal** | APS ID | **989284** |
| Major / Minor | **Major** | Authorization ID | **1266503** |

# NPDES PERMIT FACT SHEET
# INDIVIDUAL SEWAGE

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Towamencin Municipal Authority** | Facility Name | **Towamencin Municipal Authority STP** |
| Applicant Address | 2225 Kriebel Road | Facility Address | 2225 Kriebel Road |
| | Lansdale, PA 19446-5019 | | Lansdale, PA 19446-5019 |
| Applicant Contact | Michael McGann | Facility Contact | Ralph Jacoby |
| Applicant Phone | (215) 855-8165 | Facility Phone | (215) 855-8165 |
| Client ID | 322637 | Site ID | 451588 |
| Ch 94 Load Status | Not Overloaded | Municipality | Towamencin Township |
| Connection Status | No Limitations | County | Montgomery |
| Date Application Received | March 1, 2019 | EPA Waived? | No |
| Date Application Accepted | April 19, 2019 | If No, Reason | Major Facility, Pretreatment |
| Purpose of Application | Permit Renewal. | | |

## Summary of Review

The PA Department of Environmental Protection (PADEP/Department) received an NPDES permit renewal application from Towamencin Municipal Authority (permittee) on March 1, 2019 for permittee's STP located in Towamencin Township, Montgomery County. This is a Major facility with design flow of 6.5 MGD. The treated effluent discharges through Outfall 003 into Towamencin Creek, TSF/MF. The existing permit expired on August 31, 2019. The terms and conditions were automatically extended since the renewal application was received at least 180 days prior to permit expiration date. Renewal NPDES permit applications under Clean Water program are not covered by PADEP's PDG per 021-2100-001. The permit was drafted on December 11, 2019 and published in PA Bulletin on January 4, 2020. This fact sheet is prepared to accompany the re-draft permit to address the revised Copper BLM requirement, additional sample results, and change in waste stream.

This fact sheet is developed in accordance with 40 CFR §124.56

Changes in this renewal: Limits with schedule applied for few pollutants, WETT limits replaced by monitoring, monitoring requirements applied for few metals, benchmark values applied at representative stormwater outfall, new IMP 101 is created, and limits applied at this IMP.

Sludge use and disposal description and location(s): Stabilized biosolids are land applied as Class B biosolids

Public Participation

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

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| √ | | Reza H. Chowdhury, P.E. / Environmental Engineer | July 11, 2025 |
| X | | Pravin Patel<br>Pravin C. Patel, P.E. / Environmental Engineer Manager | 07/11/2025 |

| **Discharge, Receiving Waters and Water Supply Information** | | | |
|---|---|---|---|
| Outfall No. | 003 | Design Flow (MGD) | 6.5 |
| Latitude | 40º 13' 45" | Longitude | -75º 21' 38.58" |
| Quad Name | Lansdale | Quad Code | 1743 |
| Wastewater Description: | Sewage Effluent | | |
| Receiving Waters | Towamencin Creek (TSF, MF) | Stream Code | 01066 |
| NHD Com ID | 25979000 | RMI | 1.41 |
| Drainage Area | 10.0 $mi^2$ | Yield ($cfs/mi^2$) | 0.0434 |
| $Q_{7-10}$ Flow (cfs) | **0.434** | $Q_{7-10}$ Basis | USGS StreamStats |
| Elevation (ft) | 176.89 | Slope (ft/ft) | |
| Watershed No. | 3-E | Chapter 93 Class. | TSF, MF |
| Existing Use | **TSF** | Existing Use Qualifier | |
| Exceptions to Use | None | Exceptions to Criteria | N/A |
| Assessment Status | Impaired | | |
| Cause(s) of Impairment | ALGAE, ALGAE, FLOW REGIME MODIFICATION, FLOW REGIME MODIFICATION | | |
| Source(s) of Impairment | MUNICIPAL POINT SOURCE DISCHARGES, MUNICIPAL POINT SOURCE DISCHARGES, RURAL (RESIDENTIAL AREAS), RURAL (RESIDENTIAL AREAS) | | |
| TMDL Status | Final 04/09/2005, withdrawn | Name | Skippack Creek Watershed TMDL |

| Background/Ambient Data | | Data Source |
|---|---|---|
| pH (SU) | 7.97 | Data collected by DEP from April'19 to June'19 |
| Temperature (°F) | 20 | Default per 391-2000-007 |
| Hardness (mg/L) | 121.63 | Data collected by DEP from April'19 to June'19 |
| Other: | | |

| Nearest Downstream Public Water Supply Intake | Aqua PA Main System on Perkiomen Creek | | |
|---|---|---|---|
| PWS Waters | Perkiomen Creek | Flow at Intake (cfs) | |
| PWS RMI | 0.924 | Distance from Outfall (mi) | 11 |

Other Comments: Outfall 003 primary, gravity sanitary sewer outfall for treated effluent from Stage I & II plants.

**Streamflow:**

Streamflow will be correlated with the USGS's web-based GIS application (https://streamstats.usgs.gov/ss/) accessed on August 5, 2019. $Q_{7-10}$ and $Q_{30-10}$ values at Outfall 003 were found to be 0.434 cfs and 0.739 cfs respectively. The drainage area at Outfall 003 was found to be 10.0 $mi^2$ from StreamStats.

$Q_{7-10}$ runoff rate = 0.434 cfs/ 10.0 $mi^2$ = 0.0434 $cfs/mi^2$
$Q_{30-10}/Q_{7-10}$ = 0.739 cfs/0.434 cfs = 1.7
Default $Q_{1-10}$: $Q_{7-10}$ of 0.64 from 391-2000-007 will be used in modeling, if needed.

**PWS Intake:**

The nearest downstream public water supply is Aqua PA Main System on Perkiomen Creek at RMI 0.924 which is approximately 11 miles downstream of the Outfall 003. Because of the distance, dilution with much larger stream, and effluent limits, the discharge is expected not to affect the intake. The distance is calculated as follows:

+ Outfall 003 RMI at Towamencin Creek (01066) ---------- 1.41 mi
+ RMI on Skippack Creek (01024) at confluence with 01066 ---------- 7.6 mi
+ RMI on Perkiomen Creek (01017) at confluence with 01024 ---------- 2.91 mi
- PWS RMI at 01017 ---------- 0.92 mi

Total 11.0 miles

**Wastewater Characteristics:**
A median pH of 7.16 from daily DMR during dry months July through September for the years 2014 to 2018 and a default temperature of $20^0$C (per 391-2000-013) will be used for modeling, if needed. The application data indicated an average Total Hardness of 100 mg/l out of 12 samples.

**Background data:**
The nearby downstream Water Quality Network Station 21PA_WQX-WQN0116 is located on Arcola Road Bridge near Lower Providence Township, Montgomery County which is approximately 33 miles downstream of the outfall 003 and is not considered as representative. In absence of site-specific temperature data, a default temperature of 20°C (per 391-2000-007) will be used in modeling, if needed. PADEP has collected some samples from Towamencin Creek above and below the outfall 003 as a part of ongoing site-specific study within the duration of April 24, 2019 and June 12, 2019. The sampling results indicated an average upstream pH of 7.97 S.U. The permit application indicated an upstream hardness (upstream of outfall 003) to be 160 mg/l for the sampling period of September 2016 through December 2017.

**303d Listed Streams:**
The discharge from this facility is in Towamencin Creek in state watershed 3-E at RMI 1.41, which is attaining Fish Consumption use but is Aquatic Life use impaired due to water flow variability and excessive algal growth from municipal point source and small residential runoff. A TMDL has been developed for the watershed, nutrient portion of which was withdrawn.

**Skippack Creek Total Maximum Daily Load (TMDL):**
Skippack Creek is a 15.2-mile stream located in sub-sub-basin 03E, Montgomery County, PA. it is a tributary to Perkiomen Creek whose drainage basin is composed of urban, suburban, agricultural, and rural components. Skippack Creek begins within Souderton Borough limits and flows generally southwest to its confluence with Perkiomen Creek at RMI 3.0. The Skippack Creek TMDL was finalized in April 9, 2005 for Sediments and Nutrients. There were 11 active NPDES permitted point source discharges in the watershed including 7 STPs, 1 meat packing plant, 1 dairy farm, and 2 manufacturers. No reduction for sediment load from point sources were proposed in the final TMDL. The nutrient portion of the TMDL was withdrawn in summer of 2007. No WLA was assigned to this treatment plant. The effluent limitations in the permit will be applied in a way that the discharge from this facility will not add to the existing impairment of the receiving stream.

**Antidegradation (93.4):**
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. The receiving streams are designated as Trout Stocking (TSF) and Migratory Fishes (MF.)

**Class A Wild Trout Fisheries:**
No Class A Wild Trout Fisheries are impacted by this discharge. The secondary receiving stream, Skippack Creek, is a stocked trout water. The existing permit has a minimum DO limit of 6.0 mg/l as minimum to protect the stocked trout. This requirement will be carried over during this renewal.

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

| | | | |
|---|---|---|---|
| Outfall No. | 001 and 002 | Design Flow (MGD) | 6.5 |
| Latitude | 40º 13' 46" | Longitude | -75º 21' 6" |
| Quad Name | Lansdale | Quad Code | 1743 |
| Wastewater Description: | Sewage Effluent | | |
| Receiving Waters | Towamencin Creek (TSF) | Stream Code | 01066 |
| NHD Com ID | 25978996 | RMI | 1.97 |

Other Comments: The Outfalls 001 and 002 are the permittee's secondary discharge points which discharge only during high flow events.

**Stormwater Outfalls:**

The renewal application indicated that there are four stormwater outfalls associated with this WWTP. The details are below:

| Outfall | Latitude | | | Longitude | | | Receiving Stream | Designated use | Drainage Area (sft) |
|---|---|---|---|---|---|---|---|---|---|
| 004 | 40 | 13 | 47 | -75 | 21 | 3 | Towamencin Creek | TSF, MF | 91,781 |
| 005 | 40 | 13 | 46 | -75 | 21 | 4 | Towamencin Creek | TSF, MF | 9,104 |
| 006 | 40 | 13 | 08 | -75 | 21 | 8 | Towamencin Creek | TSF, MF | 31,625 |
| 007 | 40 | 13 | 47 | -75 | 21 | 10 | Towamencin Creek | TSF, MF | 70,393 |

The current permit has listed stormwater parameters in Part A of the permit. The part C of the current permit indicated that Outfall 005 has been determined to be representative of stormwater outfalls 004, 006, and 007. This condition will be carried over in this renewal. The permittee routinely trains employees on housekeeping & spill prevention practices and conducts periodic visual inspections of chemical containments and pumping equipment as ongoing BMP implementation.

**Treatment Facility Summary**

**Treatment Facility Name:** Towamencin STP

| WQM Permit No. | Issuance Date |
|---|---|
| 4619403 | 07/01/2019 |
| 4602408 A-2 | 09/19/2018 |
| 4616402 A-1 | 03/19/2018 |
| 4616402 | 08/16/2016 |
| 4615414 | 05/31/2015 |
| 4602408 A-1 | 03/23/2015 |
| 4612408 | 02/13/2013 |

| Waste Type | Degree of Treatment | Process Type | Disinfection | Avg Annual Flow (MGD) |
|---|---|---|---|---|
| Sewage | Secondary with Ammonia and Phosphorus Tertiary | Trickling Filter With Settling, Activated Sludge with Solids Removal | Gas Chlorine | 6.5 |

| Hydraulic Capacity (MGD) | Organic Capacity (lbs/day) | Load Status | Biosolids Treatment | Biosolids Use/Disposal |
|---|---|---|---|---|
| 7.3 | 16263 | Not Overloaded | | Land Application |

Changes Since Last Permit Issuance: In 2019, a new WQM permit was issued to authorize installation of new rag compactor in biosolids process. The September 2018 WQM permit amendment authorized addition of Polyaluminum Chloride (PACL 300) to remove Phosphorus. The PAC system was installed after a pilot study between January 30, 2017 through November 30, 2017. The PACL 300 was added to the effluent trough of the Aeration Tank nos. 5 and 6 in stage 1 of the treatment train. Two flow paced 1,400 gallons above ground tanks were installed for this purpose. In October 7, 2015, the TMA was separated from Upper Gwynedd Towamencin Municipal Authority.

**Treatment Plant Description**

Towamencin Municipal Authority WWTP is a 6.5 MGD Major Sewer Facility (MASF2) located in Towamencin Township, Montgomery County which discharges treated sewage through outfall 001, 002, and 003 into Towamencin Creek in watershed 3-E. The plant has two treatment trains namely Stage 1 and Stage 2 that essentially comingles prior to discharge. The stage 1 provides secondary treatment through trickling filters, and stage 2 provides tertiary treatment through activated sludge system. The flow is split at the influent box and combines again in the effluent box. Outfall 003 is the primary processed wastewater gravity outfall that runs approximately 0.5 miles downstream of the treatment plant. The process wastewater outfalls 001 and 002 discharge during high flow/wet weather events along with Outfall 003 and discharge by the aid of effluent pumps. The existing permit requires reporting for Outfalls 001 and 002 when discharging. As stated at the top of this page, there are four stormwater outfalls (004 to 007) with Outfall 005 as representative.

The facility receives flows mostly from Towamencin Township and Upper Gwynedd Township and small contributions from few other townships as listed in the next page.

| Municipalities served | Flow contribution (%) | Type of Sewer System | | Population |
|---|---|---|---|---|
| | | Separate (%) | Combined (%) | |
| Towamencin Township | 72.06 | 100 | 0 | 18,355 |
| Upper Gwynedd Township | 27.94 | 100 | 0 | 15,975 |
| Lansdale Borough | <1 | 100 | 0 | 16,521 |
| Hatfield Township | <1 | 100 | 0 | 17,557 |
| Worcester Township | <1 | 100 | 0 | 10,486 |
| Lower Salford Township | <1 | 100 | 0 | 14,959 |

Per the renewal application, there are several Categorical/non-categorical and Significant Industrial Users (SIUs) contributing to the treatment plant. They are listed in the following table:

| Industry Name | Categorical industry? | Applicable pretreatment standard | SIU? | Subpart Letter | Subpart title | Wastewater flow (GPD) Process | NCCW | Sanitary | Total |
|---|---|---|---|---|---|---|---|---|---|
| Merck & Co. | Yes | 40 CFR Part 439 | Yes | B | Extraction Products | 47,510 | 0 | 17,490 | 65,000 |
| | | | | D | Mixing/Compounding & Formulation | | | | |
| | | | | E | Research | | | | |
| Accupac, Inc. | Yes | 40 CFR Part 439 | Yes | C | Chemical Synthesis Products | 62,320 | 0 | 0 | 62,320 |
| | | | | D | Mixing/Compounding & Formulation | | | | |
| Lehigh Valley Dairies, Inc. | No | 40 CFR Part 405 | Yes | A | Receiving Station | 160,320 | 0 | 0 | 160,320 |
| | | | | B | Fluid Products | | | | |
| | | | | C | Cultured Products | | | | |
| Clemens Food Group (Hatfield Quality Meats) | No | 40 CFR Part 432 | Yes | B | Complex Slaughterhouses | 649,660 | 0 | 31,140 | 680,800 |
| | | | | D | High-Processing Packinghouse | | | | |
| | | | | F | Meat Cutters | | | | |
| | | | | G | Sausage & Luncheon Meats Processors | | | | |
| | | | | H | Ham Processors | | | | |

All the SIUs have industrial user permit issued by TMA. Clemens Food Group is under a five-year consent order to reduce TDS, which shall be completed by September 2022. TMA is implementing an approved pretreatment program administrated by EPA and most recent approval of local limits by EPA was on April 12, 2017.

Per DEP's recent visit to the site on August 25, 2021, the treatment facility consists of the following units:

- Four Muffin Monsters
- Two raw influent wells
- Eight Rotostrainers
- Eight pre-aeration tanks
- Eight aeration tanks
- Four trickling filters
- Eight secondary clarifiers
- Eight pre-aeration tanks
- Thirteen chlorine contact tanks
- Three aerated sludge holding tanks
- Two sludge centrifuges

Junction Box at the head of the treatment plant receives flows from influent sewers where the influent sample is collected. The flow is sent to influent box which sends flows to two raw influent wells through a set of two muffin monsters in each side. The flow from two wells follow the following flow paths:

**For Stage 1 (2.17 MGD):** wet well → (pumped) flow meter → series of four Rotostrainers in parallel → Pre-aeration tanks → aeration tanks → (PACL 300 added) Distribution Box → intermediate settling tanks → recirculation pump station → (pumped) primary trickling filter → secondary trickling filter → Final settling tanks → NaOCl addition → Chlorine Contact Tanks → either pumped to Outfall 002 during high flow event or goes to effluent discharge box and discharged through Outfall 001 or 003

**For Stage 2 (4.33 MGD):** wet well → (pumped) flow meter → series of four Rotostrainers in parallel → Pre-aeration tanks → flow meters → Aeration tanks → Intermediate settling tanks → recirculation pump station → (pumped) primary trickling filter → secondary trickling filter → $FeCl_3$ and alum addition → flocculation mixer → flocculation tanks → final settling tanks → NaOCl addition → chlorine contact tanks → Junction box → Flow meter → $NaHSO_3$ addition → Effluent box → either pumped through 001 or gravity discharge through 003.

The process flow diagrams for liquid and solids handling are attached in the appendix.

The following chemicals are used at the plant as wastewater treatment chemicals:

| Chemical name | Purpose | Maximum use rate | Units | Treatment Phase |
|---|---|---|---|---|
| Ferric Chloride | Charge neutralization of suspended solids | 160 | GPD | Stage 2 |
| Polyaluminum Chloride (PACL) | Phosphorus removal | 10 | GPD | Stage 1 |
| Sodium Acrylate & Acrylamide | Polymer used as suspended solids binder in solution | 16 | Lbs./day | Stage 2 |
| Sodium Hypochlorite | Effluent disinfection | 350 | GPD | Stages 1 & 2 |
| Sodium Bisulfite | Dechlorination | 70 | GPD | Stages 1 & 2 |

**Biosolids Management:**
Secondary waste sludges and screenings are blended in a sludge day tank. The blended sludges are processed through two centrifuges and are then lime stabilized for pathogen and vector attraction reduction. Ultimate disposal is primarily via land application with landfill disposal as an alternative. End product is a Class B biosolids. The WQM permit 4619403 (issued July 1, 2019) authorized installation of a rag compactor to replace the existing ejector pots to handle rags more efficiently while keeping one ejector pot as backup for the rag compactor. The facility produced 1,007 dry tons of sewage sludge/biosolids in previous year that included 22.86 dry tons of sludge from Lower Salford Township WWTP. TMA holds a beneficial use permit PAG080008 and land application sites are located in Berks, Chester, Lebanon, Lehigh, Lancaster, Montgomery, and Northampton counties. Landfill disposal is applied when filter cake is insufficiently stabilized, or land application is not permitted. No landfill disposal utilized in 2017.

## Compliance History

**DMR Data for Outfall 001 (from October 1, 2020 to September 30, 2021)**

| Parameter | SEP-21 | AUG-21 | JUL-21 | JUN-21 | MAY-21 | APR-21 | MAR-21 | FEB-21 | JAN-21 | DEC-20 | NOV-20 | OCT-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD) Average Monthly | 4.148 | | | | | | GG | | | 5.197 | | |
| Flow (MGD) Daily Maximum | 12.7 | | | | | | GG | | | 12.237 | | |
| pH (S.U.) Instantaneous Minimum | 7.33 | | | | | | 7.22 | | | 7.02 | | |
| pH (S.U.) Instantaneous Maximum | 7.94 | | | | | | 7.81 | | | 8.80 | | |
| DO (mg/L) Minimum | 7.77 | | | | | | 9.71 | | | 8.58 | | |
| TRC (mg/L) Average Monthly | < 0.014 | | | | | | < 0.014 | | | 0.001 | | |
| TRC (mg/L) IMAX | < 0.014 | | | | | | < 0.014 | | | 0.014 | | |
| CBOD5 (lbs/day) Average Monthly | 119 | | | | | | 382 | | | 156 | | |
| CBOD5 (lbs/day) Raw Sewage Influent Average Monthly | 4630 | | | | | | 10322 | | | 4417 | | |
| CBOD5 (lbs/day) Weekly Average | 187 | | | | | | 751 | | | 227 | | |
| CBOD5 (mg/L) Average Monthly | 3 | | | | | | 6 | | | 3 | | |
| CBOD5 (mg/L) Raw Sewage Influent Average Monthly | 163 | | | | | | 228 | | | 120 | | |
| CBOD5 (mg/L) Weekly Average | 4 | | | | | | 9 | | | 3 | | |
| BOD5 (lbs/day) Raw Sewage Influent Average Monthly | 5249 | | | | | | 10780 | | | 8739 | | |
| BOD5 (mg/L) Raw Sewage Influent Average Monthly | 181 | | | | | | 264 | | | 238 | | |
| TSS (lbs/day) Average Monthly | 353 | | | | | | 437 | | | 286 | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TSS (lbs/day) Raw Sewage Influent Average Monthly | 5066 | | | | | | 10635 | | | 8109 | | |
| TSS (lbs/day) Weekly Average | 841 | | | | | | 1202 | | | 559 | | |
| TSS (mg/L) Average Monthly | 6 | | | | | | 8 | | | 5 | | |
| TSS (mg/L) Raw Sewage Influent Average Monthly | 176 | | | | | | 231 | | | 218 | | |
| TSS (mg/L) Weekly Average | 11 | | | | | | 14 | | | 8 | | |
| TDS (mg/L) Average Monthly | 1446 | | | | | | 1196 | | | 1244 | | |
| TDS (mg/L) Daily Maximum | 1800 | | | | | | 1530 | | | 1640 | | |
| Osmotic Pressure (mOs/kg) Average Monthly | 42 | | | | | | 38 | | | 25 | | |
| Osmotic Pressure (mOs/kg) Daily Maximum | 42 | | | | | | 38 | | | 25 | | |
| Fecal Coliform (CFU/100 ml) Geometric Mean | 14 | | | | | | 10 | | | 6 | | |
| Fecal Coliform (CFU/100 ml) IMAX | 520 | | | | | | 162 | | | 46 | | |
| Ammonia (lbs/day) Average Monthly | 25 | | | | | | 57 | | | 49 | | |
| Ammonia (mg/L) Average Monthly | 0.42 | | | | | | 0.76 | | | 0.78 | | |
| Total Phosphorus (lbs/day) Average Monthly | 10 | | | | | | 15 | | | 9 | | |
| Total Phosphorus (mg/L) Average Monthly | 0.36 | | | | | | 0.29 | | | 0.23 | | |
| Total Aluminum (lbs/day) Average Monthly | 15.61 | | | | | | 3.08 | | | 2.47 | | |
| Total Aluminum (lbs/day) Daily Maximum | 21.79 | | | | | | 10.49 | | | 6.31 | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Aluminum (mg/L) Average Monthly | 0.49 | | | | | | 0.067 | | | 0.06 | | |
| Total Aluminum (mg/L) Daily Maximum | 0.52 | | | | | | 0.18 | | | 0.11 | | |
| Total Copper (lbs/day) Average Monthly | 0.12 | | | | | | 0.44 | | | 0.31 | | |
| Total Copper (lbs/day) Daily Maximum | 0.18 | | | | | | 1.22 | | | 0.82 | | |
| Total Copper (mg/L) Average Monthly | 0.004 | | | | | | 0.010 | | | 0.009 | | |
| Total Copper (mg/L) Daily Maximum | 0.004 | | | | | | 0.021 | | | 0.024 | | |
| Total Iron (lbs/day) Average Monthly | 7.5 | | | | | | 50.0 | | | 42.5 | | |
| Total Iron (lbs/day) Daily Maximum | 12.3 | | | | | | 62.9 | | | 55.1 | | |
| Total Iron (mg/L) Average Monthly | 0.23 | | | | | | 1.29 | | | 1.14 | | |
| Total Iron (mg/L) Daily Maximum | 0.27 | | | | | | 1.58 | | | 1.40 | | |
| Sulfate (lbs/day) Average Monthly | 1405 | | | | | | 1366 | | | 1793 | | |
| Sulfate (lbs/day) Daily Maximum | 1865 | | | | | | 1654 | | | 2850 | | |
| Sulfate (mg/L) Average Monthly | 45 | | | | | | 35 | | | 49 | | |
| Sulfate (mg/L) Daily Maximum | 47 | | | | | | 41 | | | 90 | | |
| Chloride (lbs/day) Average Monthly | 23471 | | | | | | 24812 | | | 27552 | | |
| Chloride (lbs/day) Daily Maximum | 28077 | | | | | | 30412 | | | 41881 | | |
| Chloride (mg/L) Average Monthly | 774 | | | | | | 638 | | | 730 | | |
| Chloride (mg/L) Daily Maximum | 989 | | | | | | 839 | | | 910 | | |
| Bromide (lbs/day) Average Monthly | 16 | | | | | | 40 | | | 38 | | |
| Bromide (lbs/day) Daily Maximum | 45 | | | | | | 58 | | | 57 | | |
| Bromide (mg/L) Average Monthly | 0.47 | | | | | | 1 | | | 1 | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromide (mg/L)<br>Daily Maximum | 1.0 | | | | | | 1 | | | 1 | | |
| Chronic WET - Ceriodaphnia Survival (TUc)<br>Daily Maximum | | | | 1.00 | | | 1.00 | | | | | |
| Chronic WET - Ceriodaphnia Reproduction (TUc)<br>Daily Maximum | | | | 1.00 | | | 1.00 | | | | | |
| Chronic WET - Pimephales Survival (TUc)<br>Daily Maximum | | | | 1.00 | | | 1.00 | | | | | |
| Chronic WET - Pimephales Growth (TUc)<br>Daily Maximum | | | | 1.00 | | | 1.00 | | | | | |

**DMR Data for Outfall 002 (from October 1, 2020 to September 30, 2021)**

| Parameter | SEP-21 | AUG-21 | JUL-21 | JUN-21 | MAY-21 | APR-21 | MAR-21 | FEB-21 | JAN-21 | DEC-20 | NOV-20 | OCT-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD)<br>Average Monthly | 4.148 | | | | | | GG | | | 5.197 | | |
| Flow (MGD)<br>Daily Maximum | 12.766 | | | | | | GG | | | 12.237 | | |
| pH (S.U.)<br>Instantaneous Minimum | 7.33 | | | | | | 7.22 | | | 7.02 | | |
| pH (S.U.) IMAX | 7.94 | | | | | | 7.81 | | | 8.80 | | |
| DO (mg/L)<br>Minimum | 7.77 | | | | | | 9.71 | | | 8.58 | | |
| TRC (mg/L)<br>Average Monthly | < 0.014 | | | | | | < 0.014 | | | 0.001 | | |
| TRC (mg/L) IMAX | < 0.014 | | | | | | < 0.014 | | | 0.014 | | |
| CBOD5 (lbs/day)<br>Average Monthly | 119 | | | | | | 382 | | | 156 | | |
| CBOD5 (lbs/day)<br>Raw Sewage Influent Average Monthly | 4630 | | | | | | 10322 | | | 4417 | | |
| CBOD5 (lbs/day)<br>Weekly Average | 187 | | | | | | 751 | | | 227 | | |
| CBOD5 (mg/L)<br>Average Monthly | 3 | | | | | | 6 | | | 3 | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CBOD5 (mg/L) Raw Sewage Influent Average Monthly | 163 | | | | | | 228 | | | 120 | | |
| CBOD5 (mg/L) Weekly Average | 4 | | | | | | 9 | | | 3 | | |
| BOD5 (lbs/day) Raw Sewage Influent Average Monthly | 5249 | | | | | | 10780 | | | 8739 | | |
| BOD5 (mg/L) Raw Sewage Influent Average Monthly | 181 | | | | | | 264 | | | 238 | | |
| TSS (lbs/day) Average Monthly | 353 | | | | | | 437 | | | 286 | | |
| TSS (lbs/day) Raw Sewage Influent Average Monthly | 5066 | | | | | | 10635 | | | 8109 | | |
| TSS (lbs/day) Weekly Average | 841 | | | | | | 1202 | | | 559 | | |
| TSS (mg/L) Average Monthly | 6 | | | | | | 8 | | | 5 | | |
| TSS (mg/L) Raw Sewage Influent Average Monthly | 176 | | | | | | 231 | | | 218 | | |
| TSS (mg/L) Weekly Average | 11 | | | | | | 14 | | | 8 | | |
| TDS (mg/L) Average Monthly | 1446 | | | | | | 1196 | | | 1244 | | |
| TDS (mg/L) Daily Maximum | 1800 | | | | | | 1530 | | | 1640 | | |
| Osmotic Pressure (mOs/kg) Average Monthly | 42 | | | | | | 38 | | | 25 | | |
| Osmotic Pressure (mOs/kg) Daily Maximum | 42 | | | | | | 38 | | | 25 | | |
| Fecal Coliform (CFU/100 ml) Geometric Mean | 14 | | | | | | 10 | | | 6 | | |
| Fecal Coliform (CFU/100 ml) Instantaneous Maximum | 520 | | | | | | 162 | | | 46 | | |
| Ammonia (lbs/day) Average Monthly | 25 | | | | | | 57 | | | 49 | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia (mg/L)<br>Average Monthly | 0.42 | | | | | | 0.76 | | | 0.78 | | |
| Total Phosphorus (lbs/day)<br>Average Monthly | 10 | | | | | | 15 | | | 9 | | |
| Total Phosphorus (mg/L)<br>Average Monthly | 0.36 | | | | | | 0.29 | | | 0.23 | | |
| Total Aluminum (lbs/day)<br>Average Monthly | 15.61 | | | | | | 3.08 | | | 2.47 | | |
| Total Aluminum (lbs/day)<br>Daily Maximum | 21.79 | | | | | | 10.49 | | | 6.31 | | |
| Total Aluminum (mg/L)<br>Average Monthly | 0.49 | | | | | | 0.067 | | | 0.06 | | |
| Total Aluminum (mg/L)<br>Daily Maximum | 0.52 | | | | | | 0.18 | | | 0.11 | | |
| Total Copper (lbs/day)<br>Average Monthly | 0.12 | | | | | | 0.44 | | | 0.31 | | |
| Total Copper (lbs/day)<br>Daily Maximum | 0.18 | | | | | | 1.22 | | | 0.82 | | |
| Total Copper (mg/L)<br>Average Monthly | 0.004 | | | | | | 0.010 | | | 0.009 | | |
| Total Copper (mg/L)<br>Daily Maximum | 0.004 | | | | | | 0.021 | | | 0.024 | | |
| Total Iron (lbs/day)<br>Average Monthly | 7.5 | | | | | | 50.0 | | | 42.5 | | |
| Total Iron (lbs/day)<br>Daily Maximum | 12.3 | | | | | | 62.9 | | | 55.1 | | |
| Total Iron (mg/L)<br>Average Monthly | 0.23 | | | | | | 1.29 | | | 1.14 | | |
| Total Iron (mg/L)<br>Daily Maximum | 0.27 | | | | | | 1.58 | | | 1.40 | | |
| Sulfate (lbs/day)<br>Average Monthly | 1405 | | | | | | 1366 | | | 1793 | | |
| Sulfate (lbs/day)<br>Daily Maximum | 1865 | | | | | | 1654 | | | 2850 | | |
| Sulfate (mg/L)<br>Average Monthly | 45 | | | | | | 35 | | | 49 | | |
| Sulfate (mg/L)<br>Daily Maximum | 47 | | | | | | 41 | | | 90 | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride (lbs/day) Average Monthly | 23471 | | | | | | 24812 | | | 27552 | | |
| Chloride (lbs/day) Daily Maximum | 28077 | | | | | | 30412 | | | 41881 | | |
| Chloride (mg/L) Average Monthly | 774 | | | | | | 638 | | | 730 | | |
| Chloride (mg/L) Daily Maximum | 989 | | | | | | 839 | | | 910 | | |
| Bromide (lbs/day) Average Monthly | 16 | | | | | | 40 | | | 38 | | |
| Bromide (lbs/day) Daily Maximum | 45 | | | | | | 58 | | | 57 | | |
| Bromide (mg/L) Average Monthly | 0.47 | | | | | | 1 | | | 1 | | |
| Bromide (mg/L) Daily Maximum | 1.0 | | | | | | 1 | | | 1 | | |
| Chronic WET - Ceriodaphnia Survival (TUc) Daily Maximum | | | | 1.00 | | | 1.00 | | | | | |
| Chronic WET - Ceriodaphnia Reproduction (TUc) Daily Maximum | | | | 1.00 | | | 1.00 | | | | | |
| Chronic WET - Pimephales Survival (TUc) Daily Maximum | | | | 1.00 | | | 1.00 | | | | | |
| Chronic WET - Pimephales Growth (TUc) Daily Maximum | | | | 1.00 | | | 1.00 | | | | | |

**DMR Data for Outfall 003 (from October 1, 2020 to September 30, 2021)**

| Parameter | SEP-21 | AUG-21 | JUL-21 | JUN-21 | MAY-21 | APR-21 | MAR-21 | FEB-21 | JAN-21 | DEC-20 | NOV-20 | OCT-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD) Average Monthly | 4.148 | 3.641 | 3.125 | 3.439 | 3.254 | 3.436 | 5.292 | 4.777 | 3.900 | 5.197 | 3.735 | 3.278 |
| Flow (MGD) Daily Maximum | 12.766 | 6.651 | 3.907 | 5.349 | 7.079 | 4.739 | 13.270 | 11.087 | 7.054 | 12.237 | 5.603 | 7.014 |
| pH (S.U.) Instantaneous Minimum | 7.33 | 7.02 | 7.15 | 7.45 | 6.83 | 6.99 | 7.22 | 7.05 | 6.77 | 7.02 | 6.78 | 7.39 |
| pH (S.U.) IMAX | 7.94 | 7.85 | 7.82 | 7.98 | 8.57 | 7.54 | 7.81 | 7.88 | 8.05 | 8.80 | 8.61 | 8.48 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DO (mg/L)<br>Minimum | 7.77 | 7.29 | 7.71 | 7.90 | 7.91 | 8.7 | 9.71 | 9.72 | 9.58 | 8.58 | 8.56 | 7.92 |
| TRC (mg/L)<br>Average Monthly | < 0.014 | < 0.014 | < 0.014 | < 0.014 | < 0.014 | < 0.014 | < 0.014 | < 0.014 | < 0.014 | 0.001 | < 0.014 | < 0.014 |
| TRC (mg/L) IMAX | < 0.014 | 0.003 | 0.0018 | < 0.014 | < 0.047 | < 0.014 | < 0.014 | < 0.014 | < 0.014 | 0.014 | < 0.014 | < 0.014 |
| CBOD5 (lbs/day)<br>Average Monthly | 119 | 74 | 60 | 60 | 71 | 146 | 382 | < 236 | 111 | 156 | 62 | 51 |
| CBOD5 (lbs/day)<br>Raw Sewage Influent<br>Average Monthly | 4630 | 5674 | 4400 | 5397 | 4557 | 6427 | 10322 | 5833 | 5839 | 4417 | 2311 | 2765 |
| CBOD5 (lbs/day)<br>Weekly Average | 187 | 94 | 73 | 68 | 94 | 287 | 751 | 640 | 247 | 227 | 83 | 58 |
| CBOD5 (mg/L)<br>Average Monthly | 3 | 2 | 2 | 2 | 3 | 5 | 6 | < 4 | 4 | 3 | 2 | 2 |
| CBOD5 (mg/L)<br>Raw Sewage Influent<br>Average Monthly | 163 | 187 | 164 | 190 | 167 | 230 | 228 | 147 | 200 | 120 | 76 | 108 |
| CBOD5 (mg/L)<br>Weekly Average | 4 | 3 | 3 | 2 | 4 | 11 | 9 | 9 | FF | 3 | 2 | FF |
| BOD5 (lbs/day)<br>Raw Sewage Influent<br>Average Monthly | 5249 | 5488 | 5433 | 6496 | 6983 | 7487 | 10780 | 6318 | 6248 | 8739 | 4830 | 4345 |
| BOD5 (mg/L)<br>Raw Sewage Influent<br>Average Monthly | 181 | 181 | 205 | 225 | 261 | 272 | 264 | 165 | 212 | 238 | 182 | 168 |
| TSS (lbs/day)<br>Average Monthly | 353 | 94 | 75 | 76 | 187 | 174 | 437 | 278 | 149 | 286 | 144 | 96 |
| TSS (lbs/day)<br>Raw Sewage Influent<br>Average Monthly | 5066 | 6514 | 4543 | 5802 | 5886 | 7319 | 10635 | 9589 | 6475 | 8109 | 6553 | 6122 |
| TSS (lbs/day)<br>Weekly Average | 841 | 139 | 89 | 151 | 273 | 274 | 1202 | 563 | 285 | 559 | 206 | 209 |
| TSS (mg/L)<br>Average Monthly | 6 | 3 | 3 | 3 | 7 | 6 | 8 | 6 | 5 | 5 | 4 | 4 |
| TSS (mg/L)<br>Raw Sewage Influent<br>Average Monthly | 176 | 216 | 169 | 200 | 215 | 262 | 231 | 227 | 225 | 218 | 213 | 235 |
| TSS (mg/L)<br>Weekly Average | 11 | 5 | 3 | 4 | 10 | 9 | 14 | 8 | 7 | 8 | 6 | 8 |
| TDS (mg/L)<br>Average Monthly | 1446 | 1674 | 1660 | 1562 | 1735 | 1608 | 1196 | 1606 | 1440 | 1244 | 1808 | 2040 |
| TDS (mg/L)<br>Daily Maximum | 1800 | 2240 | 1920 | 1900 | 2000 | 1740 | 1530 | 1940 | 1680 | 1640 | 2110 | 2320 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Osmotic Pressure (mOs/kg) Average Monthly | 42 | 35 | 28 | 36 | 37 | 25 | 38 | 56 | 30 | 25 | 36 | 54 |
| Osmotic Pressure (mOs/kg) Daily Maximum | 42 | 35 | 28 | 36 | 37 | 25 | 38 | 56 | 30 | 25 | 36 | 54 |
| Fecal Coliform (CFU/100 ml) Geometric Mean | 14 | 3 | 3 | 3 | 4 | 7 | 10 | 72 | 18 | 6 | 14 | 19 |
| Fecal Coliform (CFU/100 ml) IMAX | 520 | 16 | 48 | 20 | 256 | 70 | 162 | 891 | 62 | 46 | 200 | 109 |
| Ammonia (lbs/day) Average Monthly | 25 | 5 | 3 | 11 | 12 | 8 | 57 | < 53 | 9 | 49 | 5 | 5 |
| Ammonia (mg/L) Average Monthly | 0.42 | 0.16 | 0.1 | 0.36 | 0.40 | 0.3 | 0.76 | < 0.82 | 0.28 | 0.78 | 0.17 | 0.2 |
| Total Phosphorus (lbs/day) Average Monthly | 10 | 11 | 16 | 9 | 13 | 8 | 15 | 14 | 8 | 9 | 9 | 11 |
| Total Phosphorus (mg/L) Average Monthly | 0.36 | 0.37 | 0.62 | 0.32 | 0.48 | 0.29 | 0.29 | 0.26 | 0.29 | 0.23 | 0.30 | 0.4 |
| Total Aluminum (lbs/day) Average Monthly | 15.61 | 15 | 10.33 | 5.74 | 3.63 | 0.66 | 3.08 | < 2.04 | 1.22 | 2.47 | 6.4 | 6.5 |
| Total Aluminum (lbs/day) Daily Maximum | 21.79 | 19.2 | 14.22 | 8.76 | 8 | 0.80 | 10.49 | 3.67 | 1.57 | 6.31 | 11.05 | 11.4 |
| Total Aluminum (mg/L) Average Monthly | 0.49 | 0.50 | 0.388 | 0.198 | 0.14 | 0.024 | 0.067 | < 0.044 | 0.040 | 0.06 | 0.24 | 0.26 |
| Total Aluminum (mg/L) Daily Maximum | 0.52 | 0.58 | 0.530 | 0.34 | 0.32 | 0.030 | 0.18 | 0.060 | 0.050 | 0.11 | 0.43 | 0.45 |
| Total Copper (lbs/day) Average Monthly | 0.12 | 0.13 | 0.28 | 0.28 | 0.18 | 0.26 | 0.44 | 0.47 | 0.23 | 0.31 | 0.17 | 0.13 |
| Total Copper (lbs/day) Daily Maximum | 0.18 | 0.18 | 0.34 | 0.36 | 0.20 | 0.38 | 1.22 | 1.18 | 0.25 | 0.82 | 0.23 | 0.15 |
| Total Copper (mg/L) Average Monthly | 0.004 | 0.004 | 0.010 | 0.010 | 0.007 | 0.009 | 0.010 | 0.010 | 0.008 | 0.009 | 0.006 | 0.005 |
| Total Copper (mg/L) Daily Maximum | 0.004 | 0.007 | 0.013 | 0.014 | 0.007 | 0.013 | 0.021 | 0.016 | 0.009 | 0.024 | 0.008 | 0.006 |
| Total Iron (lbs/day) Average Monthly | 7.5 | 4.5 | 10.8 | 25.0 | 29.7 | 47.4 | 50.0 | 53.6 | 41.9 | 42.5 | 11.6 | 3.2 |
| Total Iron (lbs/day) Daily Maximum | 12.3 | 5.4 | 25.5 | 34.3 | 35.5 | 52.9 | 62.9 | 74.2 | 47.6 | 55.1 | 28.8 | 4.2 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Iron (mg/L) Average Monthly | 0.23 | 0.15 | 0.39 | 0.82 | 1.08 | 1.71 | 1.29 | 1.31 | 1.39 | 1.14 | 0.40 | 0.12 |
| Total Iron (mg/L) Daily Maximum | 0.27 | 0.16 | 0.80 | 1.12 | 1.20 | 1.82 | 1.58 | 1.49 | 1.57 | 1.40 | 1.02 | 0.17 |
| Sulfate (lbs/day) Average Monthly | 1405 | 1470 | 1363 | 1469 | 1374 | 1255 | 1366 | 1425 | 1251 | 1793 | 1119 | 990 |
| Sulfate (lbs/day) Daily Maximum | 1865 | 1560 | 1718 | 1904 | 1450 | 1308 | 1654 | 2115 | 1400 | 2850 | 1305 | 1161 |
| Sulfate (mg/L) Average Monthly | 45 | 50 | 51 | 49 | 51 | 45 | 35 | 35 | 42 | 49 | 41 | 39 |
| Sulfate (mg/L) Daily Maximum | 47 | 55 | 54 | 52 | 55 | 49 | 41 | 41 | 46 | 90 | 48 | 46 |
| Chloride (lbs/day) Average Monthly | 23471 | 26252 | 24378 | 24972 | 26018 | 24047 | 24812 | 38599 | 23789 | 27552 | 27003 | 30118 |
| Chloride (lbs/day) Daily Maximum | 28077 | 33231 | 31095 | 28665 | 28235 | 25286 | 30412 | 58760 | 26078 | 41881 | 29540 | 35565 |
| Chloride (mg/L) Average Monthly | 774 | 910 | 907 | 849 | 963 | 871 | 638 | 943 | 803 | 730 | 986 | 1180 |
| Chloride (mg/L) Daily Maximum | 989 | 1300 | 1090 | 1030 | 1130 | 946 | 839 | 1140 | 951 | 910 | 1150 | 1400 |
| Bromide (lbs/day) Average Monthly | 16 | 30 | 27 | 30 | 27 | 28 | 40 | < 43 | 31 | 38 | 27 | 26 |
| Bromide (lbs/day) Daily Maximum | 45 | 36 | 32 | 40 | 33 | 30 | 58 | < 73 | 39 | 57 | 32 | 29 |
| Bromide (mg/L) Average Monthly | 0.47 | 1 | 1 | 1 | 1 | 1 | 1 | < 1 | 1 | 1 | 1 | 1 |
| Bromide (mg/L) Daily Maximum | 1.0 | 1 | 1 | 1 | 1 | 1 | 1 | < 1 | 1 | 1 | 1 | 1 |
| Chronic WET - Ceriodaphnia Survival (TUc) Daily Maximum | 1.00 | | | 1.00 | | | 1.00 | | | 1.04 | | |
| Chronic WET - Ceriodaphnia Reproduction (TUc) Daily Maximum | 1.04 | | | 1.00 | | | 1.00 | | | 1.04 | | |
| Chronic WET - Pimephales Survival (TUc) Daily Maximum | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | | |
| Chronic WET - Pimephales Growth (TUc) Daily Maximum | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | | |

**DMR Data for Outfall 004 (from October 1, 2020 to September 30, 2021)**

No discharge from Outfall 004

**DMR Data for Outfall 005 (from October 1, 2020 to September 30, 2021)**

| Parameter | SEP-21 | AUG-21 | JUL-21 | JUN-21 | MAY-21 | APR-21 | MAR-21 | FEB-21 | JAN-21 | DEC-20 | NOV-20 | OCT-20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| pH (S.U.) Annual Average | | | | | | | | | | 8.93 | | |
| pH (S.U.) IMAX | | | | | | | | | | 8.93 | | |
| CBOD5 (mg/L) Annual Average | | | | | | | | | | 3.7 | | |
| CBOD5 (mg/L) IMAX | | | | | | | | | | 3.7 | | |
| COD (mg/L) Annual Average | | | | | | | | | | 32 | | |
| COD (mg/L) IMAX | | | | | | | | | | 32 | | |
| TSS (mg/L) Annual Average | | | | | | | | | | 32 | | |
| TSS (mg/L) IMAX | | | | | | | | | | 32 | | |
| Oil and Grease (mg/L) Annual Average | | | | | | | | | | < 5 | | |
| Oil and Grease (mg/L) IMAX | | | | | | | | | | < 5 | | |
| Fecal Coliform (CFU/100 ml) Annual Average | | | | | | | | | | 118 | | |
| Fecal Coliform (CFU/100 ml) IMAX | | | | | | | | | | 118 | | |
| TKN (mg/L) Annual Average | | | | | | | | | | 0.64 | | |
| TKN (mg/L) IMAX | | | | | | | | | | 0.64 | | |
| Total Phosphorus (mg/L) Annual Average | | | | | | | | | | 0.24 | | |
| Total Phosphorus (mg/L) IMAX | | | | | | | | | | 0.24 | | |
| Dissolved Iron (mg/L) Annual Average | | | | | | | | | | < 0.02 | | |
| Dissolved Iron (mg/L) IMAX | | | | | | | | | | < 0.02 | | |

**DMR Data for Outfall 006 (from October 1, 2020 to September 30, 2021)**

No discharge from Outfall 006

**DMR Data for Outfall 007 (from October 1, 2020 to September 30, 2021)**

No discharge from Outfall 007

**Summary of Inspection:**

**August 25, 2021:** RTPT conducted. No violations were noted during inspection.

**March 19, 2021:** RTPT conducted. No violations were noted during inspection.

**December 9, 2020:** CEI conducted. No violations were noted during inspection.

**August 5, 2020:** RTPT conducted in response to the WWTP being flooded due to the tropical storm. The facility lost power for four hours, but the emergency generator functioned to keep the plant running. Final effluent was slightly cloudy but overall clear. No violations were noted during inspection.

**April 27, 2020:** RTPT conducted in response to a sludge overflow from the WWTP. The overflow was from the sludge hauler leaving the valve open after leaving the plant. Most of the sludge went to a drain that goes to the head of the plant, but some discharged onto the pavement and to the grass. A cleanup company vacuumed the materials from the ground and applied lime.

**February 19, 2020:** CEI conducted. No violations were noted during inspection.

**March 12, 2019:** CEI conducted. No violations were identified during inspection. The treatment plant appeared well maintained and dept good housekeeping practices.

**June 14, 2018:** CEI conducted for biosolids land application. Pollutants, vector attraction reduction and pathogen reduction requirements were all met. No violations were noted during the inspection or review of the 2017 annual report.

**February 27, 2018:** CEI conducted. No violations were identified during the inspection. Recommendation was made to clean the weirs more frequently during heavy algae growth. The plant appeared to maintain good housekeeping practices.

**July 27, 2017:** CEI conducted. No violations were observed during the inspection. Some recommendations were made including keeping the thermometers within certification dates, keeping the waste oil tank in double walled or secondary containment, cover influent sample line to prevent rapid growth of organism etc. The operator informed the inspector on August 7, 2017 that all new thermometers were put in samplers, the sampler line was replaced covered, and a new double walled waste oil tank was installed to replace the old one.

**January 19, 2016:** Incidental inspection was conducted to respond to a fish kill. Violations noted including unpermitted discharge of sewage, failure to properly notify the Department, and a potential violation related to unrepresentative sampling. The potential cause of fish kill may be high residual chlorine discharge caused from frozen bisulfite line. The bisulfite line was heat taped and the operator was planning to insulate the line. The inspector noticed 9 dead fishes and foam downstream of the outfall. An NOV was issued on January 26, 2016 for this incident. A Consent Assessment of Civil Penalty (CACP) was issued on June 20, 2016 for this incident.

No on-site samples were taken from 2016 till March 2019.

## Existing Effluent Limitations and Monitoring Requirements

The table below summarizes effluent limitations and monitoring requirements specified in the existing final NPDES permit that was in effect between September 1, 2014 to August 31, 2019.

**For Outfall 001, 002, and 003:**

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Daily Maximum | Minimum | Average Monthly | Daily Maximum | Instant. Maximum | | |
| Flow (MGD) | Report | Report | XXX | XXX | XXX | XXX | Continuous | Recorded |
| pH (S.U.) | XXX | XXX | 6.0 Inst Min | XXX | XXX | 9.0 | 1/day | Grab |
| Dissolved Oxygen | XXX | XXX | 6.0 | XXX | XXX | XXX | 1/day | Grab |
| Total Residual Chlorine | XXX | XXX | XXX | 0.014 | XXX | 0.047 | 1/day | Grab |
| CBOD5 Influent | Report | XXX | XXX | Report | XXX | XXX | 3/week | 24-Hr Composite |
| CBOD5 May 1 - Oct 31 | 540 | 815 Wkly Avg | XXX | 10 | 15 Wkly Avg | 20 | 3/week | 24-Hr Composite |
| CBOD5 Nov 1 - Apr 30 | 1,085 | 1,625 Wkly Avg | XXX | 20 | 30 Wkly Avg | 40 | 3/week | 24-Hr Composite |
| BOD5 Influent | Report | XXX | XXX | Report | XXX | XXX | 2/month | 24-Hr Composite |
| Total Suspended Solids Influent | Report | XXX | XXX | Report | XXX | XXX | 3/week | 24-Hr Composite |
| Total Suspended Solids | 1,625 | 2,440 Wkly Avg | XXX | 30 | 45 Wkly Avg | 60 | 3/week | 24-Hr Composite |
| Total Dissolved Solids | XXX | XXX | XXX | Report | Report | XXX | 1/week | 24-Hr Composite |
| Osmotic Pressure (mOs/kg) | XXX | XXX | XXX | Report | XXX | 52 | 1/month | Grab |
| Fecal Coliform (CFU/100 ml) | XXX | XXX | XXX | 200 Geo Mean | XXX | 1,000 (*) | 3/week | Grab |
| Ammonia-Nitrogen May 1 - Oct 31 | 54 | XXX | XXX | 1.0 | XXX | 2.0 | 3/week | 24-Hr Composite |
| Ammonia-Nitrogen Nov 1 - Apr 30 | 108 | XXX | XXX | 2.0 | XXX | 4.0 | 3/week | 24-Hr Composite |
| Total Phosphorus Apr 1 - Oct 31 | 51 | XXX | XXX | 1.0 | XXX | 2.0 | 3/week | 24-Hr Composite |

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Daily Maximum | Minimum | Average Monthly | Daily Maximum | Instant. Maximum | | |
| Total Phosphorus Nov 1 - Mar 31 | 102 | XXX | XXX | 2.0 | XXX | 4.0 | 3/week | 24-Hr Composite |
| Total Aluminum | Report | Report | XXX | Report | Report | XXX | See Permit (**) | 24-Hr Composite |
| Total Copper | 1.14 | 1.73 | XXX | 0.021 | 0.032 | 0.042 | 1/week | 24-Hr Composite |
| Total Iron | 84.5 | 132 | XXX | 1.56 | 2.44 | 3.12 | 1/week | 24-Hr Composite |
| Sulfate | Report | Report | XXX | Report | Report | XXX | 1/week | 24-Hr Composite |
| Chloride | Report | Report | XXX | Report | Report | XXX | 1/week | 24-Hr Composite |
| Bromide | Report | Report | XXX | Report | Report | XXX | 1/week | 24-Hr Composite |
| Chronic Toxicity - Ceriodaphnia Survival (TUc) | XXX | XXX | XXX | XXX | 1.04 | XXX | See Permit | See Permit |
| Chronic Toxicity - Ceriodaphnia Reproduction (TUc) | XXX | XXX | XXX | XXX | 1.04 | XXX | See Permit | See Permit |
| Chronic Toxicity - Pimephales Survival (TUc) | XXX | XXX | XXX | XXX | 1.04 | XXX | See Permit | See Permit |
| Chronic Toxicity - Pimephales Growth (TUc) | XXX | XXX | XXX | XXX | 1.04 | XXX | See Permit | See Permit |

**For Outfall 004, 005, 006, and 007:**

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | | Minimum | Annual Average | | Instant. Maximum | | |
| pH (S.U.) | XXX | XXX | XXX | Report | XXX | Report | Upon Request | Grab |
| CBOD5 | XXX | XXX | XXX | Report | XXX | Report | Upon Request | Grab |
| Chemical Oxygen Demand | XXX | XXX | XXX | Report | XXX | Report | Upon Request | Grab |
| Total Suspended Solids | XXX | XXX | XXX | Report | XXX | Report | Upon Request | Grab |
| Oil and Grease | XXX | XXX | XXX | Report | XXX | Report | Upon Request | Grab |
| Fecal Coliform (CFU/100 ml) | XXX | XXX | XXX | Report | XXX | Report | Upon Request | Grab |
| Total Kjeldahl Nitrogen | XXX | XXX | XXX | Report | XXX | Report | Upon Request | Grab |
| Total Phosphorus | XXX | XXX | XXX | Report | XXX | Report | Upon Request | Grab |
| Dissolved Iron | XXX | XXX | XXX | Report | XXX | Report | Upon Request | Grab |

## Development of Effluent Limitations

**Outfall No.** 003 **Design Flow (MGD)** 6.5
**Latitude** 40º 13' 45.00" **Longitude** -75º 21' 38.81"
**Wastewater Description:** Sewage Effluent

### Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

| Pollutant | Limit (mg/l) | SBC | Federal Regulation | State Regulation |
|---|---|---|---|---|
| $CBOD_5$ | 25 | Average Monthly | 133.102(a)(4)(i) | 92a.47(a)(1) |
| | 40 | Average Weekly | 133.102(a)(4)(ii) | 92a.47(a)(2) |
| Total Suspended Solids | 30 | Average Monthly | 133.102(b)(1) | 92a.47(a)(1) |
| | 45 | Average Weekly | 133.102(b)(2) | 92a.47(a)(2) |
| pH | 6.0 – 9.0 S.U. | Min – Max | 133.102(c) | 95.2(1) |
| Fecal Coliform (5/1 – 9/30) | 200 / 100 ml | Geo Mean | - | 92a.47(a)(4) |
| Fecal Coliform (5/1 – 9/30) | 1,000 / 100 ml | IMAX | - | 92a.47(a)(4) |
| Fecal Coliform (10/1 – 4/30) | 2,000 / 100 ml | Geo Mean | - | 92a.47(a)(5) |
| Fecal Coliform (10/1 – 4/30) | 10,000 / 100 ml | IMAX | - | 92a.47(a)(5) |
| Total Residual Chlorine | 0.5 | Average Monthly | - | 92a.48(b)(2) |

### Water Quality-Based Limitations

WQM 7.0:
The following data were used in the attached computer model (WQM 7.0) of the stream:

- Discharge pH 7.16 (median July-Sep, 2014-2018, DMR data)
- Discharge Temperature 20°C (Default per 391-2000-013)
- Discharge Hardness 100 mg/l (Application data)
- Stream pH 7.97 (PADEP samples, April 24, 2019-June 12, 2019)
- Stream Temperature 20°C (Default per 391-2000-007)
- Stream Hardness 160 mg/l (Application data between Sep'16 – Dec'17)

The following two nodes were used in modeling:

Node 1: At Outfall 003 on Towamencin Creek (01066) at RMI 1.41
Elevation: 176.89 ft (USGS TNM 2.0 viewer, 08/05/2019)
Drainage Area: 10.0 $mi^2$ (StreamStat Version 3.0, 08/05/2019)
River Mile Index: 1.41 (PA DEP eMapPA)
Low Flow Yield: 0.0434 $cfs/mi^2$
Discharge Flow: 6.5 MGD

Node 2: At confluence with Skippack Creek (01024)
Elevation: 154.3 ft (USGS TNM 2.0 viewer, 08/05/2019)
Drainage Area: 11.1 $mi^2$ (StreamStat Version 3.0, 08/05/2019)
River Mile Index: 0.0 (PA DEP eMapPA)
Low Flow Yield: 0.0434 $cfs/mi^2$
Discharge Flow: 0.0 MGD

Ammonia ($NH_3$-N), Carbonaceous Biochemical Oxygen Demand (CBOD5), & Dissolved Oxygen (DO):
WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate effluent limits for $CBOD_5$, $NH_3$-N and DO. The model simulates two basic processes. In the $NH_3$-N module, the model simulates the mixing and degradation of $NH_3$-N in the stream and compares calculated instream $NH_3$-N concentrations to $NH_3$-N water

quality criteria. In the D.O. module, the model simulates the mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and $NH_3N$ and compares calculated instream D.O. concentrations to D.O. water quality criteria. The model was utilized for this permit renewal by using $Q_{7-10}$ and current background water quality levels of the stream.

$NH_3$-N:
WQM 7.0 suggested $NH_3$-N limit of 1.0 mg/l as monthly average and 2.0 mg/l as IMAX limit during summer to protect water quality standards. These values are the same as existing permitted limits. Recent DMR data show that the plant is meeting the permit limits. The average monthly mass loading is calculated to be 54 lbs./day. The existing winter season limits of 2.0 mg/l as average monthly and 4.0 mg/l as IMAX limit will be carried over in this renewal. Winter average monthly mass limit was calculated as 108 lbs./day, which is the same as in the existing permit and will remain unchanged.

$CBOD_5$:
The WQM 7.0 model suggests a monthly average $CBOD_5$ limit of 10 mg/l. The average monthly and average weekly mass loadings were calculated as 542.1 lbs/day and 813.15 lbs/day respectively. These values are rounded down to 540 lbs/day and 810 lbs/day, respectively (1). The current permit has weekly average mass loading limit of 815 lbs./day, which is corrected by this updated limit of 810 lbs./day. The current permit has seasonal limit for $CBOD_5$ with a multiplier of 2.0 which will be carried over in this renewal. Seasonal limit for $CBOD_5$ is allowed in PADEP's guidance (2). The mass limit for winter season is calculated to be 1084.2 lbs./day as monthly average and 1626.3 lbs./day as weekly average which are rounded down to 1080 lbs./day and 1625 lbs./day, respectively (1). Minimum monitoring frequency will remain the same as 3/week, 24-hr composite sampling.

Dissolved Oxygen (DO):
A minimum of 6.0 mg/L for D.O. is an existing effluent limit and is supported by the output from WQM 7.0 modeling. The existing limit will remain unchanged in the draft permit.

**Toxics:**
The permit drafted in December 11, 2019 included some new parameters with limits/monitoring requirements. The permit couldn't be finalized due to outstanding BLM issues with EPA/CO. The PADEP prepared a re-draft permit package and sent a pre-draft survey form to TMA on November 24, 2021 that listed new pollutants of concerns (new/more stringent) based on a RP analysis with updated eDMR data. TMA indicated that the waste-stream was changed due to approximately 90% withdrawal of wastewater from Upper Gwynedd Township's contribution, or 0.81 MGD. TMA believed that their influent quality is improved and offered to conduct additional testing for those POC. The response on the pre-draft was received by the PADEP on March 3, 2022. Accordingly, PADEP conducted a new RP analysis based on the updated results. A summary of the new TMS recommendation is provided below:

☑ ***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 |
| Total Aluminum | Report | Report | Report | Report | Report | µg/L | 750 | AFC | Discharge Conc > 10% WQBEL (no RP) |
| Total Copper | 0.54 | 0.81 | 9.94 | 14.9 | 14.9 | µg/L | 9.94 | CFC | Discharge Conc ≥ 50% WQBEL (RP) |
| Dissolved Iron | Report | Report | Report | Report | Report | µg/L | 313 | THH | Discharge Conc > 10% WQBEL (no RP) |
| Total Iron | 84.8 | 132 | 1,565 | 2,441 | 3,912 | µg/L | 1,565 | CFC | Discharge Conc ≥ 50% WQBEL (RP) |
| Total Nickel | Report | Report | Report | Report | Report | µg/L | 55.6 | CFC | Discharge Conc > 10% WQBEL (no RP) |
| Total Silver | Report | Report | Report | Report | Report | µg/L | 3.95 | AFC | Discharge Conc > 10% WQBEL (no RP) |
| Total Zinc | Report | Report | Report | Report | Report | µg/L | 122 | AFC | Discharge Conc > 10% WQBEL (no RP) |
| Chlorodibromomethane | 0.059 | 0.11 | 1.08 | 1.98 | 2.71 | µg/L | 1.08 | CRL | Discharge Conc ≥ 50% WQBEL (RP) |
| Chloroform | Report | Report | Report | Report | Report | µg/L | 7.73 | CRL | Discharge Conc > 25% WQBEL (no RP) |
| Dichlorobromomethane | 0.07 | 0.13 | 1.29 | 2.36 | 3.22 | µg/L | 1.29 | CRL | Discharge Conc ≥ 50% WQBEL (RP) |
| Osmotic Pressure | XXX | XXX | 50.0 | 51.8 | 51.8 | mOs/kg | 50.0 | AFC | Discharge Conc ≥ 50% WQBEL (RP) |
| | | | | | | | | | |
| | | | | | | | | | |

(1) 362-0400-001 /10/1/97 /Chapter 5/Page 9
(2) Determining Water-Quality Based Effluent Limits, 391-2000-003, December 9, 1997

Each of the parameters are discussed below:

Total Aluminum: TMS suggests monitoring for Total Aluminum. The existing permit has monitoring for Total Aluminum only when the TMA uses Alum or other aluminum salts in the treatment process. Polyaluminum Chloride (PACL) is used in the treatment process to aid for removal of phosphorus. Existing monitoring requirement will be continued.

Total Copper: Total Copper is an existing parameter in the current permit. The Average Monthly limit (AML) is 0.021 mg/l which was based on site specific Biotic Ligand Model (BLM) study conducted in 2011. A new BLM study was conducted, and the final report was submitted to PADEP on April 24, 2018, which recommended site-specific total copper criteria of 32 µg/l (CMC) and 20 µg/l (CCC). The 2018 SSCS was reviewed by the Department and the EPA with comments and no decision were made on the study, waiting on department to develop BLM base criteria for copper. The development of BLM based copper criteria has to go thru the rule making process and is expected to take extended time. To facilitate issuance of the permit in the meantime, the Department has reviewed the facility's existing performance and apply the limit as WQBELs without the benefit of the study. A review of discharge concentration for the period of 5 years revealed that the facility can meet 15 mg/l an average monthly limit most of the time. The model suggests a limit of 10 ug/l, without the benefit of SSCS. Therefore, the permit is drafted by applying 15 ug/l as interim limit (compliance time of 59 months is granted) and 10 ug/l as final limit, applicable on 60$^{th}$ month from permit effective date. The permittee will be required to conduct a BLM study during this permit term and will submit the results within 54 months of permit issuance and request the permit amendment before final limits become effective. If permittee decided not to do SSCS using BLM then final limit of 10 ug/l become effective at the beginning of 60$^{th}$ month of the permit.

Dissolved Iron: This is a new parameter with monitoring recommendation on this renewal. The permittee will be required to collect monthly samples for this pollutant and the data will be used for RP analysis in next permit renewal.

Total Iron: Total Iron is an existing parameter in the current permit. The AML and MDL suggested by TMS is 1.56 mg/l and 2.44 mg/l, respectively, which are the same as current limits. The existing limits will be carried over in this renewal. The existing minimum monitoring frequency of 1/week will be carried over as well.

Total Nickel: This is a new parameter with monitoring recommendation on this renewal. The permittee will be required to collect monthly samples for this pollutant and the data will be used for RP analysis in next permit renewal.

Total Silver: This is a new parameter with monitoring recommendation on this renewal. The permittee will be required to collect monthly samples for this pollutant and the data will be used for RP analysis in next permit renewal.

Total Zinc: This is a new parameter with monitoring recommendation on this renewal. The permittee will be required to collect monthly samples for this pollutant and the data will be used for RP analysis in next permit renewal.

Chlorodibromomethane: The model suggested 1.08 µg/l as AML, 1.98 ug/l as MDL, and 2.71 ug/l as IMAX. The mas-based limits for AML and MDL are calculated to be 0.059 lbs./day and 0.11 lbs./day, respectively. It is a Disinfection-by-products (DBP) such as Trihalomethanes (THMs) which may be formed when chlorine (or bromine) used as a disinfectant which react with Natural Organic Materials (NOM). Since the facility uses chlorine as disinfectant, the formation of DBPs are likely. Per the returned pre-draft permit survey, TMA believes that they will be unable to attain or consistently attain compliance with this pollutant without a process modification or change and requested a compliance schedule for 59 months from permit effective date. PADEP agrees with this schedule and proposes that the new limits will be effective from 60$^{th}$ month of the permit effective date.

Chloroform: This is a new parameter with monitoring recommendation on this renewal. The permittee will be required to collect monthly samples for this pollutant and the data will be used for RP analysis in next permit renewal.

Dichlorobromomethane: The model suggested 1.29 µg/l as AML, 2.36 ug/l as MDL, and 3.22 ug/l as IMAX. The mas-based limits for AML and MDL are calculated to be 0.07 lbs./day and 0.13 lbs./day, respectively. It is a Disinfection-by-products (DBP) such as Trihalomethanes (THMs) which may be formed when chlorine (or bromine) used as a disinfectant which react with Natural Organic Materials (NOM). Since the facility uses chlorine as disinfectant, the formation of DBPs are likely. Per the returned pre-draft permit survey, TMA believes that they will be unable to attain or consistently attain compliance with this pollutant without a process modification or change and requested a compliance schedule for 59 months from permit effective date. PADEP agrees with this schedule and proposes that the new limits will be effective from 60$^{th}$ month of the permit effective date.

Osmotic Pressure: The existing permit has osmotic pressure limit of 52 mOs/kg as IMAX. A site-specific criteria (SSC) study by the Department above the TMA discharge point in 2019 indicated an instream osmotic pressure of 8.86 mOs/kg. The average discharge for last 12 months is 36.83 mOs/kg. The model output indicated AML of 50 mOs/kg, MDL and IMAX of 51.8 mOs/kg. TMA indicated the facility may not meet the limit on the permit effective date and requested a compliance schedule of 2 years from permit effective date. PADEP agrees with this request and proposes that the existing limits will be carried over for 2 years and more stringent limits will be effective from 3rd year of the permit issuance date.

**Whole Effluent Toxicity Testing (WETT):**

The permittee submitted seven (7) WET Test results during the submission of the renewal application and one (1) through eDMR system. The tests were performed on February, April, July, December of 2015, July of 2016, August of 2017, October of 2018, and June 2019. The first five (5) tests were performed by Eurofins QC. Since all WET tests performed by Eurofins QC from at least 2012 are invalid, the Department didn't accept first five (5) test results. Since only three (3) valid test results were available now, the permittee was requested to perform another WET test. The new WET test was initiated on November 5, 2019 and the test results were submitted to the eDMR system on December 4, 2019. All four valid WET test results showed "Pass" for all end points. The dilution series is updated. The TIWCc was calculated to be 96% to evaluate the test results for a stream flow of 0.434 cfs, discharge flow of 6.5 MGD, and PMFc of 1. The WET tests are discussed in detail on pages 28-29 of this report.

**Additional Considerations**

Fecal Coliform:

The recent coliform guidance in 25 Pa. code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml. Delaware River Basin Commission's (DRBC's) Water Quality Regulations at Section 4.30.4.A requires that during winter season from October through April, the instantaneous maximum concentration of fecal coliform organisms shall not be greater than 1,000 per 100 milliliters in more than 10 percent of the samples tested. Therefore, the summer limit is governed by DEP's regulation while winter limit is governed by DRBC's regulation.

E. Coli:

DEP's SOP titled "Establishing Effluent Limitations for Individual Sewage Permits (BCW-PMT-033, revised March 24, 2021) recommends monthly E. Coli monitoring for major sewage dischargers. This requirement will be applied from this permit term.

pH:

The TBEL for pH is above 6.0 and below 9.0 S.U. (40 CFR §133.102(c) and Pa Code 25 § 95.2(1)) which are existing limits and will be carried over.

Total Suspended Solids (TSS):

There is no water quality criterion for TSS. The existing limits of 30 mg/L average monthly, 45 mg/l average weekly, and 60 mg/L instantaneous maximum will remain in the permit based on the minimum level of effluent quality attainable by secondary treatment, 25 Pa. Code § 92a.47 and 40CFR 133.102(b). The mass based average monthly and weekly average limits are calculated to be 1626.3 lbs./day and 2439.45 lbs./day respectively, which are rounded down to 1625 lbs./day and 2435 lbs./day, respectively (362-0400-001). The average monthly mass loading is the same as existing permit, but the weekly average mass limit is 5 lbs./day less than existing permit.

Total Residual Chlorine (TRC):

The attached computer printout utilizes the equation and calculations as presented in the Department's 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID#391-2000-015) for developing chlorine limitations. The attached printout indicates that a water quality limit of 0.015 mg/l would be needed to prevent toxicity concerns at the discharge point for Outfall 003. The Instantaneous Maximum (IMAX) limit is 0.049 mg/l. The existing permit has AML limit of 0.014 mg/l and IMAX limit of 0.047which are a little more stringent and will be carried over due to anti-backsliding policy. DMR data from July 2018 to June 2019 indicates that the plant is discharging below 0.014 mg/l as AML and IMAX year-round. The minimum monitoring frequency is 1/day.

Flow and Influent $BOD_5$, $CBOD_5$, and TSS Monitoring Requirement:

The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii). Influent $BOD_5$ and TSS monitoring requirements are established in the permit per the requirements set in Pa Code 25 Chapter 94.

To show compliance with percentage removal efficiency of $CBOD_5$, reporting for influent $CBOD_5$ is established in the permit.

Total Dissolved Solids (TDS):
The recent TMS model output indicates no concern for TDS and its constituents. The current permit has monitoring requirements for TDS, Sulfate, Chloride, and Bromide. The Delaware River Basin Commission's (DRBC's) recently issued Docket No. D-2002-029 CP-4 maintained monitoring requirement for TDS. Therefore, monitoring requirements for Sulfate, Chloride, and Bromide will be removed and monitoring requirement for TDS will be continued.

**Best Professional Judgement (BPJ):**
Total Phosphorus:
The receiving stream is impaired for nutrients and the nutrient portion of the approved TMDL was withdrawn. In absence of an approved nutrient TMDL, Pa Code 25 chapter 96.5 is applied. The existing permit has seasonal Total Phosphorus limit of 1.0 mg/l for summer and 2.0 mg/l for winter. The mass-based limits are calculated to be 54.21 lbs./day for summer and 108.42 lbs./day for winter. These values are rounded down to 54 lbs./day and 108 lbs./day, respectively. The mass-based limits are a little less stringent compared to existing limit which was may be due to miscalculation in the previous permit, which qualifies for anti-backsliding exception as listed in 402(o)(2).

Monitoring Frequency and Sample Types:
Otherwise specified above, the monitoring frequency and sample type of compliance monitoring for existing parameters are recommended by DEP's SOP and Permit Writers Manual and/or on a case-by-case basis using best professional judgment (BPJ).

**Request to eliminate eDMR submission/sampling requirements for Outfall 001 and Outfall 002:**
The permittee requested removal of eDMR report submission requirements for outfalls 001 and 002. Irrespective of the flow conditions, treated effluent from the TMA Stage I & II Plants is uniformly blended in the Effluent Junction Box prior to final discharge. The effluent sample is drawn from the box and is therefore a common, representative composite sample of the treated effluent from the TMA Stage I & II Plants. The flows through all three outfalls are recorded automatically. Currently, TMA collects one sample from the box and reports duplicate results for all three outfalls during wet weather flow condition. Permitting section along with the assigned inspector visited the site for this renewal and it seemed unnecessary to keep the current practice of reporting duplicate numbers. To avoid this situation, it was decided to create an Internal Monitoring Point (IMP) 101 at the Effluent Box where the actual sample is drawn. All parameters, except flow, from all three outfalls will be assigned to this IMP 101. The Outfalls 001, 002, and 003 will have effluent flow monitoring requirements only. This was discussed with TMI and their assigned consultant and was agreed upon.

**Anti-Backsliding**
The proposed limits are at least as stringent as are in existing permit, unless otherwise stated; therefore, anti-backsliding is not applicable.

**Development of Effluent Limitations**

**Outfall No.** 001 **Design Flow (MGD)** 6.5
**Latitude** 40º 13' 46.00" **Longitude** -75º 21' 6.00"
**Wastewater Description:** Sewage Effluent

**Development of Effluent Limitations**

**Outfall No.** 002 **Design Flow (MGD)** 6.5
**Latitude** 40º 13' 46.00" **Longitude** -75º 21' 6.00"
**Wastewater Description:** Sewage Effluent

**Other comments:** These outfalls discharge treated effluent during high wet weather flow. The effluent is sampled in a common junction box for both treatment trains that discharge through any/all final effluent outfalls. As discussed in page 29 of this report, eDMR reporting requirements are removed for these outfalls.

**Development of Effluent Limitations**

**Outfall No.** 004 **Design Flow (MGD)** 0
**Latitude** 40º 13' 47" **Longitude** -75º 21' 3"
**Wastewater Description:** Stormwater

**Development of Effluent Limitations**

**Outfall No.** 005 **Design Flow (MGD)** 0
**Latitude** 40º 13' 46" **Longitude** -75º 21' 4"
**Wastewater Description:** Stormwater

**Development of Effluent Limitations**

**Outfall No.** 006 **Design Flow (MGD)** 0
**Latitude** 40º 13' 45.60" **Longitude** -75º 21' 8"
**Wastewater Description:** Stormwater

**Development of Effluent Limitations**

**Outfall No.** 007 **Design Flow (MGD)** 0
**Latitude** 40º 13' 47" **Longitude** -75º 21' 10.00"
**Wastewater Description:** Stormwater

Other Comments: Outfalls 004, 005, 006, and 007 are stormwater only outfalls. Outfall 005 has been determined to be representative of outfalls 004, 006, and 007. The existing permit has the following limitations/monitoring requirements:

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | | Minimum | Annual Average | | Instant. Maximum | | |
| pH (S.U.) | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |
| CBOD5 | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |
| Chemical Oxygen Demand | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |
| Total Suspended Solids | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |
| Oil and Grease | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |
| Fecal Coliform (CFU/100 ml) | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |
| Total Kjeldahl Nitrogen | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |
| Total Phosphorus | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |
| Dissolved Iron | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |

These effluent limitations will be carried over in this renewal with 1/year monitoring frequency. Since the “treatment works treating domestic sewage” is considered as an “Industrial Activity” per 40 CFR §122.26(b)(14)(ix), the stormwater related to industrial activity under individual permit shall contain benchmark values. Therefore, the following benchmark values will be applied at representative outfall:

| Parameter | Benchmark Value (mg/L) |
|---|---|
| Chemical Oxygen Demand | 120 |
| Total Suspended Solids | 100 |

## Whole Effluent Toxicity (WET)

For Outfall 003, ☐ **Acute** ☒ **Chronic** WET Testing was completed:

☐ For the permit renewal application (4 tests).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☒ Other: **Quarterly on 1st year, then annually**

The dilution series used for the tests was: 100%, 96%, 72%, 48%, and 24%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 96%.

**Summary of Four Most Recent Test Results**

*(NOTE – Enter results into one table, depending on which data analysis method was used).*

TST Data Analysis

*(NOTE – In lieu of recording information below, the application manager may attach the DEP WET Analysis Spreadsheet).*

| Test Date | *Ceriodaphnia* Results (Pass/Fail) | | *Pimephales* Results (Pass/Fail) | |
|---|---|---|---|---|
| | Survival | Reproduction | Survival | Growth |
| 8/29/2017 | Pass | Pass | Pass | Pass |
| 10/9/2018 | Pass | Pass | Pass | Pass |
| 6/11/2019 | Pass | Pass | Pass | Pass |
| 11/12/2019 | Pass | Pass | Pass | Pass |

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☐ **YES** ☒ **NO**

**Comments:** None

**Evaluation of Test Type, IWC and Dilution Series for Renewed Permit**

Acute Partial Mix Factor (PMFa): **1** Chronic Partial Mix Factor (PMFc): **1**

**1. Determine IWC – Acute (IWCa)**:

$(Q_d \times 1.547) / ((Q_{7\text{-}10} \times PMFa) + (Q_d \times 1.547))$

[(6.5 MGD x 1.547) / ((0.434 cfs x 1) + (6.5 MGD x 1.547))] x 100 = **95.86%**

Is IWCa < 1%? ☐ **YES** ☒ **NO** **(YES - Acute Tests Required OR NO - Chronic Tests Required)**

If the discharge is to the tidal portion of the Delaware River, indicate how the type of test was determined:

**N/A**

**Type of Test for Permit Renewal**: **Chronic**

**2a. Determine Target IWCa (If Acute Tests Required)**

**TIWCa =** IWCa / 0.3 = **%**

**2b. Determine Target IWCc (If Chronic Tests Required)**

$(Q_d \times 1.547) / (Q_{7\text{-}10} \times PMFc) + (Q_d \times 1.547)$

[(6.5 MGD x 1.547) / ((0.434 cfs x 1) + (6.5 MGD x 1.547))] x 100 = **95.86%**

**3. Determine Dilution Series**

*(NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).*

Dilution Series = 100%, 96%, 72%, 48%, and 24%.

**WET Limits**

Has reasonable potential been determined? ☐ YES ☒ NO

Will WET limits be established in the permit? ☐ YES ☒ NO

If WET limits will be established, identify the species and the limit values for the permit (TU).

**N/A**

If WET limits will not be established, but reasonable potential was determined, indicate the rationale for not establishing WET limits:

**N/A**

## Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

**IMP 101, Effective Period: Permit Effective Date through Permit Expiration Date**.

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Daily Maximum | Minimum | Average Monthly | Daily Maximum | Instant. Maximum | | |
| pH (S.U.) | XXX | XXX | 6.0 Inst Min | XXX | XXX | 9.0 | 1/day | Grab |
| DO | XXX | XXX | 6.0 Daily Min | XXX | XXX | XXX | 1/day | Grab |
| TRC | XXX | XXX | XXX | 0.014 | XXX | 0.047 | 1/day | Grab |
| CBOD5 Nov 1 - Apr 30 | 1080 | 1625 Wkly Avg | XXX | 20.0 | 30.0 Wkly Avg | 40 | 3/week | 24-Hr Composite |
| CBOD5 Raw Sewage Influent | Report | XXX | XXX | Report | XXX | XXX | 3/week | 24-Hr Composite |
| CBOD5 May 1 - Oct 31 | 540 | 810 Wkly Avg | XXX | 10.0 | 15.0 Wkly Avg | 20 | 3/week | 24-Hr Composite |
| BOD5 Raw Sewage Influent | Report | XXX | XXX | Report | XXX | XXX | 2/month | 24-Hr Composite |
| TSS | 1625 | 2435 Wkly Avg | XXX | 30.0 | 45.0 Wkly Avg | 60 | 3/week | 24-Hr Composite |
| TSS Raw Sewage Influent | Report | XXX | XXX | Report | XXX | XXX | 3/week | 24-Hr Composite |
| Total Dissolved Solids | XXX | XXX | XXX | Report | Report | XXX | 1/week | 24-Hr Composite |
| Osmotic Pressure (mOs/kg) (interim) | XXX | XXX | XXX | 52.0 | Report | XXX | 1/month | Grab |
| Osmotic Pressure (mOs/kg) (final) | XXX | XXX | XXX | 50.0 | 51.8 | 51.8 | 1/month | Grab |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 200 Geo Mean | 1000 90%SAMPLES | XXX | 3/week | Grab |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1000 | 3/week | Grab |

**IMP 101 , Continued (from Permit Effective Date through Permit Expiration Date )**

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Daily Maximum | Minimum | Average Monthly | Daily Maximum | Instant. Maximum | | |
| E-coli | XXX | XXX | XXX | Report | Report | XXX | 1/month | Grab |
| Ammonia Nov 1 - Apr 30 | 108 | XXX | XXX | 2.0 | XXX | 4 | 3/week | 24-Hr Composite |
| Ammonia May 1 - Oct 31 | 54 | XXX | XXX | 1.0 | XXX | 2 | 3/week | 24-Hr Composite |
| Total Phosphorus Nov 1 - Mar 31 | 108 | XXX | XXX | 2.0 | XXX | 4 | 3/week | 24-Hr Composite |
| Total Phosphorus Apr 1 - Oct 31 | 54 | XXX | XXX | 1.0 | XXX | 2 | 3/week | 24-Hr Composite |
| Chloroform | XXX | XXX | XXX | Report | Report | XXX | 1/month | Grab |
| Chlorodibromo-methane (interim) | XXX | XXX | XXX | Report | Report | XXX | 1/week | Grab |
| Dichlorobromo-methane (interim) | XXX | XXX | XXX | Report | Report | XXX | 1/week | Grab |
| Chlorodibromo-methane (final) | XXX | XXX | XXX | 0.00108 | 0.00198 | XXX | 1/week | Grab |
| Dichlorobromo-methane (final) | XXX | XXX | XXX | 0.00129 | 0.00236 | XXX | 1/week | Grab |
| Total Aluminum | Report | Report | XXX | Report | Report | XXX | 1/month | 24-Hr Composite |
| Total Copper (interim) | 0.813 | 1.22 | XXX | 0.015 | 0.0225 | 0.03 | 1/week | 24-Hr Composite |
| Total Copper (final) | 0.54 | 0.81 Daily Max | XXX | 0.010 | 0.015 | 0.02 | 1/week | 24-Hr Composite |
| Dissolved Iron | Report | Report | XXX | Report | Report | XXX | 1/month | 24-Hr Composite |
| Total Iron | 84.5 | 132 | XXX | 1.56 | 2.44 | 3.12 | 1/week | 24-Hr Composite |
| Total Nickel | Report | Report | XXX | Report | Report | XXX | 1/month | 24-Hr Composite |
| Total Silver | Report | Report | XXX | Report | Report | XXX | 1/month | 24-Hr Composite |
| Total Zinc | Report | Report | XXX | Report | Report | XXX | 1/month | 24-Hr Composite |

**IMP 101 , Continued (from Permit Effective Date through Permit Expiration Date )**

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Daily Maximum | Minimum | Average Monthly | Daily Maximum | Instant. Maximum | | |
| Chronic WET - Ceriodaphnia Survival (TUc) | XXX | XXX | XXX | Report Daily Max | XXX | XXX | See permit | 24-Hr Composite |
| Chronic WET - Ceriodaphnia Reproduction (TUc) | XXX | XXX | XXX | Report Daily Max | XXX | XXX | See permit | 24-Hr Composite |
| Chronic WET - Pimephales Survival (TUc) | XXX | XXX | XXX | Report Daily Max | XXX | XXX | See permit | 24-Hr Composite |
| Chronic WET - Pimephales Growth (TUc) | XXX | XXX | XXX | Report Daily Max | XXX | XXX | See permit | 24-Hr Composite |

Compliance Sampling Location: At IMP 101

Other Comments: none

## Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

**Outfall 001, 002, and 003, Effective Period: Permit Effective Date through Permit Expiration Date**.

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Average Weekly | Minimum | Annual Average | Maximum | Instant. Maximum | | |
| Flow (MGD) | Report | Report | XXX | XXX | XXX | XXX | Continuous | Recorded |

## Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

**Outfall 004, 005, 006, 007, Effective Period: Permit Effective Date through Permit Expiration Date**.

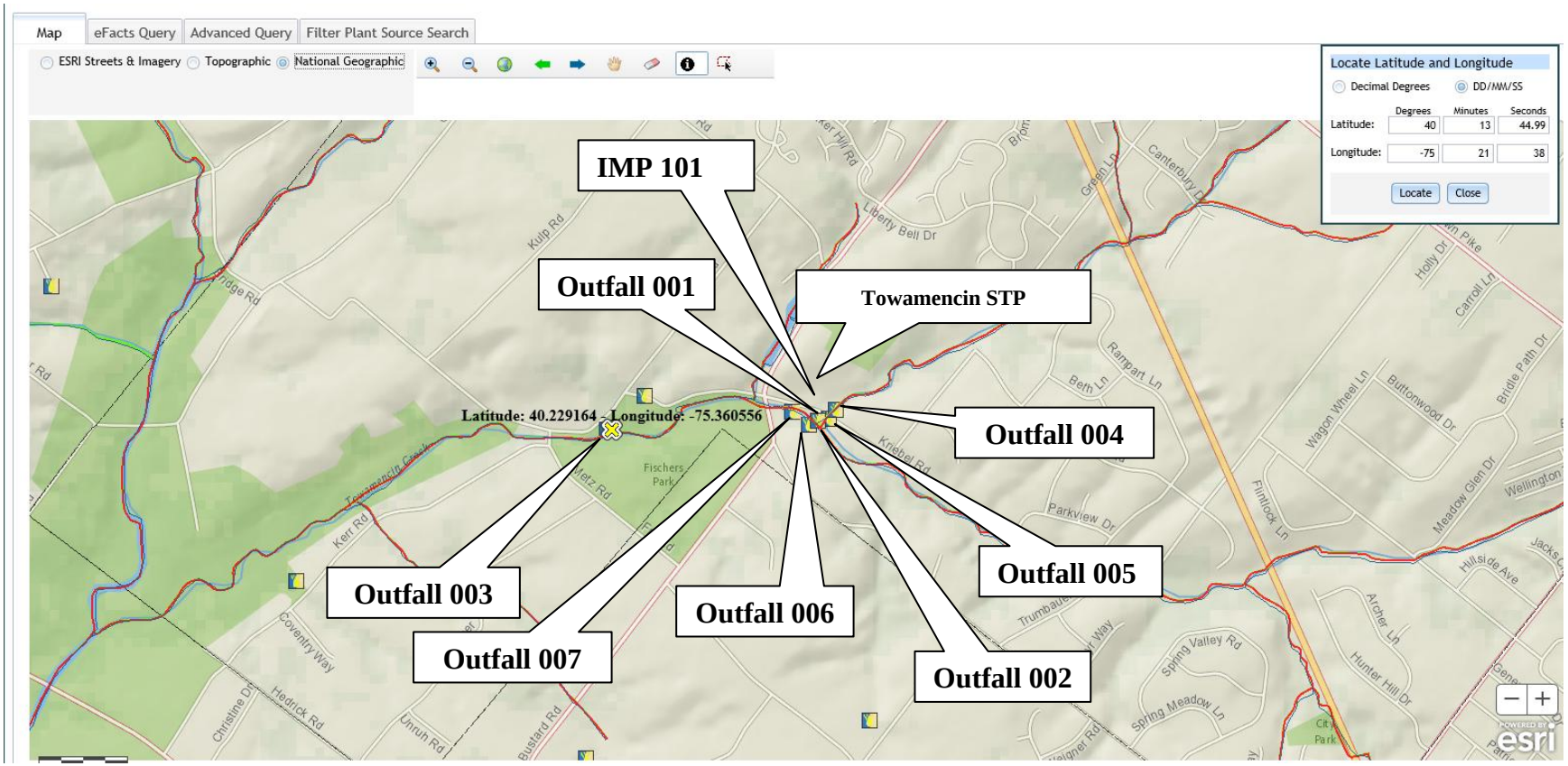
| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Average Weekly | Minimum | Annual Average | Maximum | Instant. Maximum | | |
| pH (S.U.) | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |
| CBOD5 | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |
| COD | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |
| TSS | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |
| Oil and Grease | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |
| Fecal Coliform (No./100 ml) | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |
| TKN | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |
| Total Phosphorus | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |
| Dissolved Iron | XXX | XXX | XXX | Report | XXX | Report | 1/year | Grab |

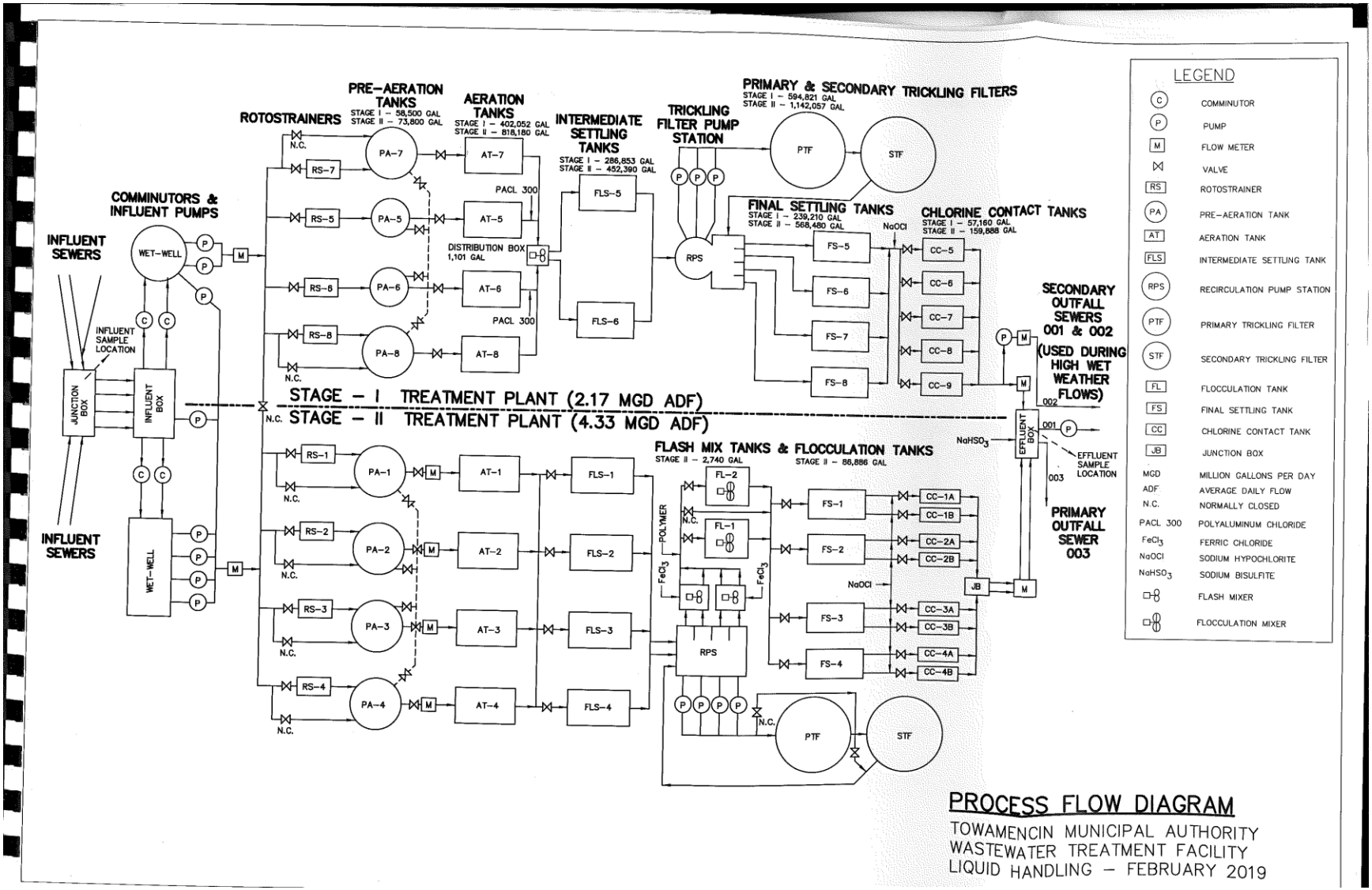
Compliance Sampling Location: At Outfall 004, 005, 006, 007. Outfall 005 is representative.

Other Comments: none

| Tools and References Used to Develop Permit | |
|---|---|
| | |
| ☒ | WQM for Windows Model (see Attachment ) |
| ☒ | Toxics Management Spreadsheet (see Attachment ) |
| ☒ | TRC Model Spreadsheet (see Attachment ) |
| ☐ | Temperature Model Spreadsheet (see Attachment ) |
| ☐ | Water Quality Toxics Management Strategy, 361-0100-003, 4/06. |
| ☐ | Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97. |
| ☐ | Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98. |
| ☐ | Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96. |
| ☐ | Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97. |
| ☐ | Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97. |
| ☐ | Pennsylvania CSO Policy, 385-2000-011, 9/08. |
| ☐ | Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03. |
| ☐ | Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97. |
| ☐ | Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97. |
| ☐ | Implementation Guidance Design Conditions, 391-2000-006, 9/97. |
| ☐ | Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004. |
| ☒ | Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997. |
| ☐ | Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99. |
| ☐ | Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004. |
| ☒ | Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97. |
| ☐ | Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008. |
| ☐ | Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994. |
| ☐ | Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09. |
| ☒ | Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97. |
| ☐ | Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97. |
| ☐ | Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99. |
| ☐ | Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999. |
| ☐ | Design Stream Flows, 391-2000-023, 9/98. |
| ☐ | Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98. |
| ☐ | Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97. |
| ☐ | Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07. |
| ☐ | SOP: |
| ☐ | Other: |

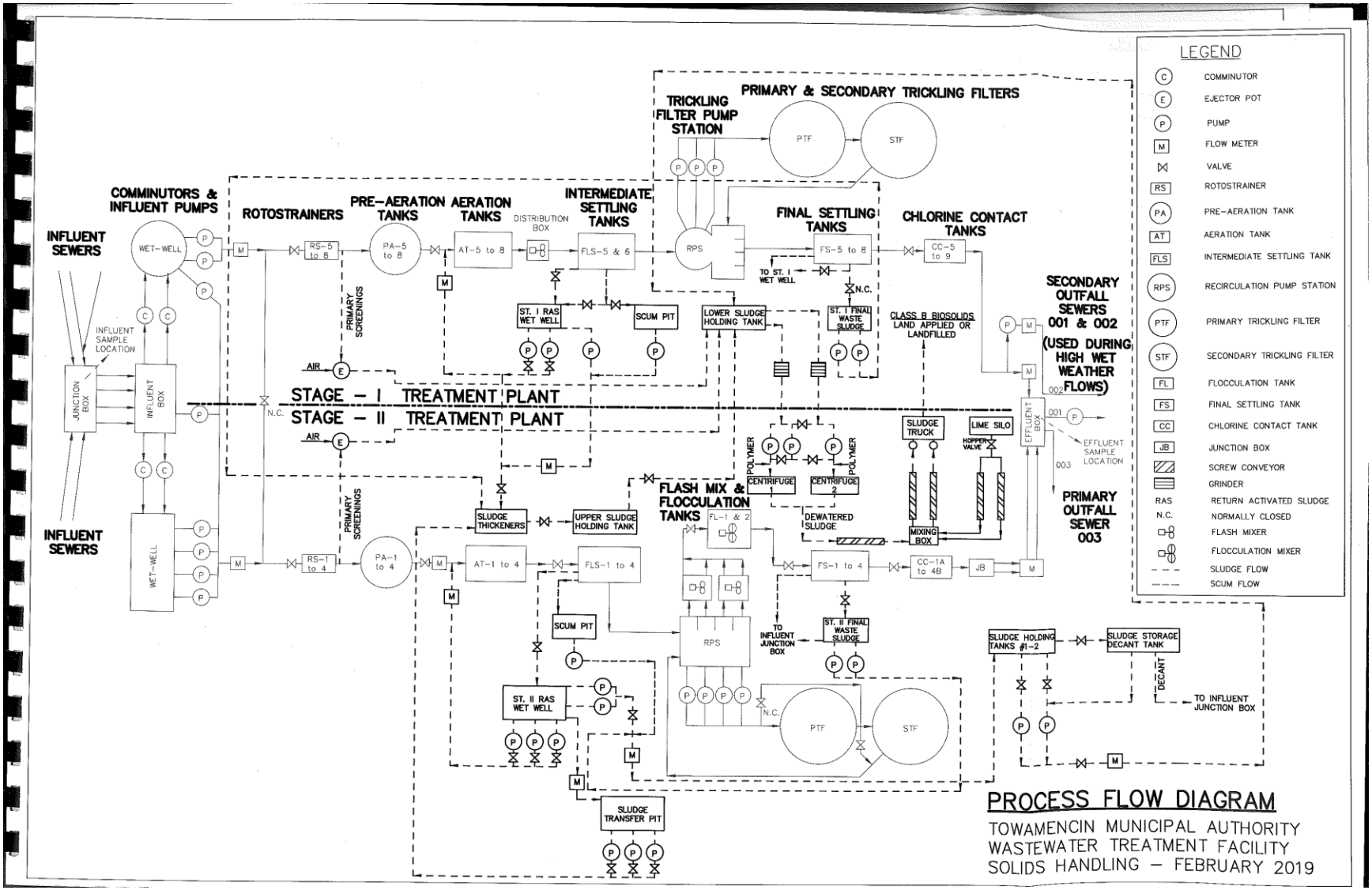
**Towamencin MA STP, Towamencin Township, Montgomery County**






PROCESS FLOW DIAGRAM
TOWAMENCIN MUNICIPAL AUTHORITY
WASTEWATER TREATMENT FACILITY
LIQUID HANDLING – FEBRUARY 2019

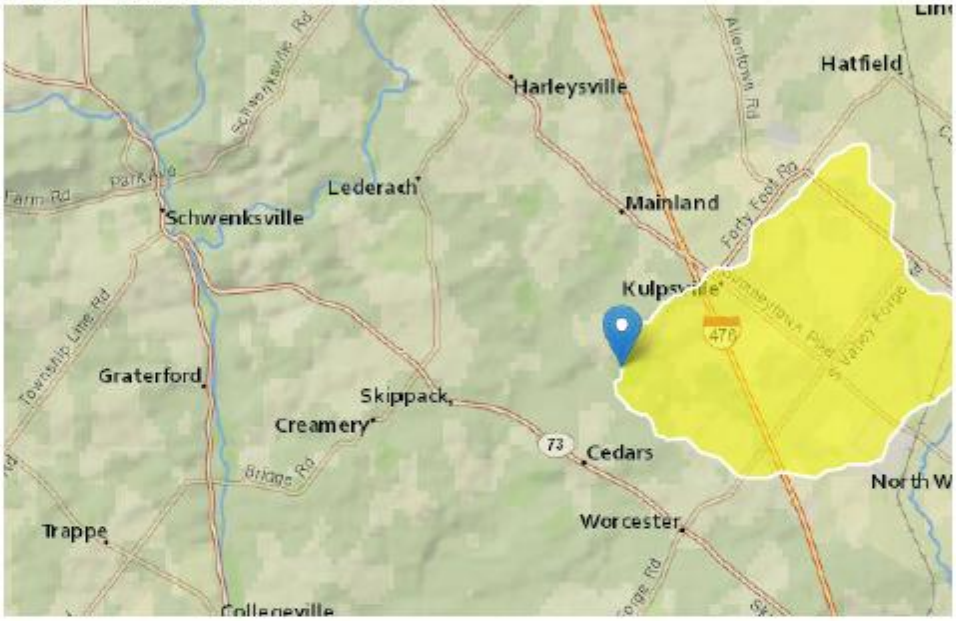
| | | | |
|---|---|---|---|
| Towamencin Municipal Authority<br>NPDES Permit #: PA0039004; Towamencin MA STP<br>Towamencin Township, Montgomery County | | pennsylvania<br>DEPARTMENT OF ENVIRONMENTAL PROTECTION | Reza H Chowdhury<br>Environmental Engineer<br>March 9, 2022 |




| | | | |
|---|---|---|---|
| Towamencin Municipal Authority<br>NPDES Permit #: PA0039004; Towamencin MA STP<br>Towamencin Township, Montgomery County | | pennsylvania<br>DEPARTMENT OF ENVIRONMENTAL PROTECTION | Reza H Chowdhury<br>Environmental Engineer<br>March 9, 2022 |

# At Outfall 003

**Region ID:** PA
**Workspace ID:** PA20190805140620658000
**Clicked Point (Latitude, Longitude):** 40.22904, -75.36048
**Time:** 2019-08-05 10:06:36 -0400




Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| DRNAREA | Area that drains to a point on a stream | 10 | square miles |
| BSLOPD | Mean basin slope measured in degrees | 2.1 | degrees |
| ROCKDEP | Depth to rock | 4.2 | feet |
| URBAN | Percentage of basin with urban development | 60 | percent |

Low-Flow Statistics Parameters[Low Flow Region 1]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 10 | square miles | 4.78 | 1150 |
| BSLOPD | Mean Basin Slope degrees | 2.1 | degrees | 1.7 | 6.4 |
| ROCKDEP | Depth to Rock | 4.2 | feet | 4.13 | 5.21 |
| URBAN | Percent Urban | 60 | percent | 0 | 89 |

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

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | SE | SEp |
|---|---|---|---|---|
| 7 Day 2 Year Low Flow | 1.1 | ft^3/s | 46 | 46 |
| 30 Day 2 Year Low Flow | 1.81 | ft^3/s | 38 | 38 |
| 7 Day 10 Year Low Flow | 0.434 | ft^3/s | 51 | 51 |
| 30 Day 10 Year Low Flow | 0.739 | ft^3/s | 46 | 46 |
| 90 Day 10 Year Low Flow | 1.72 | ft^3/s | 41 | 41 |

*Low-Flow Statistics Citations*

**Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)**

**Permit No. PA0039004**



# PA0039004 Node 2 for Outfall 003

**Region ID:** PA
**Workspace ID:** PA20190805143014707000
**Clicked Point (Latitude, Longitude):** 40.22258, -75.38252
**Time:** 2019-08-05 10:30:31 -0400


Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| DRNAREA | Area that drains to a point on a stream | 11.1 | square miles |
| BSLOPD | Mean basin slope measured in degrees | 2.1 | degrees |
| ROCKDEP | Depth to rock | 4.2 | feet |
| URBAN | Percentage of basin with urban development | 56 | percent |

Low-Flow Statistics Parameters[Low Flow Region 1]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 11.1 | square miles | 4.78 | 1150 |
| BSLOPD | Mean Basin Slope degrees | 2.1 | degrees | 1.7 | 6.4 |
| ROCKDEP | Depth to Rock | 4.2 | feet | 4.13 | 5.21 |
| URBAN | Percent Urban | 56 | percent | 0 | 89 |

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

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | SE | SEp |
|---|---|---|---|---|
| 7 Day 2 Year Low Flow | 1.16 | ft^3/s | 46 | 46 |
| 30 Day 2 Year Low Flow | 1.91 | ft^3/s | 38 | 38 |
| 7 Day 10 Year Low Flow | 0.455 | ft^3/s | 51 | 51 |
| 30 Day 10 Year Low Flow | 0.774 | ft^3/s | 46 | 46 |
| 90 Day 10 Year Low Flow | 1.81 | ft^3/s | 41 | 41 |

*Low-Flow Statistics Citations*

**Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)**

USGS
science for a changing world

Prepared in cooperation with the Pennsylvania Department of Environmental Protection

# Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

Open-File Report 2011–1070

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

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

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

| Streamgage number | Streamgage name | Latitude | Longitude | Drainage area (mi²) | Regulated[1] |
|---|---|---|---|---|---|
| 01465780 | Poquessing Creek above Byberry Creek at Phila., Pa. | 40.070 | -74.975 | 13.2 | N |
| 01465798 | Poquessing Creek at Grant Ave. at Philadelphia, Pa. | 40.057 | -74.985 | 21.4 | N |
| 01465850 | South Branch Rancocas Creek at Vincentown, N.J. | 39.94 | -74.763 | 64.5 | N |
| 01466500 | McDonalds Branch in Byrne State Forest, N.J. | 39.885 | -74.505 | 2.35 | N |
| 01467000 | North Branch Rancocas Creek at Pemberton, N.J. | 39.97 | -74.684 | 118 | N |
| 01467042 | Pennypack Creek at Pine Road, at Philadelphia, Pa. | 40.090 | -75.069 | 37.9 | N |
| 01467048 | Pennypack Creek at Lower Rhawn St Bdg, Phila., Pa. | 40.050 | -75.033 | 49.8 | N |
| 01467050 | Wooden Bridge Run at Philadelphia, Pa. | 40.055 | -75.022 | 3.35 | N |
| 01467081 | South Branch Pennsauken Creek at Cherry Hill, N.J. | 39.942 | -75.001 | 8.98 | N |
| 01467086 | Tacony Creek ab Adams Avenue, Philadelphia, Pa. | 40.047 | -75.111 | 16.7 | N |
| 01467087 | Frankford Creek at Castor Ave, Philadelphia, Pa. | 40.016 | -75.097 | 30.4 | N |
| 01467089 | Frankford Creek at Torresdale Ave., Phila., Pa. | 40.007 | -75.092 | 33.8 | N |
| 01467150 | Cooper River at Haddonfield, N.J. | 39.903 | -75.021 | 17.0 | N |
| 01467500 | Schuylkill River at Pottsville, Pa. | 40.684 | -76.186 | 53.4 | N |
| 01468500 | Schuylkill River at Landingville, Pa. | 40.629 | -76.125 | 133 | N |
| 01469500 | Little Schuylkill River at Tamaqua, Pa. | 40.807 | -75.972 | 42.9 | N |
| 01470500 | Schuylkill River at Berne, Pa. | 40.523 | -75.998 | 355 | N |
| 01470756 | Maiden Creek at Virginville, Pa. | 40.514 | -75.883 | 159 | N |
| 01470779 | Tulpehocken Creek near Bernville, Pa. | 40.413 | -76.172 | 66.5 | N |
| 01470853 | Furnace Creek at Robesonia, Pa. | 40.340 | -76.143 | 4.18 | N |
| 01470960 | Tulpehocken Creek at Blue Marsh Damsite near Reading, Pa. | 40.371 | -76.025 | 175 | Y |
| 01471000 | Tulpehocken Creek near Reading, Pa. | 40.369 | -75.979 | 211 | Y |
| 01471510 | Schuylkill River at Reading, Pa. | 40.335 | -75.936 | 880 | Y |
| 01471875 | Manatawny Creek near Spangsville, Pa. | 40.340 | -75.742 | 56.9 | N |
| 01471980 | Manatawny Creek near Pottstown, Pa. | 40.273 | -75.680 | 85.5 | N |
| 01472000 | Schuylkill River at Pottstown, Pa. | 40.242 | -75.652 | 1,147 | Y |
| 01472157 | French Creek near Phoenixville, Pa. | 40.151 | -75.601 | 59.1 | N |
| 01472174 | Pickering Creek near Chester Springs, Pa. | 40.090 | -75.630 | 5.98 | N |
| 01472198 | Perkiomen Creek at East Greenville, Pa. | 40.394 | -75.515 | 38.0 | N |
| 01472199 | West Branch Perkiomen Creek at Hillegass, Pa. | 40.374 | -75.522 | 23.0 | N |
| 01472500 | Perkiomen Creek near Frederick, Pa. | 40.275 | -75.455 | 152 | N |
| 01472620 | East Branch Perkiomen Creek near Dublin, Pa. | 40.404 | -75.234 | 4.05 | LF |
| 01472810 | East Branch Perkiomen Creek near Schwenksville, Pa. | 40.259 | -75.429 | 58.7 | LF |
| 01473000 | Perkiomen Creek at Graterford, Pa. | 40.230 | -75.452 | 279 | LF |
| 01473120 | Skippack Creek near Collegeville, Pa. | 40.165 | -75.433 | 53.7 | N |
| 01473169 | Valley Creek at Pa. Turnpike Br near Valley Forge, Pa. | 40.079 | -75.461 | 20.8 | N |
| 01473500 | Schuylkill River at Norristown, Pa. | 40.111 | -75.347 | 1,760 | N |
| 01473900 | Wissahickon Creek at Fort Washington, Pa. | 40.124 | -75.220 | 40.8 | N |
| 01473950 | Wissahickon Creek at Bells Mill Rd, Phila., Pa. | 40.080 | -75.226 | 53.6 | N |
| 01473980 | Wissahickon Creek at Livezey Lane, Phila., Pa. | 40.050 | -75.214 | 59.2 | N |
| 01474000 | Wissahickon Creek at Mouth, Philadelphia, Pa. | 40.015 | -75.207 | 64.0 | N |
| 01474500 | Schuylkill River at Philadelphia, Pa. | 39.968 | -75.189 | 1,893 | N |
| 01475000 | Mantua Creek at Pitman, N.J. | 39.737 | -75.113 | 6.05 | N |
| 01475300 | Darby Creek at Waterloo Mills near Devon, Pa. | 40.023 | -75.422 | 5.15 | N |
| 01475510 | Darby Creek near Darby, Pa. | 39.929 | -75.272 | 37.4 | N |

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

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

| Streamgage number | Period of record used in analysis[1] | Number of years used in analysis | 1-day, 10-year (ft³/s) | 7-day, 10-year (ft³/s) | 7-day, 2-year (ft³/s) | 30-day, 10-year (ft³/s) | 30-day, 2-year (ft³/s) | 90-day, 10-year (ft³/s) |
|---|---|---|---|---|---|---|---|---|
| 01472174 | 1969–1984 | 16 | 1.2 | 1.5 | 2.4 | 1.8 | 3.1 | 2.7 |
| 01472198 | 1983–2008 | 26 | 7.1 | 7.5 | 12.9 | 9.6 | 15.4 | 13.9 |
| 01472199 | 1983–2008 | 26 | 3.8 | 4.3 | 6.8 | 5.1 | 8.3 | 7.2 |
| 01472500 | 1886–1913 | 28 | — | 14.5 | 24.0 | 20.6 | 34.9 | 33.2 |
| 01472620 | 1985–2008 | 24 | 0 | 0 | 7.2 | .1 | 7.3 | .5 |
| 01472810 | 1992–2008 | 15 | 12.9 | 18.8 | 36.0 | 33.7 | 49.2 | 49.8 |
| 01473000 | [3]1916–1956 | 41 | 9.5 | 14.8 | 32.1 | 24.1 | 44.7 | 41.4 |
| 01473000 | [2]1958–2008 | 51 | 28.5 | 33.9 | 61.6 | 42.5 | 77.4 | 53.3 |
| 01473120 | 1968–1994 | 27 | 1.4 | 1.9 | 4.4 | 3.2 | 6.8 | 5.6 |
| 01473169 | 1984–2008 | 25 | 8.5 | 9.2 | 13.2 | 10.5 | 15.5 | 13.2 |
| 01473500 | 1929–2008 | 9 | 182 | 220 | 422 | 247 | 518 | 328 |
| 01473900 | 1963–2008 | 14 | 5.2 | 6.1 | 11.3 | 7.6 | 14.2 | 9.9 |
| 01473950 | 1967–1981 | 15 | 9.1 | 11.1 | 19.1 | 14.5 | 24.0 | 19.7 |
| 01474000 | 1967–2008 | 42 | 13.7 | 16.6 | 25.6 | 21.4 | 32.9 | 30.4 |
| 01474500 | 1933–2008 | 76 | 58.7 | 108 | 376 | 180 | 515 | 320 |
| 01475000 | 1942–2006 | 37 | 3.5 | 4.1 | 6.1 | 4.8 | 7.0 | 5.7 |
| 01475300 | 1974–1997 | 24 | 1.0 | 1.2 | 2.1 | 1.6 | 2.9 | 2.4 |
| 01475510 | 1965–1990 | 26 | 9.3 | 11.5 | 18.8 | 15.5 | 24.2 | 22.6 |
| 01475530 | 1966–1981 | 19 | 1.2 | 1.3 | 2.0 | 1.8 | 2.8 | 2.7 |
| 01475550 | 1965–1990 | 25 | .1 | .6 | 4.4 | 2.9 | 8.5 | 8.9 |
| 01475850 | 1983–2008 | 26 | 1.5 | 2.2 | 4.6 | 3.4 | 6.5 | 5.4 |
| 01476480 | 1988–2008 | 19 | 2.3 | 3.5 | 8.5 | 5.8 | 11.5 | 9.0 |
| 01476500 | 1933–1954 | 22 | 3.9 | 4.9 | 11.4 | 6.4 | 14.4 | 9.7 |
| 01477000 | 1933–2007 | 73 | 10.4 | 12.4 | 24.9 | 15.7 | 31.0 | 22.8 |
| 01477120 | 1967–2008 | 42 | 6.5 | 7.1 | 12.9 | 8.5 | 15.0 | 11.2 |
| 01477800 | 1947–2008 | 62 | .2 | .2 | .6 | .5 | 1.2 | 1.4 |
| 01478000 | 1944–2008 | 65 | .6 | 1.5 | 3.6 | 2.3 | 5.0 | 4.2 |
| 01478500 | 1953–1979 | 23 | 9.8 | 10.7 | 24.1 | 13.5 | 29.1 | 19.7 |
| 01479000 | 1933–2008 | 65 | 12.3 | 13.7 | 30.3 | 18.0 | 36.8 | 27.8 |
| 01479820 | 1989–2008 | 20 | 3.2 | 4.1 | 12.5 | 5.6 | 14.6 | 10.8 |
| 01480000 | 1944–2008 | 65 | 8.5 | 9.8 | 17.7 | 12.6 | 21.1 | 17.6 |
| 01480015 | 1990–2008 | 19 | 9.0 | 11.0 | 20.1 | 14.7 | 24.5 | 18.4 |
| 01480100 | 1965–1980 | 16 | .3 | .4 | 1.2 | 1.2 | 2.0 | 2.3 |
| 01480300 | 1962–2008 | 47 | 2.6 | 3.0 | 6.2 | 3.9 | 7.4 | 5.3 |
| 01480500 | [3]1945–1993 | 30 | 7.3 | 8.3 | 14.5 | 10.4 | 18.4 | 14.5 |
| 01480500 | [2]1995–2008 | 14 | 4.8 | 5.2 | 12.3 | 6.6 | 14.8 | 9.6 |
| 01480617 | 1971–2008 | 38 | 12.1 | 14.0 | 23.3 | 16.6 | 27.8 | 22.0 |
| 01480675 | 1968–2008 | 41 | .6 | .6 | 1.7 | .9 | 2.3 | 1.6 |
| 01480685 | 1975–2008 | 34 | .5 | .9 | 3.7 | 2.4 | 7.4 | 5.7 |
| 01480700 | [2]1975–2008 | 34 | 12.3 | 14.0 | 22.3 | 17.8 | 28.4 | 21.9 |
| 01480800 | 1960–1968 | 9 | 11.5 | 12.1 | 19.8 | 14.6 | 23.8 | 19.5 |
| 01480870 | 1973–2008 | 36 | 24.0 | 26.5 | 36.8 | 31.0 | 44.5 | 38.0 |
| 01481000 | [3]1913–1973 | 51 | — | 68.5 | 117 | 79.0 | 136 | 102 |
| 01481000 | [2]1975–2008 | 34 | 60.0 | 63.8 | 117 | 76.9 | 138 | 106 |
| 01481500 | [2]1975–2008 | 34 | 64.2 | 68.3 | 128 | 84.5 | 154 | 117 |

**Permit No. PA0039004**

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

# Discharge Information

Instructions | Discharge | Stream

Facility: Towamencin MA STP NPDES Permit No.: PA0039004 Outfall No.: 003

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Treated sewage

| Discharge Characteristics | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Design Flow (MGD)* | Hardness (mg/l)* | pH (SU)* | Partial Mix Factors (PMFs) | | | | Complete Mix Times (min) | |
| | | | AFC | CFC | THH | CRL | $Q_{7-10}$ | $Q_h$ |
| 6.5 | 100 | 7.16 | | | | | | |

| | | | | | 0 if left blank | | 0.5 if left blank | | 0 if left blank | | | 1 if left blank | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Discharge Pollutant | Units | Max Discharge Conc | | Trib Conc | Stream Conc | Daily CV | Hourly CV | Stream CV | Fate Coeff | FOS | Criteria Mod | Chem Transl |
| Group 1 | Total Dissolved Solids (PWS) | mg/L | | 2108 | | | | | | | | | |
| | Chloride (PWS) | mg/L | | | | | | | | | | | |
| | Bromide | mg/L | | | | | | | | | | | |
| | Sulfate (PWS) | mg/L | | | | | | | | | | | |
| | Fluoride (PWS) | mg/L | | | | | | | | | | | |
| Group 2 | Total Aluminum | µg/L | | 330 | | | | | | | | | |
| | Total Antimony | µg/L | | 0.5 | | | | | | | | | |
| | Total Arsenic | µg/L | < | 3 | | | | | | | | | |
| | Total Barium | µg/L | | 50 | | | | | | | | | |
| | Total Beryllium | µg/L | < | 1 | | | | | | | | | |
| | Total Boron | µg/L | < | 200 | | | | | | | | | |
| | Total Cadmium | µg/L | < | 0.2 | | | | | | | | | |
| | Total Chromium (III) | µg/L | | | | | | | | | | | |
| | Hexavalent Chromium | µg/L | < | 0.25 | | | | | | | | | |
| | Total Cobalt | µg/L | | 1 | | | | | | | | | |
| | Total Copper | µg/L | | 16 | | | | | | | | | |
| | Free Cyanide | µg/L | | | | | | | | | | | |
| | Total Cyanide | µg/L | | 7 | | | | | | | | | |
| | Dissolved Iron | µg/L | | 120 | | | | | | | | | |
| | Total Iron | µg/L | | 1240 | | | | | | | | | |
| | Total Lead | µg/L | < | 1 | | | | | | | | | |
| | Total Manganese | µg/L | | 65 | | | | | | | | | |
| | Total Mercury | µg/L | < | 0.2 | | | | | | | | | |
| | Total Nickel | µg/L | | 14 | | | | | | | | | |
| | Total Phenols (Phenolics) (PWS) | µg/L | | 22 | | | | | | | | | |
| | Total Selenium | µg/L | < | 1 | | | | | | | | | |
| | Total Silver | µg/L | < | 1 | | | | | | | | | |
| | Total Thallium | µg/L | < | 1 | | | | | | | | | |
| | Total Zinc | µg/L | | 46.93 | | | 0.2272 | | | | | | |
| | Total Molybdenum | µg/L | | 6 | | | | | | | | | |
| | Acrolein | µg/L | < | 2 | | | | | | | | | |
| | Acrylamide | µg/L | < | | | | | | | | | | |
| | Acrylonitrile | µg/L | < | 2 | | | | | | | | | |
| | Benzene | µg/L | < | 0.5 | | | | | | | | | |
| | Bromoform | µg/L | | 1.3 | | | | | | | | | |
| | Carbon Tetrachloride | µg/L | < | 0.5 | | | | | | | | | |

## Permit No. PA0039004

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group 3 | Chlorobenzene | µg/L | < | 0.5 | | | | | | | | | |
| | Chlorodibromomethane | µg/L | | 3.604 | | | 1.003 | | | | | | |
| | Chloroethane | µg/L | < | 0.5 | | | | | | | | | |
| | 2-Chloroethyl Vinyl Ether | µg/L | < | 5 | | | | | | | | | |
| | Chloroform | µg/L | | 2.395 | | | 0.876 | | | | | | |
| | Dichlorobromomethane | µg/L | | 2.767 | | | 1.02 | | | | | | |
| | 1,1-Dichloroethane | µg/L | < | 0.5 | | | | | | | | | |
| | 1,2-Dichloroethane | µg/L | < | 0.5 | | | | | | | | | |
| | 1,1-Dichloroethylene | µg/L | < | 0.5 | | | | | | | | | |
| | 1,2-Dichloropropane | µg/L | < | 0.5 | | | | | | | | | |
| | 1,3-Dichloropropylene | µg/L | < | 0.5 | | | | | | | | | |
| | 1,4-Dioxane | µg/L | < | 5 | | | | | | | | | |
| | Ethylbenzene | µg/L | < | 0.5 | | | | | | | | | |
| | Methyl Bromide | µg/L | < | 0.5 | | | | | | | | | |
| | Methyl Chloride | µg/L | < | 0.5 | | | | | | | | | |
| | Methylene Chloride | µg/L | < | 0.5 | | | | | | | | | |
| | 1,1,2,2-Tetrachloroethane | µg/L | < | 0.5 | | | | | | | | | |
| | Tetrachloroethylene | µg/L | < | 0.5 | | | | | | | | | |
| | Toluene | µg/L | < | 0.5 | | | | | | | | | |
| | 1,2-trans-Dichloroethylene | µg/L | < | 0.5 | | | | | | | | | |
| | 1,1,1-Trichloroethane | µg/L | < | 0.5 | | | | | | | | | |
| | 1,1,2-Trichloroethane | µg/L | < | 0.5 | | | | | | | | | |
| | Trichloroethylene | µg/L | < | 0.5 | | | | | | | | | |
| | Vinyl Chloride | µg/L | < | 0.5 | | | | | | | | | |
| Group 4 | 2-Chlorophenol | µg/L | < | 10 | | | | | | | | | |
| | 2,4-Dichlorophenol | µg/L | < | 10 | | | | | | | | | |
| | 2,4-Dimethylphenol | µg/L | < | 10 | | | | | | | | | |
| | 4,6-Dinitro-o-Cresol | µg/L | < | 10 | | | | | | | | | |
| | 2,4-Dinitrophenol | µg/L | < | 10 | | | | | | | | | |
| | 2-Nitrophenol | µg/L | < | 10 | | | | | | | | | |
| | 4-Nitrophenol | µg/L | < | 10 | | | | | | | | | |
| | p-Chloro-m-Cresol | µg/L | < | 10 | | | | | | | | | |
| | Pentachlorophenol | µg/L | < | 10 | | | | | | | | | |
| | Phenol | µg/L | < | 10 | | | | | | | | | |
| | 2,4,6-Trichlorophenol | µg/L | < | 10 | | | | | | | | | |
| Group 5 | Acenaphthene | µg/L | < | 2.5 | | | | | | | | | |
| | Acenaphthylene | µg/L | < | 2.5 | | | | | | | | | |
| | Anthracene | µg/L | < | 2.5 | | | | | | | | | |
| | Benzidine | µg/L | < | 50 | | | | | | | | | |
| | Benzo(a)Anthracene | µg/L | < | 2.5 | | | | | | | | | |
| | Benzo(a)Pyrene | µg/L | < | 2.5 | | | | | | | | | |
| | 3,4-Benzofluoranthene | µg/L | < | 2.5 | | | | | | | | | |
| | Benzo(ghi)Perylene | µg/L | < | 2.5 | | | | | | | | | |
| | Benzo(k)Fluoranthene | µg/L | < | 2.5 | | | | | | | | | |
| | Bis(2-Chloroethoxy)Methane | µg/L | < | 5 | | | | | | | | | |
| | Bis(2-Chloroethyl)Ether | µg/L | < | 5 | | | | | | | | | |
| | Bis(2-Chloroisopropyl)Ether | µg/L | < | 5 | | | | | | | | | |
| | Bis(2-Ethylhexyl)Phthalate | µg/L | < | 5 | | | | | | | | | |
| | 4-Bromophenyl Phenyl Ether | µg/L | < | 5 | | | | | | | | | |
| | Butyl Benzyl Phthalate | µg/L | < | 5 | | | | | | | | | |
| | 2-Chloronaphthalene | µg/L | < | 5 | | | | | | | | | |
| | 4-Chlorophenyl Phenyl Ether | µg/L | < | 5 | | | | | | | | | |
| | Chrysene | µg/L | < | 2.5 | | | | | | | | | |
| | Dibenzo(a,h)Anthrancene | µg/L | < | 2.5 | | | | | | | | | |
| | 1,2-Dichlorobenzene | µg/L | < | 0.5 | | | | | | | | | |
| | 1,3-Dichlorobenzene | µg/L | < | 0.5 | | | | | | | | | |
| | 1,4-Dichlorobenzene | µg/L | < | 0.5 | | | | | | | | | |
| | 3,3-Dichlorobenzidine | µg/L | < | 5 | | | | | | | | | |
| | Diethyl Phthalate | µg/L | < | 5 | | | | | | | | | |
| | Dimethyl Phthalate | µg/L | < | 5 | | | | | | | | | |
| | Di-n-Butyl Phthalate | µg/L | < | 5 | | | | | | | | | |
| | 2,4-Dinitrotoluene | µg/L | < | 5 | | | | | | | | | |
| | 2,6-Dinitrotoluene | µg/L | < | 5 | | | | | | | | | |
| | Di-n-Octyl Phthalate | µg/L | < | 5 | | | | | | | | | |

## Permit No. PA0039004

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1,2-Diphenylhydrazine | µg/L | < | 5 | | | | | | | | | |
| | Fluoranthene | µg/L | < | 2.5 | | | | | | | | | |
| | Fluorene | µg/L | < | 2.5 | | | | | | | | | |
| | Hexachlorobenzene | µg/L | < | 5 | | | | | | | | | |
| | Hexachlorobutadiene | µg/L | < | 0.5 | | | | | | | | | |
| | Hexachlorocyclopentadiene | µg/L | < | 5 | | | | | | | | | |
| | Hexachloroethane | µg/L | < | 5 | | | | | | | | | |
| | Indeno(1,2,3-cd)Pyrene | µg/L | < | 2.5 | | | | | | | | | |
| | Isophorone | µg/L | < | 5 | | | | | | | | | |
| | Naphthalene | µg/L | < | 0.5 | | | | | | | | | |
| | Nitrobenzene | µg/L | < | 5 | | | | | | | | | |
| | n-Nitrosodimethylamine | µg/L | < | 5 | | | | | | | | | |
| | n-Nitrosodi-n-Propylamine | µg/L | < | 5 | | | | | | | | | |
| | n-Nitrosodiphenylamine | µg/L | < | 5 | | | | | | | | | |
| | Phenanthrene | µg/L | < | 2.5 | | | | | | | | | |
| | Pyrene | µg/L | < | 2.5 | | | | | | | | | |
| | 1,2,4-Trichlorobenzene | µg/L | < | 0.5 | | | | | | | | | |
| Group 6 | Aldrin | µg/L | < | 0.02 | | | | | | | | | |
| | alpha-BHC | µg/L | < | 0.02 | | | | | | | | | |
| | beta-BHC | µg/L | < | 0.02 | | | | | | | | | |
| | gamma-BHC | µg/L | < | 0.02 | | | | | | | | | |
| | delta BHC | µg/L | < | 0.02 | | | | | | | | | |
| | Chlordane | µg/L | < | 0.5 | | | | | | | | | |
| | 4,4-DDT | µg/L | < | 0.02 | | | | | | | | | |
| | 4,4-DDE | µg/L | < | 0.02 | | | | | | | | | |
| | 4,4-DDD | µg/L | < | 0.02 | | | | | | | | | |
| | Dieldrin | µg/L | < | 0.02 | | | | | | | | | |
| | alpha-Endosulfan | µg/L | < | 0.02 | | | | | | | | | |
| | beta-Endosulfan | µg/L | < | 0.02 | | | | | | | | | |
| | Endosulfan Sulfate | µg/L | < | 0.02 | | | | | | | | | |
| | Endrin | µg/L | < | 0.02 | | | | | | | | | |
| | Endrin Aldehyde | µg/L | < | 0.02 | | | | | | | | | |
| | Heptachlor | µg/L | < | 0.02 | | | | | | | | | |
| | Heptachlor Epoxide | µg/L | < | 0.02 | | | | | | | | | |
| | PCB-1016 | µg/L | < | | | | | | | | | | |
| | PCB-1221 | µg/L | < | | | | | | | | | | |
| | PCB-1232 | µg/L | < | | | | | | | | | | |
| | PCB-1242 | µg/L | < | | | | | | | | | | |
| | PCB-1248 | µg/L | < | | | | | | | | | | |
| | PCB-1254 | µg/L | < | | | | | | | | | | |
| | PCB-1260 | µg/L | < | | | | | | | | | | |
| | PCBs, Total | µg/L | < | | | | | | | | | | |
| | Toxaphene | µg/L | < | 0.5 | | | | | | | | | |
| | 2,3,7,8-TCDD | ng/L | < | | | | | | | | | | |
| Group 7 | Gross Alpha | pCi/L | | | | | | | | | | | |
| | Total Beta | pCi/L | < | | | | | | | | | | |
| | Radium 226/228 | pCi/L | < | | | | | | | | | | |
| | Total Strontium | µg/L | < | | | | | | | | | | |
| | Total Uranium | µg/L | < | | | | | | | | | | |
| | Osmotic Pressure | mOs/kg | | 36.83 | | 8.86 | | | | | | | |
| | TMA Copper | µg/L | | 16 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

## Permit No. PA0039004

### Stream / Surface Water Information

Towamencin MA STP, NPDES Permit No. PA0039004, Outfall 003

Instructions | Discharge | Stream

Receiving Surface Water Name: Towamencin Creek

No. Reaches to Model: 1

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

| Location | Stream Code* | RMI* | Elevation (ft)* | DA (mi²)* | Slope (ft/ft) | PWS Withdrawal (MGD) | Apply Fish Criteria* |
|---|---|---|---|---|---|---|---|
| Point of Discharge | 001066 | 1.41 | 176.89 | 10 | | | Yes |
| End of Reach 1 | 001066 | 0 | 154.3 | 11.1 | | | Yes |

$Q_{7\text{-}10}$

| Location | RMI | LFY (cfs/mi²)* | 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 | 1.41 | 0.0434 | | | | | | | | | | 160 | 7.97 | | |
| End of Reach 1 | 0 | 0.0434 | | | | | | | | | | 160 | 7.97 | | |

$Q_h$

| Location | RMI | LFY (cfs/mi²) | 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 | 1.41 | | | | | | | | | | | | | | |
| End of Reach 1 | 0 | | | | | | | | | | | | | | |

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 0.077 PMF: 1 Analysis Hardness (mg/l): 102.48 Analysis pH: 7.18

| Pollutants | Stream Conc | 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 | |
| Total Aluminum | 0 | 0 | | 0 | 750 | 750 | 782 | |
| Total Antimony | 0 | 0 | | 0 | 1,100 | 1,100 | 1,147 | |
| Total Arsenic | 0 | 0 | | 0 | 340 | 340 | 355 | Chem Translator of 1 applied |
| Total Barium | 0 | 0 | | 0 | 21,000 | 21,000 | 21,906 | |
| Total Boron | 0 | 0 | | 0 | 8,100 | 8,100 | 8,450 | |
| Total Cadmium | 0 | 0 | | 0 | 2.062 | 2.19 | 2.28 | Chem Translator of 0.943 applied |
| Hexavalent Chromium | 0 | 0 | | 0 | 16 | 16.3 | 17.0 | Chem Translator of 0.982 applied |
| Total Cobalt | 0 | 0 | | 0 | 95 | 95.0 | 99.1 | |
| Total Copper | 0 | 0 | | 0 | 13.753 | 14.3 | 14.9 | 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 | 66.328 | 84.2 | 87.9 | Chem Translator of 0.787 applied |
| Total Manganese | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Mercury | 0 | 0 | | 0 | 1.400 | 1.65 | 1.72 | Chem Translator of 0.85 applied |
| Total Nickel | 0 | 0 | | 0 | 478.051 | 479 | 500 | 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 | 3.355 | 3.95 | 4.12 | Chem Translator of 0.85 applied |
| Total Thallium | 0 | 0 | | 0 | 65 | 65.0 | 67.8 | |
| Total Zinc | 0 | 0 | | 0 | 119.641 | 122 | 128 | Chem Translator of 0.978 applied |
| Acrolein | 0 | 0 | | 0 | 3 | 3.0 | 3.13 | |
| Acrylonitrile | 0 | 0 | | 0 | 650 | 650 | 678 | |
| Benzene | 0 | 0 | | 0 | 640 | 640 | 668 | |
| Bromoform | 0 | 0 | | 0 | 1,800 | 1,800 | 1,878 | |
| Carbon Tetrachloride | 0 | 0 | | 0 | 2,800 | 2,800 | 2,921 | |
| Chlorobenzene | 0 | 0 | | 0 | 1,200 | 1,200 | 1,252 | |

## Permit No. PA0039004

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Chlorodibromomethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chloroethyl Vinyl Ether | 0 | 0 | | 0 | 18,000 | 18,000 | 18,777 | |
| Chloroform | 0 | 0 | | 0 | 1,900 | 1,900 | 1,982 | |
| Dichlorobromomethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichloroethane | 0 | 0 | | 0 | 15,000 | 15,000 | 15,647 | |
| 1,1-Dichloroethylene | 0 | 0 | | 0 | 7,500 | 7,500 | 7,824 | |
| 1,2-Dichloropropane | 0 | 0 | | 0 | 11,000 | 11,000 | 11,475 | |
| 1,3-Dichloropropylene | 0 | 0 | | 0 | 310 | 310 | 323 | |
| Ethylbenzene | 0 | 0 | | 0 | 2,900 | 2,900 | 3,025 | |
| Methyl Bromide | 0 | 0 | | 0 | 550 | 550 | 574 | |
| Methyl Chloride | 0 | 0 | | 0 | 28,000 | 28,000 | 29,208 | |
| Methylene Chloride | 0 | 0 | | 0 | 12,000 | 12,000 | 12,518 | |
| 1,1,2,2-Tetrachloroethane | 0 | 0 | | 0 | 1,000 | 1,000 | 1,043 | |
| Tetrachloroethylene | 0 | 0 | | 0 | 700 | 700 | 730 | |
| Toluene | 0 | 0 | | 0 | 1,700 | 1,700 | 1,773 | |
| 1,2-trans-Dichloroethylene | 0 | 0 | | 0 | 6,800 | 6,800 | 7,093 | |
| 1,1,1-Trichloroethane | 0 | 0 | | 0 | 3,000 | 3,000 | 3,129 | |
| 1,1,2-Trichloroethane | 0 | 0 | | 0 | 3,400 | 3,400 | 3,547 | |
| Trichloroethylene | 0 | 0 | | 0 | 2,300 | 2,300 | 2,399 | |
| Vinyl Chloride | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chlorophenol | 0 | 0 | | 0 | 560 | 560 | 584 | |
| 2,4-Dichlorophenol | 0 | 0 | | 0 | 1,700 | 1,700 | 1,773 | |
| 2,4-Dimethylphenol | 0 | 0 | | 0 | 660 | 660 | 688 | |
| 4,6-Dinitro-o-Cresol | 0 | 0 | | 0 | 80 | 80.0 | 83.5 | |
| 2,4-Dinitrophenol | 0 | 0 | | 0 | 660 | 660 | 688 | |
| 2-Nitrophenol | 0 | 0 | | 0 | 8,000 | 8,000 | 8,345 | |
| 4-Nitrophenol | 0 | 0 | | 0 | 2,300 | 2,300 | 2,399 | |
| p-Chloro-m-Cresol | 0 | 0 | | 0 | 160 | 160 | 167 | |
| Pentachlorophenol | 0 | 0 | | 0 | 10.406 | 10.4 | 10.9 | |
| Phenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4,6-Trichlorophenol | 0 | 0 | | 0 | 460 | 460 | 480 | |
| Acenaphthene | 0 | 0 | | 0 | 83 | 83.0 | 86.6 | |
| Anthracene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzidine | 0 | 0 | | 0 | 300 | 300 | 313 | |
| Benzo(a)Anthracene | 0 | 0 | | 0 | 0.5 | 0.5 | 0.52 | |
| Benzo(a)Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 3,4-Benzofluoranthene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzo(k)Fluoranthene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Chloroethyl)Ether | 0 | 0 | | 0 | 30,000 | 30,000 | 31,295 | |
| Bis(2-Chloroisopropyl)Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Ethylhexyl)Phthalate | 0 | 0 | | 0 | 4,500 | 4,500 | 4,694 | |
| 4-Bromophenyl Phenyl Ether | 0 | 0 | | 0 | 270 | 270 | 282 | |
| Butyl Benzyl Phthalate | 0 | 0 | | 0 | 140 | 140 | 146 | |
| 2-Chloronaphthalene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chrysene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dibenzo(a,h)Anthrancene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichlorobenzene | 0 | 0 | | 0 | 820 | 820 | 855 | |
| 1,3-Dichlorobenzene | 0 | 0 | | 0 | 350 | 350 | 365 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | 0 | 0 | | 0 | 730 | 730 | 762 | |
| 3,3-Dichlorobenzidine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Diethyl Phthalate | 0 | 0 | | 0 | 4,000 | 4,000 | 4,173 | |
| Dimethyl Phthalate | 0 | 0 | | 0 | 2,500 | 2,500 | 2,608 | |
| Di-n-Butyl Phthalate | 0 | 0 | | 0 | 110 | 110 | 115 | |
| 2,4-Dinitrotoluene | 0 | 0 | | 0 | 1,600 | 1,600 | 1,669 | |
| 2,6-Dinitrotoluene | 0 | 0 | | 0 | 990 | 990 | 1,033 | |
| 1,2-Diphenylhydrazine | 0 | 0 | | 0 | 15 | 15.0 | 15.6 | |
| Fluoranthene | 0 | 0 | | 0 | 200 | 200 | 209 | |
| Fluorene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachlorobutadiene | 0 | 0 | | 0 | 10 | 10.0 | 10.4 | |
| Hexachlorocyclopentadiene | 0 | 0 | | 0 | 5 | 5.0 | 5.22 | |
| Hexachloroethane | 0 | 0 | | 0 | 60 | 60.0 | 62.6 | |
| Indeno(1,2,3-cd)Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Isophorone | 0 | 0 | | 0 | 10,000 | 10,000 | 10,432 | |
| Naphthalene | 0 | 0 | | 0 | 140 | 140 | 146 | |
| Nitrobenzene | 0 | 0 | | 0 | 4,000 | 4,000 | 4,173 | |
| n-Nitrosodimethylamine | 0 | 0 | | 0 | 17,000 | 17,000 | 17,734 | |
| n-Nitrosodi-n-Propylamine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| n-Nitrosodiphenylamine | 0 | 0 | | 0 | 300 | 300 | 313 | |
| Phenanthrene | 0 | 0 | | 0 | 5 | 5.0 | 5.22 | |
| Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2,4-Trichlorobenzene | 0 | 0 | | 0 | 130 | 130 | 136 | |
| Aldrin | 0 | 0 | | 0 | 3 | 3.0 | 3.13 | |
| alpha-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |
| beta-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |
| gamma-BHC | 0 | 0 | | 0 | 0.95 | 0.95 | 0.99 | |
| Chlordane | 0 | 0 | | 0 | 2.4 | 2.4 | 2.5 | |
| 4,4-DDT | 0 | 0 | | 0 | 1.1 | 1.1 | 1.15 | |
| 4,4-DDE | 0 | 0 | | 0 | 1.1 | 1.1 | 1.15 | |
| 4,4-DDD | 0 | 0 | | 0 | 1.1 | 1.1 | 1.15 | |
| Dieldrin | 0 | 0 | | 0 | 0.24 | 0.24 | 0.25 | |
| alpha-Endosulfan | 0 | 0 | | 0 | 0.22 | 0.22 | 0.23 | |
| beta-Endosulfan | 0 | 0 | | 0 | 0.22 | 0.22 | 0.23 | |
| Endosulfan Sulfate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Endrin | 0 | 0 | | 0 | 0.086 | 0.086 | 0.09 | |
| Endrin Aldehyde | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Heptachlor | 0 | 0 | | 0 | 0.52 | 0.52 | 0.54 | |
| Heptachlor Epoxide | 0 | 0 | | 0 | 0.5 | 0.5 | 0.52 | |
| Toxaphene | 0 | 0 | | 0 | 0.73 | 0.73 | 0.76 | |
| Osmotic Pressure | 8.86 | 0 | | 0 | 50 | 50.0 | 51.8 | |
| TMA Copper | 0 | 0 | | 0 | 24 | 24.0 | 25.0 | |

☑ *CFC* CCT (min): 0.077 PMF: 1 Analysis Hardness (mg/l): 102.48 Analysis pH: 7.18

| Pollutants | Stream Conc (µg/L) | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|

## Permit No. PA0039004

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (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 | 229 | |
| Total Arsenic | 0 | 0 | | 0 | 150 | 150 | 156 | Chem Translator of 1 applied |
| Total Barium | 0 | 0 | | 0 | 4,100 | 4,100 | 4,277 | |
| Total Boron | 0 | 0 | | 0 | 1,600 | 1,600 | 1,669 | |
| Total Cadmium | 0 | 0 | | 0 | 0.250 | 0.28 | 0.29 | Chem Translator of 0.908 applied |
| Hexavalent Chromium | 0 | 0 | | 0 | 10 | 10.4 | 10.8 | Chem Translator of 0.962 applied |
| Total Cobalt | 0 | 0 | | 0 | 19 | 19.0 | 19.8 | |
| Total Copper | 0 | 0 | | 0 | 9.145 | 9.53 | 9.94 | 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 | 1,565 | WQC = 30 day average; PMF = 1 |
| Total Lead | 0 | 0 | | 0 | 2.585 | 3.28 | 3.42 | Chem Translator of 0.787 applied |
| Total Manganese | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Mercury | 0 | 0 | | 0 | 0.770 | 0.91 | 0.94 | Chem Translator of 0.85 applied |
| Total Nickel | 0 | 0 | | 0 | 53.097 | 53.3 | 55.6 | 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 | 5.2 | 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 | 13.6 | |
| Total Zinc | 0 | 0 | | 0 | 120.619 | 122 | 128 | Chem Translator of 0.986 applied |
| Acrolein | 0 | 0 | | 0 | 3 | 3.0 | 3.13 | |
| Acrylonitrile | 0 | 0 | | 0 | 130 | 130 | 136 | |
| Benzene | 0 | 0 | | 0 | 130 | 130 | 136 | |
| Bromoform | 0 | 0 | | 0 | 370 | 370 | 386 | |
| Carbon Tetrachloride | 0 | 0 | | 0 | 560 | 560 | 584 | |
| Chlorobenzene | 0 | 0 | | 0 | 240 | 240 | 250 | |
| Chlorodibromomethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chloroethyl Vinyl Ether | 0 | 0 | | 0 | 3,500 | 3,500 | 3,651 | |
| Chloroform | 0 | 0 | | 0 | 390 | 390 | 407 | |
| Dichlorobromomethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichloroethane | 0 | 0 | | 0 | 3,100 | 3,100 | 3,234 | |
| 1,1-Dichloroethylene | 0 | 0 | | 0 | 1,500 | 1,500 | 1,565 | |
| 1,2-Dichloropropane | 0 | 0 | | 0 | 2,200 | 2,200 | 2,295 | |
| 1,3-Dichloropropylene | 0 | 0 | | 0 | 61 | 61.0 | 63.6 | |
| Ethylbenzene | 0 | 0 | | 0 | 580 | 580 | 605 | |
| Methyl Bromide | 0 | 0 | | 0 | 110 | 110 | 115 | |
| Methyl Chloride | 0 | 0 | | 0 | 5,500 | 5,500 | 5,737 | |
| Methylene Chloride | 0 | 0 | | 0 | 2,400 | 2,400 | 2,504 | |
| 1,1,2,2-Tetrachloroethane | 0 | 0 | | 0 | 210 | 210 | 219 | |
| Tetrachloroethylene | 0 | 0 | | 0 | 140 | 140 | 146 | |
| Toluene | 0 | 0 | | 0 | 330 | 330 | 344 | |
| 1,2-trans-Dichloroethylene | 0 | 0 | | 0 | 1,400 | 1,400 | 1,460 | |
| 1,1,1-Trichloroethane | 0 | 0 | | 0 | 610 | 610 | 636 | |
| 1,1,2-Trichloroethane | 0 | 0 | | 0 | 680 | 680 | 709 | |
| Trichloroethylene | 0 | 0 | | 0 | 450 | 450 | 469 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chlorophenol | 0 | 0 | | 0 | 110 | 110 | 115 | |
| 2,4-Dichlorophenol | 0 | 0 | | 0 | 340 | 340 | 355 | |
| 2,4-Dimethylphenol | 0 | 0 | | 0 | 130 | 130 | 136 | |
| 4,6-Dinitro-o-Cresol | 0 | 0 | | 0 | 16 | 16.0 | 16.7 | |
| 2,4-Dinitrophenol | 0 | 0 | | 0 | 130 | 130 | 136 | |
| 2-Nitrophenol | 0 | 0 | | 0 | 1,600 | 1,600 | 1,669 | |
| 4-Nitrophenol | 0 | 0 | | 0 | 470 | 470 | 490 | |
| p-Chloro-m-Cresol | 0 | 0 | | 0 | 500 | 500 | 522 | |
| Pentachlorophenol | 0 | 0 | | 0 | 7.983 | 7.98 | 8.33 | |
| Phenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4,6-Trichlorophenol | 0 | 0 | | 0 | 91 | 91.0 | 94.9 | |
| Acenaphthene | 0 | 0 | | 0 | 17 | 17.0 | 17.7 | |
| Anthracene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzidine | 0 | 0 | | 0 | 59 | 59.0 | 61.5 | |
| Benzo(a)Anthracene | 0 | 0 | | 0 | 0.1 | 0.1 | 0.1 | |
| Benzo(a)Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 3,4-Benzofluoranthene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzo(k)Fluoranthene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Chloroethyl)Ether | 0 | 0 | | 0 | 6,000 | 6,000 | 6,259 | |
| Bis(2-Chloroisopropyl)Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Ethylhexyl)Phthalate | 0 | 0 | | 0 | 910 | 910 | 949 | |
| 4-Bromophenyl Phenyl Ether | 0 | 0 | | 0 | 54 | 54.0 | 56.3 | |
| Butyl Benzyl Phthalate | 0 | 0 | | 0 | 35 | 35.0 | 36.5 | |
| 2-Chloronaphthalene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chrysene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dibenzo(a,h)Anthrancene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichlorobenzene | 0 | 0 | | 0 | 160 | 160 | 167 | |
| 1,3-Dichlorobenzene | 0 | 0 | | 0 | 69 | 69.0 | 72.0 | |
| 1,4-Dichlorobenzene | 0 | 0 | | 0 | 150 | 150 | 156 | |
| 3,3-Dichlorobenzidine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Diethyl Phthalate | 0 | 0 | | 0 | 800 | 800 | 835 | |
| Dimethyl Phthalate | 0 | 0 | | 0 | 500 | 500 | 522 | |
| Di-n-Butyl Phthalate | 0 | 0 | | 0 | 21 | 21.0 | 21.9 | |
| 2,4-Dinitrotoluene | 0 | 0 | | 0 | 320 | 320 | 334 | |
| 2,6-Dinitrotoluene | 0 | 0 | | 0 | 200 | 200 | 209 | |
| 1,2-Diphenylhydrazine | 0 | 0 | | 0 | 3 | 3.0 | 3.13 | |
| Fluoranthene | 0 | 0 | | 0 | 40 | 40.0 | 41.7 | |
| Fluorene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachlorobutadiene | 0 | 0 | | 0 | 2 | 2.0 | 2.09 | |
| Hexachlorocyclopentadiene | 0 | 0 | | 0 | 1 | 1.0 | 1.04 | |
| Hexachloroethane | 0 | 0 | | 0 | 12 | 12.0 | 12.5 | |
| Indeno(1,2,3-od)Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Isophorone | 0 | 0 | | 0 | 2,100 | 2,100 | 2,191 | |
| Naphthalene | 0 | 0 | | 0 | 43 | 43.0 | 44.9 | |

## Permit No. PA0039004

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Nitrobenzene | 0 | 0 | | 0 | 810 | 810 | 845 | |
| n-Nitrosodimethylamine | 0 | 0 | | 0 | 3,400 | 3,400 | 3,547 | |
| n-Nitrosodi-n-Propylamine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| n-Nitrosodiphenylamine | 0 | 0 | | 0 | 59 | 59.0 | 61.5 | |
| Phenanthrene | 0 | 0 | | 0 | 1 | 1.0 | 1.04 | |
| Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2,4-Trichlorobenzene | 0 | 0 | | 0 | 26 | 26.0 | 27.1 | |
| Aldrin | 0 | 0 | | 0 | 0.1 | 0.1 | 0.1 | |
| alpha-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |
| beta-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |
| gamma-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chlordane | 0 | 0 | | 0 | 0.0043 | 0.004 | 0.004 | |
| 4,4-DDT | 0 | 0 | | 0 | 0.001 | 0.001 | 0.001 | |
| 4,4-DDE | 0 | 0 | | 0 | 0.001 | 0.001 | 0.001 | |
| 4,4-DDD | 0 | 0 | | 0 | 0.001 | 0.001 | 0.001 | |
| Dieldrin | 0 | 0 | | 0 | 0.056 | 0.056 | 0.058 | |
| alpha-Endosulfan | 0 | 0 | | 0 | 0.056 | 0.056 | 0.058 | |
| beta-Endosulfan | 0 | 0 | | 0 | 0.056 | 0.056 | 0.058 | |
| Endosulfan Sulfate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Endrin | 0 | 0 | | 0 | 0.036 | 0.036 | 0.038 | |
| Endrin Aldehyde | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Heptachlor | 0 | 0 | | 0 | 0.0038 | 0.004 | 0.004 | |
| Heptachlor Epoxide | 0 | 0 | | 0 | 0.0038 | 0.004 | 0.004 | |
| Toxaphene | 0 | 0 | | 0 | 0.0002 | 0.0002 | 0.0002 | |
| Osmotic Pressure | 8.86 | 0 | | 0 | N/A | N/A | N/A | |
| TMA Copper | 0 | 0 | | 0 | 15 | 15.0 | 15.6 | |

☑ ***THH*** CCT (min): 0.077 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 | |
| Total Aluminum | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Antimony | 0 | 0 | | 0 | 5.6 | 5.6 | 5.84 | |
| Total Arsenic | 0 | 0 | | 0 | 10 | 10.0 | 10.4 | |
| Total Barium | 0 | 0 | | 0 | 2,400 | 2,400 | 2,504 | |
| Total Boron | 0 | 0 | | 0 | 3,100 | 3,100 | 3,234 | |
| Total Cadmium | 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 | 313 | |
| 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 | 1,043 | |
| Total Mercury | 0 | 0 | | 0 | 0.050 | 0.05 | 0.052 | |
| Total Nickel | 0 | 0 | | 0 | 610 | 610 | 636 | |
| 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 | 0.25 | |
| Total Zinc | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Acrolein | 0 | 0 | | 0 | 3 | 3.0 | 3.13 | |
| Acrylonitrile | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bromoform | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Carbon Tetrachloride | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chlorobenzene | 0 | 0 | | 0 | 100 | 100.0 | 104 | |
| Chlorodibromomethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chloroethyl Vinyl Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloroform | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dichlorobromomethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichloroethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,1-Dichloroethylene | 0 | 0 | | 0 | 33 | 33.0 | 34.4 | |
| 1,2-Dichloropropane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,3-Dichloropropylene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Ethylbenzene | 0 | 0 | | 0 | 68 | 68.0 | 70.9 | |
| Methyl Bromide | 0 | 0 | | 0 | 100 | 100.0 | 104 | |
| Methyl Chloride | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Methylene Chloride | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,1,2,2-Tetrachloroethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Tetrachloroethylene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Toluene | 0 | 0 | | 0 | 57 | 57.0 | 59.5 | |
| 1,2-trans-Dichloroethylene | 0 | 0 | | 0 | 100 | 100.0 | 104 | |
| 1,1,1-Trichloroethane | 0 | 0 | | 0 | 10,000 | 10,000 | 10,432 | |
| 1,1,2-Trichloroethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Trichloroethylene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Vinyl Chloride | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chlorophenol | 0 | 0 | | 0 | 30 | 30.0 | 31.3 | |
| 2,4-Dichlorophenol | 0 | 0 | | 0 | 10 | 10.0 | 10.4 | |
| 2,4-Dimethylphenol | 0 | 0 | | 0 | 100 | 100.0 | 104 | |
| 4,6-Dinitro-o-Cresol | 0 | 0 | | 0 | 2 | 2.0 | 2.09 | |
| 2,4-Dinitrophenol | 0 | 0 | | 0 | 10 | 10.0 | 10.4 | |
| 2-Nitrophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 4-Nitrophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| p-Chloro-m-Cresol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Pentachlorophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Phenol | 0 | 0 | | 0 | 4,000 | 4,000 | 4,173 | |
| 2,4,6-Trichlorophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Acenaphthene | 0 | 0 | | 0 | 70 | 70.0 | 73.0 | |
| Anthracene | 0 | 0 | | 0 | 300 | 300 | 313 | |
| Benzidine | 0 | 0 | | 0 | N/A | N/A | N/A | |

## Permit No. PA0039004

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Benzo(a)Anthracene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzo(a)Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 3,4-Benzofluoranthene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzo(k)Fluoranthene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Chloroethyl)Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Chloroisopropyl)Ether | 0 | 0 | | 0 | 200 | 200 | 209 | |
| Bis(2-Ethylhexyl)Phthalate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 4-Bromophenyl Phenyl Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Butyl Benzyl Phthalate | 0 | 0 | | 0 | 0.1 | 0.1 | 0.1 | |
| 2-Chloronaphthalene | 0 | 0 | | 0 | 800 | 800 | 835 | |
| Chrysene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dibenzo(a,h)Anthrancene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichlorobenzene | 0 | 0 | | 0 | 1,000 | 1,000 | 1,043 | |
| 1,3-Dichlorobenzene | 0 | 0 | | 0 | 7 | 7.0 | 7.3 | |
| 1,4-Dichlorobenzene | 0 | 0 | | 0 | 300 | 300 | 313 | |
| 3,3-Dichlorobenzidine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Diethyl Phthalate | 0 | 0 | | 0 | 600 | 600 | 626 | |
| Dimethyl Phthalate | 0 | 0 | | 0 | 2,000 | 2,000 | 2,086 | |
| Di-n-Butyl Phthalate | 0 | 0 | | 0 | 20 | 20.0 | 20.9 | |
| 2,4-Dinitrotoluene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,6-Dinitrotoluene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Diphenylhydrazine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Fluoranthene | 0 | 0 | | 0 | 20 | 20.0 | 20.9 | |
| Fluorene | 0 | 0 | | 0 | 50 | 50.0 | 52.2 | |
| Hexachlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachlorobutadiene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachlorocyclopentadiene | 0 | 0 | | 0 | 4 | 4.0 | 4.17 | |
| Hexachloroethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Indeno(1,2,3-cd)Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Isophorone | 0 | 0 | | 0 | 34 | 34.0 | 35.5 | |
| Naphthalene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Nitrobenzene | 0 | 0 | | 0 | 10 | 10.0 | 10.4 | |
| n-Nitrosodimethylamine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| n-Nitrosodi-n-Propylamine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| n-Nitrosodiphenylamine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Phenanthrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Pyrene | 0 | 0 | | 0 | 20 | 20.0 | 20.9 | |
| 1,2,4-Trichlorobenzene | 0 | 0 | | 0 | 0.07 | 0.07 | 0.073 | |
| Aldrin | 0 | 0 | | 0 | N/A | N/A | N/A | |
| alpha-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |
| beta-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |
| gamma-BHC | 0 | 0 | | 0 | 4.2 | 4.2 | 4.38 | |
| Chlordane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 4,4-DDT | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 4,4-DDE | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 4,4-DDD | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dieldrin | 0 | 0 | | 0 | N/A | N/A | N/A | |
| alpha-Endosulfan | 0 | 0 | | 0 | 20 | 20.0 | 20.9 | |
| beta-Endosulfan | 0 | 0 | | 0 | 20 | 20.0 | 20.9 | |
| Endosulfan Sulfate | 0 | 0 | | 0 | 20 | 20.0 | 20.9 | |
| Endrin | 0 | 0 | | 0 | 0.03 | 0.03 | 0.031 | |
| Endrin Aldehyde | 0 | 0 | | 0 | 1 | 1.0 | 1.04 | |
| Heptachlor | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Heptachlor Epoxide | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Toxaphene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Osmotic Pressure | 8.86 | 0 | | 0 | N/A | N/A | N/A | |
| TMA Copper | 0 | 0 | | 0 | N/A | N/A | N/A | |

☑ *CRL* CCT (min): 2.616 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 | |
| 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 | |
| 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 | |
| Acrolein | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Acrylonitrile | 0 | 0 | | 0 | 0.06 | 0.06 | 0.081 | |
| Benzene | 0 | 0 | | 0 | 0.58 | 0.58 | 0.79 | |
| Bromoform | 0 | 0 | | 0 | 7 | 7.0 | 9.49 | |
| Carbon Tetrachloride | 0 | 0 | | 0 | 0.4 | 0.4 | 0.54 | |
| Chlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chlorodibromomethane | 0 | 0 | | 0 | 0.8 | 0.8 | 1.08 | |
| 2-Chloroethyl Vinyl Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloroform | 0 | 0 | | 0 | 5.7 | 5.7 | 7.73 | |

## Permit No. PA0039004

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Dichlorobromomethane | 0 | 0 | | 0 | 0.95 | 0.95 | 1.29 | |
| 1,2-Dichloroethane | 0 | 0 | | 0 | 9.9 | 9.9 | 13.4 | |
| 1,1-Dichloroethylene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichloropropane | 0 | 0 | | 0 | 0.9 | 0.9 | 1.22 | |
| 1,3-Dichloropropylene | 0 | 0 | | 0 | 0.27 | 0.27 | 0.37 | |
| Ethylbenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Methyl Bromide | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Methyl Chloride | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Methylene Chloride | 0 | 0 | | 0 | 20 | 20.0 | 27.1 | |
| 1,1,2,2-Tetrachloroethane | 0 | 0 | | 0 | 0.2 | 0.2 | 0.27 | |
| Tetrachloroethylene | 0 | 0 | | 0 | 10 | 10.0 | 13.6 | |
| Toluene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-trans-Dichloroethylene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,1,1-Trichloroethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,1,2-Trichloroethane | 0 | 0 | | 0 | 0.55 | 0.55 | 0.75 | |
| Trichloroethylene | 0 | 0 | | 0 | 0.6 | 0.6 | 0.81 | |
| Vinyl Chloride | 0 | 0 | | 0 | 0.02 | 0.02 | 0.027 | |
| 2-Chlorophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4-Dichlorophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4-Dimethylphenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 4,6-Dinitro-o-Cresol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4-Dinitrophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Nitrophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 4-Nitrophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| p-Chloro-m-Cresol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Pentachlorophenol | 0 | 0 | | 0 | 0.030 | 0.03 | 0.041 | |
| Phenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4,6-Trichlorophenol | 0 | 0 | | 0 | 1.5 | 1.5 | 2.03 | |
| Acenaphthene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Anthracene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzidine | 0 | 0 | | 0 | 0.0001 | 0.0001 | 0.0001 | |
| Benzo(a)Anthracene | 0 | 0 | | 0 | 0.001 | 0.001 | 0.001 | |
| Benzo(a)Pyrene | 0 | 0 | | 0 | 0.0001 | 0.0001 | 0.0001 | |
| 3,4-Benzofluoranthene | 0 | 0 | | 0 | 0.001 | 0.001 | 0.001 | |
| Benzo(k)Fluoranthene | 0 | 0 | | 0 | 0.01 | 0.01 | 0.014 | |
| Bis(2-Chloroethyl)Ether | 0 | 0 | | 0 | 0.03 | 0.03 | 0.041 | |
| Bis(2-Chloroisopropyl)Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Ethylhexyl)Phthalate | 0 | 0 | | 0 | 0.32 | 0.32 | 0.43 | |
| 4-Bromophenyl Phenyl Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Butyl Benzyl Phthalate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chloronaphthalene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chrysene | 0 | 0 | | 0 | 0.12 | 0.12 | 0.16 | |
| Dibenzo(a,h)Anthrancene | 0 | 0 | | 0 | 0.0001 | 0.0001 | 0.0001 | |
| 1,2-Dichlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,3-Dichlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,4-Dichlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3,3-Dichlorobenzidine | 0 | 0 | | 0 | 0.05 | 0.05 | 0.068 | |
| Diethyl Phthalate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Dimethyl Phthalate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Di-n-Butyl Phthalate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4-Dinitrotoluene | 0 | 0 | | 0 | 0.05 | 0.05 | 0.068 | |
| 2,6-Dinitrotoluene | 0 | 0 | | 0 | 0.05 | 0.05 | 0.068 | |
| 1,2-Diphenylhydrazine | 0 | 0 | | 0 | 0.03 | 0.03 | 0.041 | |
| Fluoranthene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Fluorene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachlorobenzene | 0 | 0 | | 0 | 0.00008 | 0.00008 | 0.0001 | |
| Hexachlorobutadiene | 0 | 0 | | 0 | 0.01 | 0.01 | 0.014 | |
| Hexachlorocyclopentadiene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachloroethane | 0 | 0 | | 0 | 0.1 | 0.1 | 0.14 | |
| Indeno(1,2,3-cd)Pyrene | 0 | 0 | | 0 | 0.001 | 0.001 | 0.001 | |
| Isophorone | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Naphthalene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Nitrobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| n-Nitrosodimethylamine | 0 | 0 | | 0 | 0.0007 | 0.0007 | 0.0009 | |
| n-Nitrosodi-n-Propylamine | 0 | 0 | | 0 | 0.005 | 0.005 | 0.007 | |
| n-Nitrosodiphenylamine | 0 | 0 | | 0 | 3.3 | 3.3 | 4.48 | |
| Phenanthrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2,4-Trichlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Aldrin | 0 | 0 | | 0 | 0.0000008 | 8.00E-07 | 0.000001 | |
| alpha-BHC | 0 | 0 | | 0 | 0.0004 | 0.0004 | 0.0005 | |
| beta-BHC | 0 | 0 | | 0 | 0.008 | 0.008 | 0.011 | |
| gamma-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chlordane | 0 | 0 | | 0 | 0.0003 | 0.0003 | 0.0004 | |
| 4,4-DDT | 0 | 0 | | 0 | 0.00003 | 0.00003 | 0.00004 | |
| 4,4-DDE | 0 | 0 | | 0 | 0.00002 | 0.00002 | 0.00003 | |
| 4,4-DDD | 0 | 0 | | 0 | 0.0001 | 0.0001 | 0.0001 | |
| Dieldrin | 0 | 0 | | 0 | 0.000001 | 0.000001 | 0.000001 | |
| alpha-Endosulfan | 0 | 0 | | 0 | N/A | N/A | N/A | |
| beta-Endosulfan | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Endosulfan Sulfate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Endrin | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Endrin Aldehyde | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Heptachlor | 0 | 0 | | 0 | 0.000006 | 0.000006 | 0.000008 | |
| Heptachlor Epoxide | 0 | 0 | | 0 | 0.00003 | 0.00003 | 0.00004 | |
| Toxaphene | 0 | 0 | | 0 | 0.0007 | 0.0007 | 0.0009 | |
| Osmotic Pressure | 8.86 | 0 | | 0 | N/A | N/A | N/A | |
| TMA Copper | 0 | 0 | | 0 | N/A | N/A | N/A | |

☑ ***Recommended WQBELs & Monitoring Requirements***

**No. Samples/Month:** 4

## Permit No. PA0039004

| 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 | 750 | AFC | Discharge Conc > 10% WQBEL (no RP) |
| Total Copper | 0.54 | 0.81 | 9.94 | 14.9 | 14.9 | µg/L | 9.94 | CFC | Discharge Conc ≥ 50% WQBEL (RP) |
| Dissolved Iron | Report | Report | Report | Report | Report | µg/L | 313 | THH | Discharge Conc > 10% WQBEL (no RP) |
| Total Iron | 84.8 | 132 | 1,565 | 2,441 | 3,912 | µg/L | 1,565 | CFC | Discharge Conc ≥ 50% WQBEL (RP) |
| Total Nickel | Report | Report | Report | Report | Report | µg/L | 55.6 | CFC | Discharge Conc > 10% WQBEL (no RP) |
| Total Silver | Report | Report | Report | Report | Report | µg/L | 3.95 | AFC | Discharge Conc > 10% WQBEL (no RP) |
| Total Zinc | Report | Report | Report | Report | Report | µg/L | 122 | AFC | Discharge Conc > 10% WQBEL (no RP) |
| Chlorodibromomethane | 0.059 | 0.11 | 1.08 | 1.98 | 2.71 | µg/L | 1.08 | CRL | Discharge Conc ≥ 50% WQBEL (RP) |
| Chloroform | Report | Report | Report | Report | Report | µg/L | 7.73 | CRL | Discharge Conc > 25% WQBEL (no RP) |
| Dichlorobromomethane | 0.07 | 0.13 | 1.29 | 2.36 | 3.22 | µg/L | 1.29 | CRL | Discharge Conc ≥ 50% WQBEL (RP) |
| Osmotic Pressure | XXX | XXX | 50.0 | 51.8 | 51.8 | mOs/kg | 50.0 | AFC | Discharge Conc ≥ 50% WQBEL (RP) |
| TMA Copper | 0.85 | 1.32 | 15.6 | 24.4 | 39.1 | µg/L | 15.6 | CFC | Discharge Conc ≥ 50% WQBEL (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 |
| Total Antimony | 5.84 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Arsenic | N/A | N/A | Discharge Conc < TQL |
| Total Barium | 2,504 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Beryllium | N/A | N/A | No WQS |
| Total Boron | N/A | N/A | Discharge Conc < TQL |
| Total Cadmium | N/A | N/A | Discharge Conc < TQL |
| Hexavalent Chromium | N/A | N/A | Discharge Conc < TQL |
| Total Cobalt | 19.8 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Cyanide | N/A | N/A | No WQS |
| Total Lead | 3.42 | µg/L | Discharge Conc < TQL |
| Total Manganese | 1,043 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Mercury | 0.052 | µg/L | Discharge Conc < TQL |
| Total Phenols (Phenolics) (PWS) | | µg/L | PWS Not Applicable |
| Total Selenium | 5.2 | µg/L | Discharge Conc < TQL |
| Total Thallium | 0.25 | µg/L | Discharge Conc < TQL |
| Total Molybdenum | N/A | N/A | No WQS |
| Acrolein | 3.0 | µg/L | Discharge Conc < TQL |
| Acrylonitrile | 0.081 | µg/L | Discharge Conc < TQL |
| Benzene | 0.79 | µg/L | Discharge Conc < TQL |
| Bromoform | 9.49 | µg/L | Discharge Conc ≤ 25% WQBEL |
| Carbon Tetrachloride | 0.54 | µg/L | Discharge Conc < TQL |
| Chlorobenzene | 104 | µg/L | Discharge Conc < TQL |
| Chloroethane | N/A | N/A | No WQS |
| 2-Chloroethyl Vinyl Ether | 3,651 | µg/L | Discharge Conc < TQL |
| 1,1-Dichloroethane | N/A | N/A | No WQS |
| 1,2-Dichloroethane | 13.4 | µg/L | Discharge Conc < TQL |
| 1,1-Dichloroethylene | 34.4 | µg/L | Discharge Conc < TQL |
| 1,2-Dichloropropane | 1.22 | µg/L | Discharge Conc < TQL |
| 1,3-Dichloropropylene | 0.37 | µg/L | Discharge Conc < TQL |
| 1,4-Dioxane | N/A | N/A | No WQS |
| Ethylbenzene | 70.9 | µg/L | Discharge Conc < TQL |
| Methyl Bromide | 104 | µg/L | Discharge Conc < TQL |
| Methyl Chloride | 5,737 | µg/L | Discharge Conc < TQL |
| Methylene Chloride | 27.1 | µg/L | Discharge Conc < TQL |
| 1,1,2,2-Tetrachloroethane | 0.27 | µg/L | Discharge Conc < TQL |
| Tetrachloroethylene | 13.8 | µg/L | Discharge Conc < TQL |
| Toluene | 59.5 | µg/L | Discharge Conc < TQL |
| 1,2-trans-Dichloroethylene | 104 | µg/L | Discharge Conc < TQL |
| 1,1,1-Trichloroethane | 636 | µg/L | Discharge Conc < TQL |
| 1,1,2-Trichloroethane | 0.75 | µg/L | Discharge Conc < TQL |
| Trichloroethylene | 0.81 | µg/L | Discharge Conc < TQL |
| Vinyl Chloride | 0.027 | µg/L | Discharge Conc < TQL |
| 2-Chlorophenol | 31.3 | µg/L | Discharge Conc < TQL |
| 2,4-Dichlorophenol | 10.4 | µg/L | Discharge Conc < TQL |
| 2,4-Dimethylphenol | 104 | µg/L | Discharge Conc < TQL |
| 4,6-Dinitro-o-Cresol | 2.09 | µg/L | Discharge Conc < TQL |
| 2,4-Dinitrophenol | 10.4 | µg/L | Discharge Conc < TQL |
| 2-Nitrophenol | 1,669 | µg/L | Discharge Conc < TQL |
| 4-Nitrophenol | 490 | µg/L | Discharge Conc < TQL |
| p-Chloro-m-Cresol | 160 | µg/L | Discharge Conc < TQL |
| Pentachlorophenol | 0.041 | µg/L | Discharge Conc < TQL |
| Phenol | 4,173 | µg/L | Discharge Conc < TQL |
| 2,4,6-Trichlorophenol | 2.03 | µg/L | Discharge Conc < TQL |
| Acenaphthene | 17.7 | µg/L | Discharge Conc < TQL |
| Acenaphthylene | N/A | N/A | No WQS |
| Anthracene | 313 | µg/L | Discharge Conc < TQL |
| Benzidine | 0.0001 | µg/L | Discharge Conc < TQL |
| Benzo(a)Anthracene | 0.001 | µg/L | Discharge Conc < TQL |
| Benzo(a)Pyrene | 0.0001 | µg/L | Discharge Conc < TQL |
| 3,4-Benzofluoranthene | 0.001 | µg/L | Discharge Conc < TQL |
| Benzo(ghi)Perylene | N/A | N/A | No WQS |
| Benzo(k)Fluoranthene | 0.014 | µg/L | Discharge Conc < TQL |
| Bis(2-Chloroethoxy)Methane | N/A | N/A | No WQS |
| Bis(2-Chloroethyl)Ether | 0.041 | µg/L | Discharge Conc < TQL |
| Bis(2-Chloroisopropyl)Ether | 209 | µg/L | Discharge Conc < TQL |
| Bis(2-Ethylhexyl)Phthalate | 0.43 | µg/L | Discharge Conc < TQL |
| 4-Bromophenyl Phenyl Ether | 56.3 | µg/L | Discharge Conc < TQL |
| Butyl Benzyl Phthalate | 0.1 | µg/L | Discharge Conc < TQL |
| 2-Chloronaphthalene | 835 | µg/L | Discharge Conc < TQL |
| 4-Chlorophenyl Phenyl Ether | N/A | N/A | No WQS |
| Chrysene | 0.16 | µg/L | Discharge Conc < TQL |
| Dibenzo(a,h)Anthrancene | 0.0001 | µg/L | Discharge Conc < TQL |
| 1,2-Dichlorobenzene | 167 | µg/L | Discharge Conc < TQL |
| 1,3-Dichlorobenzene | 7.3 | µg/L | Discharge Conc < TQL |
| 1,4-Dichlorobenzene | 156 | µg/L | Discharge Conc < TQL |
| 3,3-Dichlorobenzidine | 0.068 | µg/L | Discharge Conc < TQL |
| Diethyl Phthalate | 626 | µg/L | Discharge Conc < TQL |
| Dimethyl Phthalate | 522 | µg/L | Discharge Conc < TQL |
| Di-n-Butyl Phthalate | 20.9 | µg/L | Discharge Conc < TQL |
| 2,4-Dinitrotoluene | 0.068 | µg/L | Discharge Conc < TQL |
| 2,6-Dinitrotoluene | 0.068 | µg/L | Discharge Conc < TQL |
| Di-n-Octyl Phthalate | N/A | N/A | No WQS |
| 1,2-Diphenylhydrazine | 0.041 | µg/L | Discharge Conc < TQL |
| Fluoranthene | 20.9 | µg/L | Discharge Conc < TQL |
| Fluorene | 52.2 | µg/L | Discharge Conc < TQL |
| Hexachlorobenzene | 0.0001 | µg/L | Discharge Conc < TQL |
| Hexachlorobutadiene | 0.014 | µg/L | Discharge Conc < TQL |
| Hexachlorocyclopentadiene | 1.04 | µg/L | Discharge Conc < TQL |
| Hexachloroethane | 0.14 | µg/L | Discharge Conc < TQL |
| Indeno(1,2,3-cd)Pyrene | 0.001 | µg/L | Discharge Conc < TQL |
| Isophorone | 35.5 | µg/L | Discharge Conc < TQL |
| Naphthalene | 44.9 | µg/L | Discharge Conc < TQL |
| Nitrobenzene | 10.4 | µg/L | Discharge Conc < TQL |
| n-Nitrosodimethylamine | 0.0009 | µg/L | Discharge Conc < TQL |
| n-Nitrosodi-n-Propylamine | 0.007 | µg/L | Discharge Conc < TQL |
| n-Nitrosodiphenylamine | 4.48 | µg/L | Discharge Conc < TQL |
| Phenanthrene | 1.04 | µg/L | Discharge Conc < TQL |
| Pyrene | 20.9 | µg/L | Discharge Conc < TQL |
| 1,2,4-Trichlorobenzene | 0.073 | µg/L | Discharge Conc < TQL |
| Aldrin | 0.000001 | µg/L | Discharge Conc < TQL |
| alpha-BHC | 0.0005 | µg/L | Discharge Conc < TQL |
| beta-BHC | 0.011 | µg/L | Discharge Conc < TQL |
| gamma-BHC | 0.95 | µg/L | Discharge Conc < TQL |
| delta BHC | N/A | N/A | No WQS |
| Chlordane | 0.0004 | µg/L | Discharge Conc < TQL |
| 4,4-DDT | 0.00004 | µg/L | Discharge Conc < TQL |
| 4,4-DDE | 0.00003 | µg/L | Discharge Conc < TQL |
| 4,4-DDD | 0.0001 | µg/L | Discharge Conc < TQL |
| Dieldrin | 0.000001 | µg/L | Discharge Conc < TQL |
| alpha-Endosulfan | 0.058 | µg/L | Discharge Conc < TQL |
| beta-Endosulfan | 0.058 | µg/L | Discharge Conc < TQL |
| Endosulfan Sulfate | 20.9 | µg/L | Discharge Conc < TQL |
| Endrin | 0.031 | µg/L | Discharge Conc < TQL |

## Permit No. PA0039004

| | | | |
|---|---|---|---|
| Endrin Aldehyde | 1.04 | µg/L | Discharge Conc < TQL |
| Heptachlor | 0.000008 | µg/L | Discharge Conc < TQL |
| Heptachlor Epoxide | 0.00004 | µg/L | Discharge Conc < TQL |
| Toxaphene | 0.0002 | µg/L | Discharge Conc < TQL |

## Permit No. PA0039004

| | |
|---|---|
| **Facility:** | Towamencin MA |
| **NPDES #:** | PA0039004 |
| **Outfall No:** | 003 |
| **n (Samples/Month):** | 4 |
| **Reviewer/Permit Engineer:** | Reza H Chowdhury |

| Parameter Name | Selenium | Zinc | lorodibromometha | Chloroform | chlorobromomethane | | | |
|---|---|---|---|---|---|---|---|---|
| Units | µg/L | µg/L | µg/L | µg/L | µg/L | | | |
| Detection Limit | 1 | 10 | 0.14 | 0.41 | 0.195 | | | |
| | | | | | | | | |
| Sample Date | *When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)* | | | | | | | |
| 12/27/2021 | <1 | 23 | 2.9 | 1.64 | 2.11 | | | |
| 12/28/2021 | <1 | 36 | 1.84 | 0.78 | 1.79 | | | |
| 12/29/2021 | <1 | 36 | 2.01 | 0.8 | 2.07 | | | |
| 1/4/2022 | <1 | 42 | 2.53 | 4.14 | 0.67 | | | |
| 1/6/2022 | <1 | 36 | 2.54 | 1.42 | 1.94 | | | |
| 1/7/2022 | <1 | 40 | 1.25 | 0.81 | 0.72 | | | |
| 1/11/2022 | <1 | 45 | 0.62 | 0.51 | 0.39 | | | |
| 1/12/2022 | <1 | 45 | 0.85 | 0.6 | 0.6 | | | |
| 1/14/2022 | <1 | 35 | 0.36 | 0.48 | 0.195 | | | |
| 2/15/2022 | <1 | 30 | <0.14 | 0.31 | 0.36 | | | |
| 2/17/2022 | <1 | 42 | 0.56 | 0.41 | 0.7 | | | |
| 2/24/2022 | <1 | 24 | <0.14 | <0.41 | <0.13 | | | |

1

**Permit No. PA0039004**

Reviewer/Permit Engineer: Reza H Chowdhury

| | |
|---|---|
| **Facility:** | Towamencin MA |
| **NPDES #:** | PA0039004 |
| **Outfall No:** | 003 |
| **n (Samples/Month):** | 4 |

| Parameter | Distribution Applied | Coefficient of Variation (daily) | Avg. Monthly |
|---|---|---|---|
| Selenium (µg/L) | Delta-Lognormal | #DIV/0! | #DIV/0! |
| Zinc (µg/L) | Lognormal | 0.2272541 | 46.9333620 |
| hlorodibromomethane (µg/ | Delta-Lognormal | 1.0025786 | 3.6037675 |
| Chloroform (µg/L) | Delta-Lognormal | 0.8759635 | 2.3947706 |
| chlorobromomethane (µg/ | Delta-Lognormal | 1.0203259 | 2.7673690 |