Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0025674** |
| Facility Type | **Municipal** | APS ID | **805155** |
| Major / Minor | **Major** | Authorization ID | **1255890** |

# NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Franklin Township Municipal Sanitary Authority** | Facility Name | **Meadowbrook Rd STP** |
| Applicant Address | 3001 Meadowbrook Road | Facility Address | 3001 Meadowbrook Road |
| | Murrysville, PA 15668-1627 | | Murrysville, PA 15668-1753 |
| Applicant Contact | Nicholas Kerr | Facility Contact | Bob Swarmer |
| Applicant Phone | (724) 327-1950 | Facility Phone | (724) 327-1950 |
| Client ID | 5646 | Site ID | 243535 |
| Ch 94 Load Status | Projected Hydraulic Overload | Municipality | Murrysville Borough |
| Connection Status | Dept. Imposed Connection Prohibitions | County | Westmoreland |
| Date Application Received | December 19, 2018 | EPA Waived? | No |
| Date Application Accepted | December 20, 2018 | If No, Reason | Major Facility |
| Purpose of Application | Application for renewal of an existing NPDES Permit for the discharge of treated sewage effluent with combined sewer overflows (CSOs). | | |

## Summary of Review

The permittee has applied for a renewal of NPDES Permit No. PA0025674. PA0025674 was previously issued by the PA Department of Environmental Protection (DEP) on April 23, 2014. It was amended on May 28, 2015 to resolve an appeal. The permit expired on April 30, 2019.

Sewage from this facility is treated by grit removal, primary clarification, trickling filter, nitrification towers, sand filtration, and Ultraviolet (UV) disinfection before discharging to Turtle Creek (ID 37204) which is classified as a Trout Stock Fishery (TSF) in State Watershed No. 19-A.

Meadowbrook STP treats biosolids using thickening, heat treatment, anaerobic digestion, and belt press dewatering. Biosolids are then land applied under permit No. PAG076103. WQM Permit No. 6586418 was issued on January 8, 2024 which approved conversion of the anaerobic digestors to aerobic digesters. After construction is completed, Franklin Township Municipal Sanitary Authority (FTMSA) must terminate their biosolids permit and dispose of solids generated onsite in a landfill.

The following changes are being made this permit term:

- Interim monitoring and final effluent limits have been added for total copper, free cyanide, total zinc, bis(2-Ethylhexyl)Phthalate, chloroform, and dichlorobromomethane as a result of new water quality-based modeling.
- Monitoring has been added for dissolved iron as a result of new water quality-based modeling.
- The monitoring frequency for total iron and total manganese has been changed from 1/quarter to 1/week based on new water quality-based modeling.
- A total phosphorus limit has been added following a three-year compliance period in accordance with 25 PA Code 96.5.

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| X | | Stephanie Conrad / Project Manager | January 14, 2026 |
| X | | Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager | January 30, 2026 |

**Summary of Review**

- The monitoring frequency for total phosphorus and total nitrogen was changed from 1/quarter to 2/week because of in-stream impairment in accordance with the SOPs and Table 6.3 of the Department's Permit Writer's Guidance document.
- Monitoring has been added for total strontium, total uranium, p-cresol, gross alpha, total beta, and total radium in accordance with 25 PA Code 92a.61.
- The monitoring frequency total dissolved solids has been changed from 1/month to 2/week to be consistent with Table 6.3 of the Department's Permit Writer's Guidance document.
- Monthly *E. coli* monitoring has been added in accordance with the SOPs.
- Quarterly PFAS monitoring has been added in accordance with the SOPs.
- CSO related requirements have been added to Parts A, B, and C of the permit.

FTMSA is currently enrolled in and will continue to use eDMR.

The applicant has complied with Act 14 Notifications with letters dated October 23, 2018 and sent to Murrysville Borough and Westmoreland County Commissioners.

FTMSA has seven customer municipalities with one of them, Export Borough, has a combined sewer system permitted under NPDES Permit No. PAG066130. Because Export Borough is a combined sewer system, they need to have a Long Term Control Plan (LTCP) and a Nine Minimum Control (NMC) Plan. Their LTCP was approved on October 1, 2018. They have completed construction and submitted a Post Construction Compliance Monitoring Plan (PCCMP) which is currently under review. While Export owns and operates the sewer system, the five regulators are owned by FTMSA. There are responsibilities within the nine minimum controls that would therefore fall on FTMSA and not Export. For this reason, the Department has added Part C.III. to the permit, requiring FTMSA to create and submit to the Department for approval nine minimum controls plan this permit term. Export has agreed to complete the work necessary to comply with the Long Term Control Plan, therefore Part C language regarding the LTCP will not be included in Part C of the permit.

The permit language in Part A, B, and C have been updated to reflect that the sewer is a combined sewer system. Because FTMSA owns and operates the CSO regulators, the CSO outfalls have been added to this permit and overflow reporting will be their responsibility.

On August 29, 2019, FTMSA, Export Borough, Delmont Borough, Salem Township, Penn Township Sewer Authority, Monroeville Municipal Authority, Municipal Authority of Murrysville, Penn Township, and the Municipality of Monroeville entered into a Consent Order and Agreement (COA) with the Department to resolve sewage related violations to the Clean Streams Law. The sewer system is hydraulically overloaded and the COA requires FTMSA and its customer municipalities to remedy the overload. Among other things, FTMSA was required to complete flow monitoring, develop a hydraulic model, develop and implement an SSO Elimination plan, and repair all Grade 4 and 5 defects. The COA was amended on January 16, 2025 to extend the deadlines.

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.

Anti-Backsliding

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

| **Summary of Review** |
| --- |
| Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 ***(l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.*** <br><br> No limits have been relaxed in this renewed Draft Permit. |

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

| | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | 4.9 |
| Latitude | 40º 24' 41.30" | Longitude | -79º 43' 29.82" |
| Quad Name | | Quad Code | |
| Wastewater Description: | Sewage Effluent | | |
| Receiving Waters | Turtle Creek (TSF) | Stream Code | 37204 |
| NHD Com ID | 99407378 | RMI | 11.01 |
| Drainage Area | 41.7 | Yield (cfs/mi$^2$) | 0.0189 |
| $Q_{7-10}$ Flow (cfs) | 0.792 | $Q_{7-10}$ Basis | USGS Stream Stats |
| Elevation (ft) | 826 | Slope (ft/ft) | |
| Watershed No. | 19-A | Chapter 93 Class. | TSF |
| Existing Use | | Existing Use Qualifier | |
| Exceptions to Use | | Exceptions to Criteria | |
| Assessment Status | Impaired | | |
| Cause(s) of Impairment | NUTRIENTS, SILTATION | | |
| Source(s) of Impairment | URBAN RUNOFF/STORM SEWERS, URBAN RUNOFF/STORM SEWERS | | |
| TMDL Status | Final | Name | Turtle Creek Watershed |

| Background/Ambient Data | | Data Source |
|---|---|---|
| pH (SU) | | |
| Temperature (°F) | | |
| Hardness (mg/L) | | |
| Other: | | |

| | | | |
|---|---|---|---|
| Nearest Downstream Public Water Supply Intake | PA American Water- Pittsburgh | | |
| PWS Waters | Monongahela River | Flow at Intake (MGD) | 0.69 |
| PWS RMI | 4.64 | Distance from Outfall (mi) | 18.01 |

Changes Since Last Permit Issuance: None

Comments: None

**Treatment Facility Summary**

**Treatment Facility Name:** Meadowbrook Rd STP

| WQM Permit No. | Issuance Date | Purpose |
|---|---|---|
| 6586418 A-7 | January 26, 2024 | Permit issued by PADEP to FTMSA approving converting the existing anaerobic sludge digesters to aerobic digesters. The existing tanks were converted by installing three (3) 1600 cfm blowers, fine bubble non-clog diffusers, and an EnviroMix BioCycle D process controls system. The digester lids will also be removed. |
| 6586418 A-6 | December 16, 2021 | Permit issued by PADEP to FTMSA approving replacement of the UV disinfection system. |
| 6586418 A-5 | July 13, 2021 | Permit issued by PADEP to FTMSA approving modification to the influent pump station including:<br>• Replacement of two (2) variable speed dry pit submersible pumps.<br>• Installation of two (2) new sewage grinders.<br>• Replacement of piping.<br>• Replacement of the pump hoist and lifting.<br>• Replacement of the sump pump control panel.<br>• Replacement of the chlorine room sensor and alarms.<br>• Heating and ventilation upgrades.<br>• Accessway improvements. |
| 6586418 A-4 | June 25, 2018 | Permit issued by PADEP to FTMSA approving treatment plant modifications including replacement of:<br>• Two (2) existing sludge belt presses with one (1) 2.2 m belt press.<br>• The existing chlorine solution sand washing system.<br>• Three (3) existing sludge pumps with tow (2) variable speed sludge pumps. |
| N/A | August 6, 2008 | Plant re-rated from 4.2 MGD to 4.9 MGD during NPDES Permit Renewal. |
| 6586418 A-5 | December 9, 2005 | Permit issued to FTMSA by DEP amending the Organic Capacity to 10,000 lbs/day. |
| 6586418 A-4 | September 21, 2000 | Permit Issued by DEP to FTMSA approving upgrades to the biosolids treatment system including:<br>• A sludge screening building.<br>• Three (3) Stainless Steel tanks<br>• One (1) 750,000-gallon egg-shaped digester<br>• Three (3) 1,525 sqft covered drying pads<br>The permit also approved chlorination and dechlorination for the existing sand filter, a new diesel generator, and odor control for the exhaust air from the sludge processing building. |
| 6586418 A-3 | August 14, 1991 | Permit issued by the Department of Environmental Resources to FTMSA approving a design change from chlorination to UV disinfection. The permit approved installation of 56 UV modules with 8 lamps/module. |
| 658418-A2 | September 25, 1990 | Permit issued by the Department of Environmental Resources to FTMSA approving unspecified plant upgrades. |
| 6586418 A-1 | June 21, 1990 | Permit issued by the Department of Environmental Resources to FTMSA approving installation of two (2) biological nitrification towers and two (2) automatic backwash filters |
| 6586418 | June 30, 1987 | Permit issued to FTMSA by the Department of Environmental Resources approving expansion of the plant to 4.2 MGD including installation of:<br>• One (1) 34 ft grit chamber |

| | | |
|---|---|---|
| | | • Two (2) 2” manually cleaned bar screens<br>• Two (2) 92,200-gallon primary settling tanks<br>• Two (2) 151,100-gallon final settling tanks<br>• One (1) proposed 9156 sqft tricking filter<br>• Two (2) final clarifiers<br>• Two (2) 29,000-gallon chlorine contact tanks<br>• Two (2) 53,000-gallon multi-stage sludge digesters<br>• One (1) 706 sq ft gravity thickener<br>• Two (2) Belt Filters |
| 9405-S | March 24, 1975 | Permit cancelled by transfer to FTMSA |
| 468S017 | June 19, 1968 | Permit issued to FTMSA by the Department of Health approving sewer extensions, the Sloan School Pump Station, Main Sewage Pump Station, and a new 1.8 MGD STP:<br>• One (1) 18’x18’x11’ equalization tank with hopper bottom<br>• One (1) manually cleaned, 2 5/8” wrought iron bar screen<br>• One (1) manually cleaned, 1 3/16” wrought iron bypass bar screen<br>• One (1) Chicago pump “barminutor” C-12 1.7 MGD Comminutor<br>• Two (2) 83,4000 gallon primary settling tanks with scum removal and sludge pump<br>• Three (2) 45 gpm primary sludge plunger type ball valve pumps to thickener or vaccume filter<br>• One (1) 9,156 sq ft high rate trickling filter with graded hard limestone<br>• Two (2) final settling tanks 179,000 gallon secondary settling tanks with scum removal and sludge pump<br>• One (1) 130 gpm secondary sludge pump with recycling back to the equalization tank<br>• One (1) 600 gpm secondary sludge pump with recycling back to the equalization tank<br>• Four (4) non-clog 625 gpm secondary liquid recirculation pumps to high rate filters<br>• Two (2) 10 ‘ diameter 10’ long 30 micron 4.5 stainless steel revolving strainers<br>• Two (2) 300 lbs/day liquid chlorine feeders for pre and post chlorination<br>• One (1) 50,900 gallon chlorine contact tank<br>• Two (2) stainless steel vacuum filter sludge dewatering units<br>• One (1) 45 gpm thickened sludge plunger type ball valve pumps conveying to vacuum filter<br>• Ferric Chloride and lime sludge stabilization with appropriate chemical storage area<br>• Belt sludge conveyer |
| 9405-S | July 8, 1959 | Permit issued by the Department of Health to Franklin Township approving installation of<br>• Two (2) trickling filters<br>• Two (2) 1.5” manually cleaned bar screens<br>• Two (2) 1650-gallon primary clarifier<br>• Two (2) first stage trickling filters<br>• Two (2) second stage tricking filters<br>• Two (2) 1650-gallon secondary settling tank<br>• Two (2) 904 cf sludge digesters<br>• Two (2) 500-gallon chlorine contact tanks<br>• Gas Chlorination |

| Waste Type | Degree of Treatment | Process Type | Disinfection | Avg Annual Flow (MGD) |
|---|---|---|---|---|
| Sewage | Secondary With Ammonia Reduction | Trickling Filter With Settling | Ultraviolet | 4.9 |

| Hydraulic Capacity (MGD) | Organic Capacity (lbs/day) | Load Status | Biosolids Treatment | Biosolids Use/Disposal |
|---|---|---|---|---|
| 4.9 | 10,000 | Projected Hydraulic Overload | Aerobic Digestion | Land Application |

Changes Since Last Permit Issuance:

Other Comments:

**Compliance History**

# Operations Compliance Check Summary Report

**Facility:** Meadowbrook Road STP

**NPDES Permit No.:** PA0025984

**Compliance Review Period:** 9/23/2020-9/23/2025

**Inspection Summary:**

| INSPECTED DATE | INSP TYPE | AGENCY | INSPECTION RESULT DESC | # OF VIOLATIONS |
|---|---|---|---|---|
| 12/04/2024 | Combined Sewer Overflow-Non-Sampling | County Health Dept | No Violations Noted | 0 |
| 07/25/2024 | Biosolids Land Appl Site Compl Eval Insp | PA Dept of Environmental Protection | No Violations Noted | 0 |
| 07/22/2021 | Compliance Evaluation | County Health Dept | No Violations Noted | 0 |
| 07/24/2025 | Chapter 94 Inspection | PA Dept of Environmental Protection | Pending | 0 |
| 08/12/2021 | Biosolids Land Appl Site Admin/File Rev | PA Dept of Environmental Protection | No Violations Noted | 0 |
| 01/29/2021 | Administrative/File Review | PA Dept of Environmental Protection | Violation(s) Noted | 1 |
| 09/15/2022 | Biosolids Processor Compliance Eval Insp | County Health Dept | No Violations Noted | 0 |

| INSPECTED DATE | INSP TYPE | AGENCY | INSPECTION RESULT DESC | # OF VIOLATIONS |
|---|---|---|---|---|
| 07/25/2024 | Combined Sewer Overflow-Non-Sampling | PA Dept of Environmental Protection | No Violations Noted | 0 |
| 07/25/2024 | Biosolids Processor Compliance Eval Insp | PA Dept of Environmental Protection | No Violations Noted | 0 |
| 09/17/2024 | Compliance Evaluation | County Health Dept | No Violations Noted | 0 |
| 09/21/2022 | Compliance Evaluation | County Health Dept | Violation(s) Noted | 2 |
| 07/25/2024 | Compliance Evaluation | County Health Dept | Violation(s) Noted | 1 |
| 09/02/2021 | Combined Sewer Overflow-Non-Sampling | PA Dept of Environmental Protection | No Violations Noted | 0 |
| 08/31/2023 | Compliance Evaluation | County Health Dept | Violation(s) Noted | 2 |
| 08/12/2021 | Biosolids Land Appl Site Admin/File Rev | PA Dept of Environmental Protection | No Violations Noted | 0 |

## Violation Summary:

| VIOL ID | VIOLATION DATE | VIOLATION TYPE | VIOLATION TYPE DESC | VIOL CODE ID | VIOL PROGRAM | RESOLVED DATE | INSP ID | INSP CATEGORY | INSPECTED DATE | INSP TYPE | INSPECTOR | VIOLATION COMMENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 906315 | 01/29/2021 | 92A.47(C) | NPDES - Illegal discharge to waters of the Commonwealth from a sanitary sewer overflow (SSO) | 17295 | WPCNP | 07/13/2022 | 3140578 | PF | 01/29/2021 | Administrative/ File Review | KOHUT, JEFFREY | |
| 969550 | 09/21/2022 | 92A.44 | NPDES - Violation of effluent limits in Part A of permit | 17291 | WPCNP | 09/28/2022 | 3428262 | PF | 09/21/2022 | Compliance Evaluation | WATKINS, EDWIN | fecal coliform exceedance 3/22 |
| 969551 | 09/21/2022 | 92A.61(C) | NPDES - Failure to monitor pollutants as required by the NPDES permit | 17299 | WPCNP | 09/28/2022 | 3428262 | PF | 09/21/2022 | Compliance Evaluation | WATKINS, EDWIN | missed field analysis |
| 8157470 | 08/31/2023 | 92A.44 | NPDES - Violation of effluent limits in Part A of permit | 17291 | WPCNP | 01/26/2024 | 3609239 | PF | 08/31/2023 | Compliance Evaluation | WATKINS, EDWIN | Fecal coliform violations |
| 8158046 | 08/31/2023 | CSL201 | CSL - Unauthorized, unpermitted discharge of sewage to waters of the Commonwealth | 17320 | WPCWP | 01/26/2024 | 3609239 | PF | 08/31/2023 | Compliance Evaluation | WATKINS, EDWIN | SSOs & dry weather overflows |
| 8196328 | 07/25/2024 | CSL201 | CSL - Unauthorized, unpermitted discharge of sewage to waters of the Commonwealth | 17320 | WPCWP | 09/06/2024 | 3805576 | PF | 07/25/2024 | Compliance Evaluation | WATKINS, EDWIN | |

## Open Violations by Client ID:

No open violations for Client ID 123978

## Enforcement Summary:

| ENF TYPE DESC | ENF CREATION DATE | EXECUTED DATE | INITIATED DATE | VIOL CODE ID | VIOL PROGRAM NAME | VIOLATIONS | # OF VIOLATIONS | PENALTY AMOUNT | AMOUNT RECEIVED | TOTAL AMOUNT DUE | ENF FINAL STATUS | ENF CLOSED DATE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Notice of Violation | 10/22/2020 | 10/07/2020 | | 17291 | WPCNP | 92A.44 | 1 | | | | Administrative Close Out | 07/07/2023 |
| Notice of Violation | 09/11/2023 | 09/11/2023 | | 17291 | WPCNP | 92A.44 | 1 | | | | Administrative Close Out | 09/11/2024 |
| Notice of Violation | 08/02/2024 | 08/02/2024 | | 17320 | WPCWP | CSL201 | 1 | | | | Administrative Close Out | 09/13/2024 |

## Effluent Violation Summary:

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/4/2022 | 3/15/2022 | 1 | Non-Compliance Incident | N | | | 3/14/2022 | Violation of permit schedule | Other Violations | | | | | | |
| 2/4/2022 | 3/15/2022 | 1 | Non-Compliance Incident | N | | | 3/14/2022 | Violation of permit schedule | Other Violations | | | | | | |
| 2/4/2022 | 3/15/2022 | 1 | Non-Compliance Incident | N | | | 3/14/2022 | Violation of permit schedule | Other Violations | | | | | | |
| 10/31/2024 | 1/27/2025 | 2 | Monthly | N | | | 12/6/2024 | Late DMR Submission | Other Violations | | | | | | |
| 3/31/2022 | 4/22/2022 | 1 | Monthly | N | 001 | Final Effluent | 4/21/2022 | Violation of permit condition | Effluent | Fecal Coliform | > 129 | > | 2000 | No./100 ml | Average Monthly |
| 2/28/2023 | 3/23/2023 | 1 | Monthly | N | 001 | Final Effluent | 3/17/2023 | Violation of permit condition | Effluent | Fecal Coliform | > 60 | > | 2000 | No./100 ml | Average Monthly |
| 4/30/2023 | 5/25/2023 | 1 | Monthly | N | 001 | Final Effluent | 5/25/2023 | Violation of permit condition | Effluent | Fecal Coliform | 435 | > | 400 | No./100 ml | Instantaneous Maximum |
| 12/31/2024 | 1/27/2025 | 1 | Monthly | N | 001 | Final Effluent | 1/27/2025 | Violation of permit condition | Effluent | Dissolved Oxygen | 4.9 | < | 5.0 | mg/L | Instantaneous Minimum |

## Unauthorized Discharges:

No unauthorized discharges reported in eDMR during review period

**Compliance Status:** Facility is in general compliance

**Completed by: Howard Dunn** Completed **date:** 09/23/2025

## Compliance History

**DMR Data for Outfall 001 (from November 1, 2024 to October 31, 2025)**

| Parameter | OCT-25 | SEP-25 | AUG-25 | JUL-25 | JUN-25 | MAY-25 | APR-25 | MAR-25 | FEB-25 | JAN-25 | DEC-24 | NOV-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD) Average Monthly | 2.314 | 2.362 | 2.401 | 3.14 | 3.912 | 4.254 | 4.345 | 2.889 | 5.59 | 2.985 | 3.383 | 3.016 |
| Flow (MGD) Daily Maximum | 3.520 | 4.290 | 2.970 | 8.06 | 9.05 | 11.17 | 10.86 | 4.62 | 12.52 | 7.77 | 5.82 | 7.18 |
| pH (S.U.) Minimum | 6.1 | 6.3 | 6.5 | 6.8 | 7.0 | 6.5 | 6.5 | 6.7 | 6.8 | 6.7 | 6.3 | 6.1 |
| pH (S.U.) Maximum | 7.4 | 7.0 | 7.2 | 7.7 | 7.8 | 7.9 | 7.8 | 7.5 | 7.7 | 7.5 | 7.6 | 8.1 |
| DO (mg/L) Minimum | 7.8 | 7.1 | 6.7 | 7.4 | 7.7 | 9.0 | 6.4 | 9.9 | 10.9 | 10.7 | 10.0 | 8.7 |
| TRC (mg/L) Average Monthly | 0.02 | 0.03 | 0.03 | 0.02 | 0.02 | 0.04 | 0.03 | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 |
| TRC (mg/L) Instantaneous Maximum | 0.04 | 0.08 | 0.04 | 0.08 | 0.06 | 0.09 | 0.09 | 0.07 | 0.05 | 0.09 | 0.09 | 0.06 |
| $CBOD_5$ (lbs/day) Average Monthly | 109 | 106 | 134 | 220 | 224 | 440 | 315 | 171 | 381 | 242 | 193 | 259 |
| $CBOD_5$ (lbs/day) Weekly Average | 114 | 130 | 146 | 326 | 423 | 636 | 471 | 297 | 881 | 342 | 320 | 540 |
| $CBOD_5$ (mg/L) Average Monthly | 5.4 | 5.6 | 6.7 | 8.9 | 7.7 | 10.9 | 12.6 | 7.4 | 9.8 | 10 | 6.8 | 9.5 |
| $CBOD_5$ (mg/L) Weekly Average | 6.1 | 6.9 | 7.9 | 13.0 | 11.1 | 13.9 | 21.7 | 9.4 | 20.9 | 14.7 | 10.1 | 14.4 |
| $BOD_5$ (lbs/day) Raw Sewage Influent <br/> Average Monthly | 2822 | 3104 | 3242 | 4104 | 4689 | 4953 | 4659 | 4482 | 4455 | 4242 | 4557 | 6026 |
| $BOD_5$ (lbs/day) Raw Sewage Influent <br/> Weekly Average | 4004 | 3852 | 4063 | 5073 | 5073 | 6514 | 6003 | 6003 | 5750 | 4777 | 6149 | 8677 |
| $BOD_5$ (mg/L) Raw Sewage Influent <br/> Average Monthly | 134.5 | 163.3 | 158.9 | 161.7 | 171.6 | 149 | 180.6 | 196.7 | 114 | 181.9 | 166.5 | 251.8 |
| $BOD_5$ (mg/L) Raw Sewage Influent <br/> Weekly Average | 164.0 | 192.0 | 186.5 | 202 | 187.7 | 192.1 | 243.3 | 243.3 | 187.6 | 195.4 | 245.9 | 355.8 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TSS (lbs/day) Average Monthly | 72 | 152 | 174 | 151 | 163 | 749 | 301 | 118 | 120 | 188 | 203 | 315 |
| TSS (lbs/day) Raw Sewage Influent <br/> Average Monthly | 2772 | 2912 | 3483 | 3982 | 4489 | 4587 | 4594 | 4029 | 3831 | 3849 | 4948 | 5341 |
| TSS (lbs/day) Raw Sewage Influent <br/> Weekly Average | 3279 | 4355 | 3882 | 5073 | 5019 | 5236 | 6572 | 6572 | 4316 | 3925 | 6023 | 13666 |
| TSS (lbs/day) Weekly Average | 125 | 203 | 288 | 361 | 298 | 1322 | 430 | 430 | 140 | 292 | 301 | 573 |
| TSS (mg/L) Average Monthly | 3.7 | 8.0 | 8.8 | 5.7 | 5.7 | 17.5 | 10.9 | 5.0 | 2.8 | 7.8 | 7.4 | 13.5 |
| TSS (mg/L) Raw Sewage Influent <br/> Average Monthly | 137.7 | 154.0 | 173.1 | 155.7 | 166.9 | 137.9 | 180.7 | 175 | 101.8 | 166.1 | 186.7 | 236.5 |
| TSS (mg/L) Raw Sewage Influent <br/> Weekly Average | 178.0 | 226.0 | 196.0 | 177.3 | 204.1 | 168 | 270 | 270 | 170.3 | 184 | 278.3 | 854.2 |
| TSS (mg/L) Weekly Average | 8.0 | 10.5 | 15.5 | 13.2 | 8.8 | 23.7 | 14.2 | 14.2 | 4.1 | 9.7 | 10.3 | 32.6 |
| Total Dissolved Solids (mg/L) Daily Maximum | 459 | 553 | 437 | 950 | 536 | 388 | 390 | 364 | 599 | 774 | 440 | 471 |
| Fecal Coliform (CFU/100 ml) Geometric Mean | 59 | 13 | 289 | 34 | 17 | 15 | 10 | 4 | 4 | 11 | 7 | 10 |
| Fecal Coliform (CFU/100 ml) Instantaneous Maximum | 1203 | 272 | 1733 | 687 | 71 | 205 | 313 | 25 | 6 | 1553 | 165 | 60 |
| UV Transmittance (%) Minimum | 54.3 | 55.3 | 55.2 | 67.5 | 60.4 | 54.5 | 52.6 | 60.1 | 64 | 56.8 | 37.1 | 48.7 |
| UV Transmittance (%) Average Monthly | 61.1 | 60.6 | 64.6 | 77.3 | 72 | 69.2 | 66.9 | 69.0 | 76.3 | 63.8 | 65.9 | 60.9 |
| Total Nitrogen (mg/L) Daily Maximum | | 17.1 | | | 14.1 | | | 32.0 | | | 23.2 | |
| Ammonia-Nitrogen (lbs/day) Average Monthly | 21 | 16 | 12 | 14 | 7 | 22 | 13 | 7 | 21 | 88 | 29 | 20 |
| Ammonia-Nitrogen (lbs/day) Weekly Average | 48 | 33 | 21 | 25 | 22 | 41 | 17 | 17 | 27 | 195 | 50 | 43 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia-Nitrogen (mg/L) Average Monthly | 0.9 | 0.9 | 0.6 | 0.5 | 0.3 | 0.5 | 0.5 | 0.3 | 0.5 | 3.9 | 1.1 | 0.7 |
| Ammonia-Nitrogen (mg/L) Weekly Average | 2.5 | 1.8 | 1.1 | 1.0 | 0.6 | 0.8 | 0.6 | 0.6 | 1.0 | 8.4 | 1.8 | 0.9 |
| Total Phosphorus (mg/L) Daily Maximum | | 3.51 | | | 1.43 | | | 2.69 | | | 3.94 | |
| Total Aluminum (mg/L) Daily Maximum | | 0.032 | | | 0.042 | | | 0.039 | | | 0.137 | |
| Total Iron (mg/L) Daily Maximum | | 0.120 | | | 0.115 | | | 0.245 | | | 0.764 | |
| Total Manganese (mg/L) Daily Maximum | | 0.027 | | | 0.025 | | | 0.040 | | | 0.174 | |
| Sulfate (mg/L) Daily Maximum | 59.0 | 66.8 | 59.2 | 56.2 | 47.1 | 52.9 | 43.4 | 50.8 | 54.5 | 59.1 | 46.6 | 59.4 |
| Chloride (mg/L) Daily Maximum | 106 | 97.5 | 106 | 109 | 101 | 129 | 117 | 143 | 209 | 360 | 108 | 135 |
| Bromide (mg/L) Daily Maximum | 0.243 | 0.245 | 0.339 | 0.196 | 0.106 | 0.140 | < 0.200 | < 0.500 | 0.172 | 0.188 | 0.172 | 0.384 |

## Compliance History

**Effluent Violations for Outfall 001, from: December 1, 2024 To: October 31, 2025**

| Parameter | Date | SBC | DMR Value | Units | Limit Value | Units |
|---|---|---|---|---|---|---|
| TRC | 05/31/25 | Avg Mo | 0.04 | mg/L | .03 | mg/L |
| $CBOD_5$ | 05/31/25 | Avg Mo | 440 | lbs/day | 409 | lbs/day |
| $CBOD_5$ | 05/31/25 | Wkly Avg | 636 | lbs/day | 613 | lbs/day |
| $CBOD_5$ | 05/31/25 | Avg Mo | 10.9 | mg/L | 10 | mg/L |
| Fecal Coliform | 08/31/25 | Geo Mean | 289 | CFU/100 ml | 200 | CFU/100 ml |
| Fecal Coliform | 08/31/25 | IMAX | 1733 | CFU/100 ml | 1000 | CFU/100 ml |
| Ammonia-Nitrogen | 01/31/25 | Avg Mo | 3.9 | mg/L | 3.4 | mg/L |
| Ammonia-Nitrogen | 01/31/25 | Wkly Avg | 8.4 | mg/L | 5.1 | mg/L |

## Development of Effluent Limitations

**Outfall No.** 001 **Design Flow (MGD)** 4.9
**Latitude** 40º 24' 41.30" **Longitude** -79º 43' 29.82"
**Wastewater Description:** Sewage Effluent

### Technology-Based Limitations (TBELs)

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

| Pollutant | Limit (mg/l) | SBC | Federal Regulation | State Regulation |
|---|---|---|---|---|
| Flow | Report | Average Monthly | - | 92a.27, 92a.61 |
| $CBOD_5$ | 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) |
| Total Residual Chlorine | 0.5 | Average Monthly | - | 92a.47.(8) and 92a.48(b)(2) |
| Ammonia-Nitrogen | 25 | Average Monthly | - | BPJ |
| Dissolved Oxygen | 4.0 | Min | - | BPJ |
| pH | 6.0 – 9.0 S.U. | Min – Max | - | 95.2(1) |
| Total Nitrogen | Report | Average Monthly | - | 92a.61 |
| Total Phosphorus | Report | Average Monthly | - | 92a.61 |
| 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) |

### Water Quality-Based Limitations (WQBELs)

Pursuant to EPA's approval of Pennsylvania's 2017 Triennial Review of Water Quality Standards and corresponding regulatory changes published in the *Pennsylvania Bulletin* on July 11, 2020, new water quality criteria for ammonia-nitrogen apply to waters of the commonwealth.

#### WQM 7.0 Water Quality Modeling

DEP's WQM 7.0 version 1.1 model is a Microsoft Access Program used for sewage dischargers to determine whether TBELs are sufficient to meet in-stream water quality criteria for ammonia-nitrogen, carbonaceous biochemical oxygen demand ($CBOD_5$), and dissolved oxygen (DO).To accomplish this, the model simultaneously simulates mixing and degradation of ammonia-nitrogen and mixing and consumption of DO through $CBOD_5$ and ammonia-nitrogen degradation. WQM 7.0 determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions. More information regarding the model can be found in the Department's *Technical Reference Guide (TRG) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen Version 1.0* [Doc. No. 391-2000-007].

The model is a two-step process. The discharge is first remodeled for the summer period (May through October) because warm temperatures are more likely to result in critical loading conditions in the receiving water. Reduced DO levels likely also play a role in ammonia-toxicity and solubility of DO decreases at increased water temperature. If summer modeling determines that WQBELs are appropriate for the summer period, then modeling is completed for the winter period (November through April). This is in accordance with DEP's *Implementation Guidance of Section 93.7 Ammonia Criteria* [Doc. No. 391-2000-013] (Ammonia Guidance).

River Mile Index (RMI) was measured in eMAP PA as the distance between the facility's outfall to the mouth of Turtle Creek. Discharge point and downstream drainage area and as well as low flow yield at the point of discharge were generated using USGS Stream Stats. USGS Stream Stats output files are provided in Attachment A. Discharge and downstream elevations were measured in Google Earth Pro. In the absence of site-specific data, discharge temperature, stream temperature, and stream pH are assumed to be 20, 25, and 7 in accordance with the Ammonia Guidance. Stream width/depth was assumed to be 10 in accordance with DEP's *Technical Reference Guide (TRG) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen Version 1* [Doc. No. 391-2000-007]. The effluent $CBOD_5$, ammonia-nitrogen, and DO discharge concentrations were set equal to the previous permit limits. The DO goal was set equal to the minimum instream DO criteria defined for a TSF in 25 PA Code Section 93.7 in accordance with DEP's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033 revised March 24, 2021, Version 1.9].

WQM 7.0 summer inputs are documented in the table below:

| **Discharge Characteristics** | | **Basin/Stream Characteristics** | |
|---|---|---|---|
| **Parameter** | **Value** | **Parameter** | **Value** |
| River Mile Index (RMI) | 11.01 | Drainage Area | 41.7 |
| Discharge Flow (MGD) | 4.9 | $Q_{7-10}$ (cfs) | 0.792 |
| Discharge Temp ($^oC$) | 20 | Low-flow yield (cfs/$mi^2$) | 0.0189 |
| Ammonia-Nitrogen (mg/L) | 2.0 | Elevation (ft) | 826 |
| $CBOD_5$ (mg/L) | 10 | Stream Width/Depth | 10 |
| Dissolved Oxygen (mg/L) | 6.0 | Stream Temp ($^oC$) | 25 |
| DO Goal | 5.0 | Stream pH (s.u.) | 7 |

The discharge was modeled using WQM 7.0 to evaluate water quality-based limits for ammonia-nitrogen, $CBOD_5$, and DO. Modeling confirmed that the previously imposed effluent limits are adequate to protect in-stream water quality.

The Ammonia Guidance documents that when modeling for Winter, the in-stream temperature should be 5 $^oC$ and the low flow yield is doubled. The instream dissolved concentration was also changed to 12.51 mg/L and the discharge temperature to 15 $^oC$. Effluent concentrations for $CBOD_5$ and ammonia-nitrogen were changed to match the winter effluent limitations imposed in the previous permit.

In accordance with DEP's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033 revised March 24, 2021, Version 1.9], winter ammonia-nitrogen limits are assessed by comparing winter WQM 7.0 output value with one calculated by multiplying the summer limit by a multiplier of three. The more restrictive limit is then imposed. For this facility, the winter modeling result is being imposed.

Based on WQM 7.0 modeling, the following effluent limitations will be imposed:

| **Parameter** | **Limit (mg/l)** | **SBC** | **Basis** |
|---|---|---|---|
| Ammonia-Nitrogen Summer (mg/L) | 2.0 | Average Monthly | WQBEL |
| Ammonia-Nitrogen Winter (mg/L) | 3.4 | Average Monthly | WQBEL |
| $CBOD_5$ Summer (mg/L) | 10 | Average Monthly | WQBEL |
| $CBOD_5$ Winter (mg/L) | 20 | Average Monthly | WQBEL |
| Dissolved Oxygen | 6.0 | Average Monthly | WQBEL |

The Department's *Technical Guidance for the Development and Specification of Effluent Limitations* [Doc No.362-0400-001] stipulates that for sewage related pollutants average weekly and instantaneous maximum limits be calculated by multiplying the average monthly limit by a conversion factor of 1.5 and 2.0, respectively.

There are no changes to the ammonia-nitrogen, $CBOD_5$, or DO effluent limitations as a result of WQM 7.0 modeling. WQM 7.0 output files are provided in Attachment B.

**Toxic Management Spreadsheet (TMS) Water Quality Modeling for Toxic Pollutants**

DEP's Toxics Management Spreadsheet Version 1.3 (TMS) is a Microsoft Excel ® spreadsheet that facilitates the evaluation of a single discharger and performs the calculations necessary to complete a reasonable potential analysis and determine WQBELs for dischargers of toxic unconventional pollutants.

The TMS evaluates each pollutant by computing a wasteload allocation for each applicable criterion, determining the most stringent governing WQBEL, and comparing that governing WQBEL to the input discharge concentration to determine whether permit requirements should apply. That decision is made using the following reasonable potential thresholds as documented in the Department's SOP for *Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers* [SOP No. BCW-PMT-037] (*Toxics SOP*):

- Establish limits in the permit where the maximum reported effluent concentration or calculated, average monthly effluent concentration exceeds 50% of the WQBEL. Use the average monthly, maximum daily, and instantaneous maximum (IMAX) limits for the permit as recommended by the TMS.

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

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

TMS requires input data including stream code, RMI, elevation, drainage area, $Q_{7-10}$ stream flow, discharge hardness and pH, and stream hardness and pH. The same discharge and basin characteristic values are used as for WQM 7.0. Discharge pH and hardness input values were taken from the effluent sample results reported in the application. In the absence of site-specific data, a stream pH default of 7.0 and hardness default of 100 were used in accordance with DEP's *DEP Toxic Management Spreadsheet (TMS) Instructions*. The application sampling data documented for Pollutant Groups 2-5 did not match the data provided in laboratory reports from the renewal sampling events. Data input into the model was pulled from the laboratory reports. Although required to sample for Pollutant Groups 6 and 7, the renewal sampling did not include these pollutants. Preliminary modeling was therefore conducted just on the results for Groups 1-5.

TMS model inputs are documented in the table below:

| **Discharge Characteristics** | | **Basin/Stream Characteristics** | |
|---|---|---|---|
| **Parameter** | **Value** | **Parameter** | **Value** |
| River Mile Index (RMI) | 11.01 | Drainage Area | 41.7 |
| Discharge pH | 7.9 | $Q_{7-10\ (cfs)}$ | 0.792 |
| Discharge Hardness | 152 | Stream pH | 7 |
| Design Flow (MGD) | 4.9 | Stream Hardness | 100 |
| | | Elevation (ft) | 826 |
| | | Stream Width/Depth Ratio | 10 |

A preliminary Reasonable Potential Analysis was conducted using TMS. The model suggested WQBELs for total copper, free cyanide, total zinc, chloroform, dichlorobromomethane, bis(2-ethylhexyl)phthalate, and butyl benzyl phthalate. Monitoring was suggested for total aluminum, hexavalent chromium, dissolved iron, and total iron. A pre-draft letter was sent to FTMSA. Their September 30, 2025 response is provided in Attachment C.

FTMSA elected not to complete additional sampling for total copper, free cyanide, total zinc, chloroform, dichlorobromomethane, bis(2-ethylhexyl)phthalate, butyl benzyl phthalate, total aluminum, dissolved iron, and total iron.

Since the initial modeling was completed and pre-draft modeling was completed, Central office has clarified that because DMR reporting directs permittees to report J qualified data as < Reporting Limit in situations where the reporting limit is less than the Department's target quantitation limit (TQL), permit writers should use the same input for TMS modeling and the determination of reasonable potential. The butyl benzyl phthalate original results had one non-detect and two J qualified detections. The laboratory Reporting limits were less than the Department's Target QL (5.0 µg/L), therefore <2.9

µg/L was used as the model input. The updated modeling does not find reasonable potential and does not suggest monitoring.

The application data for hexavalent chromium were all non-detect, with a method detection limit (MDL) of 5.0 µg/L. The TQL is 1.0 µg/L. FTMSA re-sampled with all three results being non-detect at a MDL less than or equal to 0.1 µg/L. In accordance with the *Toxics SOP*, when sampling results are non-detect at or below the TQL, then pollutant may be eliminated as a candidate for WQBELs. No limits or monitoring will therefore be imposed for hexavalent chromium this permit cycle.

Meadowbrook Road STP has a significant categorical user in a category that requires FTMSA to sample for Pollutant Group 6. This sampling was not done with the original application package. FTMSA submitted sampling results for Pollutant Group 6 on October 22, 2025. The model was updated to include the results and assigned limits for chlordane and toxaphene.

The original sampling data for chlordane were all non-detect, with MDLs between 1.17 and 2.25 µg/L. The TQL is 1.0 µg/L. FTMSA re-sampled with all three results being non-detect at an MDL less than or equal to 0.27 µg/L. No limits or monitoring will be imposed for chlordane this permit cycle.

The original sampling data for toxaphene were all non-detect, with MDLs between 0.96 and 1.84 µg/L. The TQL is 0.5 µg/L. FTMSA re-sampled with all three results being non-detect at an MDL less than or equal to 0.19 µg/L. No limits or monitoring will be imposed for toxaphene this permit cycle.

Quarterly monitoring had been imposed for aluminum, iron, and manganese in the previous permit term. 5 years of eDMR data (October 2020 through October 2025) were reviewed for aluminum, iron, and manganese. Total aluminum results ranged from non-detect at 10 µg/L to 260 µg/L. Iron results ranged from 68.7 to 764 µg/L. Manganese results ranged from 8 to 174 µg/L. The historic monitoring data was used to help refine the TMS model.

Each pollutant had four quarterly samples taken a year and there are five years of data. That makes a cumulative data set of 20 each. In accordance with *Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers* [SOP No. BCW-PMT-037], for samples sets greater than 10, ToxStats is used to determine the input. ToxStats logic is coded to calculate the 90$^{th}$ percentile effluent concentration when all sample results are greater than the laboratory's RL. When sample results are both above and below the RL, ToxStats calculates the median.

ToxStats calculated a median of 0.032 mg/L for total aluminum, a 90$^{th}$ percentile effluent concentration of 0.2606 mg/L for total iron, and a 90$^{th}$ percent effluent concentration of 0.1105 for total manganese. The TMS input for total aluminum is less than 10% of the governing WQBEL, therefore, there is no reasonable potential, and no monitoring will be imposed. The input for total iron and total manganese were greater than 10% percent of the governing WQBEL, therefore, monitoring will be imposed for total iron and total manganese. The ToxStats input and output files are provided in Attachment D.

TMS output files are provided in Attachment E.

Based on TMS modeling and renewal sampling data, the following effluent limitations will be imposed:

| Parameter | Limit (mg/l) | SBC | Basis |
|---|---|---|---|
| Total Copper | 0.014 | Average Monthly | TMS Version 1.3 |
| Free Cyanide (µg/L) | 4.42 | Average Monthly | TMS Version 1.3 |
| Dissolved Iron | Report | Average Monthly | TMS Version 1.3 |
| Total Iron | Report | Average Monthly | TMS Version 1.3 |
| Total Manganese | Report | Average Monthly | TMS Version 1.3 |
| Total Zinc | 0.17 | Average Monthly | TMS Version 1.3 |
| Chloroform (µg/L) | 6.29 | Average Monthly | TMS Version 1.3 |
| Dichlorobromomethane (µg/L) | 1.71 | Average Monthly | TMS Version 1.3 |

| | | | |
|---|---|---|---|
| Bis(2-Ethylhexyl)Phthalate (µg/L) | 0.57 | Average Monthly | TMS Version 1.3 |

In response to the pre-draft letter, FTMSA completed the pre-draft survey, indicating that they are unsure of the length of time needed to comply with the new water quality-based effluent limits. In accordance with the *Toxics SOP*, compliance schedules for new toxic WQBELs are generally assigned based on the permittee's pre-draft response. FTMSA did not provide an estimated time needed to comply. In this situation, the SOP allows the permit writer to use discretion in assigning a compliance period. Permit writers typically provide a two-year compliance period unless the permittee provides justification as to why additional time is needed. A two-year compliance period is therefore being provided for the new toxic WQBELs.

Section III.4. of the *Toxics SOP* requires permittees to conduct site specific studies when default data was used for modeling. Part C.V.B. has therefore been added to the permit. Section III.5.a. of the same SOP requires the permittee to conduct a TRE if they document in the pre-draft survey that they are unaware of the source of the pollutant. FTMSA documented in their pre-draft survey that the source of the pollutants receiving new WQBELs is unknown. Part C.V.C. has therefore been added to the permit.

**Nutrient Impairment**

The receiving stream, Turtle Creek, is impaired for Nutrients. 25 PA Code 96.5 states that "when it is determined that the discharge of phosphorus, alone in combination with the discharge of other pollutants, contributes or threatens to impair existing or designated uses… shall be limited to an average monthly concentration of 2 mg/L". On May 20, 2021, a Cause-and-Effect Survey was completed in Turtle Creek (Attachment F). The cause-and-effect survey found the stream is severely impaired upstream and downstream of Outfall 001 with concentrations downstream of the outfall being 10x larger than upstream. Additional data collection is anticipated to be collected in winter 2025 and spring 2026.

Based on the data reported in the 2021 cause and the stream's impairment, total phosphorus limits are being imposed. A monthly average concentration limit of 2 mg/L will be imposed.

In accordance with Table 6-3, Self-Monitoring Requirements for Sewage Discharger, from DEP's *Technical Guidance for the Development and Specification of Effluent Limitations* [Doc. No. 362-0400-001], monitoring frequency for total phosphorus is changing from 1/quarter to 2/week.

DEP's *Toxics SOP* documents that a permittee will be considered to be able to comply with a WQBEL without a compliance schedule if historic data demonstrates compliance with the proposed WQBEL at least 90% of the time. Based on data from the last five years, the facility is only able to meet a total phosphorus limit of 2.0 approximately 40% of the time. A three-year compliance period is therefore being provided. Interim compliance deadlines are defined in Part C.II. of the Permit. The *Toxics SOP* documents that compliance periods requested by the permittee will generally be used, where warranted. FTMSA has requested five years to comply with the new limit. The longest compliance schedule DEP can accommodate is a 59 month (4 years and 11 months). The new phosphorus limit will therefore go into effect on the first day of the month that the permit expires.

**Total Dissolved Solids (TDS), Chloride, Bromide, and Total Sulfate**

Total Dissolved Solids (TDS) and its major constituents including sulfate, chloride, and bromide have emerged as contaminants of concern throughout the Commonwealth. These solids are conservative in nature, accumulating in surface waters and in the case of drinking water treatment, bromide has been linked with formation of disinfection byproducts. In response to the growing concern, the Department promulgated PA Code 25 Chapter 95.10 on August 21, 2010 which establishes treatment requirements for new and expanding discharges. Chapter 95.10 (a)(1) documents that "discharge loads of TDS or specific conductivity that were authorized by DEP prior to August 21, 2010 are exempt from the standards". Meadowbrook Road STP was originally permitted in 1959 under WQM Permit No.1959. The design capacity has not expanded since 2008, therefore, the facility is currently exempt from Chapter 95.10 treatment requirements which requires that new and expanding mass loadings of TDS cannot contain more than 2,000 mg/L as monthly average.

The previous permit imposed monitoring for TDS, Chloride, Bromide, and Total Sulfate using the justification that Meadowbrook Road STP discharges a load of greater than 20,000 lbs/day. The fact sheet did not provide a citation for this metric. DEP's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033 Version 1.9], a minimum of monitoring should be imposed for TDS for any discharge that exceeds a TDS concentration of 1,000 mg/L. 5 years of eDMR data (October 2020 through October 2025) were reviewed for TDS, and the monthly

sample resulted in one exceedance of 1,000 mg/L. The other monthly results ranged from 250 mg/L to 950 mg/L. The August 2022 sampling result was 2,670 mg/L. Based on this result and the Toxic SOP, monthly TDS monitoring will again be imposed.

eDMR data was also reviewed for the same five-year term for chloride, bromide, and total sulfate. Chloride results ranged from non-detect at 2.0 mg/L to 501 mg/L. Bromide results ranged from non-detect at 0.1 mg/L to 5.18 mg/L. Total sulfate results ranged from non-detect at 2.0 mg/L to 99.8 mg/L.

Constituents for TDS are only defined based on human health standards at public drinking water intakes. The closest drinking water intake is 18 miles downstream, on the Monongahela River. Between Outfall 001 and the public drinking water intake, stream flow increases from 0.792 cfs to 1,130 cfs. TMS does not easily allow to model a discharge and a drinking water intake on two different streams. A copy of the TMS model was completed assuming Meadowbrook Road STP discharged at the mouth of Turtle Creek (RMI 11.67 on the Monongahela River; Attachment G). For all cases, the highest result for chloride, bromide, and total sulfate from the last five years of eDMR data was coded as the input for TMS. This augmented model did not find that there was reasonable potential for TDS or any of its pollutants, nor did it suggest monitoring. Based on the fact that even if Meadowcreek Road STP discharged at the mouth of Turtle Creek, the highest concentrations of chloride, bromide, and total sulfate in the last five years would not have reasonable potential, monitoring for these three constituents will be removed from this permit. While monitoring is not subject to the backsliding regulations in 40 CFR 122.44 (l), the five years of monitoring data would satisfy the exception in 40 CFR 122.44 (l)(2)(i)(B). This section allows for backsliding when information is available which was not available at the time of permit issuance which would have justified the application of a less stringent effluent limitation.
Monitoring for TDS will remain in the permit in accordance with Department's SOP as discussed above.

**Turtle Creek TMDL**

Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's Water Quality Planning and Management Regulations (codified at Title 40 of the Code of Federal Regulations Part 130) require states to develop a TMDL for impaired water bodies. A TMDL establishes the amount of a pollutant that a water body can assimilate without exceeding water quality criteria for the pollutant. TMDLs also provide a scientific basis for states to establish water quality-based controls for reducing pollution from both point and non-point sources in order to restore and maintain the quality of the state's water resources (USEPA 1991a). Stream Reaches within the Turtle Creek Watershed were listed on 303 (d) list in 1996, 1998, 2002, and 2008 for metals and pH impairment related to AMD.

A final TMDL for Turtle Creek was completed on June 29, 2009 for the control of acid mine drainage pollutants: aluminum, iron, manganese, and pH. The TMDL defined existing loads and allowable loads, but did not assign Waste Load Allocations. Meadowbrook Road STP was originally permitted in 1987 and therefore pre-dates the Turtle Creek TMDL. NPDES Permit No. PA0025674 was not assigned any wasteload allocations in the TMDL, so no TMDL based effluent limits will be imposed this permit term.

Meadowbrook Road STP discharges in the reach identified as TC4. The TMDL defines existing and allowable loads for iron. Meadowbrook Road's existing long term average load was calculated using the 90$^{th}$ Percentile concentration calculated using ToxStats

| | Existing Load | Allowable Load | Meadowbrook Road STP Existing long-term average load |
|---|---|---|---|
| Iron (lbs/day) | 114.21 | 51.40 | 13.96 |

Weekly monitoring is already being imposed for total iron and total manganese based on water quality, so no additional monitoring is being proposed based on the TMDL. Quarterly total aluminum monitoring will again be imposed based on the TMDL and under the authority of 25 Pa. Code 92a.61.

**Pollutant Group 7**

Although not identified in the Industrial Users Information section of the application, Meadowbrook Road STP accepts hauled in leachate from Valley Landfill. Valley Landfill documented in their 2025 annual report that they accept residual wastes that arise from natural gas drilling. Meadowbrook Road STP therefore receives natural gas wastewaters through indirect discharges by accepting landfill leachate from Valley Landfill. In accordance with the National Pollutant Discharge Elimination System (NPDES) Application for Individual Permit to Discharge Sewage Effluent for Major Sewage Facilities: Instructions (3800-PM-BCW0009a), "Pollutant Group 7 must be analyzed if, during the three years prior to the submission of the application, the facility has received natural gas wastewaters, either hauled-in or through indirect discharges." Meadowbrook Road STP must complete sampling for Pollutant Group 7. The application instructions also require that applicants include pollutants that may be received by the facility and for which 25 PA Code Section 93 defines criteria. 40 CFR Part 445 defines effluent limits guidelines (ELGs) for pollutants of concern for non-hazardous waste landfills, including municipal solid waste landfills. P-cresol is included in the ELGs for landfills and has criteria defined in 25 PA Code Section 93. It therefore needs to be identified in Pollutant Group 7 and analyzed for.

Instead of extending additional pre-draft time for FTMSA to complete this sampling, DEP is imposing monitoring for gross alpha, total beta, total radium, total strontium, and total uranium. This monitoring is imposed under the authority of 25 Pa. Code § 92a.61. The Department is allowing FTMSA the opportunity to sample for these pollutants. They were informed of the opportunity on December 12, 2025 and will have until the 30-day draft comment period ends to submit sample results to DEP. FTMSA must meet all applicable target QLs, which are defined in the renewal application instructions with the exception of p-cresol, which is 20 µg/L. If TMS modeling confirms that there is no reasonable potential and/or does not suggest monitoring, then monitoring may be removed prior to Final permit issuance.

**Permit Effluent Limitations**

In accordance with Section III of DEP's SOP for *Establishing Effluent limitations for Individual Sewage Permits*, the limits to be imposed, which are provided below, represent the most stringent limitations between the TBELs, WQBELs, BAT, and BPJs.

| Parameter | Limit (mg/l) | SBC | Basis |
|---|---|---|---|
| Total Suspended Solids | 30 | Average Monthly | TBEL |
| Fecal Coliform (Recreation Season) | 200 CFU/mL | Geo Mean | TBEL |
| Fecal Coliform (Non-Recreation Season) | 2,000 CFU/mL | Geo Mean | TBEL |
| pH | 6.0 | Instantaneous Minimum | TBEL |
| pH | 9.0 | Instantaneous Maximum | TBEL |
| Ammonia-Nitrogen Summer (mg/L) | 2.0 | Average Monthly | WQM 7.0 version 1.1 |
| Ammonia-Nitrogen Winter (mg/L) | 3.4 | Average Monthly | WQM 7.0 version 1.1 |
| $CBOD_5$ Summer (mg/L) | 10 | Average Monthly | WQM 7.0 version 1.1 |
| $CBOD_5$ Winter (mg/L) | 20 | Average Monthly | WQM 7.0 version 1.1 |
| Dissolved Oxygen | 6.0 | Average Monthly | WQM 7.0 version 1.1 |
| Total Aluminum | Report | Daily Max | 25 Pa. Code 92a.61/Turtle Creek TMDL |
| Total Copper | 0.014 | Average Monthly | TMS Version 1.3 |
| Free Cyanide (ug/L) | 4.42 | Average Monthly | TMS Version 1.3 |
| Dissolved Iron | Report | Average Monthly | TMS Version 1.3 |
| Total Iron | Report | Average Monthly | TMS Version 1.3 |
| Total Manganese | Report | Average Monthly | TMS Version 1.3 |
| Total Zinc | 0.17 | Average Monthly | TMS Version 1.3 |

| | | | |
|---|---|---|---|
| Chloroform (ug/L) | 6.29 | Average Monthly | TMS Version 1.3 |
| Dichlorobromomethane (ug/L) | 1.71 | Average Monthly | TMS Version 1.3 |
| Bis(2-Ethylhexyl)Phthalate (ug/L) | 0.57 | Average Monthly | TMS Version 1.3 |
| Total Phosphorus | 2.0 | Average Monthly | 25 PA Code 96.5 |
| Gross Alpha | Report | Average Monthly | 25 Pa. Code 92a.61 |
| Total Beta | Report | Average Monthly | 25 Pa. Code 92a.61 |
| Total Radium | Report | Average Monthly | 25 Pa. Code 92a.61 |
| Total Strontium | Report | Average Monthly | 25 Pa. Code 92a.61 |
| Total Uranium | Report | Average Monthly | 25 Pa. Code 92a.61 |
| p-cresol | Report | Average Monthly | 25 Pa. Code 92a.61 |

**Mass Loading Limitations**

Section 1.A of the Department's SOP, *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033 Version 1.9] and table 5.3 of the Department's *Technical Guidance for the Development and Specification of Effluent Limitations* [Doc. No. 362-0400-001] establish mass loading limits for Publicly Owned Treatment Works (POTWs) for ammonia-nitrogen, $CBOD_5$, and TSS. Average monthly and average weekly limits will be imposed for ammonia-nitrogen, $CBOD_5$, and TSS. Mass loading limits are calculated according to the following equation:

$$mass\ loading\ limit\ \left(\frac{lbs}{day}\right) = average\ annual\ flow\ (MGD) * concentration\ limit\ \left(\frac{mg}{L}\right) * 8.34\ (conversion\ factor)$$

The following mass loading limits are being imposed:

| Parameter | Average Monthly (lbs/day) | Weekly Average (lbs/day) |
|---|---|---|
| Ammonia-Nitrogen Summer (mg/L) | 82 | 123 |
| Ammonia-Nitrogen Winter (mg/L) | 139 | 209 |
| $CBOD_5$ Summer (mg/L) | 405 | 610 |
| $CBOD_5$ Winter (mg/L) | 815 | 1225 |
| TSS (mg/L) | 1225 | 1835 |

**Additional Considerations**

In accordance with Section I.A. of DEP's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033 Version 1.9], pursuant to EPA's approval of Pennsylvania's 2017 Triennial Review of Water Quality Standards and corresponding regulatory changes published in the *Pennsylvania Bulletin* on July 11, 2020 and under the authority of 25 Pa. Code § 93.7(a) and § 92.a.61, sewage dischargers will include monitoring for *E. coli*. For new and reissued permits, a monitoring frequency of 1/month will be imposed for flows ≥ 1 MGD.

Monitoring frequency for the proposed effluent limits are based on Table 6-3, Self-Monitoring Requirements for Sewage Discharger, from DEP's *Technical Guidance for the Development and Specification of Effluent Limitations* [Doc. No. 362-0400-001]. Please note that the monitoring frequency for total aluminum, total iron, total manganese, total phosphorus, and have changed to be consistent with Table 6.3.

In accordance with Section I.A. of DEP's SOP for established for *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033 Version 1.9], and under the authority of 25 Pa. Code § 92a.61(b), nutrient monitoring for total nitrogen and total phosphorus will be imposed for sewage facilities with a design flow greater than 2,000 GPD. The intent of this monitoring is to establish the nutrient load of the wastewater and evaluate the impact that load may have on the quality of the receiving stream. The 2014 permit imposed quarterly monitoring for total nitrogen and total phosphorus. In the last five years, 20 total phosphorus samples ranged from 0.51 mg/L to 5.3 mg/L. One result was non-

detect at a reporting limit of 10 mg/L. In the last five years, 20 total nitrogen samples ranged from 0.99 mg/L to 41.7 mg/L. The SOP documents that nutrient monitoring will be imposed at a frequency equivalent to that imposed for conventional pollutants when discharging to a stream that is impaired for nutrients. The receiving stream, Turtle Creek, is impaired for nutrients. The monitoring frequency for total nitrogen is therefore changing to 2/week. A limit is being imposed for total phosphorus during this permit term, so additional monitoring is not required.

Conventional concentration and mass loading limits are rounded in accordance with the guidelines in Chapter 5 Section C.2. of DEP's *Technical Guidance for the Development and Specification of Effluent Limitations [*Doc. No. 362-0400-001]. Please note that the average monthly and weekly average TSS and summer and winter CBOD5 limits were all amended to conform with the rounding guidance.

Table 5.3 DEP's *Technical Guidance for the Development and Specification of Effluent Limitations* [DOC. No 362-0400-001] documents that for Publicly Owned Treatment Works (POTW)s, conventional pollutants should receive average monthly, weekly average, and instantaneous maximum concentration limits. 40 CFR 122.45(d)(2) stipulates that unless impractical, weekly average limits will be imposed for POTWs. These limits have been imposed for $CBOD_5$, TSS, and Ammonia-Nitrogen.

In accordance with Section I.A. DEP's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [SOP No. BCW-PMT-033 Version 1.9], when UV disinfection is used, TRC limits are not applicable. Routine UV transmittance (%) monitoring is being imposed at the same monitoring frequency that would be used for TRC.

**Storm Water**

Meadowbrook Road STP has three storm water outfalls onsite. The previous permit imposed requirements for storm water outfalls 002, 003, and 004. The Application documented three outfalls with the same coordinates, but with names SWA, SWB, and SWC. The outfall names will be changed for this permit term and the requirements in Part C.VIII. have been updated to reflect current stormwater permitting requirements.

**Influent Monitoring**

Section IV.F.2 of DEP's SOP for *New and Reissuance Sewage Individual NPDES Permit Applications* [SOP No. BCW-PMT-002 Version 2.0] establishes influent $BOD_5$ and TSS monitoring for POTWs. The intent of influent $BOD_5$ and TSS monitoring is to verify compliance with the secondary treatment requirement of 85% removal defined in 40 CFR §133.102. The influent monitoring is to be imposed at the same frequency and sample type as is used for the effluent sampling. No changes have been made to the influent monitoring during this permit renewal.

**Per-and Polyfluoroalkyl Substances (PFAS)**

In February 2024, DEP implemented a new PFAS monitoring initiative consistent with EPA's memorandum that provides guidance for addressing PFAS in treated effluent discharges permitted under the NPDES program. PFAS are a family of synthetic organic chemicals containing a chain of strong carbon-fluorine bonds. PFAS are resistant to biodegradation, photooxidation, direct photolysis, and hydrolysis. Because PFAS does not readily degrade by natural processes, it accumulates over time. According to the United States Department of Health and Human Services' Agency for Toxic Substances and Disease Registry (ATSDR), the environmental persistence and mobility of PFAS, combined with decades of widespread use, have resulted in surface water, groundwater, drinking water, rainwater, solid, sediment, ice caps, outdoor and indoor air, plants, animal tissue, and human blood serum contamination across the globe. ATSDR also reports that exposure to certain PFAS can lead to adverse human health impacts. Due to their durability, toxicity, persistence, and pervasiveness, PFAS have emerged as a potentially significant pollutant of concern for sewage treatment plants.

In accordance with DEP's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [BCQ-PMT-033] and under the authority of 25 Pa. Code § 92.a.61, DEP is imposing monitoring for a subset of common/well-studied PFAS to help understand the extent of PFAS contamination throughout the Commonwealth and the extent to which point source dischargers under the NPDES program contribute. These PFAS include Perfluorooctanoic Acid (PFOA), Perfluoroctanesulfonic Acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene Oxide Dimer Acid (HFPO-DA).

FTMSA submitted their NPDES Permit renewal application prior to August 5, 2024 and DEP is therefore electing to waive the required sampling for PFOA, PFOS, PFBS, and HFPO-DA as part of the renewal sampling. Meadowbrook Road STP identified 49 industrial users and also accepts hauled in leachate from a municipal landfill. They accept non-sanitary wastewater from categorical users in industries that EPA has identified may be a source of PFAS. These include Valley Landfill (landfills), Energi Fenestrations Solutions (plastics molding, and forming), and Circuits LLC. (electroplating). Quarterly monitoring for PFOA, PFOS, PFBS, and HFPO-DA is therefore being added to this permit in accordance with 25 Pa. Code § 92a.61. In accordance with Section II.G.3. of DEP's SOP for *Establishing Effluent Limitations for Individual Sewage Permits* [BCQ-PMT-033], a footnote has been added to the permit stating "The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS of the results in four consecutive monitoring period indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L PFOS, 3.5 ng/L for PFBS, and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees must enter a No Discharge Indicator (NODI) Code of "GG" on DMRs."

**Whole Effluent Toxicity (WET)**

The previous permit required FTMSA to collect discharge samples and perform WET tests to generate chronic survival and reproduction data for the cladoceran (water flea) *Cerodaphnia dubia* and chronic survival and growth data for the flathead minnow *Pimephales promelas* . The dilution series for the tests was: 24%, 48%, 72%, 96%, and 100%. The Target Instream Waste Concentration (TIWC) used to analyze the results was 96%.

Analysis of the four most recent WET tests, conducted October and November 2022, October and November 2023, November 2024, and November 2025, is provided in Attachment H. Meadowbrook Road STP passed all four tests. There is therefore no reasonable potential, and no WET Test based limits will be imposed in this permit. An annual WET Testing requirement will again be included in Part C.VI of the permit.

Complete mixing time is calculated as a function of discharge flow rate and receiving stream characteristics ($Q_{7\text{-}10}$ flow, velocity, width, depth, and slope). The TMS model calculated a complete mix time of 0.021 minutes.

If the complete mix time is less than 15 minutes, then both the acute and chronic Partial Mix Factors are 1.

Acute Instream Waste Concentration ($IWC_a$) is calculated as a function of discharge flow, stream flow, and $PMF_a$ using the following equation:

$$IWC_a = \left(\frac{Q_d * 1.547}{Q_{7-10} * PMF_a}\right) + (Q_d * 1.547)$$

$IWC_a$ was calculated to be 0.9054, which is greater than 1%. Chronic tests are therefore required.

Chronic Instream Waste Concentration (IWCc) is calculated as a function of discharge flow, stream flow, and Chronic Partial Mix Factor according to the following equation:

$$IWC_c = \frac{Q_d * 1.547}{(Q_{7-10} * PMF_c) + (Q_d * 1.547)}$$

The Chronic Instream Waste Concentration was calculated to be 0.9054.

Target Chronic Instream Waste Concentration is calculated as a function of Chronic Instream Waste Concentration using the following equation:

$$TIWC_c = \frac{IWC_c}{1} * 100\%$$

Target Chronic Instream Waste Concentration was calculated to be 91%.

The dilution series was determined using Attachment D of the Department's SOP for *Whole Effluent Toxicity (WET)* [SOP No. BPNPSM-PMT-031]. Based on a Target Chronic Instream Waste Concentration of 91%, the dilution series imposed

in this permit will be 23%, 46%, 91%, 96%, and 100%. Please note that the TIWC and dilution series has changed from the last permit.

## Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst 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" (386-0400-001), SOPs and/or BPJ.

**Outfall 001, Effective Period: Two Years Following Permit Issuance 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 | | |
| Total Copper | 0.59 | 0.91 | XXX | 0.014 | 0.022 | 0.022 | 1/week | 24-Hr Composite |
| Free Cyanide (ug/L) | 0.18 | 0.28 | XXX | 4.42 | 6.89 | 11 | 1/week | 24-Hr Composite |
| Total Zinc | 6.79 | 7.5 | XXX | 0.17 | 0.18 | 0.18 | 1/week | 24-Hr Composite |
| Dichlorobromomethane (ug/L) | 0.07 | 0.11 | XXX | 1.71 | 2.66 | 4.27 | 1/week | 24-Hr Composite |
| Bis(2-Ethyl-hexyl)Phthalate (ug/L) | 0.023 | 0.037 | XXX | 0.57 | 0.9 | 1.44 | 1/week | 24-Hr Composite |
| Chloroform (ug/L) | 0.26 | 0.4 | XXX | 6.29 | 9.82 | 15.7 | 1/week | 24-Hr Composite |

Compliance Sampling Location: Outfall 001

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" (386-0400-001), SOPs and/or BPJ.

**Outfall 001, Effective Period: Beginning of 60th Month Following Permit Issuance through Permit Expiration Date**.

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Average Weekly | Minimum | Average Monthly | Maximum | Instant. Maximum | | |
| Total Phosphorus | 80 | XXX | XXX | 2.0 | XXX | 4.0 | 2/week | Grab |

Compliance Sampling Location: Outfall 001

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" (386-0400-001), SOPs and/or BPJ.

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

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Weekly Average | Instantaneous Minimum | Average Monthly | Daily Maximum | Instant. Maximum | | |
| Flow (MGD) | Report | Report Daily Max | XXX | XXX | XXX | XXX | Continuous | Recorded |
| pH (S.U.) | XXX | XXX | 6.0 | XXX | XXX | 9.0 | 1/day | Grab |
| DO | XXX | XXX | 6.0 | XXX | XXX | XXX | 1/day | Grab |
| $CBOD_5$ Nov 1 - Apr 30 | 815 | 1225 | XXX | 20 | 30 Wkly Avg | 40 | 2/week | 24-Hr Composite |
| $CBOD_5$ May 1 - Oct 31 | 405 | 610 | XXX | 10 | 15 Wkly Avg | 20 | 2/week | 24-Hr Composite |
| $BOD_5$ Raw Sewage Influent | Report | Report | XXX | Report | Report Wkly Avg | XXX | 2/week | 24-Hr Composite |
| TSS Raw Sewage Influent | Report | Report | XXX | Report | Report Wkly Avg | XXX | 2/week | 24-Hr Composite |
| TSS | 1225 | 1835 | XXX | 30 | 45 Wkly Avg | 60 | 2/week | 24-Hr Composite |
| Total Dissolved Solids | XXX | XXX | XXX | XXX | Report | XXX | 1/Week | 24-Hr Composite |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2000 Geo Mean | XXX | 10000 | 2/week | Grab |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1000 | 2/week | Grab |
| *E. Coli* (No./100 ml) | XXX | XXX | XXX | XXX | XXX | Report | 1/month | Grab |
| UV Transmittance (%) | XXX | XXX | Report | Report | XXX | XXX | 1/day | Measured |

**Outfall 001, 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 | Weekly Average | Instantaneous Minimum | Average Monthly | Daily Maximum | Instant. Maximum | | |
| Total Nitrogen | XXX | XXX | XXX | Report | Report | XXX | 2/week | 24-Hr Composite |
| Ammonia-Nitrogen Nov 1 - Apr 30 | 139 | 209 | XXX | 3.4 | 5.1 Wkly Avg | 6.8 | 2/week | 24-Hr Composite |
| Ammonia-Nitrogen May 1 - Oct 31 | 82 | 123 | XXX | 2.0 | 3.0 Wkly Avg | 4 | 2/week | 24-Hr Composite |
| Total Aluminum | Report | Report Daily Max | XXX | Report | Report Daily Max | XXX | 1/quarter | 24-Hr Composite |
| Dissolved Iron (ug/L) | Report | Report Daily Max | XXX | Report | Report Daily Max | XXX | 1/week | 24-Hr Composite |
| Total Iron (ug/L) | Report | Report Daily Max | XXX | Report | Report Daily Max | XXX | 1/week | 24-Hr Composite |
| Total Manganese | Report | Report Daily Max | XXX | Report | Report Daily Max | XXX | 1/week | 24-Hr Composite |
| Total Strontium (ug/L) | Report | Report Daily Max | XXX | Report | Report | XXX | 1/week | 24-Hr Composite |
| Total Uranium (ug/L) | Report | Report Daily Max | XXX | Report | Report | XXX | 1/week | 24-Hr Composite |
| p-Cresol (ug/L) | Report | Report Daily Max | XXX | Report | Report | XXX | 1/week | 24-Hr Composite |
| PFOA (ng/L) | XXX | XXX | XXX | XXX | Report | XXX | 1/quarter | Grab |
| PFOS (ng/L) | XXX | XXX | XXX | XXX | Report | XXX | 1/quarter | Grab |
| PFBS (ng/L) | XXX | XXX | XXX | XXX | Report | XXX | 1/quarter | Grab |
| HFPO-DA (ng/L) | XXX | XXX | XXX | XXX | Report | XXX | 1/quarter | Grab |
| Gross Alpha (pCi/L) | XXX | XXX | XXX | Report | Report | XXX | 1/week | 24-Hr Composite |
| Total Beta (pCi/L) | XXX | XXX | XXX | Report | Report | XXX | 1/week | 24-Hr Composite |
| Ra-226/228, Total (pCi/L) | XXX | XXX | XXX | Report | Report | XXX | 1/week | 24-Hr Composite |

Compliance Sampling Location: Outfall 001

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" (386-0400-001), SOPs and/or BPJ.

**Outfall 001, Effective Period: Permit Effective Date through Two Years Following Permit Effective 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 | | |
| Total Copper | Report | Report | XXX | Report | Report | XXX | 1/week | 24-Hr Composite |
| Free Cyanide (ug/L) | Report | Report | XXX | Report | Report | XXX | 1/week | Grab |
| Total Zinc | Report | Report | XXX | Report | Report | XXX | 1/week | 24-Hr Composite |
| Bis(2-Ethyl-hexyl)Phthalate (ug/L) | Report | Report | XXX | Report | Report | XXX | 1/week | 24-Hr Composite |
| Chloroform (ug/L) | Report | Report | XXX | Report | Report | XXX | 1/week | 24-Hr Composite |
| Dichlorobromomethane (ug/L) | Report | Report | XXX | Report | Report | XXX | 1/week | 24-Hr Composite |

Compliance Sampling Location: Outfall 001

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" (386-0400-001), SOPs and/or BPJ.

**Outfall 001, Effective Period: Permit Effective Date through Beginning of 60th Month Following Permit Issuance**.

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Average Weekly | Minimum | Average Monthly | Maximum | Instant. Maximum | | |
| Total Phosphorus | Report | XXX | XXX | Report | XXX | Report | 2/week | Grab |

Compliance Sampling Location: Outfall 001

Other Comments: None

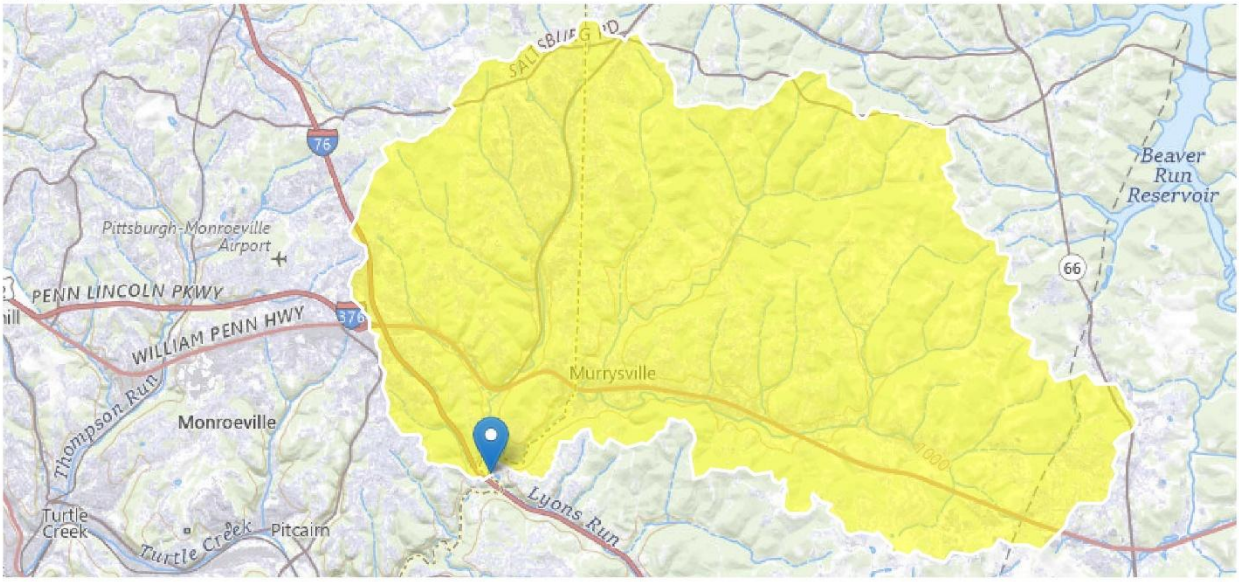
# ATTACHMENT A

# USGS Stream Stats Output Files

# Discharge Point Outfall 001
# (RMI 11.01)

## StreamStats Report

**Region ID:** PA
**Workspace ID:** PA20250815164607128000
**Clicked Point (Latitude, Longitude):** 40.41156, -79.72509
**Time:** 2025-08-15 12:46:33 -0400




Collapse All

### Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| DRNAREA | Area that drains to a point on a stream | 41.7 | square miles |
| ELEV | Mean Basin Elevation | 1132 | feet |

### Low-Flow Statistics

#### Low-Flow Statistics Parameters [Low Flow Region 4]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 41.7 | square miles | 2.26 | 1400 |
| ELEV | Mean Basin Elevation | 1132 | feet | 1050 | 2580 |

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

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 7 Day 2 Year Low Flow | 1.88 | ft^3/s | 43 | 43 |
| 30 Day 2 Year Low Flow | 3.03 | ft^3/s | 38 | 38 |
| 7 Day 10 Year Low Flow | 0.792 | ft^3/s | 66 | 66 |
| 30 Day 10 Year Low Flow | 1.27 | ft^3/s | 54 | 54 |
| 90 Day 10 Year Low Flow | 2.14 | 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/)**

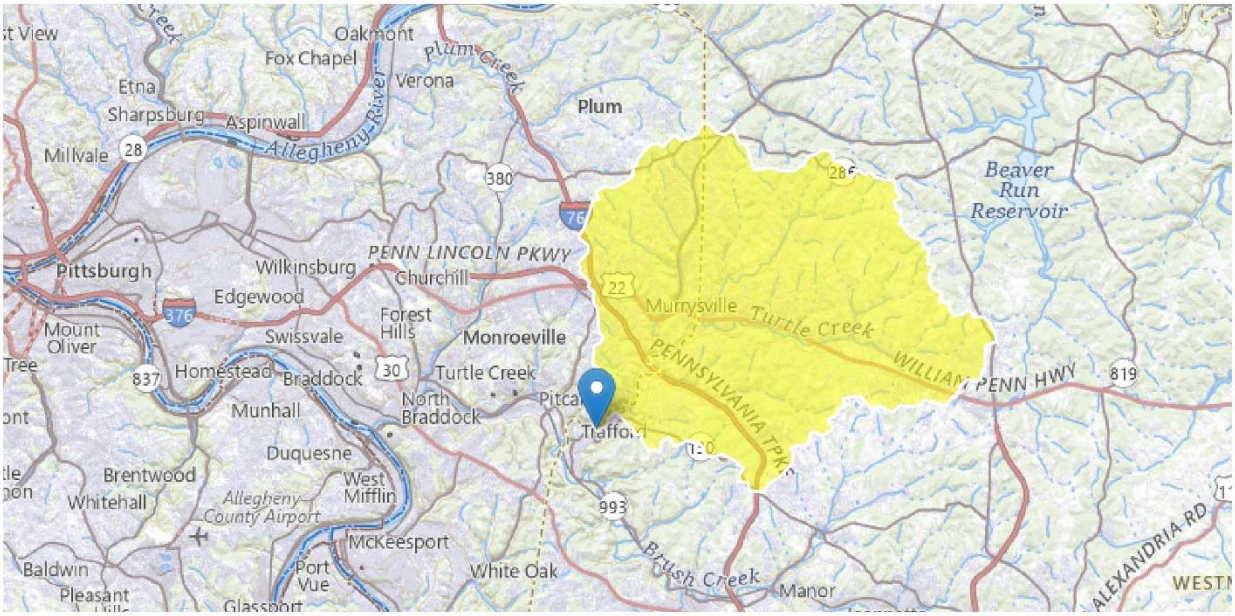


Application Version: 4.29.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

# Down Stream of Discharge Point
# (RMI 7.37)

# StreamStats Report

**Region ID:** PA
**Workspace ID:** PA20250815173707455000
**Clicked Point (Latitude, Longitude):** 40.38948, -79.75102
**Time:** 2025-08-15 13:37:31 -0400




Collapse All

## Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| DRNAREA | Area that drains to a point on a stream | 54 | square miles |
| ELEV | Mean Basin Elevation | 1128 | feet |

## Low-Flow Statistics

### Low-Flow Statistics Parameters [Low Flow Region 4]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 54 | square miles | 2.26 | 1400 |
| ELEV | Mean Basin Elevation | 1128 | feet | 1050 | 2580 |

# ATTACHMENT B

# WQM 7.0 Modeling Results

# Summer Modeling

## Input Data WQM 7.0

| SWP Basin | Stream Code | Stream Name | RMI | Elevation (ft) | Drainage Area (sq mi) | Slope (ft/ft) | PWS Withdrawal (mgd) | Apply FC |
|---|---|---|---|---|---|---|---|---|
| 19A | 37204 | TURTLE CREEK | **11.010** | 826.00 | 41.70 | 0.00000 | 0.00 | ☑ |

### Stream Data

| Design Cond. | LFY (cfsm) | Trib Flow (cfs) | Stream Flow (cfs) | Rch Trav Time (days) | Rch Velocity (fps) | WD Ratio | Rch Width (ft) | Rch Depth (ft) | Tributary Temp (°C) | Tributary pH | Stream Temp (°C) | Stream pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q7-10** | 0.019 | 0.00 | 0.00 | 0.000 | 0.000 | 10.0 | 0.00 | 0.00 | 25.00 | 7.00 | 0.00 | 0.00 |
| **Q1-10** | | 0.00 | 0.00 | 0.000 | 0.000 | | | | | | | |
| **Q30-10** | | 0.00 | 0.00 | 0.000 | 0.000 | | | | | | | |

### Discharge Data

| Name | Permit Number | Existing Disc Flow (mgd) | Permitted Disc Flow (mgd) | Design Disc Flow (mgd) | Reserve Factor | Disc Temp (°C) | Disc pH |
|---|---|---|---|---|---|---|---|
| Meadowbrook | PA0025674 | 0.0000 | 4.9000 | 0.0000 | 0.000 | 20.00 | 7.00 |

### Parameter Data

| Parameter Name | Disc Conc (mg/L) | Trib Conc (mg/L) | Stream Conc (mg/L) | Fate Coef (1/days) |
|---|---|---|---|---|
| CBOD5 | 10.00 | 2.00 | 0.00 | 1.50 |
| Dissolved Oxygen | 6.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 2.00 | 0.00 | 0.00 | 0.70 |

## Input Data WQM 7.0

| SWP Basin | Stream Code | Stream Name | RMI | Elevation (ft) | Drainage Area (sq mi) | Slope (ft/ft) | PWS Withdrawal (mgd) | Apply FC |
|---|---|---|---|---|---|---|---|---|
| 19A | 37204 | TURTLE CREEK | **7.370** | 781.00 | 54.00 | 0.00000 | 0.00 | ☑ |

### Stream Data

| Design Cond. | LFY (cfsm) | Trib Flow (cfs) | Stream Flow (cfs) | Rch Trav Time (days) | Rch Velocity (fps) | WD Ratio | Rch Width (ft) | Rch Depth (ft) | Tributary Temp (°C) | Tributary pH | Stream Temp (°C) | Stream pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q7-10** | 0.019 | 0.00 | 0.00 | 0.000 | 0.000 | 10.0 | 0.00 | 0.00 | 20.00 | 7.00 | 0.00 | 0.00 |
| **Q1-10** | | 0.00 | 0.00 | 0.000 | 0.000 | | | | | | | |
| **Q30-10** | | 0.00 | 0.00 | 0.000 | 0.000 | | | | | | | |

### Discharge Data

| Name | Permit Number | Existing Disc Flow (mgd) | Permitted Disc Flow (mgd) | Design Disc Flow (mgd) | Reserve Factor | Disc Temp (°C) | Disc pH |
|---|---|---|---|---|---|---|---|
| | | 0.0000 | 0.0000 | 0.0000 | 0.000 | 0.00 | 7.00 |

### Parameter Data

| Parameter Name | Disc Conc (mg/L) | Trib Conc (mg/L) | Stream Conc (mg/L) | Fate Coef (1/days) |
|---|---|---|---|---|
| CBOD5 | 25.00 | 2.00 | 0.00 | 1.50 |
| Dissolved Oxygen | 3.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 25.00 | 0.00 | 0.00 | 0.70 |

# WQM 7.0 Hydrodynamic Outputs

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 19A | 37204 | TURTLE CREEK |

| RMI | Stream Flow (cfs) | PWS With (cfs) | Net Stream Flow (cfs) | Disc Analysis Flow (cfs) | Reach Slope (ft/ft) | Depth (ft) | Width (ft) | W/D Ratio | Velocity (fps) | Reach Trav Time (days) | Analysis Temp (°C) | Analysis pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q7-10 Flow** | | | | | | | | | | | | |
| 11.010 | 0.79 | 0.00 | 0.79 | 7.5803 | 0.00234 | .722 | 40.61 | 56.23 | 0.29 | 0.780 | 20.47 | 7.00 |
| **Q1-10 Flow** | | | | | | | | | | | | |
| 11.010 | 0.50 | 0.00 | 0.50 | 7.5803 | 0.00234 | NA | NA | NA | 0.28 | 0.795 | 20.31 | 7.00 |
| **Q30-10 Flow** | | | | | | | | | | | | |
| 11.010 | 1.07 | 0.00 | 1.07 | 7.5803 | 0.00234 | NA | NA | NA | 0.29 | 0.765 | 20.62 | 7.00 |

# WQM 7.0 Modeling Specifications

| | | | |
|---|---|---|---|
| Parameters | Both | Use Inputted Q1-10 and Q30-10 Flows | ☑ |
| WLA Method | EMPR | Use Inputted W/D Ratio | ☐ |
| Q1-10/Q7-10 Ratio | 0.64 | Use Inputted Reach Travel Times | ☐ |
| Q30-10/Q7-10 Ratio | 1.36 | Temperature Adjust Kr | ☑ |
| D.O. Saturation | 90.00% | Use Balanced Technology | ☑ |
| D.O. Goal | 5 | | |

# WQM 7.0 Wasteload Allocations

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 19A | 37204 | TURTLE CREEK |

## NH3-N Acute Allocations

| RMI | Discharge Name | Baseline Criterion (mg/L) | Baseline WLA (mg/L) | Multiple Criterion (mg/L) | Multiple WLA (mg/L) | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|
| 11.010 | Meadowbrook | 16.33 | 4 | 16.33 | 4 | 0 | 0 |

## NH3-N Chronic Allocations

| RMI | Discharge Name | Baseline Criterion (mg/L) | Baseline WLA (mg/L) | Multiple Criterion (mg/L) | Multiple WLA (mg/L) | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|
| 11.010 | Meadowbrook | 1.81 | 2 | 1.81 | 2 | 0 | 0 |

## Dissolved Oxygen Allocations

| RMI | Discharge Name | CBOD5 | | NH3-N | | Dissolved Oxygen | | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|---|---|
| | | Baseline (mg/L) | Multiple (mg/L) | Baseline (mg/L) | Multiple (mg/L) | Baseline (mg/L) | Multiple (mg/L) | | |
| 11.01 | Meadowbrook | 10 | 10 | 2 | 2 | 6 | 6 | 0 | 0 |

# WQM 7.0 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 19A | 37204 | TURTLE CREEK |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 11.010 | 4.900 | 20.471 | 7.000 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 40.610 | 0.722 | 56.226 | 0.285 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 9.25 | 1.442 | 1.81 | 0.726 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 6.211 | 6.419 | Tsivoglou | 5 |
| **Reach Travel Time (days)** | | | |
| 0.780 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.078 | 8.24 | 1.71 | 5.80 |
| 0.156 | 7.35 | 1.62 | 5.70 |
| 0.234 | 6.55 | 1.53 | 5.78 |
| 0.312 | 5.84 | 1.44 | 5.94 |
| 0.390 | 5.21 | 1.37 | 6.15 |
| 0.468 | 4.64 | 1.29 | 6.37 |
| 0.546 | 4.14 | 1.22 | 6.59 |
| 0.624 | 3.69 | 1.15 | 6.80 |
| 0.702 | 3.29 | 1.09 | 7.00 |
| 0.780 | 2.93 | 1.03 | 7.18 |

# WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 19A | 37204 | TURTLE CREEK |

| RMI | Name | Permit Number | Disc Flow (mgd) | Parameter | Effl. Limit 30-day Ave. (mg/L) | Effl. Limit Maximum (mg/L) | Effl. Limit Minimum (mg/L) |
|---|---|---|---|---|---|---|---|
| 11.010 | Meadowbrook | PA0025674 | 0.000 | CBOD5 | 10 | | |
| | | | | NH3-N | 2 | 4 | |
| | | | | Dissolved Oxygen | | | 6 |

# Winter Modeling

## Input Data WQM 7.0

| SWP Basin | Stream Code | Stream Name | RMI | Elevation (ft) | Drainage Area (sq mi) | Slope (ft/ft) | PWS Withdrawal (mgd) | Apply FC |
|---|---|---|---|---|---|---|---|---|
| 19A | 37204 | TURTLE CREEK | **11.010** | 826.00 | 41.70 | 0.00000 | 0.00 | ☑ |

### Stream Data

| Design Cond. | LFY (cfsm) | Trib Flow (cfs) | Stream Flow (cfs) | Rch Trav Time (days) | Rch Velocity (fps) | WD Ratio | Rch Width (ft) | Rch Depth (ft) | Tributary Temp (°C) | Tributary pH | Stream Temp (°C) | Stream pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q7-10** | 0.038 | 0.00 | 0.00 | 0.000 | 0.000 | 10.0 | 0.00 | 0.00 | 5.00 | 7.00 | 0.00 | 0.00 |
| **Q1-10** | | 0.00 | 0.00 | 0.000 | 0.000 | | | | | | | |
| **Q30-10** | | 0.00 | 0.00 | 0.000 | 0.000 | | | | | | | |

### Discharge Data

| Name | Permit Number | Existing Disc Flow (mgd) | Permitted Disc Flow (mgd) | Design Disc Flow (mgd) | Reserve Factor | Disc Temp (°C) | Disc pH |
|---|---|---|---|---|---|---|---|
| Meadowbrook | PA0025674 | 0.0000 | 4.9000 | 0.0000 | 0.000 | 15.00 | 7.00 |

### Parameter Data

| Parameter Name | Disc Conc (mg/L) | Trib Conc (mg/L) | Stream Conc (mg/L) | Fate Coef (1/days) |
|---|---|---|---|---|
| CBOD5 | 20.00 | 2.00 | 0.00 | 1.50 |
| Dissolved Oxygen | 6.00 | 12.51 | 0.00 | 0.00 |
| NH3-N | 3.40 | 0.00 | 0.00 | 0.70 |

## Input Data WQM 7.0

| SWP Basin | Stream Code | Stream Name | RMI | Elevation (ft) | Drainage Area (sq mi) | Slope (ft/ft) | PWS Withdrawal (mgd) | Apply FC |
|---|---|---|---|---|---|---|---|---|
| 19A | 37204 | TURTLE CREEK | **7.370** | 781.00 | 54.00 | 0.00000 | 0.00 | ☐ |

### Stream Data

| Design Cond. | LFY (cfsm) | Trib Flow (cfs) | Stream Flow (cfs) | Rch Trav Time (days) | Rch Velocity (fps) | WD Ratio | Rch Width (ft) | Rch Depth (ft) | Tributary Temp (°C) | Tributary pH | Stream Temp (°C) | Stream pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q7-10** | 0.038 | 0.00 | 0.00 | 0.000 | 0.000 | 10.0 | 0.00 | 0.00 | 20.00 | 7.00 | 0.00 | 0.00 |
| **Q1-10** | | 0.00 | 0.00 | 0.000 | 0.000 | | | | | | | |
| **Q30-10** | | 0.00 | 0.00 | 0.000 | 0.000 | | | | | | | |

### Discharge Data

| Name | Permit Number | Existing Disc Flow (mgd) | Permitted Disc Flow (mgd) | Design Disc Flow (mgd) | Reserve Factor | Disc Temp (°C) | Disc pH |
|---|---|---|---|---|---|---|---|
| | | 0.0000 | 0.0000 | 0.0000 | 0.000 | 25.00 | 7.00 |

### Parameter Data

| Parameter Name | Disc Conc (mg/L) | Trib Conc (mg/L) | Stream Conc (mg/L) | Fate Coef (1/days) |
|---|---|---|---|---|
| CBOD5 | 25.00 | 2.00 | 0.00 | 1.50 |
| Dissolved Oxygen | 3.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 25.00 | 0.00 | 0.00 | 0.70 |

# WQM 7.0 Hydrodynamic Outputs

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 19A | 37204 | TURTLE CREEK |

| RMI | Stream Flow (cfs) | PWS With (cfs) | Net Stream Flow (cfs) | Disc Analysis Flow (cfs) | Reach Slope (ft/ft) | Depth (ft) | Width (ft) | W/D Ratio | Velocity (fps) | Reach Trav Time (days) | Analysis Temp (°C) | Analysis pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q7-10 Flow** | | | | | | | | | | | | |
| 11.010 | 1.58 | 0.00 | 1.58 | 7.5803 | 0.00234 | .729 | 41.84 | 57.36 | 0.30 | 0.741 | 13.27 | 7.00 |
| **Q1-10 Flow** | | | | | | | | | | | | |
| 11.010 | 1.01 | 0.00 | 1.01 | 7.5803 | 0.00234 | NA | NA | NA | 0.29 | 0.768 | 13.82 | 7.00 |
| **Q30-10 Flow** | | | | | | | | | | | | |
| 11.010 | 2.15 | 0.00 | 2.15 | 7.5803 | 0.00234 | NA | NA | NA | 0.31 | 0.717 | 12.79 | 7.00 |

# WQM 7.0 Modeling Specifications

| | | | |
|---|---|---|---|
| Parameters | Both | Use Inputted Q1-10 and Q30-10 Flows | ☑ |
| WLA Method | EMPR | Use Inputted W/D Ratio | ☐ |
| Q1-10/Q7-10 Ratio | 0.64 | Use Inputted Reach Travel Times | ☐ |
| Q30-10/Q7-10 Ratio | 1.36 | Temperature Adjust Kr | ☑ |
| D.O. Saturation | 90.00% | Use Balanced Technology | ☑ |
| D.O. Goal | 5 | | |

# WQM 7.0 Wasteload Allocations

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 19A | 37204 | TURTLE CREEK |

### NH3-N Acute Allocations

| RMI | Discharge Name | Baseline Criterion (mg/L) | Baseline WLA (mg/L) | Multiple Criterion (mg/L) | Multiple WLA (mg/L) | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|
| 11.010 | Meadowbrook | 24.1 | 6.8 | 24.1 | 6.8 | 0 | 0 |

### NH3-N Chronic Allocations

| RMI | Discharge Name | Baseline Criterion (mg/L) | Baseline WLA (mg/L) | Multiple Criterion (mg/L) | Multiple WLA (mg/L) | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|
| 11.010 | Meadowbrook | 3 | 3.4 | 3 | 3.4 | 0 | 0 |

### Dissolved Oxygen Allocations

| RMI | Discharge Name | CBOD5 | | NH3-N | | Dissolved Oxygen | | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|---|---|
| | | Baseline (mg/L) | Multiple (mg/L) | Baseline (mg/L) | Multiple (mg/L) | Baseline (mg/L) | Multiple (mg/L) | | |
| 11.01 | Meadowbrook | 20 | 20 | 3.4 | 3.4 | 6 | 6 | 0 | 0 |

# WQM 7.0 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 19A | 37204 | TURTLE CREEK |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 11.010 | 4.900 | 13.275 | 7.000 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 41.844 | 0.729 | 57.365 | 0.300 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 16.89 | 1.453 | 2.81 | 0.417 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 7.123 | 5.693 | Tsivoglou | 5 |
| **Reach Travel Time (days)** | | | |
| 0.741 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.074 | 15.61 | 2.73 | 6.39 |
| 0.148 | 14.42 | 2.64 | 6.04 |
| 0.222 | 13.33 | 2.56 | 5.93 |
| 0.296 | 12.31 | 2.49 | 5.97 |
| 0.371 | 11.38 | 2.41 | 6.09 |
| 0.445 | 10.51 | 2.34 | 6.27 |
| 0.519 | 9.71 | 2.27 | 6.48 |
| 0.593 | 8.97 | 2.20 | 6.70 |
| 0.667 | 8.29 | 2.13 | 6.92 |
| 0.741 | 7.66 | 2.07 | 7.13 |

# WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 19A | 37204 | TURTLE CREEK |

| RMI | Name | Permit Number | Disc Flow (mgd) | Parameter | Effl. Limit 30-day Ave. (mg/L) | Effl. Limit Maximum (mg/L) | Effl. Limit Minimum (mg/L) |
|---|---|---|---|---|---|---|---|
| 11.010 | Meadowbrook | PA0025674 | 0.000 | CBOD5 | 20 | | |
| | | | | NH3-N | 3.4 | 6.8 | |
| | | | | Dissolved Oxygen | | | 6 |

# ATTACHMENT C

# September 30, 2025

# Pre-draft Response

Pennsylvania
Department of
Environmental Protection

## NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
## PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: **Franklin Township Municipal Sanitary Authority Westmoreland County** Permit No.: **PA0025674**

Pollutant(s) identified by DEP that may require WQBELs: No

Is the permittee aware of the source(s) of the pollutant(s)? ☐ Yes ☑ No ☐ Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)? ☐ Yes ☑ No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now? ☐ Yes ☐ No ☑ Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: ☑ Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? ☑ Yes ☐ No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have <u>not</u> been submitted to DEP, please attach to this survey.

| | | |
|---|---|---|
| ☐ | Discharge pollutant concentration coefficient(s) of variability | Year(s) Studied: |
| ☐ | Discharge and background Total Hardness concentrations (metals) | Year(s) Studied: |
| ☐ | Background / ambient pollutant concentrations | Year(s) Studied: |
| ☐ | Chemical translator(s) (metals) | Year(s) Studied: |
| ☐ | Slope and width of receiving waters | Year(s) Studied: |
| ☐ | Velocity of receiving waters at design conditions | Year(s) Studied: |
| ☐ | Acute and/or chronic partial mix factors (mixing at design conditions) | Year(s) Studied: |
| ☐ | Volatilization rates (highly volatile organics) | Year(s) Studied: |
| ☐ | Site-specific criteria (e.g., Water Effect Ratio or related study) | Year(s) Studied: |

**Please submit this survey to the DEP regional office that is reviewing the permit application within 30 days of receipt.**

# ATTACHMENT D

# ToxStats Files

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

ToxStats Spreadsheet
Version 1.0, December 2025

Instructions | Inputs

| | | | |
|---|---|---|---|
| Facility: | Meadowbrook Road STP | | |
| NPDES #: | PA0025674 | No. Parameters: | 3 |
| Outfall #: | 001 | | |
| Sample Type* | Effluent | No. Samples: | 20 |

| Parameter Name* | Total Aluminum | Total Iron | Total Manganese | |
|---|---|---|---|---|
| Units | mg/L | mg/L | mg/L | |
| Quantitation Limit | 0.01 | | | |
| Sample Date* | Sample Results* | Sample Results* | Sample Results* | Sample Results* |
| 10/1/2020 | 0.011 | 0.111 | 0.025 | |
| 1/1/2021 | ND | 0.0849 | 0.01 | |
| 4/1/2021 | 0.021 | 0.11 | 0.031 | |
| 7/1/2021 | 0.034 | 0.154 | 0.104 | |
| 10/1/2021 | 0.02 | 0.0829 | 0.017 | |
| 1/1/2022 | 0.027 | 0.0788 | 0.008 | |
| 4/1/2022 | 0.065 | 0.171 | 0.044 | |
| 7/1/2022 | 0.03 | 0.109 | 0.052 | |
| 10/1/2022 | 0.026 | 0.101 | 0.021 | |
| 1/1/2023 | 0.023 | 0.0687 | 0.009 | |
| 4/1/2023 | 0.056 | 0.212 | 0.078 | |
| 7/1/2023 | 0.024 | 0.0733 | 0.008 | |
| 10/1/2023 | 0.027 | 0.132 | 0.04 | |
| 1/1/2024 | 0.051 | 0.237 | 0.105 | |
| 4/1/2024 | 0.26 | 0.401 | 0.16 | |
| 7/1/2024 | 0.048 | 0.151 | 0.079 | |
| 10/1/2024 | 0.137 | 0.764 | 0.174 | |
| 1/1/2025 | 0.039 | 0.245 | 0.04 | |
| 4/1/2025 | 0.042 | 0.115 | 0.025 | |
| 7/1/2025 | 0.032 | 0.12 | 0.027 | |

Page 1

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

ToxStats Spreadsheet
Version 1.0, December 2025

Instructions | *Results*

**Facility:** Meadowbrook Road STP
**NPDES #:** PA0025674
**Outfall #:** 001
**Sample Type:** Effluent

| Parameter | Distribution Applied | Daily CV | Concentration |
|---|---|---|---|
| Total Aluminum (mg/L) | Delta-Lognormal | 0.85 | 0.03200 |
| Total Iron (mg/L) | Lognormal | 0.66342263 | 0.26060 |
| Total Manganese (mg/L) | Lognormal | 1.23960388 | 0.11050 |

# ATTACHMENT E

# TMS Output Files

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2025

# Discharge Information

Instructions | Discharge | Stream

Facility: **Meadowbrook STP** NPDES Permit No.: **PA0025674** Outfall No.: **001**

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 | $Q_{7-10}$ | $Q_h$ |
| 4.9 | 152 | 7.9 | | | | | | |

| | | | | | *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 | | 436 | | | | | | | | | |
| | Chloride (PWS) | mg/L | | 120 | | | | | | | | | |
| | Bromide | mg/L | | 0.159 | | | | | | | | | |
| | Sulfate (PWS) | mg/L | | 58.9 | | | | | | | | | |
| | Fluoride (PWS) | mg/L | | | | | | | | | | | |
| Group 2 | Total Aluminum | mg/L | | 0.032 | | | | | | | | | |
| | Total Antimony | µg/L | < | 1 | | | | | | | | | |
| | Total Arsenic | µg/L | | 0.99 | | | | | | | | | |
| | Total Barium | µg/L | | 49 | | | | | | | | | |
| | Total Beryllium | µg/L | < | 0.3 | | | | | | | | | |
| | Total Boron | µg/L | | 161 | | | | | | | | | |
| | Total Cadmium | µg/L | < | 0.16 | | | | | | | | | |
| | Total Chromium (III) | µg/L | | 1 | | | | | | | | | |
| | Hexavalent Chromium | µg/L | < | 0.1 | | | | | | | | | |
| | Total Cobalt | µg/L | | 2 | | | | | | | | | |
| | Total Copper | mg/L | | 22 | | | | | | | | | |
| | Free Cyanide | µg/L | | 2.8 | | | | | | | | | |
| | Total Cyanide | µg/L | < | 2.2 | | | | | | | | | |
| | Dissolved Iron | µg/L | | 62 | | | | | | | | | |
| | Total Iron | mg/L | | 0.2606 | | | | | | | | | |
| | Total Lead | µg/L | | 0.53 | | | | | | | | | |
| | Total Manganese | mg/L | | 0.1105 | | | | | | | | | |
| | Total Mercury | µg/L | < | 0.04 | | | | | | | | | |
| | Total Nickel | µg/L | | 5 | | | | | | | | | |
| | Total Phenols (Phenolics) (PWS) | µg/L | | 75 | | | | | | | | | |
| | Total Selenium | µg/L | < | 0.66 | | | | | | | | | |
| | Total Silver | µg/L | < | 0.33 | | | | | | | | | |
| | Total Thallium | µg/L | < | 0.16 | | | | | | | | | |
| | Total Zinc | mg/L | | 40 | | | | | | | | | |
| | Total Molybdenum | µg/L | | 6 | | | | | | | | | |
| | Acrolein | µg/L | < | 1.9 | | | | | | | | | |
| | Acrylamide | µg/L | < | | | | | | | | | | |
| | Acrylonitrile | µg/L | < | 1.2 | | | | | | | | | |
| | Benzene | µg/L | < | 0.23 | | | | | | | | | |
| | Bromoform | µg/L | < | 0.4 | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group 3 | Carbon Tetrachloride | µg/L | < | 0.31 | | | | | | | | | |
| | Chlorobenzene | µg/L | < | 0.19 | | | | | | | | | |
| | Chlorodibromomethane | µg/L | < | 0.45 | | | | | | | | | |
| | Chloroethane | µg/L | < | 0.33 | | | | | | | | | |
| | 2-Chloroethyl Vinyl Ether | µg/L | < | 0.38 | | | | | | | | | |
| | Chloroform | µg/L | | 4.5 | | | | | | | | | |
| | Dichlorobromomethane | µg/L | | 1.3 | | | | | | | | | |
| | 1,1-Dichloroethane | µg/L | < | 0.28 | | | | | | | | | |
| | 1,2-Dichloroethane | µg/L | < | 0.32 | | | | | | | | | |
| | 1,1-Dichloroethylene | µg/L | < | 0.29 | | | | | | | | | |
| | 1,2-Dichloropropane | µg/L | < | 0.24 | | | | | | | | | |
| | 1,3-Dichloropropylene | µg/L | < | 0.31 | | | | | | | | | |
| | 1,4-Dioxane | µg/L | < | 0.68 | | | | | | | | | |
| | Ethylbenzene | µg/L | < | 0.34 | | | | | | | | | |
| | Methyl Bromide | µg/L | | 0.49 | | | | | | | | | |
| | Methyl Chloride | µg/L | < | 0.31 | | | | | | | | | |
| | Methylene Chloride | µg/L | < | 0.45 | | | | | | | | | |
| | 1,1,2,2-Tetrachloroethane | µg/L | < | 0.34 | | | | | | | | | |
| | Tetrachloroethylene | µg/L | < | 0.35 | | | | | | | | | |
| | Toluene | µg/L | < | 0.5 | | | | | | | | | |
| | 1,2-trans-Dichloroethylene | µg/L | < | 0.26 | | | | | | | | | |
| | 1,1,1-Trichloroethane | µg/L | < | 0.22 | | | | | | | | | |
| | 1,1,2-Trichloroethane | µg/L | < | 0.33 | | | | | | | | | |
| | Trichloroethylene | µg/L | < | 0.33 | | | | | | | | | |
| | Vinyl Chloride | µg/L | < | 0.3 | | | | | | | | | |
| Group 4 | 2-Chlorophenol | µg/L | < | 0.33 | | | | | | | | | |
| | 2,4-Dichlorophenol | µg/L | < | 0.32 | | | | | | | | | |
| | 2,4-Dimethylphenol | µg/L | < | 0.21 | | | | | | | | | |
| | 4,6-Dinitro-o-Cresol | µg/L | < | 0.25 | | | | | | | | | |
| | 2,4-Dinitrophenol | µg/L | < | 2.5 | | | | | | | | | |
| | 2-Nitrophenol | µg/L | < | 0.45 | | | | | | | | | |
| | 4-Nitrophenol | µg/L | < | 1 | | | | | | | | | |
| | p-Chloro-m-Cresol | µg/L | | 0.34 | | | | | | | | | |
| | Pentachlorophenol | µg/L | < | 1.2 | | | | | | | | | |
| | Phenol | µg/L | < | 0.23 | | | | | | | | | |
| | 2,4,6-Trichlorophenol | µg/L | < | 0.56 | | | | | | | | | |
| Group 5 | Acenaphthene | µg/L | < | 0.15 | | | | | | | | | |
| | Acenaphthylene | µg/L | < | 0.19 | | | | | | | | | |
| | Anthracene | µg/L | < | 0.15 | | | | | | | | | |
| | Benzidine | µg/L | < | 3.1 | | | | | | | | | |
| | Benzo(a)Anthracene | µg/L | < | 0.17 | | | | | | | | | |
| | Benzo(a)Pyrene | µg/L | < | 0.22 | | | | | | | | | |
| | 3,4-Benzofluoranthene | µg/L | < | 0.13 | | | | | | | | | |
| | Benzo(ghi)Perylene | µg/L | < | 0.22 | | | | | | | | | |
| | Benzo(k)Fluoranthene | µg/L | < | 0.19 | | | | | | | | | |
| | Bis(2-Chloroethoxy)Methane | µg/L | < | 0.21 | | | | | | | | | |
| | Bis(2-Chloroethyl)Ether | µg/L | < | 0.19 | | | | | | | | | |
| | Bis(2-Chloroisopropyl)Ether | µg/L | < | 0.28 | | | | | | | | | |
| | Bis(2-Ethylhexyl)Phthalate | µg/L | | 16.6 | | | | | | | | | |
| | 4-Bromophenyl Phenyl Ether | µg/L | < | 0.07 | | | | | | | | | |
| | Butyl Benzyl Phthalate | µg/L | < | 2.9 | | | | | | | | | |
| | 2-Chloronaphthalene | µg/L | < | 0.18 | | | | | | | | | |
| | 4-Chlorophenyl Phenyl Ether | µg/L | < | 0.14 | | | | | | | | | |
| | Chrysene | µg/L | < | 0.15 | | | | | | | | | |
| | Dibenzo(a,h)Anthrancene | µg/L | < | 0.21 | | | | | | | | | |
| | 1,2-Dichlorobenzene | µg/L | < | 0.38 | | | | | | | | | |
| | 1,3-Dichlorobenzene | µg/L | < | 0.25 | | | | | | | | | |
| | 1,4-Dichlorobenzene | µg/L | < | 0.27 | | | | | | | | | |
| | 3,3-Dichlorobenzidine | µg/L | < | 0.48 | | | | | | | | | |
| | Diethyl Phthalate | µg/L | < | 0.18 | | | | | | | | | |
| | Dimethyl Phthalate | µg/L | < | 0.14 | | | | | | | | | |
| | Di-n-Butyl Phthalate | µg/L | < | 0.14 | | | | | | | | | |
| | 2,4-Dinitrotoluene | µg/L | < | 0.13 | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2,6-Dinitrotoluene | µg/L | < | 0.21 | | | | | | | | | |
| | Di-n-Octyl Phthalate | µg/L | < | 0.099 | | | | | | | | | |
| | 1,2-Diphenylhydrazine | µg/L | < | 0.26 | | | | | | | | | |
| | Fluoranthene | µg/L | < | 0.17 | | | | | | | | | |
| | Fluorene | µg/L | < | 0.2 | | | | | | | | | |
| | Hexachlorobenzene | µg/L | < | 0.23 | | | | | | | | | |
| | Hexachlorobutadiene | µg/L | < | 0.19 | | | | | | | | | |
| | Hexachlorocyclopentadiene | µg/L | < | 0.17 | | | | | | | | | |
| | Hexachloroethane | µg/L | < | 0.03 | | | | | | | | | |
| | Indeno(1,2,3-cd)Pyrene | µg/L | < | 0.12 | | | | | | | | | |
| | Isophorone | µg/L | < | 0.15 | | | | | | | | | |
| | Naphthalene | µg/L | < | 0.018 | | | | | | | | | |
| | Nitrobenzene | µg/L | < | 0.28 | | | | | | | | | |
| | n-Nitrosodimethylamine | µg/L | < | 0.63 | | | | | | | | | |
| | n-Nitrosodi-n-Propylamine | µg/L | < | 0.24 | | | | | | | | | |
| | n-Nitrosodiphenylamine | µg/L | < | 0.18 | | | | | | | | | |
| | Phenanthrene | µg/L | < | 0.13 | | | | | | | | | |
| | Pyrene | µg/L | < | 0.16 | | | | | | | | | |
| | 1,2,4-Trichlorobenzene | µg/L | < | 0.16 | | | | | | | | | |
| Group 6 | Aldrin | µg/L | < | 0.02 | | | | | | | | | |
| | alpha-BHC | µg/L | < | 0.02 | | | | | | | | | |
| | beta-BHC | µg/L | < | 0.03 | | | | | | | | | |
| | gamma-BHC | µg/L | < | 0.02 | | | | | | | | | |
| | delta BHC | µg/L | < | 0.02 | | | | | | | | | |
| | Chlordane | µg/L | < | 0.27 | | | | | | | | | |
| | 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 | < | 0.03 | | | | | | | | | |
| | beta-Endosulfan | µg/L | < | 0.02 | | | | | | | | | |
| | Endosulfan Sulfate | µg/L | < | 0.03 | | | | | | | | | |
| | Endrin | µg/L | < | 0.03 | | | | | | | | | |
| | Endrin Aldehyde | µg/L | < | 0.02 | | | | | | | | | |
| | Heptachlor | µg/L | < | 0.02 | | | | | | | | | |
| | Heptachlor Epoxide | µg/L | < | 0.03 | | | | | | | | | |
| | 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 | < | 0.19 | | | | | | | | | |
| | 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 | | | | | | | | | | | |
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pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2025

# Stream / Surface Water Information

**Meadowbrook STP, NPDES Permit No. PA0025674, Outfall 001**

Instructions | Discharge | *Stream*

Receiving Surface Water Name: _____ No. Reaches to Model: 1

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

| Location | Stream Code* | RMI* | Elevation (ft)* | DA ($mi^2$)* | Slope (ft/ft) | PWS Withdrawal (MGD) | Apply Fish Criteria* |
|---|---|---|---|---|---|---|---|
| Point of Discharge | 037204 | 11.01 | 826 | 41.7 | | | Yes |
| End of Reach 1 | 037204 | 7.37 | 781 | 54 | | | Yes |

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

| Location | RMI | LFY ($cfs/mi^2$)* | Flow (cfs) | | W/D Ratio | Width (ft) | Depth (ft) | Velocity (fps) | Travel Time (days) | Tributary | | Stream | | Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stream | Tributary | | | | | | Hardness | pH | Hardness* | pH* | Hardness | pH |
| Point of Discharge | 11.01 | 0.0189 | | | 10 | | | | | | | 100 | 7 | | |
| End of Reach 1 | 7.37 | 0.0189 | | | 10 | | | | | | | | | | |

$Q_h$

| Location | RMI | LFY ($cfs/mi^2$) | Flow (cfs) | | W/D Ratio | Width (ft) | Depth (ft) | Velocity (fps) | Travel Time (days) | Tributary | | Stream | | Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stream | Tributary | | | | | | Hardness | pH | Hardness | pH | Hardness | pH |
| Point of Discharge | 11.01 | | | | | | | | | | | | | | |
| End of Reach 1 | 7.37 | | | | | | | | | | | | | | |

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Toxics Management Spreadsheet
Version 1.4, May 2025

# Model Results

**Meadowbrook STP, NPDES Permit No. PA0025674, Outfall 001**

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

☑ ***Hydrodynamics***

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

| RMI | Stream Flow (cfs) | PWS Withdrawal (cfs) | Net Stream Flow (cfs) | Discharge Analysis Flow (cfs) | Slope (ft/ft) | Depth (ft) | Width (ft) | W/D Ratio | Velocity (fps) | Travel Time (days) | Complete Mix Time (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.01 | 0.79 | | 0.79 | 7.58 | 0.002 | 0.722 | 7.223 | 10. | 0.285 | 0.78 | 0.021 |
| 7.37 | 1.02 | | 1.0206 | | | | | 10.000 | | | |

$Q_h$

| RMI | Stream Flow (cfs) | PWS Withdrawal (cfs) | Net Stream Flow (cfs) | Discharge Analysis Flow (cfs) | Slope (ft/ft) | Depth (ft) | Width (ft) | W/D Ratio | Velocity (fps) | Travel Time (days) | Complete Mix Time (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.01 | 6.03 | | 6.03 | 7.58 | 0.002 | 0.895 | 7.223 | 8.072 | 0.375 | 0.594 | 0.343 |
| 7.37 | 7.564 | | 7.56 | | | | | | | | |

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.021 PMF: 1 Analysis Hardness (mg/l): 147.1 Analysis pH: 7.68

| Pollutants | Stream Conc (µg/L) | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Aluminum | 0 | 0 | | 0 | 750 | 750 | 828 | |
| Total Antimony | 0 | 0 | | 0 | 1,100 | 1,100 | 1,214 | |
| Total Arsenic | 0 | 0 | | 0 | 340 | 340 | 375 | Chem Translator of 1 applied |
| Total Barium | 0 | 0 | | 0 | 21,000 | 21,000 | 23,183 | |
| Total Boron | 0 | 0 | | 0 | 8,100 | 8,100 | 8,942 | |
| Total Cadmium | 0 | 0 | | 0 | 2.930 | 3.16 | 3.49 | Chem Translator of 0.928 applied |
| Total Chromium (III) | 0 | 0 | | 0 | 781.584 | 2,473 | 2,731 | Chem Translator of 0.316 applied |
| Hexavalent Chromium | 0 | 0 | | 0 | 16 | 16.3 | 18.0 | Chem Translator of 0.982 applied |
| Total Cobalt | 0 | 0 | | 0 | 95 | 95.0 | 105 | |
| Total Copper | 0 | 0 | | 0 | 19.333 | 20.1 | 22.2 | Chem Translator of 0.96 applied |
| Free Cyanide | 0 | 0 | | 0 | 22 | 22.0 | 24.3 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 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 | 98.052 | 133 | 147 | Chem Translator of 0.735 applied |
| Total Manganese | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Mercury | 0 | 0 | | 0 | 1.400 | 1.65 | 1.82 | Chem Translator of 0.85 applied |
| Total Nickel | 0 | 0 | | 0 | 649.040 | 650 | 718 | 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 | 6.248 | 7.35 | 8.11 | Chem Translator of 0.85 applied |
| Total Thallium | 0 | 0 | | 0 | 65 | 65.0 | 71.8 | |
| Total Zinc | 0 | 0 | | 0 | 162.510 | 166 | 183 | Chem Translator of 0.978 applied |
| Acrolein | 0 | 0 | | 0 | 3 | 3.0 | 3.31 | |
| Acrylonitrile | 0 | 0 | | 0 | 650 | 650 | 718 | |
| Benzene | 0 | 0 | | 0 | 640 | 640 | 707 | |
| Bromoform | 0 | 0 | | 0 | 1,800 | 1,800 | 1,987 | |
| Carbon Tetrachloride | 0 | 0 | | 0 | 2,800 | 2,800 | 3,091 | |
| Chlorobenzene | 0 | 0 | | 0 | 1,200 | 1,200 | 1,325 | |
| Chlorodibromomethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chloroethyl Vinyl Ether | 0 | 0 | | 0 | 18,000 | 18,000 | 19,871 | |
| Chloroform | 0 | 0 | | 0 | 1,900 | 1,900 | 2,098 | |
| Dichlorobromomethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichloroethane | 0 | 0 | | 0 | 15,000 | 15,000 | 16,560 | |
| 1,1-Dichloroethylene | 0 | 0 | | 0 | 7,500 | 7,500 | 8,280 | |
| 1,2-Dichloropropane | 0 | 0 | | 0 | 11,000 | 11,000 | 12,144 | |
| 1,3-Dichloropropylene | 0 | 0 | | 0 | 310 | 310 | 342 | |
| Ethylbenzene | 0 | 0 | | 0 | 2,900 | 2,900 | 3,202 | |
| Methyl Bromide | 0 | 0 | | 0 | 550 | 550 | 607 | |
| Methyl Chloride | 0 | 0 | | 0 | 28,000 | 28,000 | 30,911 | |
| Methylene Chloride | 0 | 0 | | 0 | 12,000 | 12,000 | 13,248 | |
| 1,1,2,2-Tetrachloroethane | 0 | 0 | | 0 | 1,000 | 1,000 | 1,104 | |
| Tetrachloroethylene | 0 | 0 | | 0 | 700 | 700 | 773 | |
| Toluene | 0 | 0 | | 0 | 1,700 | 1,700 | 1,877 | |
| 1,2-trans-Dichloroethylene | 0 | 0 | | 0 | 6,800 | 6,800 | 7,507 | |
| 1,1,1-Trichloroethane | 0 | 0 | | 0 | 3,000 | 3,000 | 3,312 | |
| 1,1,2-Trichloroethane | 0 | 0 | | 0 | 3,400 | 3,400 | 3,754 | |
| Trichloroethylene | 0 | 0 | | 0 | 2,300 | 2,300 | 2,539 | |
| Vinyl Chloride | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chlorophenol | 0 | 0 | | 0 | 560 | 560 | 618 | |
| 2,4-Dichlorophenol | 0 | 0 | | 0 | 1,700 | 1,700 | 1,877 | |
| 2,4-Dimethylphenol | 0 | 0 | | 0 | 660 | 660 | 729 | |
| 4,6-Dinitro-o-Cresol | 0 | 0 | | 0 | 80 | 80.0 | 88.3 | |
| 2,4-Dinitrophenol | 0 | 0 | | 0 | 660 | 660 | 729 | |
| 2-Nitrophenol | 0 | 0 | | 0 | 8,000 | 8,000 | 8,832 | |
| 4-Nitrophenol | 0 | 0 | | 0 | 2,300 | 2,300 | 2,539 | |
| p-Chloro-m-Cresol | 0 | 0 | | 0 | 160 | 160 | 177 | |
| Pentachlorophenol | 0 | 0 | | 0 | 17.303 | 17.3 | 19.1 | |
| Phenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4,6-Trichlorophenol | 0 | 0 | | 0 | 460 | 460 | 508 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Acenaphthene | 0 | 0 | | 0 | 83 | 83.0 | 91.6 | |
| Anthracene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzidine | 0 | 0 | | 0 | 300 | 300 | 331 | |
| Benzo(a)Anthracene | 0 | 0 | | 0 | 0.5 | 0.5 | 0.55 | |
| 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 | 33,119 | |
| Bis(2-Chloroisopropyl)Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Ethylhexyl)Phthalate | 0 | 0 | | 0 | 4,500 | 4,500 | 4,968 | |
| 4-Bromophenyl Phenyl Ether | 0 | 0 | | 0 | 270 | 270 | 298 | |
| Butyl Benzyl Phthalate | 0 | 0 | | 0 | 140 | 140 | 155 | |
| 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 | 905 | |
| 1,3-Dichlorobenzene | 0 | 0 | | 0 | 350 | 350 | 386 | |
| 1,4-Dichlorobenzene | 0 | 0 | | 0 | 730 | 730 | 806 | |
| 3,3-Dichlorobenzidine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Diethyl Phthalate | 0 | 0 | | 0 | 4,000 | 4,000 | 4,416 | |
| Dimethyl Phthalate | 0 | 0 | | 0 | 2,500 | 2,500 | 2,760 | |
| Di-n-Butyl Phthalate | 0 | 0 | | 0 | 110 | 110 | 121 | |
| 2,4-Dinitrotoluene | 0 | 0 | | 0 | 1,600 | 1,600 | 1,766 | |
| 2,6-Dinitrotoluene | 0 | 0 | | 0 | 990 | 990 | 1,093 | |
| 1,2-Diphenylhydrazine | 0 | 0 | | 0 | 15 | 15.0 | 16.6 | |
| Fluoranthene | 0 | 0 | | 0 | 200 | 200 | 221 | |
| 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 | 11.0 | |
| Hexachlorocyclopentadiene | 0 | 0 | | 0 | 5 | 5.0 | 5.52 | |
| Hexachloroethane | 0 | 0 | | 0 | 60 | 60.0 | 66.2 | |
| Indeno(1,2,3-cd)Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Isophorone | 0 | 0 | | 0 | 10,000 | 10,000 | 11,040 | |
| Naphthalene | 0 | 0 | | 0 | 140 | 140 | 155 | |
| Nitrobenzene | 0 | 0 | | 0 | 4,000 | 4,000 | 4,416 | |
| n-Nitrosodimethylamine | 0 | 0 | | 0 | 17,000 | 17,000 | 18,768 | |
| n-Nitrosodi-n-Propylamine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| n-Nitrosodiphenylamine | 0 | 0 | | 0 | 300 | 300 | 331 | |
| Phenanthrene | 0 | 0 | | 0 | 5 | 5.0 | 5.52 | |
| Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2,4-Trichlorobenzene | 0 | 0 | | 0 | 130 | 130 | 144 | |
| Aldrin | 0 | 0 | | 0 | 3 | 3.0 | 3.31 | |
| 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 | 1.05 | |
| Chlordane | 0 | 0 | | 0 | 2.4 | 2.4 | 2.65 | |
| 4,4-DDT | 0 | 0 | | 0 | 1.1 | 1.1 | 1.21 | |
| 4,4-DDE | 0 | 0 | | 0 | 1.1 | 1.1 | 1.21 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 4,4-DDD | 0 | 0 | | 0 | 1.1 | 1.1 | 1.21 | |
| Dieldrin | 0 | 0 | | 0 | 0.24 | 0.24 | 0.26 | |
| alpha-Endosulfan | 0 | 0 | | 0 | 0.22 | 0.22 | 0.24 | |
| beta-Endosulfan | 0 | 0 | | 0 | 0.22 | 0.22 | 0.24 | |
| Endosulfan Sulfate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Endrin | 0 | 0 | | 0 | 0.086 | 0.086 | 0.095 | |
| Endrin Aldehyde | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Heptachlor | 0 | 0 | | 0 | 0.52 | 0.52 | 0.57 | |
| Heptachlor Epoxide | 0 | 0 | | 0 | 0.5 | 0.5 | 0.55 | |
| Toxaphene | 0 | 0 | | 0 | 0.73 | 0.73 | 0.81 | |

☑ ***CFC*** CCT (min): 0.021 PMF: 1 Analysis Hardness (mg/l): 147.1 Analysis pH: 7.68

| Pollutants | Stream Conc (µg/L) | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Aluminum | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Antimony | 0 | 0 | | 0 | 220 | 220 | 243 | |
| Total Arsenic | 0 | 0 | | 0 | 150 | 150 | 166 | Chem Translator of 1 applied |
| Total Barium | 0 | 0 | | 0 | 4,100 | 4,100 | 4,526 | |
| Total Boron | 0 | 0 | | 0 | 1,600 | 1,600 | 1,766 | |
| Total Cadmium | 0 | 0 | | 0 | 0.322 | 0.36 | 0.4 | Chem Translator of 0.893 applied |
| Total Chromium (III) | 0 | 0 | | 0 | 101.668 | 118 | 131 | Chem Translator of 0.86 applied |
| Hexavalent Chromium | 0 | 0 | | 0 | 10 | 10.4 | 11.5 | Chem Translator of 0.962 applied |
| Total Cobalt | 0 | 0 | | 0 | 19 | 19.0 | 21.0 | |
| Total Copper | 0 | 0 | | 0 | 12.455 | 13.0 | 14.3 | Chem Translator of 0.96 applied |
| Free Cyanide | 0 | 0 | | 0 | 5.2 | 5.2 | 5.74 | |
| Dissolved Iron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Iron | 0 | 0 | | 0 | 1,500 | 1,500 | 1,656 | WQC = 30 day average; PMF = 1 |
| Total Lead | 0 | 0 | | 0 | 3.821 | 5.2 | 5.74 | Chem Translator of 0.735 applied |
| Total Manganese | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Mercury | 0 | 0 | | 0 | 0.770 | 0.91 | 1.0 | Chem Translator of 0.85 applied |
| Total Nickel | 0 | 0 | | 0 | 72.088 | 72.3 | 79.8 | 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 | 5.51 | 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 | 14.4 | |
| Total Zinc | 0 | 0 | | 0 | 163.839 | 166 | 183 | Chem Translator of 0.986 applied |
| Acrolein | 0 | 0 | | 0 | 3 | 3.0 | 3.31 | |
| Acrylonitrile | 0 | 0 | | 0 | 130 | 130 | 144 | |
| Benzene | 0 | 0 | | 0 | 130 | 130 | 144 | |
| Bromoform | 0 | 0 | | 0 | 370 | 370 | 408 | |
| Carbon Tetrachloride | 0 | 0 | | 0 | 560 | 560 | 618 | |
| Chlorobenzene | 0 | 0 | | 0 | 240 | 240 | 265 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Chlorodibromomethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chloroethyl Vinyl Ether | 0 | 0 | | 0 | 3,500 | 3,500 | 3,864 | |
| Chloroform | 0 | 0 | | 0 | 390 | 390 | 431 | |
| Dichlorobromomethane | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichloroethane | 0 | 0 | | 0 | 3,100 | 3,100 | 3,422 | |
| 1,1-Dichloroethylene | 0 | 0 | | 0 | 1,500 | 1,500 | 1,656 | |
| 1,2-Dichloropropane | 0 | 0 | | 0 | 2,200 | 2,200 | 2,429 | |
| 1,3-Dichloropropylene | 0 | 0 | | 0 | 61 | 61.0 | 67.3 | |
| Ethylbenzene | 0 | 0 | | 0 | 580 | 580 | 640 | |
| Methyl Bromide | 0 | 0 | | 0 | 110 | 110 | 121 | |
| Methyl Chloride | 0 | 0 | | 0 | 5,500 | 5,500 | 6,072 | |
| Methylene Chloride | 0 | 0 | | 0 | 2,400 | 2,400 | 2,650 | |
| 1,1,2,2-Tetrachloroethane | 0 | 0 | | 0 | 210 | 210 | 232 | |
| Tetrachloroethylene | 0 | 0 | | 0 | 140 | 140 | 155 | |
| Toluene | 0 | 0 | | 0 | 330 | 330 | 364 | |
| 1,2-trans-Dichloroethylene | 0 | 0 | | 0 | 1,400 | 1,400 | 1,546 | |
| 1,1,1-Trichloroethane | 0 | 0 | | 0 | 610 | 610 | 673 | |
| 1,1,2-Trichloroethane | 0 | 0 | | 0 | 680 | 680 | 751 | |
| Trichloroethylene | 0 | 0 | | 0 | 450 | 450 | 497 | |
| Vinyl Chloride | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2-Chlorophenol | 0 | 0 | | 0 | 110 | 110 | 121 | |
| 2,4-Dichlorophenol | 0 | 0 | | 0 | 340 | 340 | 375 | |
| 2,4-Dimethylphenol | 0 | 0 | | 0 | 130 | 130 | 144 | |
| 4,6-Dinitro-o-Cresol | 0 | 0 | | 0 | 16 | 16.0 | 17.7 | |
| 2,4-Dinitrophenol | 0 | 0 | | 0 | 130 | 130 | 144 | |
| 2-Nitrophenol | 0 | 0 | | 0 | 1,600 | 1,600 | 1,766 | |
| 4-Nitrophenol | 0 | 0 | | 0 | 470 | 470 | 519 | |
| p-Chloro-m-Cresol | 0 | 0 | | 0 | 500 | 500 | 552 | |
| Pentachlorophenol | 0 | 0 | | 0 | 13.275 | 13.3 | 14.7 | |
| Phenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4,6-Trichlorophenol | 0 | 0 | | 0 | 91 | 91.0 | 100 | |
| Acenaphthene | 0 | 0 | | 0 | 17 | 17.0 | 18.8 | |
| Anthracene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Benzidine | 0 | 0 | | 0 | 59 | 59.0 | 65.1 | |
| Benzo(a)Anthracene | 0 | 0 | | 0 | 0.1 | 0.1 | 0.11 | |
| 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 | 6,624 | |
| Bis(2-Chloroisopropyl)Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Ethylhexyl)Phthalate | 0 | 0 | | 0 | 910 | 910 | 1,005 | |
| 4-Bromophenyl Phenyl Ether | 0 | 0 | | 0 | 54 | 54.0 | 59.6 | |
| Butyl Benzyl Phthalate | 0 | 0 | | 0 | 35 | 35.0 | 38.6 | |
| 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 | 177 | |
| 1,3-Dichlorobenzene | 0 | 0 | | 0 | 69 | 69.0 | 76.2 | |
| 1,4-Dichlorobenzene | 0 | 0 | | 0 | 150 | 150 | 166 | |
| 3,3-Dichlorobenzidine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Diethyl Phthalate | 0 | 0 | | 0 | 800 | 800 | 883 | |
| Dimethyl Phthalate | 0 | 0 | | 0 | 500 | 500 | 552 | |
| Di-n-Butyl Phthalate | 0 | 0 | | 0 | 21 | 21.0 | 23.2 | |
| 2,4-Dinitrotoluene | 0 | 0 | | 0 | 320 | 320 | 353 | |
| 2,6-Dinitrotoluene | 0 | 0 | | 0 | 200 | 200 | 221 | |
| 1,2-Diphenylhydrazine | 0 | 0 | | 0 | 3 | 3.0 | 3.31 | |
| Fluoranthene | 0 | 0 | | 0 | 40 | 40.0 | 44.2 | |
| 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 | 2.21 | |
| Hexachlorocyclopentadiene | 0 | 0 | | 0 | 1 | 1.0 | 1.1 | |
| Hexachloroethane | 0 | 0 | | 0 | 12 | 12.0 | 13.2 | |
| Indeno(1,2,3-cd)Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Isophorone | 0 | 0 | | 0 | 2,100 | 2,100 | 2,318 | |
| Naphthalene | 0 | 0 | | 0 | 43 | 43.0 | 47.5 | |
| Nitrobenzene | 0 | 0 | | 0 | 810 | 810 | 894 | |
| n-Nitrosodimethylamine | 0 | 0 | | 0 | 3,400 | 3,400 | 3,754 | |
| n-Nitrosodi-n-Propylamine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| n-Nitrosodiphenylamine | 0 | 0 | | 0 | 59 | 59.0 | 65.1 | |
| Phenanthrene | 0 | 0 | | 0 | 1 | 1.0 | 1.1 | |
| Pyrene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2,4-Trichlorobenzene | 0 | 0 | | 0 | 26 | 26.0 | 28.7 | |
| Aldrin | 0 | 0 | | 0 | 0.1 | 0.1 | 0.11 | |
| 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 | 0.005 | |
| 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 | 0.062 | |
| alpha-Endosulfan | 0 | 0 | | 0 | 0.056 | 0.056 | 0.062 | |
| beta-Endosulfan | 0 | 0 | | 0 | 0.056 | 0.056 | 0.062 | |
| Endosulfan Sulfate | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Endrin | 0 | 0 | | 0 | 0.036 | 0.036 | 0.04 | |
| 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 | |

☑ ***THH*** CCT (min): 0.021 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

| Pollutants | Stream Conc (µg/L) | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | 500,000 | 500,000 | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | 250,000 | 250,000 | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | 250,000 | 250,000 | N/A | |
| Total Aluminum | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Antimony | 0 | 0 | | 0 | 5.6 | 5.6 | 6.18 | |
| Total Arsenic | 0 | 0 | | 0 | 10 | 10.0 | 11.0 | |
| Total Barium | 0 | 0 | | 0 | 2,400 | 2,400 | 2,650 | |
| Total Boron | 0 | 0 | | 0 | 3,100 | 3,100 | 3,422 | |
| Total Cadmium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Chromium (III) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexavalent Chromium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Cobalt | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Copper | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Free Cyanide | 0 | 0 | | 0 | 4 | 4.0 | 4.42 | |
| Dissolved Iron | 0 | 0 | | 0 | 300 | 300 | 331 | |
| 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 | 1,104 | |
| Total Mercury | 0 | 0 | | 0 | 0.050 | 0.05 | 0.055 | |
| Total Nickel | 0 | 0 | | 0 | 610 | 610 | 673 | |
| 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 | 0.26 | |
| Total Zinc | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Acrolein | 0 | 0 | | 0 | 3 | 3.0 | 3.31 | |
| 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 | 110 | |
| 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 | 5.7 | 5.7 | 6.29 | |
| 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 | 36.4 | |
| 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 | 75.1 | |
| Methyl Bromide | 0 | 0 | | 0 | 100 | 100.0 | 110 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 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 | 62.9 | |
| 1,2-trans-Dichloroethylene | 0 | 0 | | 0 | 100 | 100.0 | 110 | |
| 1,1,1-Trichloroethane | 0 | 0 | | 0 | 10,000 | 10,000 | 11,040 | |
| 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 | 33.1 | |
| 2,4-Dichlorophenol | 0 | 0 | | 0 | 10 | 10.0 | 11.0 | |
| 2,4-Dimethylphenol | 0 | 0 | | 0 | 100 | 100.0 | 110 | |
| 4,6-Dinitro-o-Cresol | 0 | 0 | | 0 | 2 | 2.0 | 2.21 | |
| 2,4-Dinitrophenol | 0 | 0 | | 0 | 10 | 10.0 | 11.0 | |
| 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 | 4,416 | |
| 2,4,6-Trichlorophenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Acenaphthene | 0 | 0 | | 0 | 70 | 70.0 | 77.3 | |
| Anthracene | 0 | 0 | | 0 | 300 | 300 | 331 | |
| Benzidine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 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 | 221 | |
| 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 | 0.11 | |
| 2-Chloronaphthalene | 0 | 0 | | 0 | 800 | 800 | 883 | |
| 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 | 1,104 | |
| 1,3-Dichlorobenzene | 0 | 0 | | 0 | 7 | 7.0 | 7.73 | |
| 1,4-Dichlorobenzene | 0 | 0 | | 0 | 300 | 300 | 331 | |
| 3,3-Dichlorobenzidine | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Diethyl Phthalate | 0 | 0 | | 0 | 600 | 600 | 662 | |
| Dimethyl Phthalate | 0 | 0 | | 0 | 2,000 | 2,000 | 2,208 | |
| Di-n-Butyl Phthalate | 0 | 0 | | 0 | 20 | 20.0 | 22.1 | |
| 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 | 22.1 | |
| Fluorene | 0 | 0 | | 0 | 50 | 50.0 | 55.2 | |
| 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 | 4.42 | |
| 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 | 37.5 | |
| Naphthalene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Nitrobenzene | 0 | 0 | | 0 | 10 | 10.0 | 11.0 | |
| 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 | 22.1 | |
| 1,2,4-Trichlorobenzene | 0 | 0 | | 0 | 0.07 | 0.07 | 0.077 | |
| 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 | 4.64 | |
| 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 | 22.1 | |
| beta-Endosulfan | 0 | 0 | | 0 | 20 | 20.0 | 22.1 | |
| Endosulfan Sulfate | 0 | 0 | | 0 | 20 | 20.0 | 22.1 | |
| Endrin | 0 | 0 | | 0 | 0.03 | 0.03 | 0.033 | |
| Endrin Aldehyde | 0 | 0 | | 0 | 1 | 1.0 | 1.1 | |
| 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 | |

☑ ***CRL*** CCT (min): 0.343 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total Barium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Boron | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Cadmium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Chromium (III) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexavalent Chromium | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Cobalt | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Copper | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Free Cyanide | 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 | 0.11 | |
| Benzene | 0 | 0 | | 0 | 0.58 | 0.58 | 1.04 | |
| Bromoform | 0 | 0 | | 0 | 7 | 7.0 | 12.6 | |
| Carbon Tetrachloride | 0 | 0 | | 0 | 0.4 | 0.4 | 0.72 | |
| Chlorobenzene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chlorodibromomethane | 0 | 0 | | 0 | 0.8 | 0.8 | 1.44 | |
| 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 | 0.95 | 0.95 | 1.71 | |
| 1,2-Dichloroethane | 0 | 0 | | 0 | 9.9 | 9.9 | 17.8 | |
| 1,1-Dichloroethylene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 1,2-Dichloropropane | 0 | 0 | | 0 | 0.9 | 0.9 | 1.62 | |
| 1,3-Dichloropropylene | 0 | 0 | | 0 | 0.27 | 0.27 | 0.48 | |
| 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 | 35.9 | |
| 1,1,2,2-Tetrachloroethane | 0 | 0 | | 0 | 0.2 | 0.2 | 0.36 | |
| Tetrachloroethylene | 0 | 0 | | 0 | 10 | 10.0 | 18.0 | |
| 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 | 0.99 | |
| Trichloroethylene | 0 | 0 | | 0 | 0.6 | 0.6 | 1.08 | |
| Vinyl Chloride | 0 | 0 | | 0 | 0.02 | 0.02 | 0.036 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 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 | 0.054 | |
| Phenol | 0 | 0 | | 0 | N/A | N/A | N/A | |
| 2,4,6-Trichlorophenol | 0 | 0 | | 0 | 1.5 | 1.5 | 2.69 | |
| 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 | 0.0002 | |
| Benzo(a)Anthracene | 0 | 0 | | 0 | 0.001 | 0.001 | 0.002 | |
| Benzo(a)Pyrene | 0 | 0 | | 0 | 0.0001 | 0.0001 | 0.0002 | |
| 3,4-Benzofluoranthene | 0 | 0 | | 0 | 0.001 | 0.001 | 0.002 | |
| Benzo(k)Fluoranthene | 0 | 0 | | 0 | 0.01 | 0.01 | 0.018 | |
| Bis(2-Chloroethyl)Ether | 0 | 0 | | 0 | 0.03 | 0.03 | 0.054 | |
| Bis(2-Chloroisopropyl)Ether | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Bis(2-Ethylhexyl)Phthalate | 0 | 0 | | 0 | 0.32 | 0.32 | 0.57 | |
| 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 | 0.22 | |
| Dibenzo(a,h)Anthrancene | 0 | 0 | | 0 | 0.0001 | 0.0001 | 0.0002 | |
| 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 | 0.09 | |
| 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 | 0.09 | |
| 2,6-Dinitrotoluene | 0 | 0 | | 0 | 0.05 | 0.05 | 0.09 | |
| 1,2-Diphenylhydrazine | 0 | 0 | | 0 | 0.03 | 0.03 | 0.054 | |
| 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 | 0.018 | |
| Hexachlorocyclopentadiene | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Hexachloroethane | 0 | 0 | | 0 | 0.1 | 0.1 | 0.18 | |
| Indeno(1,2,3-cd)Pyrene | 0 | 0 | | 0 | 0.001 | 0.001 | 0.002 | |
| 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 | 0.001 | |
| n-Nitrosodi-n-Propylamine | 0 | 0 | | 0 | 0.005 | 0.005 | 0.009 | |
| n-Nitrosodiphenylamine | 0 | 0 | | 0 | 3.3 | 3.3 | 5.93 | |
| 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 | 0.0007 | |
| beta-BHC | 0 | 0 | | 0 | 0.008 | 0.008 | 0.014 | |
| gamma-BHC | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chlordane | 0 | 0 | | 0 | 0.0003 | 0.0003 | 0.0005 | |
| 4,4-DDT | 0 | 0 | | 0 | 0.00003 | 0.00003 | 0.00005 | |
| 4,4-DDE | 0 | 0 | | 0 | 0.00002 | 0.00002 | 0.00004 | |
| 4,4-DDD | 0 | 0 | | 0 | 0.0001 | 0.0001 | 0.0002 | |
| Dieldrin | 0 | 0 | | 0 | 0.000001 | 0.000001 | 0.000002 | |
| 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 | 0.00001 | |
| Heptachlor Epoxide | 0 | 0 | | 0 | 0.00003 | 0.00003 | 0.00005 | |
| Toxaphene | 0 | 0 | | 0 | 0.0007 | 0.0007 | 0.001 | |

☑ ***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 Copper | 0.59 | 0.91 | 0.014 | 0.022 | 0.022 | mg/L | 0.014 | CFC | Discharge Conc ≥ 50% WQBEL (RP) |
| Free Cyanide | 0.18 | 0.28 | 4.42 | 6.89 | 11.0 | µg/L | 4.42 | THH | Discharge Conc ≥ 50% WQBEL (RP) |
| Dissolved Iron | Report | Report | Report | Report | Report | µg/L | 331 | THH | Discharge Conc > 10% WQBEL (no RP) |
| Total Iron | Report | Report | Report | Report | Report | mg/L | 1.66 | CFC | Discharge Conc > 10% WQBEL (no RP) |
| Total Manganese | Report | Report | Report | Report | Report | mg/L | 1.1 | THH | Discharge Conc > 10% WQBEL (no RP) |
| Total Zinc | 6.79 | 7.5 | 0.17 | 0.18 | 0.18 | mg/L | 0.17 | AFC | Discharge Conc ≥ 50% WQBEL (RP) |
| Chloroform | 0.26 | 0.4 | 6.29 | 9.82 | 15.7 | µg/L | 6.29 | THH | Discharge Conc ≥ 50% WQBEL (RP) |
| Dichlorobromomethane | 0.07 | 0.11 | 1.71 | 2.66 | 4.27 | µg/L | 1.71 | CRL | Discharge Conc ≥ 50% WQBEL (RP) |
| Bis(2-Ethylhexyl)Phthalate | 0.023 | 0.037 | 0.57 | 0.9 | 1.44 | µg/L | 0.57 | CRL | 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 |
| Chloride (PWS) | N/A | N/A | PWS Not Applicable |
| Bromide | N/A | N/A | No WQS |
| Sulfate (PWS) | N/A | N/A | PWS Not Applicable |
| Total Aluminum | 0.75 | mg/L | Discharge Conc ≤ 10% WQBEL |
| Total Antimony | N/A | N/A | Discharge Conc < TQL |
| Total Arsenic | 11.0 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Barium | 2,650 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Beryllium | N/A | N/A | No WQS |
| Total Boron | 1,766 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Cadmium | 0.4 | µg/L | Discharge Conc < TQL |
| Total Chromium (III) | 131 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Hexavalent Chromium | 11.5 | µg/L | Discharge Conc < TQL |
| Total Cobalt | 21.0 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Cyanide | N/A | N/A | No WQS |
| Total Lead | 5.74 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Mercury | 0.055 | µg/L | Discharge Conc < TQL |
| Total Nickel | 79.8 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Phenols (Phenolics) (PWS) | | µg/L | PWS Not Applicable |
| Total Selenium | 5.51 | µg/L | Discharge Conc < TQL |
| Total Silver | 7.35 | µg/L | Discharge Conc < TQL |
| Total Thallium | 0.26 | µg/L | Discharge Conc < TQL |
| Total Molybdenum | N/A | N/A | No WQS |
| Acrolein | 3.0 | µg/L | Discharge Conc < TQL |
| Acrylonitrile | 0.11 | µg/L | Discharge Conc < TQL |
| Benzene | 1.04 | µg/L | Discharge Conc < TQL |
| Bromoform | 12.6 | µg/L | Discharge Conc < TQL |
| Carbon Tetrachloride | 0.72 | µg/L | Discharge Conc < TQL |
| Chlorobenzene | 110 | µg/L | Discharge Conc < TQL |
| Chlorodibromomethane | 1.44 | µg/L | Discharge Conc < TQL |
| Chloroethane | N/A | N/A | No WQS |
| 2-Chloroethyl Vinyl Ether | 3,864 | µg/L | Discharge Conc < TQL |
| 1,1-Dichloroethane | N/A | N/A | No WQS |
| 1,2-Dichloroethane | 17.8 | µg/L | Discharge Conc < TQL |
| 1,1-Dichloroethylene | 36.4 | µg/L | Discharge Conc < TQL |
| 1,2-Dichloropropane | 1.62 | µg/L | Discharge Conc < TQL |
| 1,3-Dichloropropylene | 0.48 | µg/L | Discharge Conc < TQL |
| 1,4-Dioxane | N/A | N/A | No WQS |
| Ethylbenzene | 75.1 | µg/L | Discharge Conc < TQL |

| | | | |
|---|---|---|---|
| Methyl Bromide | 110 | µg/L | Discharge Conc ≤ 25% WQBEL |
| Methyl Chloride | 6,072 | µg/L | Discharge Conc < TQL |
| Methylene Chloride | 35.9 | µg/L | Discharge Conc < TQL |
| 1,1,2,2-Tetrachloroethane | 0.36 | µg/L | Discharge Conc < TQL |
| Tetrachloroethylene | 18.0 | µg/L | Discharge Conc < TQL |
| Toluene | 62.9 | µg/L | Discharge Conc < TQL |
| 1,2-trans-Dichloroethylene | 110 | µg/L | Discharge Conc < TQL |
| 1,1,1-Trichloroethane | 673 | µg/L | Discharge Conc < TQL |
| 1,1,2-Trichloroethane | 0.99 | µg/L | Discharge Conc < TQL |
| Trichloroethylene | 1.08 | µg/L | Discharge Conc < TQL |
| Vinyl Chloride | 0.036 | µg/L | Discharge Conc < TQL |
| 2-Chlorophenol | 33.1 | µg/L | Discharge Conc < TQL |
| 2,4-Dichlorophenol | 11.0 | µg/L | Discharge Conc < TQL |
| 2,4-Dimethylphenol | 110 | µg/L | Discharge Conc < TQL |
| 4,6-Dinitro-o-Cresol | 2.21 | µg/L | Discharge Conc < TQL |
| 2,4-Dinitrophenol | 11.0 | µg/L | Discharge Conc < TQL |
| 2-Nitrophenol | 1,766 | µg/L | Discharge Conc < TQL |
| 4-Nitrophenol | 519 | µg/L | Discharge Conc < TQL |
| p-Chloro-m-Cresol | 160 | µg/L | Discharge Conc ≤ 25% WQBEL |
| Pentachlorophenol | 0.054 | µg/L | Discharge Conc < TQL |
| Phenol | 4,416 | µg/L | Discharge Conc < TQL |
| 2,4,6-Trichlorophenol | 2.69 | µg/L | Discharge Conc < TQL |
| Acenaphthene | 18.8 | µg/L | Discharge Conc < TQL |
| Acenaphthylene | N/A | N/A | No WQS |
| Anthracene | 331 | µg/L | Discharge Conc < TQL |
| Benzidine | 0.0002 | µg/L | Discharge Conc < TQL |
| Benzo(a)Anthracene | 0.002 | µg/L | Discharge Conc < TQL |
| Benzo(a)Pyrene | 0.0002 | µg/L | Discharge Conc < TQL |
| 3,4-Benzofluoranthene | 0.002 | µg/L | Discharge Conc < TQL |
| Benzo(ghi)Perylene | N/A | N/A | No WQS |
| Benzo(k)Fluoranthene | 0.018 | µg/L | Discharge Conc < TQL |
| Bis(2-Chloroethoxy)Methane | N/A | N/A | No WQS |
| Bis(2-Chloroethyl)Ether | 0.054 | µg/L | Discharge Conc < TQL |
| Bis(2-Chloroisopropyl)Ether | 221 | µg/L | Discharge Conc < TQL |
| 4-Bromophenyl Phenyl Ether | 59.6 | µg/L | Discharge Conc < TQL |
| Butyl Benzyl Phthalate | 0.11 | µg/L | Discharge Conc < TQL |
| 2-Chloronaphthalene | 883 | µg/L | Discharge Conc < TQL |
| 4-Chlorophenyl Phenyl Ether | N/A | N/A | No WQS |
| Chrysene | 0.22 | µg/L | Discharge Conc < TQL |
| Dibenzo(a,h)Anthrancene | 0.0002 | µg/L | Discharge Conc < TQL |
| 1,2-Dichlorobenzene | 177 | µg/L | Discharge Conc < TQL |
| 1,3-Dichlorobenzene | 7.73 | µg/L | Discharge Conc < TQL |
| 1,4-Dichlorobenzene | 166 | µg/L | Discharge Conc < TQL |
| 3,3-Dichlorobenzidine | 0.09 | µg/L | Discharge Conc < TQL |
| Diethyl Phthalate | 662 | µg/L | Discharge Conc < TQL |

| | | | |
|---|---|---|---|
| Dimethyl Phthalate | 552 | µg/L | Discharge Conc < TQL |
| Di-n-Butyl Phthalate | 22.1 | µg/L | Discharge Conc < TQL |
| 2,4-Dinitrotoluene | 0.09 | µg/L | Discharge Conc < TQL |
| 2,6-Dinitrotoluene | 0.09 | µg/L | Discharge Conc < TQL |
| Di-n-Octyl Phthalate | N/A | N/A | No WQS |
| 1,2-Diphenylhydrazine | 0.054 | µg/L | Discharge Conc < TQL |
| Fluoranthene | 22.1 | µg/L | Discharge Conc < TQL |
| Fluorene | 55.2 | µg/L | Discharge Conc < TQL |
| Hexachlorobenzene | 0.0001 | µg/L | Discharge Conc < TQL |
| Hexachlorobutadiene | 0.018 | µg/L | Discharge Conc < TQL |
| Hexachlorocyclopentadiene | 1.1 | µg/L | Discharge Conc < TQL |
| Hexachloroethane | 0.18 | µg/L | Discharge Conc < TQL |
| Indeno(1,2,3-cd)Pyrene | 0.002 | µg/L | Discharge Conc < TQL |
| Isophorone | 37.5 | µg/L | Discharge Conc < TQL |
| Naphthalene | 47.5 | µg/L | Discharge Conc < TQL |
| Nitrobenzene | 11.0 | µg/L | Discharge Conc < TQL |
| n-Nitrosodimethylamine | 0.001 | µg/L | Discharge Conc < TQL |
| n-Nitrosodi-n-Propylamine | 0.009 | µg/L | Discharge Conc < TQL |
| n-Nitrosodiphenylamine | 5.93 | µg/L | Discharge Conc < TQL |
| Phenanthrene | 1.1 | µg/L | Discharge Conc < TQL |
| Pyrene | 22.1 | µg/L | Discharge Conc < TQL |
| 1,2,4-Trichlorobenzene | 0.077 | µg/L | Discharge Conc < TQL |
| Aldrin | 0.000001 | µg/L | Discharge Conc < TQL |
| alpha-BHC | 0.0007 | µg/L | Discharge Conc < TQL |
| beta-BHC | 0.014 | µg/L | Discharge Conc < TQL |
| gamma-BHC | 0.95 | µg/L | Discharge Conc < TQL |
| delta BHC | N/A | N/A | No WQS |
| Chlordane | 0.0005 | µg/L | Discharge Conc < TQL |
| 4,4-DDT | 0.00005 | µg/L | Discharge Conc < TQL |
| 4,4-DDE | 0.00004 | µg/L | Discharge Conc < TQL |
| 4,4-DDD | 0.0002 | µg/L | Discharge Conc < TQL |
| Dieldrin | 0.000002 | µg/L | Discharge Conc < TQL |
| alpha-Endosulfan | 0.062 | µg/L | Discharge Conc < TQL |
| beta-Endosulfan | 0.062 | µg/L | Discharge Conc < TQL |
| Endosulfan Sulfate | 22.1 | µg/L | Discharge Conc < TQL |
| Endrin | 0.033 | µg/L | Discharge Conc < TQL |
| Endrin Aldehyde | 1.1 | µg/L | Discharge Conc < TQL |
| Heptachlor | 0.00001 | µg/L | Discharge Conc < TQL |
| Heptachlor Epoxide | 0.00005 | µg/L | Discharge Conc < TQL |
| Toxaphene | 0.0002 | µg/L | Discharge Conc < TQL |

# ATTACHMENT F

# Turtle Creek Cause and Effect Survey

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

**MEMO**

**TO** James Vanek
Environmental Engineer
Clean Water Program

**FROM** Jamie Detweiler
Aquatic Biologist 2
Clean Water Program

**DATE** February 9, 2022

**RE** Cause and Effect Survey
Turtle Creek
State Water Plan: 19A
Hydrologic Unit Code: 05020005
Stream Code: 37204
Aquatic Life Use Designation: TSF
Franklin Township Municipal Sanitary Authority,
Meadowbrook Road Sewage Treatment Plant
Municipality of Murrysville, Westmoreland County and Municipality of Monroeville, Allegheny County

## INTRODUCTION

On May 20, 2021, at the request of James Vanek of the Clean Water Program, a cause and effect survey was conducted on Turtle Creek, in the vicinity of the Franklin Township Municipal Sanitary Authority, Meadowbrook Road Sewage Treatment Plant (Meadowbrook Road STP), located in Municipality of Murrysville, Westmoreland County (Figure 1). The previous data collection and assessment efforts indicate that this reach of Turtle Creek is currently not attaining the protected aquatic use as described in the latest 2022 Pennsylvania Integrated Water Quality Monitoring and Assessment Report.

The Meadowbrook Road STP outfall is located at approximately Latitude: 40.41149, Longitude: -79.72491. The water discharges to Turtle Creek along its left descending bank (Figure 2). According to Franklin Township Sanitary Authority's website, "The Treatment plant is an aerobic biological treatment facility with grit removal, primary clarification, trickling filters, secondary clarification, nitrification towers, shallow bed sand filtration units, ultraviolet disinfection, sludge thickening, anaerobic biological sludge stabilization, sludge dewatering, and methane gas utilization facilities. The current permitted hydraulic capacity of the facility is 4,900,000 gallons per day and is an advanced wastewater treatment facility."

According to USGS Stream Stats, at the location where the outfall is located, the drainage area is approximately 41.7 square miles (Figure 3). Land use throughout the basin is approximately 59% forested and approximately 21% urban, and approximately 13% impervious. According to the aerial, the rest of the watershed appears to be agriculture (approximately 15%), and golf course (approximately 5%). Turtle Creek is in the Ohio River, Monongahela River, Turtle Creek State Water Plan (SWP 19A) and the Lower Monongahela Hydrologic Unit

(Hydrologic Unit Code 05020005). Currently, Turtle Creek (Stream Code 37204) is listed as not attaining its designated Aquatic Life Use for Trout Stocked Fishery (TSF).

**SAMPLING PROTOCOL**

Cause and effect surveys are designed to investigate possible relationships between point or nonpoint sources of conventional pollutants and known or suspected instream water quality problems.

On May 5, 2021, basic water quality (Table 1) and macroinvertebrates (Table 2) were examined at two locations within Turtle Creek (Figure 2). The upstream station was located approximately 240 meters upstream of where the Meadowbrook Road STP's discharge enters Turtle Creek (Figures 4 & 5). The downstream location was approximately 160 meters downstream of the outfall location (Figures 6 & 7).

Basic water quality parameters were examined using a field meter and additional water chemistry and macroinvertebrates were collected and subsampled according to the Department's Water Quality Monitoring Protocols for Streams and Rivers 2021 (Monitoring Book), which can be found by following this link:
http://files.dep.state.pa.us/Water/Drinking%20Water%20and%20Facility%20Regulation/WaterQualityPortalFiles/Technical%20Documentation/MONITORING_BOOK.pdf
The results were analyzed according to the Department's Assessment Methodology for Rivers and Streams 2021 (Assessment Book), which can be found by following this link:
https://files.dep.state.pa.us/Water/Drinking%20Water%20and%20Facility%20Regulation/WaterQualityPortalFiles/Methodology/2021%20Methodology/ASSESSMENT_BOOK_2021.pdf

**RESULTS**

Upstream station

The upstream station was located approximately 240 meters upstream of where the STP's discharge enters Turtle Creek. At this location, the stream is forested on both sides, but with the PA Turnpike running parallel, approximately 30 -100 meters away from the right descending bank. A walking trail (which used to be a railroad bed) runs along the other side, approximately 30-100 meters from the left descending bank. The following water quality parameters were measured with a YSI: temperature was 16.8°C; pH was 8.31; dissolved oxygen was 11.75 mg/L; and specific conductance was 656 umhos/cm. The total habitat score was 151, which does not indicate impairment, and mostly consisted of optimal and sub optimal scores. The lowest scores were due to the impacts to the riparian zone and disruptive pressure. The combined scores of condition of banks and bank vegetation protection (26) are above attainment thresholds (24), but the combined scores of embeddedness and sediment deposition (22) indicate nonattainment caused by siltation.

A total of 8 taxa were identified, with the dominant taxa being Oligochaeta (55.4%). Two mayfly taxa and no stonefly or caddis fly taxa were found in the subsample. At this location, the Index of Biotic Integrity (IBI) was 16.4 (large stream), which indicates that the stream is impaired.

None of the water quality parameters exceeded the Chapter 93 Water Quality Criteria at the upstream station. Sample results for total phosphorus at this location was 0.066 mg/L; dissolved phosphorus was 0.063 mg/L, total nitrogen was 0.38 mg/L, and total suspended solids were below detectable levels. While none of the metals exceeded Chapter 93 Water Quality Criteria, total sulfate was high (125.46 mg/L), which could be indicative of mining impacts.

Downstream Station

The downstream station was located approximately 160 meters downstream of where the STP's discharge enters Turtle Creek. At this station, the stream is forested on both banks, but the stream is wide enough that the

canopy does not completely cover the stream. The PA Turnpike parallels the right descending bank, approximately 60 meters away. At this location, the temperature taken with the field meter was 17.7°; pH was 8.5; dissolved oxygen was 12.28 mg/L; and specific conductance was 692 umhos/cm. The habitat score was 169, which consisted of optimal and sub optimal scores and is above attainment thresholds. Couplet summations of embeddedness and the sediment deposition (25) and condition of banks and bank vegetation protection (26) are also above attainment thresholds. The lowest scores were due to sediment deposition and the lack of instream cover.

A total of 6 taxa were identified. The dominant taxa were Oligochaeta (65.1%). One mayfly taxa and no stonefly or caddis fly taxa were collected. The IBI score was 13.2 (large stream), which is below attainment thresholds.

None of the water quarter quality parameters exceeded the Chapter 93 Water Quality Criteria at the downstream station. Water chemistry data indicates total phosphorus was 0.664 mg/L; dissolved phosphorus was 0.646 mg/L; total nitrogen was 5.15 mg/L; and total suspended solids were 10mg/L. All four of these parameters are much higher at the downstream location, compared to the upstream station. Specific conductance is also high at this location, which may be related to the sulfate concentration.

**DISCUSSION AND CONCLUSIONS**

The objective of this survey was to determine if the discharge from the Meadowbrook Road STP is affecting the aquatic life, water quality, and/or physical characteristics of Turtle Creek.

Data collected on May 5, 2021 indicates that Turtle Creek is severely impaired upstream and downstream of the Meadowbrook Road STP. Freestone IBI scores for large streams at both the upstream (16.4) and downstream (13.2) stations are well below the attainment threshold (50). The difference in the IBI scores (3.2) is below method precision estimates, indicating a measurable change in water quality is not evident with the macroinvertebrate method. However, levels of total nitrogen, total phosphorus and total suspended solids are approximately 2-13 times higher downstream of the STP outfall, compared to upstream. Therefore, the extremely impaired conditions of Turtle Creek may be preventing the ability to isolate specific impacts from the Meadowbrook Road STP. A eutrophication study could determine if eutrophication is a cause of impairment and could determine if the Meadowbrook STP discharge is further contributing to this impairment.

cc: Stream File – Turtle Creek
Stacey Greenwald – SWRO, Environmental Group Manager
Mahbuba Iasmin – SWRO, Environmental Group Manager
Christopher Kriley – SWRO, Environmental Program Manager
Michael Lookenbill – CO, Environmental Group Manager

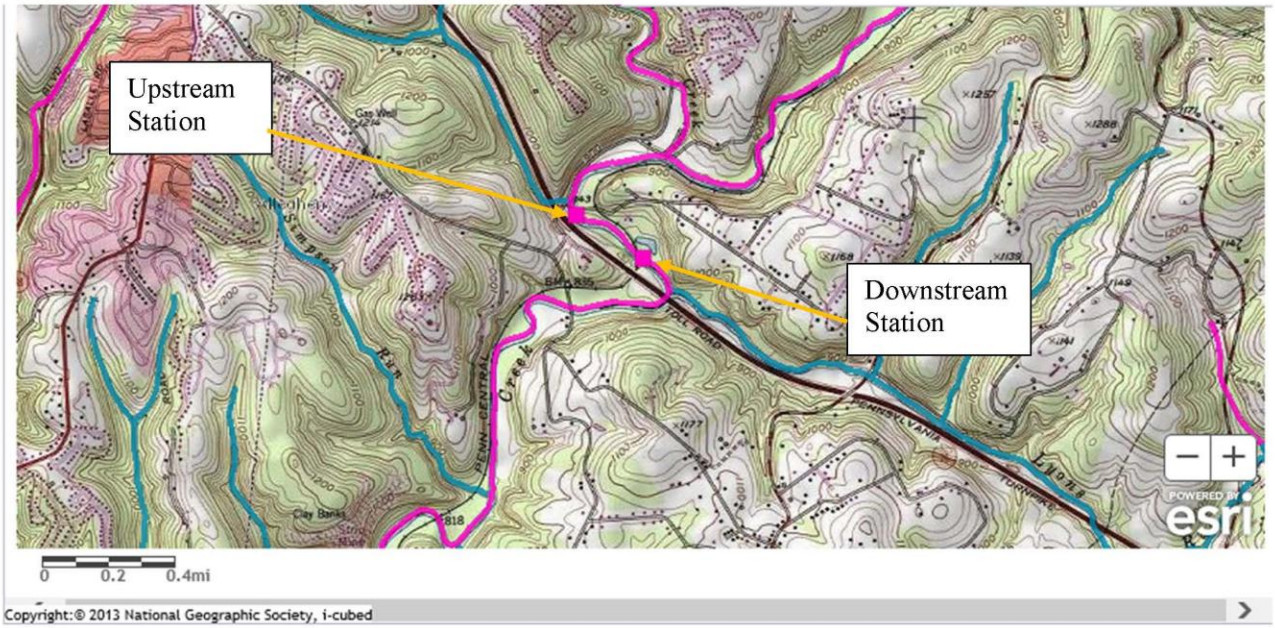


**Figure 1.** United States Geological Survey Topographic Map showing the location of the Meadowbrook Road STP outfall location and the sampling stations.

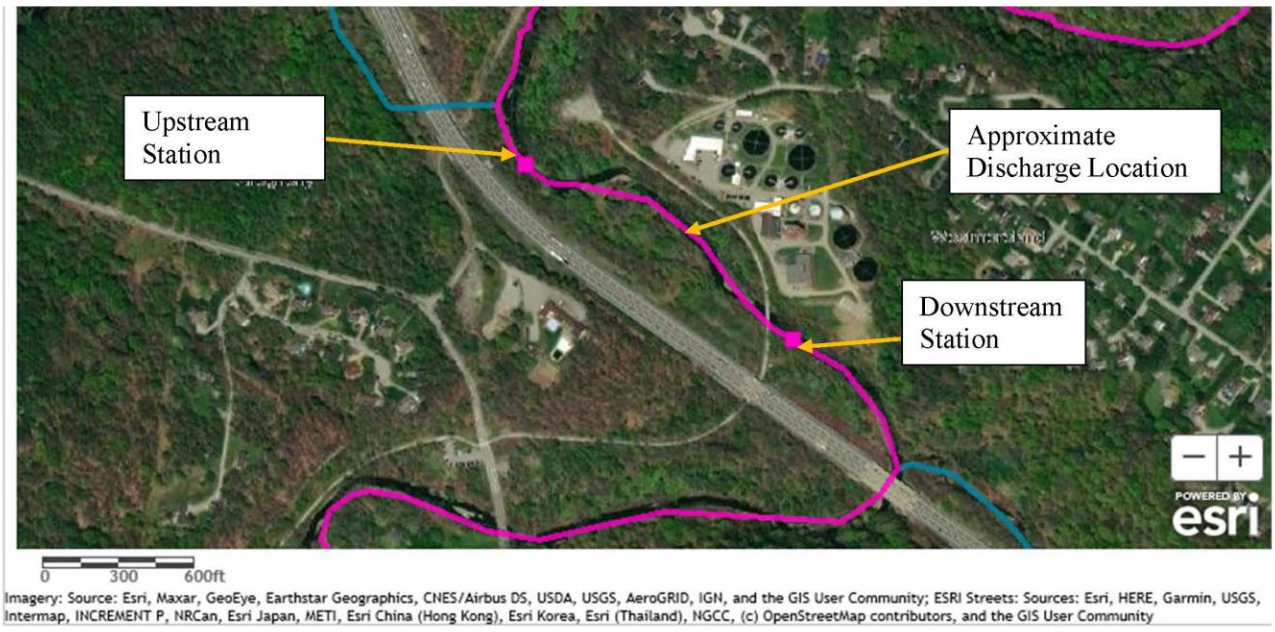


**Figure 2.** Map of Meadowbrook Road STP outfall location, sampling locations, and Turtle Creek.

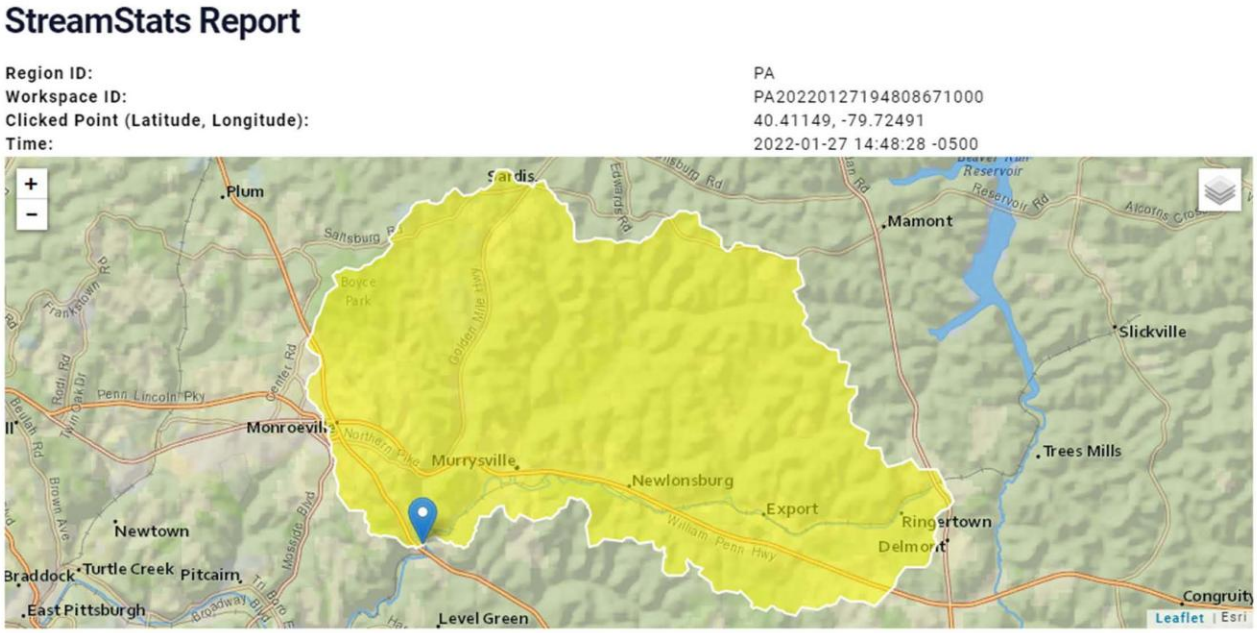


**Figure 3.** USGS Streamstats delineation of the drainage area to the point where Meadowbrook Road STP discharges to Turtle Creek.

**Table 1.** Water quality parameters from Turtle Creek at the sampling stations, upstream and downstream of the STP outfall.

| Test | Units | Upstream Result | Comment | Downstream result | Comment |
|---|---|---|---|---|---|
| Date | | 5/20/2021 | | 5/20/2021 | |
| Time | | 1100 | | 1200 | |
| Sequence Number | | 311 | | 310 | |
| DISSOLVED OXYGEN - FIELD BY MEMBRANE ELECTRODE**** | mg/L | 11.75 | | 12.28 | |
| PH - FIELD**** | pH units | 8.31 | | 8.5 | |
| Specific Conductance - Field | umhos/cm | 656 | | 692 | |
| TEMPERATURE - FIELD - THERMOMETRIC**** | C | 16.8 | | 17.7 | |
| Turbidity, Field**** | NTU | 0.3 | | 0.8 | |
| ALKALINITY AS CaCO3 @ pH 4.5 | mg/L | 63 | | 57.2 | |
| ALUMINUM, DISSOLVED (WATER & WASTE) BY ICPMS | ug/L | 50.5 | | 56 | |

| Test | Units | Upstream Result | Comment | Downstream result | Comment |
|---|---|---|---|---|---|
| ALUMINUM, TOTAL (WATER & WASTE) ICPMS | ug/L | 121 | | 114 | |
| AMMONIA DISSOLVED AS NITROGEN | mg/L | 0.027 | Answer Rechecked By Analyst | 0.118 | |
| AMMONIA TOTAL AS NITROGEN | mg/L | <0.02 | Answer Rechecked By Analyst | 0.11 | |
| BARIUM, TOTAL (WATER & WASTE) BY ICP | ug/L | 68 | | 62 | |
| BORON, TOTAL (WATER & WASTE) BY ICP | ug/L | <200 | | <200 | |
| CADMIUM, DISSOLVED (WATER & WASTE) BY ICPMS | ug/L | <0.2 | | <0.2 | |
| CALCIUM, TOTAL (WATER & WASTE) BY ICP | mg/L | 56.6 | | 54.7 | |
| COPPER, DISSOLVED (WATER & WASTE) BY ICPMS | ug/L | <4 | | 5.47 | |
| COPPER, TOTAL (WATER & WASTE) BY ICPMS | ug/L | <4 | | 5.67 | |
| Dissolve Nitrate & Nitrite Nitrogen | mg/L | 0.27 | | 4.79 | |
| Dissolve Ortho Phosphorus | mg/L | 0.065 | Answer Rechecked By Analyst | 0.647 | Answer Rechecked By Analyst |
| Dissolved Nitrogen as N | mg/L | 0.558 | Dissolved result > Total result by more than 10% | 5.616 | |
| Dissolved Phosphorus as P | mg/L | 0.063 | | 0.646 | |
| HARDNESS, TOTAL (CALCULATED) | mg/L | 201 | Accredited by NJ only - accreditation not available from PA | 193 | Accredited by NJ only - accreditation not available from PA |
| IRON, DISSOLVED (WATER & WASTE) BY ICP | ug/L | <100 | | <100 | |
| IRON, TOTAL (WATER & WASTE) BY ICP | ug/L | 149 | | 131 | |
| LEAD, DISSOLVED (WATER & WASTE) BY ICPMS | ug/L | <1 | | <1 | |

| Test | Units | Upstream Result | Comment | Downstream result | Comment |
|---|---|---|---|---|---|
| LEAD, TOTAL (WATER & WASTE) BY ICPMS | ug/L | <1 | | <1 | |
| LITHIUM, DISSOLVED (WATER &WASTE) BY ICP | ug/L | <25 | | <25 | |
| LITHIUM, TOTAL (WATER & WASTE) BY ICP | ug/L | <25 | | <25 | |
| Low Bromide by IC | ug/L | 46.43 | | 49.53 | |
| MAGNESIUM, TOTAL (WATER & WASTE) BY ICP | mg/L | 14.4 | | 13.6 | |
| MANGANESE, DISSOLVED (WATER & WASTE) BY ICP | ug/L | 80 | | 70 | |
| MANGANESE, TOTAL (WATER & WASTE) BY ICP | ug/L | 87 | | 76 | |
| NICKEL, DISSOLVED (WATER & WASTE) BY ICP | ug/L | <50 | | <50 | |
| NICKEL, TOTAL (WATER & WASTE) BY ICP | ug/L | <50 | | <50 | |
| OSMOTIC PRESSURE, MOSM/KG | mosm/kg | 8 | | 8 | |
| POTASSIUM, TOTAL (WATER & WASTE) BY ICP | mg/L | 2.12 | | 3.66 | |
| SELENIUM, TOTAL (WATER & WASTE) BY ICPMS | ug/L | <7 | | <7 | |
| SODIUM, TOTAL (WATER & WASTE) BY ICP | mg/L | 45 | | 52 | |
| STRONTIUM, TOTAL (WATER & WASTE) BY ICP | ug/L | 276 | | 259 | |
| Total Chloride-Ion Chromatograph | mg/L | 89.83 | | 100.94 | |
| TOTAL DISSOLVED SOLIDS @ 180C BY USGS-I-1750 | mg/L | 388 | | 402 | |
| Total Nitrate & Nitrite Nitrogen | mg/L | 0.26 | | 4.74 | |

| Test | Units | Upstream Result | Comment | Downstream result | Comment |
|---|---|---|---|---|---|
| Total Nitrogen as N | mg/L | 0.38 | Dissolved result > Total result by more than 10% | 5.15 | |
| Total Organic Carbon | mg/L | 2.09 | | 3.54 | |
| Total Ortho Phosphorus as P | mg/L | 0.045 | Answer Rechecked By Analyst | 0.576 | Answer Rechecked By Analyst |
| Total Phosphorus as P | mg/L | 0.066 | | 0.664 | |
| Total Sulfate-Ion Chromatograph | mg/L | 125.46 | | 113.6 | |
| TOTAL SUSPENDED SOLIDS | mg/L | <5 | | 10 | |
| ZINC, DISSOLVED (WATER & WASTE) BY ICP | ug/L | <30 | | <30 | |
| ZINC, TOTAL (WATER & WASTE) BY ICP | ug/L | <30 | | <30 | |

< indicates result is below reporting limit

**Table 2.** Aquatic macroinvertebrates observed the sampling locations upstream and downstream of the Meadowbrook Road STP outfall.

| TAXA NAME | Family (Common Name) | Upstream Results | Downstream Results |
|---|---|---|---|
| Acentrella | Baetidae (Small Minnow Mayflies) | 1 | |
| Baetis | Baetidae (Small Minnow Mayflies) | 26 | 32 |
| Psephenus | Psephenidae (Water Pennies | 1 | |
| Optioservus | Elmidae (Riffle Beetles) | 1 | |
| Stenelmis | Elmidae (Riffle Beetles) | | 2 |
| Pseudolimnophila | Limoniidae (Crane Flies) | | 1 |
| Dicranota | Pediciidae (Hairy-eyed Crane Flies) | 1 | |
| Simulium | Simulidae (Black Flies) | 3 | |
| Chironomidae | Chironomidae (Non-biting Midges) | 54 | 39 |
| Corbiculidae | Corbiculidae (Asiatic Clams) | | 1 |
| Oligochaeta | Oligochaeta (Segmented Worms) | 108 | 140 |
| Number of grids picked, Pan 1 | | 4 | 4 |
| Number of grids picked, Pan 2 | | 7 | 8 |
| Number organisms in the subsample | | 195 | 215 |
| IBI (Large Stream) | | 16.4 | 13.2 |

**Figure 4**. Sampling station located upstream of the Meadowbrook Road STP Outfall, facing upstream.

**Figure 5**. Sampling station located upstream of the Meadowbrook Road STP Outfall, facing downstream.

**Figure 6.** Sampling location located downstream of the Meadowbrook Road STP Outfall, facing upstream.

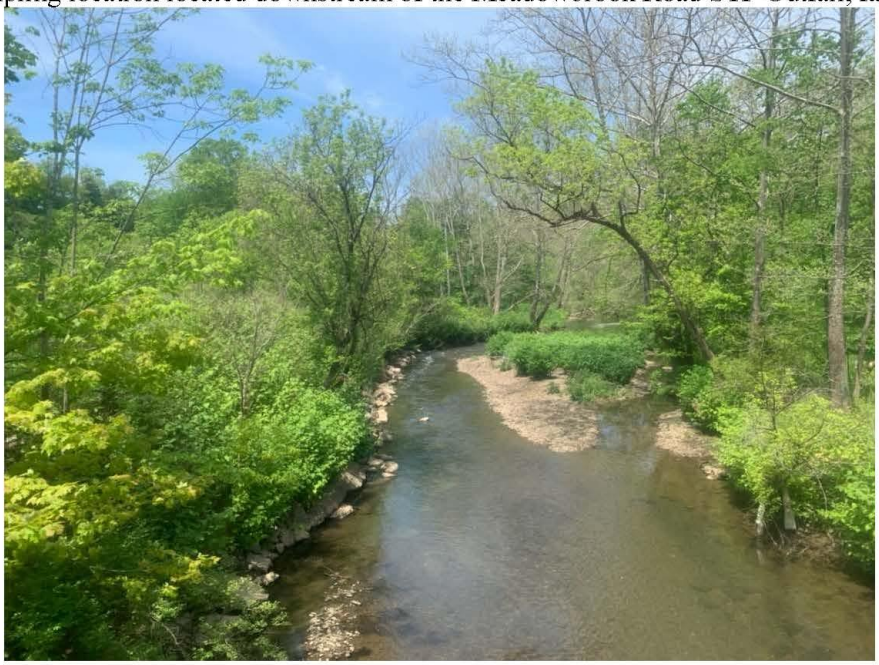

**Figure 7.** Sampling location located downstream of the Meadowbrook Road STP Outfall, facing downstream.

Table 3. Bureau of Clean Water Macroinvertebrate Sample Summary for the station upstream of the Meadowbrook Road STP.

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BUREAU OF CLEAN WATER
MACROINVERTEBRATE SAMPLE SUMMARY
1/27/2022 9:41:40 AM

Export Taxa to Excel | Export Data to Excel

**SAMPLE SUMMARY**

| | | | | |
|---|---|---|---|---|
| **STATION ID:** 20210520-1100-jadetweile | **SECONDARY STATION ID:** Turtle Creek, Upstream of STP | **LATITUDE:** 40.41231160 | **LONGITUDE:** -79.727458 | |
| **STREAM NAME:** Turtle Creek (01189972) | | **HUC8** 05020005 Lower Monongahela. Pennsylvania, West Virginia. | | |
| **SURVEY ID:** 73202 | | **METHOD:** 6-Dframe Composite, 200 subsample | | |
| **SUBSAMPLED BY:** Jamie Detweiler | **IDENTIFIED BY:** Jamie Detweiler | **QUALITY ASSURED:** N | **QUALITY ASSURED BY:** | **PASSED QUALITY ASSURANCE:** N |
| **STATION LOCATION COMMENT:** | | | | |
| **BIOLOGY / HABITAT COMMENT:** | | | | |
| **LAND USE COMMENT:** | | | | |
| **IMPAIRMENT COMMENT:** | | | | |

**TAXA**

| | | | |
|---|---|---|---|
| | # grids from first pan = 4 | # grids from second pan = 7 | Subsample Size = 195 |

| TAXA NAME | INDIVIDUALS | PTV | FFG | BCG COLD | BCG WARM |
|---|---|---|---|---|---|
| Acentrella | 1 | 4 | SC | 3 | 3 |
| Baetis | 26 | 6 | CG | 4 | 5 |
| Psephenus | 1 | 4 | SC | 4 | 4 |
| Optioservus | 1 | 4 | SC | 4 | 4 |
| Dicranota | 1 | 3 | PR | 3 | 3 |
| Simulium | 3 | 6 | FC | 5 | 5 |
| Chironomidae | 54 | 6 | CG | 5 | 5 |
| Oligochaeta | 108 | 10 | CG | 5 | 5 |

**METRICS**

| | | Freestone Riffle-Run 6D200 | | | | |
|---|---|---|---|---|---|---|
| METRIC NAME | RAW VALUE | 2013 SMALL | 2013 LARGE | 2D100 | MULTIHABITAT POOL GLIDE | LIMESTONE 2009 |
| Total Richness | 8 | 24.2 | 25.8 | | 25.8 | 44.4 |
| Ephemeroptera Richness | 2 | | | | 33.3 | |
| Trichoptera Richness | 0 | | | | 0.0 | |
| EPT Richness | 2 | | | 13.1 | 11.8 | 25.0 |
| Trichoptera Richness (PTV 0-4) | 0 | | | 0.0 | | |
| EPT Richness (PTV 0-4) | 1 | 5.3 | 6.3 | | | |
| Becks Index (version 3) | 0 | 0.0 | 0.0 | | | |

SSRS_SLIMS_043 Ver 1.1

Page 1 of 3

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BUREAU OF CLEAN WATER
MACROINVERTEBRATE SAMPLE SUMMARY

1/27/2022 9:41:40 AM

| | | | | | | |
|---|---|---|---|---|---|---|
| Becks Index (version 4) | 4 | | | 20.1 | 18.2 | 33.3 |
| FC + PR + SH Richness | 2 | | | 17.2 | | |
| Hilsenhoff Biotic Index | 8.17 | 22.6 | 26.3 | 27.2 | | 29.7 |
| % Sensitive Individuals (PTV 0-3) | 0.50 | 0.6 | 0.7 | | | |
| % Tolerant Individuals (PTV 7-10) | 55.40 | | | | | 45.3 |
| Shannon Diversity | 1.12 | 39.2 | 39.2 | | 46.1 | 52.6 |
| | IBI SCORE | 15.3 | 16.4 | 15.5 | 22.5 | 38.4 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| % Ephemeroptera | 13.8 | % Ephemeroptera (PTV 0-4) | 0.5 | % Dominant Taxon | 55.4 | BCG Richness Ratio | 0.33 |
| % Plecoptera | 0.0 | Ephemeroptera Richness (PTV 0-4) | 1 | % Chironomidae | 27.7 | BCG Individuals Ratio | 0.01 |
| % Trichoptera | 0.0 | Plecoptera Richness | 0 | % Simulidae | 1.5 | | |

| IMPAIRMENT | | | |
|---|---|---|---|
| Not Impaired | Y | Insufficient Data | Y |

| HABITAT | | | | | | | |
|---|---|---|---|---|---|---|---|
| Instream Cover | 12 | Substrate / Cover | | Frequency of Riffles | 15 | Bank Vegetation | 13 |
| Epifaunal Substrate | 13 | Velocity/Depth Regimes | 18 | Channel Flow Status | 15 | Disruptive Pressure | 10 |
| Embeddedness | 12 | Pool Variability | | Channel Alteration | 11 | Riparian Zone | 9 |
| Pool Substrate | | Sediment Deposition | 10 | Condition of Banks | 13 | | |
| Pool-Glide Assessment? N | | Instream Score = 47 | | Riparian Score = 35 | | Total Score = 151 | |

| FIELD MEASUREMENTS | | | | | |
|---|---|---|---|---|---|
| Temperature (°C) | 16.8 | Dissolved Oxygen (mg/L) | 11.75 | Flow (CFS) | |
| pH | 8.31 | Total Alkalinity (mg/L as CaCO3) | | Conductivity (uS/cm) | 656 |

| WATER CHEMISTRY | | | |
|---|---|---|---|
| Collector ID | 0725 | Sequence Number | 311 |

Table 4. Bureau of Clean Water Macroinvertebrate Sample Summary for the station downstream of the Meadowbrook Road STP Outfall.

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BUREAU OF CLEAN WATER
MACROINVERTEBRATE SAMPLE SUMMARY

1/14/2022 7:22:12 AM

Export Taxa to Excel | Export Data to Excel

**SAMPLE SUMMARY**

| STATION ID: | SECONDARY STATION ID: | LATITUDE: | LONGITUDE: | |
|---|---|---|---|---|
| 20210520-1200-jadetweile | Turtle Creek, Downstream from STP | 40.41040450 | -79.72360850 | |
| STREAM NAME: Turtle Creek (01189972) | | HUC8 05020005 Lower Monongahela, Pennsylvania, West Virginia | | |
| SURVEY ID: 73201 | | METHOD: 6-Dframe Composite, 200 subsample | | |
| SUBSAMPLED BY: Jamie Detweiler | IDENTIFIED BY: Jamie Detweiler | QUALITY ASSURED: N | QUALITY ASSURED BY: | PASSED QUALITY ASSURANCE: N |
| STATION LOCATION COMMENT: | | | | |
| BIOLOGY / HABITAT COMMENT: | | | | |
| LAND USE COMMENT: | | | | |
| IMPAIRMENT COMMENT: Downstream of STP | | | | |

**TAXA**

| | # grids from first pan = 4 | # grids from second pan = 8 | Subsample Size = | 216 |
|---|---|---|---|---|

| TAXA NAME | INDIVIDUALS | PTV | FFG | BCG COLD | BCG WARM |
|---|---|---|---|---|---|
| Baetis | 32 | 6 | CG | 4 | 5 |
| Stenelmis | 2 | 5 | SC | 5 | 5 |
| Brachycentrus | 1 | 2 | PR | 4 | 4 |
| Chironomidae | 39 | 6 | CG | 5 | 5 |
| Corbiculidae | 1 | 4 | FC | 5 | 5 |
| Oligochaeta | 140 | 10 | CG | 5 | 5 |

**METRICS**

| | | Freestone Riffle-Run 6D200 | | | | |
|---|---|---|---|---|---|---|
| METRIC NAME | RAW VALUE | 2013 SMALL | 2013 LARGE | 2D100 | MULTIHABITAT POOL GLIDE | LIMESTONE 2009 |
| Total Richness | 6 | 18.2 | 19.4 | | 19.4 | 33.3 |
| Ephemeroptera Richness | 1 | | | | 16.7 | |
| Trichoptera Richness | 0 | | | | 0.0 | |
| EPT Richness | 1 | | | 6.5 | 5.9 | 12.5 |
| Trichoptera Richness (PTV 0-4) | 0 | | | 0.0 | | |
| EPT Richness (PTV 0-4) | 0 | 0.0 | 0.0 | | | |
| Becks Index (version 3) | 1 | 2.6 | 4.5 | | | |
| Becks Index (version 4) | 2 | | | 10.1 | 9.1 | 16.7 |
| FC + PR + SH Richness | 2 | | | 17.2 | | |

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BUREAU OF CLEAN WATER
MACROINVERTEBRATE SAMPLE SUMMARY

1/14/2022 7:22:12 AM

| | | | | | | |
|---|---|---|---|---|---|---|
| Hilsenhoff Biotic Index | 8.67 | 17.6 | 20.6 | 21.2 | | 23.2 |
| % Sensitive Individuals (PTV 0-3) | 0.60 | 0.6 | 0.7 | | | |
| % Tolerant Individuals (PTV 7-10) | 66.10 | | | | | 35.4 |
| Shannon Diversity | 0.87 | 33.9 | 33.9 | | 39.9 | 45.5 |
| | IBI SCORE | 12.2 | 13.2 | 11.0 | 15.2 | 27.8 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| % Ephemeroptera | 14.9 | % Ephemeroptera (PTV 0-4) | 0.0 | % Dominant Taxon | 65.1 | BCG Richness Ratio | |
| % Plecoptera | 0.0 | Ephemeroptera Richness (PTV 0-4) | 0 | % Chironomidae | 18.1 | BCG Individuals Ratio | |
| % Trichoptera | 0.0 | Plecoptera Richness | 0 | % Simuliidae | 0.0 | | |
| IMPAIRMENT | | | | | | | |
| Not Impaired | Y | Insufficient Data | Y | | | | |

| HABITAT | | | | | | | |
|---|---|---|---|---|---|---|---|
| Instream Cover | 11 | Substrate / Cover | | Frequency of Riffles | 18 | Bank Vegetation | 14 |
| Epifaunal Substrate | 13 | Velocity/Depth Regimes | 16 | Channel Flow Status | 15 | Disruptive Pressure | 16 |
| Embeddedness | 14 | Pool Variability | | Channel Alteration | 13 | Riparian Zone | 16 |
| Pool Substrate | | Sediment Deposition | 11 | Condition of Banks | 12 | | |
| Pool-Glide Assessment? N | | Instream Score = 48 | | Riparian Score = 42 | | Total Score = 169 | |

| FIELD MEASUREMENTS | | | | | |
|---|---|---|---|---|---|
| Temperature (°C) | 17.7 | Dissolved Oxygen (mg/L) | 12.28 | Flow (CFS) | |
| pH | 8.5 | Total Alkalinity (mg/L as CaCO3) | | Conductivity (µS/cm) | 692 |

| WATER CHEMISTRY | | | |
|---|---|---|---|
| Collector ID | 0725 | Sequence Number | 312 |

# ATTACHMENT G

# Augmented TMS to Evaluate TDS limits

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2025

# Discharge Information

Instructions | Discharge | Stream

Facility: **Meadowbrook STP** NPDES Permit No.: **PA0025674** Outfall No.: **001**

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 | $Q_{7-10}$ | $Q_h$ |
| 4.9 | 152 | 7.9 | | | | | | |

| | | | | | *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 | | 2670 | | | | | | | | | |
| | Chloride (PWS) | mg/L | | 501 | | | | | | | | | |
| | Bromide | mg/L | | 5.18 | | | | | | | | | |
| | Sulfate (PWS) | mg/L | | 99.8 | | | | | | | | | |
| | Fluoride (PWS) | mg/L | | | | | | | | | | | |
| Group 2 | Total Aluminum | µg/L | | | | | | | | | | | |
| | Total Antimony | µg/L | | | | | | | | | | | |
| | Total Arsenic | µg/L | | | | | | | | | | | |
| | Total Barium | µg/L | | | | | | | | | | | |
| | Total Beryllium | µg/L | | | | | | | | | | | |
| | Total Boron | µg/L | | | | | | | | | | | |
| | Total Cadmium | µg/L | | | | | | | | | | | |
| | Total Chromium (III) | µg/L | | | | | | | | | | | |
| | Hexavalent Chromium | µg/L | | | | | | | | | | | |
| | Total Cobalt | µg/L | | | | | | | | | | | |
| | Total Copper | mg/L | | | | | | | | | | | |
| | Free Cyanide | µg/L | | | | | | | | | | | |
| | Total Cyanide | µg/L | | | | | | | | | | | |
| | Dissolved Iron | µg/L | | | | | | | | | | | |
| | Total Iron | µg/L | | | | | | | | | | | |
| | Total Lead | µg/L | | | | | | | | | | | |
| | Total Manganese | µg/L | | | | | | | | | | | |
| | Total Mercury | µg/L | | | | | | | | | | | |
| | Total Nickel | µg/L | | | | | | | | | | | |
| | Total Phenols (Phenolics) (PWS) | µg/L | | | | | | | | | | | |
| | Total Selenium | µg/L | | | | | | | | | | | |
| | Total Silver | µg/L | | | | | | | | | | | |
| | Total Thallium | µg/L | | | | | | | | | | | |
| | Total Zinc | mg/L | | | | | | | | | | | |
| | Total Molybdenum | µg/L | | | | | | | | | | | |
| | Acrolein | µg/L | < | | | | | | | | | | |
| | Acrylamide | µg/L | < | | | | | | | | | | |
| | Acrylonitrile | µg/L | < | | | | | | | | | | |
| | Benzene | µg/L | < | | | | | | | | | | |
| | Bromoform | µg/L | < | | | | | | | | | | |

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

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2,6-Dinitrotoluene | µg/L | < | | | | | | | | | | |
| | Di-n-Octyl Phthalate | µg/L | < | | | | | | | | | | |
| | 1,2-Diphenylhydrazine | µg/L | < | | | | | | | | | | |
| | Fluoranthene | µg/L | < | | | | | | | | | | |
| | Fluorene | µg/L | < | | | | | | | | | | |
| | Hexachlorobenzene | µg/L | < | | | | | | | | | | |
| | Hexachlorobutadiene | µg/L | < | | | | | | | | | | |
| | Hexachlorocyclopentadiene | µg/L | < | | | | | | | | | | |
| | Hexachloroethane | µg/L | < | | | | | | | | | | |
| | Indeno(1,2,3-cd)Pyrene | µg/L | < | | | | | | | | | | |
| | Isophorone | µg/L | < | | | | | | | | | | |
| | Naphthalene | µg/L | < | | | | | | | | | | |
| | Nitrobenzene | µg/L | < | | | | | | | | | | |
| | n-Nitrosodimethylamine | µg/L | < | | | | | | | | | | |
| | n-Nitrosodi-n-Propylamine | µg/L | < | | | | | | | | | | |
| | n-Nitrosodiphenylamine | µg/L | < | | | | | | | | | | |
| | Phenanthrene | µg/L | < | | | | | | | | | | |
| | Pyrene | µg/L | < | | | | | | | | | | |
| | 1,2,4-Trichlorobenzene | µg/L | < | | | | | | | | | | |
| Group 6 | Aldrin | µg/L | < | | | | | | | | | | |
| | alpha-BHC | µg/L | < | | | | | | | | | | |
| | beta-BHC | µg/L | < | | | | | | | | | | |
| | gamma-BHC | µg/L | < | | | | | | | | | | |
| | delta BHC | µg/L | < | | | | | | | | | | |
| | Chlordane | µg/L | < | | | | | | | | | | |
| | 4,4-DDT | µg/L | < | | | | | | | | | | |
| | 4,4-DDE | µg/L | < | | | | | | | | | | |
| | 4,4-DDD | µg/L | < | | | | | | | | | | |
| | Dieldrin | µg/L | < | | | | | | | | | | |
| | alpha-Endosulfan | µg/L | < | | | | | | | | | | |
| | beta-Endosulfan | µg/L | < | | | | | | | | | | |
| | Endosulfan Sulfate | µg/L | < | | | | | | | | | | |
| | Endrin | µg/L | < | | | | | | | | | | |
| | Endrin Aldehyde | µg/L | < | | | | | | | | | | |
| | Heptachlor | µg/L | < | | | | | | | | | | |
| | Heptachlor Epoxide | µg/L | < | | | | | | | | | | |
| | 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 | < | | | | | | | | | | |
| | 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 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
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pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2025

## Stream / Surface Water Information

**Meadowbrook STP, NPDES Permit No. PA0025674, Outfall 001**

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Monongahela River**

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 | 037185 | 11.67 | 718.7 | 7335 | | | Yes |
| End of Reach 1 | 037185 | 4.64 | 718.6 | 7335.5 | | 0.69 | 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 | 11.67 | 0.167 | | | 10 | | | | | | | 100 | 7 | | |
| End of Reach 1 | 4.64 | 0.167 | | | 10 | | | | | | | | | | |

$Q_h$

| 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 | 11.67 | | | | | | | | | | | | | | |
| End of Reach 1 | 4.64 | | | | | | | | | | | | | | |

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2025

## Model Results

**Meadowbrook STP, NPDES Permit No. PA0025674, Outfall 001**

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

☑ ***Hydrodynamics***

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

| RMI | Stream Flow (cfs) | PWS Withdrawal (cfs) | Net Stream Flow (cfs) | Discharge Analysis Flow (cfs) | Slope (ft/ft) | Depth (ft) | Width (ft) | W/D Ratio | Velocity (fps) | Travel Time (days) | Complete Mix Time (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.67 | 1224.95 | | 1224.95 | 7.58 | 0. | 1.203 | 12.033 | 10. | 1.123 | 0.383 | 90.479 |
| 4.64 | 1225.03 | 1.067 | 1223.96107 | | | | | 10.000 | | | |

$Q_h$

| RMI | Stream Flow (cfs) | PWS Withdrawal (cfs) | Net Stream Flow (cfs) | Discharge Analysis Flow (cfs) | Slope (ft/ft) | Depth (ft) | Width (ft) | W/D Ratio | Velocity (fps) | Travel Time (days) | Complete Mix Time (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.67 | 3715.38 | | 3715.38 | 7.58 | 0. | 1.957 | 12.033 | 6.148 | 2.086 | 0.206 | 43.982 |
| 4.64 | 3715.597 | 1.067 | 3714.53 | | | | | | | | |

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.407 Analysis Hardness (mg/l): 100.78 Analysis pH: 7.01

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

☑ ***CFC*** CCT (min): 90.479 PMF: 1 Analysis Hardness (mg/l): 100.32 Analysis pH: 7.00

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

☑ ***THH*** CCT (min): 90.479 THH PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A PWS PMF: 1

| 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 | 81,303,431 | WQC applied at RMI 4.64 with a design stream flow of 1225.0285 cfs |
| Chloride (PWS) | 0 | 0 | | 0 | 250,000 | 250,000 | 40,651,716 | WQC applied at RMI 4.64 with a design stream flow of 1225.0285 cfs |
| Sulfate (PWS) | 0 | 0 | | 0 | 250,000 | 250,000 | 40,651,716 | WQC applied at RMI 4.64 with a design stream flow of 1225.0285 cfs |

☑ ***CRL*** CCT (min): 43.982 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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

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

**No. Samples/Month:** 4

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

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

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

| Pollutants | Governing WQBEL | Units | Comments |
|---|---|---|---|
| Total Dissolved Solids (PWS) | 81,303 | mg/L | Discharge Conc ≤ 10% WQBEL |
| Chloride (PWS) | 40,652 | mg/L | Discharge Conc ≤ 10% WQBEL |
| Bromide | N/A | N/A | No WQS |
| Sulfate (PWS) | 40,652 | mg/L | Discharge Conc ≤ 10% WQBEL |
| | | | |

# ATTACHMENT H

# WET Test Results and Summary

## DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

| | |
|---|---|
| **Type of Test** | Chronic |
| **Species Tested** | Ceriodaphnia |
| **Endpoint** | Survival |
| **TIWC (decimal)** | 0.96 |
| **No. Per Replicate** | 1 |
| **TST b value** | 0.75 |
| **TST alpha value** | 0.2 |

**Facility Name**: Meadowbrook Road STP

**Permit No.**: PA0025674

**Test Completion Date**: 10/31/2022

| Replicate No. | Control | TIWC |
|---|---|---|
| 1 | 1 | 1 |
| 2 | 1 | 1 |
| 3 | 1 | 1 |
| 4 | 1 | 1 |
| 5 | 1 | 1 |
| 6 | 1 | 1 |
| 7 | 1 | 1 |
| 8 | 1 | 1 |
| 9 | 1 | 1 |
| 10 | 1 | 1 |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| Mean | 1.000 | 1.000 |
| Std Dev. | 0.000 | 0.000 |
| # Replicates | 10 | 10 |

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail: **PASS**

**Test Completion Date**: 10/30/2023

| Replicate No. | Control | TIWC |
|---|---|---|
| 1 | 1 | 1 |
| 2 | 1 | 1 |
| 3 | 1 | 1 |
| 4 | 1 | 1 |
| 5 | 1 | 1 |
| 6 | 1 | 1 |
| 7 | 1 | 1 |
| 8 | 1 | 1 |
| 9 | 1 | 1 |
| 10 | 1 | 1 |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| Mean | 1.000 | 1.000 |
| Std Dev. | 0.000 | 0.000 |
| # Replicates | 10 | 10 |

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail: **PASS**

**Test Completion Date**: 11/20/2024

| Replicate No. | Control | TIWC |
|---|---|---|
| 1 | 1 | 1 |
| 2 | 1 | 1 |
| 3 | 1 | 1 |
| 4 | 0 | 1 |
| 5 | 1 | 1 |
| 6 | 1 | 1 |
| 7 | 1 | 1 |
| 8 | 1 | 0 |
| 9 | 1 | 1 |
| 10 | 1 | 1 |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| Mean | 0.900 | 0.900 |
| Std Dev. | 0.316 | 0.316 |
| # Replicates | 10 | 10 |

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail: **PASS**

**Test Completion Date**: 11/3/2025

| Replicate No. | Control | TIWC |
|---|---|---|
| 1 | 1 | 1 |
| 2 | 1 | 1 |
| 3 | 1 | 1 |
| 4 | 1 | 1 |
| 5 | 1 | 1 |
| 6 | 1 | 1 |
| 7 | 1 | 1 |
| 8 | 1 | 1 |
| 9 | 1 | 1 |
| 10 | 1 | 1 |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| Mean | 1.000 | 1.000 |
| Std Dev. | 0.000 | 0.000 |
| # Replicates | 10 | 10 |

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail: **PASS**

## DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

| | |
|---|---|
| **Type of Test** | Chronic |
| **Species Tested** | Ceriodaphnia |
| **Endpoint** | Reproduction |
| **TIWC (decimal)** | 0.96 |
| **No. Per Replicate** | 1 |
| **TST b value** | 0.75 |
| **TST alpha value** | 0.2 |

**Facility Name**: Meadowbrook Road STP

**Permit No.**: PA0025674

| Replicate No. | Test Completion Date: 10/31/2022 Control | TIWC |
|---|---|---|
| 1 | 22 | 28 |
| 2 | 19 | 29 |
| 3 | 20 | 30 |
| 4 | 22 | 32 |
| 5 | 23 | 32 |
| 6 | 21 | 25 |
| 7 | 28 | 31 |
| 8 | 29 | 28 |
| 9 | 27 | 31 |
| 10 | 19 | 29 |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| Mean | 23.000 | 29.500 |
| Std Dev. | 3.712 | 2.173 |
| # Replicates | 10 | 10 |
| T-Test Result | 10.9689 | |
| Deg. of Freedom | 17 | |
| Critical T Value | 0.8633 | |
| Pass or Fail | PASS | |

| Replicate No. | Test Completion Date: 10/30/2023 Control | TIWC |
|---|---|---|
| 1 | 29 | 27 |
| 2 | 30 | 28 |
| 3 | 32 | 25 |
| 4 | 29 | 21 |
| 5 | 23 | 25 |
| 6 | 20 | 18 |
| 7 | 25 | 21 |
| 8 | 22 | 20 |
| 9 | 19 | 15 |
| 10 | 19 | 20 |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| Mean | 24.800 | 22.000 |
| Std Dev. | 4.894 | 4.137 |
| # Replicates | 10 | 10 |
| T-Test Result | 1.9441 | |
| Deg. of Freedom | 17 | |
| Critical T Value | 0.8633 | |
| Pass or Fail | PASS | |

| Replicate No. | Test Completion Date: 11/20/2024 Control | TIWC |
|---|---|---|
| 1 | 25 | 20 |
| 2 | 15 | 22 |
| 3 | 17 | 26 |
| 4 | 0 | 26 |
| 5 | 19 | 23 |
| 6 | 18 | 21 |
| 7 | 26 | 29 |
| 8 | 27 | 8 |
| 9 | 20 | 26 |
| 10 | 27 | 25 |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| Mean | 19.400 | 22.600 |
| Std Dev. | 8.127 | 5.816 |
| # Replicates | 10 | 10 |
| T-Test Result | 3.0217 | |
| Deg. of Freedom | 17 | |
| Critical T Value | 0.8633 | |
| Pass or Fail | PASS | |

| Replicate No. | Test Completion Date: 11/3/2025 Control | TIWC |
|---|---|---|
| 1 | 21 | 23 |
| 2 | 23 | 25 |
| 3 | 25 | 27 |
| 4 | 25 | 25 |
| 5 | 10 | 23 |
| 6 | 29 | 10 |
| 7 | 23 | 25 |
| 8 | 25 | 18 |
| 9 | 26 | 20 |
| 10 | 21 | 21 |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| Mean | 22.800 | 21.700 |
| Std Dev. | 5.095 | 4.923 |
| # Replicates | 10 | 10 |
| T-Test Result | 2.3343 | |
| Deg. of Freedom | 16 | |
| Critical T Value | 0.8647 | |
| Pass or Fail | PASS | |

## DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

| | |
|---|---|
| **Type of Test** | Chronic |
| **Species Tested** | Pimephales |
| **Endpoint** | Survival |
| **TIWC (decimal)** | 0.96 |
| **No. Per Replicate** | 10 |
| **TST b value** | 0.75 |
| **TST alpha value** | 0.25 |

**Facility Name**

Meadowbrook Road STP

**Permit No.**

PA0025674

**Test Completion Date** 11/1/2022

| Replicate No. | Control | TIWC |
|---|---|---|
| 1 | 1 | 0.9 |
| 2 | 1 | 0.8 |
| 3 | 1 | 0.9 |
| 4 | 1 | 1 |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| Mean | 1.000 | 0.900 |
| Std Dev. | 0.000 | 0.082 |
| # Replicates | 4 | 4 |

| | |
|---|---|
| T-Test Result | 8.8407 |
| Deg. of Freedom | 3 |
| Critical T Value | 0.7649 |
| Pass or Fail | **PASS** |

**Test Completion Date** 10/31/2023

| Replicate No. | Control | TIWC |
|---|---|---|
| 1 | 1 | 0.9 |
| 2 | 1 | 1 |
| 3 | 1 | 1 |
| 4 | 1 | 1 |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| Mean | 1.000 | 0.975 |
| Std Dev. | 0.000 | 0.050 |
| # Replicates | 4 | 4 |

| | |
|---|---|
| T-Test Result | 17.8623 |
| Deg. of Freedom | 3 |
| Critical T Value | 0.7649 |
| Pass or Fail | **PASS** |

**Test Completion Date** 11/20/2024

| Replicate No. | Control | TIWC |
|---|---|---|
| 1 | 1 | 1 |
| 2 | 1 | 0.9 |
| 3 | 1 | 1 |
| 4 | 1 | 1 |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| Mean | 1.000 | 0.975 |
| Std Dev. | 0.000 | 0.050 |
| # Replicates | 4 | 4 |

| | |
|---|---|
| T-Test Result | 17.8623 |
| Deg. of Freedom | 3 |
| Critical T Value | 0.7649 |
| Pass or Fail | **PASS** |

**Test Completion Date** 11/4/2025

| Replicate No. | Control | TIWC |
|---|---|---|
| 1 | 1 | 1 |
| 2 | 1 | 0.9 |
| 3 | 1 | 1 |
| 4 | 1 | 1 |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| Mean | 1.000 | 0.975 |
| Std Dev. | 0.000 | 0.050 |
| # Replicates | 4 | 4 |

| | |
|---|---|
| T-Test Result | 17.8623 |
| Deg. of Freedom | 3 |
| Critical T Value | 0.7649 |
| Pass or Fail | **PASS** |

## DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

| | |
|---|---|
| **Type of Test** | Chronic |
| **Species Tested** | Pimephales |
| **Endpoint** | Growth |
| **TIWC (decimal)** | 0.96 |
| **No. Per Replicate** | 10 |
| **TST b value** | 0.75 |
| **TST alpha value** | 0.25 |

**Facility Name**

Meadowbrook Road STP

**Permit No.**

PA0025674

| Replicate No. | Test Completion Date: 11/1/2022 Control | TIWC |
|---|---|---|
| 1 | 0.401 | 0.404 |
| 2 | 0.394 | 0.362 |
| 3 | 0.402 | 0.472 |
| 4 | 0.419 | 0.452 |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| Mean | 0.404 | 0.423 |
| Std Dev. | 0.011 | 0.049 |
| # Replicates | 4 | 4 |
| T-Test Result | 4.7758 | |
| Deg. of Freedom | 3 | |
| Critical T Value | 0.7649 | |
| Pass or Fail | PASS | |

| Replicate No. | Test Completion Date: 10/31/2023 Control | TIWC |
|---|---|---|
| 1 | 0.422 | 0.444 |
| 2 | 0.372 | 0.446 |
| 3 | 0.424 | 0.535 |
| 4 | 0.456 | 0.524 |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| Mean | 0.419 | 0.487 |
| Std Dev. | 0.035 | 0.049 |
| # Replicates | 4 | 4 |
| T-Test Result | 6.2501 | |
| Deg. of Freedom | 5 | |
| Critical T Value | 0.7267 | |
| Pass or Fail | PASS | |

| Replicate No. | Test Completion Date: 11/20/2024 Control | TIWC |
|---|---|---|
| 1 | 0.414 | 0.425 |
| 2 | 0.435 | 0.377 |
| 3 | 0.437 | 0.447 |
| 4 | 0.419 | 0.42 |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| Mean | 0.426 | 0.417 |
| Std Dev. | 0.011 | 0.029 |
| # Replicates | 4 | 4 |
| T-Test Result | 6.3929 | |
| Deg. of Freedom | 4 | |
| Critical T Value | 0.7407 | |
| Pass or Fail | PASS | |

| Replicate No. | Test Completion Date: 11/4/2025 Control | TIWC |
|---|---|---|
| 1 | 0.469 | 0.526 |
| 2 | 0.44 | 0.437 |
| 3 | 0.418 | 0.439 |
| 4 | 0.416 | 0.437 |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| Mean | 0.436 | 0.460 |
| Std Dev. | 0.025 | 0.044 |
| # Replicates | 4 | 4 |
| T-Test Result | 5.5505 | |
| Deg. of Freedom | 4 | |
| Critical T Value | 0.7407 | |
| Pass or Fail | PASS | |

## WET Summary and Evaluation

| | |
|---|---|
| **Facility Name** | Meadowbrook Road STP |
| **Permit No.** | PA0025674 |
| **Design Flow (MGD)** | 4.9 |
| **$Q_{7-10}$ Flow (cfs)** | 0.792 |
| **$PMF_a$** | 1 |
| **$PMF_c$** | 1 |

| | | Test Results (Pass/Fail) | | | |
|---|---|---|---|---|---|
| | | Test Date | Test Date | Test Date | Test Date |
| **Species** | **Endpoint** | 10/31/22 | 10/30/23 | 11/20/24 | 11/3/25 |
| Ceriodaphnia | Survival | PASS | PASS | PASS | PASS |

| | | Test Results (Pass/Fail) | | | |
|---|---|---|---|---|---|
| | | Test Date | Test Date | Test Date | Test Date |
| **Species** | **Endpoint** | 10/31/22 | 10/30/23 | 11/20/24 | 11/3/25 |
| Ceriodaphnia | Reproduction | PASS | PASS | PASS | PASS |

| | | Test Results (Pass/Fail) | | | |
|---|---|---|---|---|---|
| | | Test Date | Test Date | Test Date | Test Date |
| **Species** | **Endpoint** | 11/1/22 | 10/31/23 | 11/20/24 | 11/4/25 |
| Pimephales | Survival | PASS | PASS | PASS | PASS |

| | | Test Results (Pass/Fail) | | | |
|---|---|---|---|---|---|
| | | Test Date | Test Date | Test Date | Test Date |
| **Species** | **Endpoint** | 11/1/22 | 10/31/23 | 11/20/24 | 11/4/25 |
| Pimephales | Growth | PASS | PASS | PASS | PASS |

**Reasonable Potential?** NO

**Permit Recommendations**

| | |
|---|---|
| Test Type | **Chronic** |
| TIWC | **91** % Effluent |
| Dilution Series | **23, 46, 91, 96, 100** % Effluent |
| Permit Limit | **None** |
| Permit Limit Species | |

## Whole Effluent Toxicity (WET)

For Outfall 001, ☐ **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: **Annually Throughout the Permit Term**

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** |
| October 31 through November 1, 2022 | PASS | PASS | PASS | PASS |
| October 30 and 31, 2023 | PASS | PASS | PASS | PASS |
| November 20, 2024 | PASS | PASS | PASS | PASS |
| November 3 and 4, 2025 | 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:**

**WET Limits**

Has reasonable potential been determined? ☐ YES ☒ NO

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