pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

**Southcentral Regional Office**
**CLEAN WATER PROGRAM**

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0110361** |
| Facility Type | **Municipal** | APS ID | **370** |
| Major / Minor | **Minor** | Authorization ID | **1398158** |

# NPDES PERMIT FACT SHEET
# INDIVIDUAL SEWAGE

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Freedom Township Water & Sewer Authority** | Facility Name | **Freedom Township STP** |
| Applicant Address | 131 Municipal Street | Facility Address | 60 Standish Lane |
| | East Freedom, PA 16637-8158 | | Duncansville, PA 16635 |
| Applicant Contact | Melvin Edmundson | Facility Contact | Rick Miller |
| Applicant Phone | (814) 695-8051 | Facility Phone | (814) 696-0498 |
| Client ID | 77220 | Site ID | 451887 |
| Ch 94 Load Status | Not Overloaded | Municipality | Freedom Township |
| Connection Status | No Limitations | County | Blair |
| Date Application Received | May 31, 2022 | EPA Waived? | No |
| Date Application Accepted | June 6, 2022 | If No, Reason | Significant CB Discharge |

Purpose of Application: This is an application for NPDES renewal.

## Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Freedom Township WWTP located at 60 Standish Lane, Duncansville, PA 16635 in Blair County, municipality of Freedom Township. The existing permit became effective on February 1, 2017 and expires(d) on November 30, 2022. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on May 31, 2022.

The purpose of this Fact Sheet is to present the basis of information used for establishing the proposed NPDES permit effluent limitations. The Fact Sheet includes a description of the facility, a description of the facility's receiving waters, a description of the facility's receiving waters attainment/non-attainment assessment status, and a description of any changes to the proposed monitoring/sampling frequency. Section 6 provides the justification for the proposed NPDES effluent limits derived from technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), total maximum daily loading (TMDL), antidegradation, anti-backsliding, and/or whole effluent toxicity (WET). A brief summary of the outlined descriptions has been included in the Summary of Review section.

The subject facility is a 0.97 MGD design flow treatment facility. The applicant does not anticipate any proposed upgrades to the treatment facility in the next five years. The NPDES application has been processed as a Minor Sewage Facility (Level 2) due to the type of sewage and the design flow rate for the facility. The applicant disclosed the Act 14 requirement to Blair County Commissioners, Greenfield Township Supervisors, Newry Borough Council, Blair Township Supervisors, and Freedom Township Supervisors and the notice was received by the parties in April 2022. A planning approval letter was not necessary as the facility is neither new or expanding.

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| X | | Nicholas Hong, P.E. / Environmental Engineer<br>Nick Hong (via electronic signature) | September 14, 2022 |
| X | | Daniel W. Martin, P.E. / Environmental Engineer Manager<br>Daniel W. Martin | September 22, 2022 |

**Summary of Review**

Utilizing the DEP's web-based Emap-PA information system, the receiving waters for Outfall 001 has been determined to be Frankstown Branch Juniata River. The sequence of receiving streams that the Frankstown Branch Juniata River discharges into are Juniata River and the Susquehanna River which eventually drains into the Chesapeake Bay. The subject site is subject to the Chesapeake Bay implementation requirements. The receiving water has protected water usage for trout stocking fish (TSF) and migratory fish (MF). No Class A Wild Trout fisheries are impacted by this discharge. The absence of high quality and/or exceptional value surface waters removes the need for an additional evaluation of anti-degradation requirements.

The Frankstown Branch Juniata River is a Category 2 stream listed in the 2022 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an attaining stream that supports aquatic life and fish consumption. The receiving waters is not subject to a total maximum daily load (TMDL) plan to improve water quality in the subject facility's watershed.

The existing permit and proposed permit differ as follows:

- For Outfall 001, monitoring for E. coli shall be required.
- For Outfall 002, the dissolved oxygen shall be at least 6.0 mg/l. The previous Fact Sheet recommended the effluent limit but was typographically mistaken in the permit table.
- For Outfall 002, UV monitoring shall be daily during discharging
- For Outfall 001, monitoring for total copper and total zinc shall be on a 1x/quarter basis.
- For Outfall 002, monitoring for total copper and total zinc shall be on a 1x/week when discharging.

Sludge use and disposal description and location(s): Sewage sludge/biosolids disposed at the following locations: (1) Laurel Highlands Landfill in Johnstown Township, Cambria County, (2) Gary Stiffler Farm in Freedom Township, Blair County, (3) Frank Musselman Farm in Freedom/Greenfield Township in Blair County.

The proposed permit will expire five (5) years from the effective date.

Based on the review in this report, it is recommended that the permit be drafted. 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.

Any additional information or public review of documents associated with the discharge or facility may be available at PA DEP Southcentral Regional Office (SCRO), 909 Elmerton Avenue, Harrisburg, PA 17110. To make an appointment for file review, contact the SCRO File Review Coordinator at 717.705.4700.

## 1.0 Applicant

### 1.1 General Information

This fact sheet summarizes PA Department of Environmental Protection's review for the NPDES renewal for the following subject facility.

| | |
|---|---|
| Facility Name: | Freedom Township WWTP |
| NPDES Permit # | PA0110361 |
| Physical Address: | 60 Standish Lane<br>Duncansville, PA 16635 |
| Mailing Address: | 131 Municipal Street<br>East Freedom, PA 16637 |
| Contact: | Richard Miller<br>Chief Operator<br>ftwsa@atlanticbb.net |
| Consultant: | Tobias Nagle<br>Senior Environmental Scientist<br>Stiffler, McGraw and Associates, Inc.<br>1731 North Juniata Street<br>Hollidaysburg, PA 16648<br>(814) 696-6280<br>tnagle@stiffler-mcgraw.com |

### 1.2 Permit History

Description of Facility

Primary discharge from the UV disinfection system flows to Outfall 001 located on the Frankstown Branch of the Juniata River approximately 350 feet downstream from the UV system outlet. A secondary outfall from the UV system exists to enable overflow from the end of the UV tank to be discharged to an outfall located immediately beside the UV tank. The secondary outfall discharges to Tributary 16564 To McDonald Run and is intended for use only in the event of extreme peak flows through the system that would exceed the hydraulic capacity of the Outfall 001 discharge line.

Permit submittal included the following information.

- NPDES Application
- Flow Diagrams
- Influent Sample Data
- Effluent Sample Data

## 2.0 Treatment Facility Summary

### 2.1.1 Site location

The physical address for the facility is 60 Standish Lane, Duncansville, PA 16635. A topographical and an aerial photograph of the facility are depicted as Figure 1 and Figure 2.

Figure 1: Topographical map of the subject facility

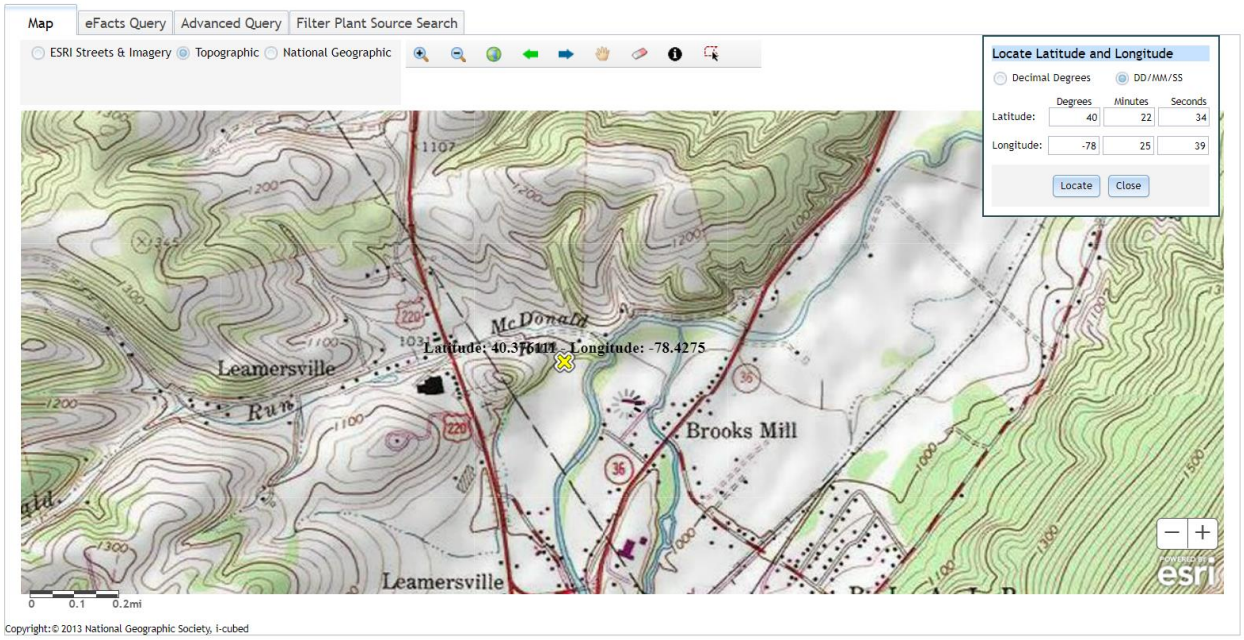
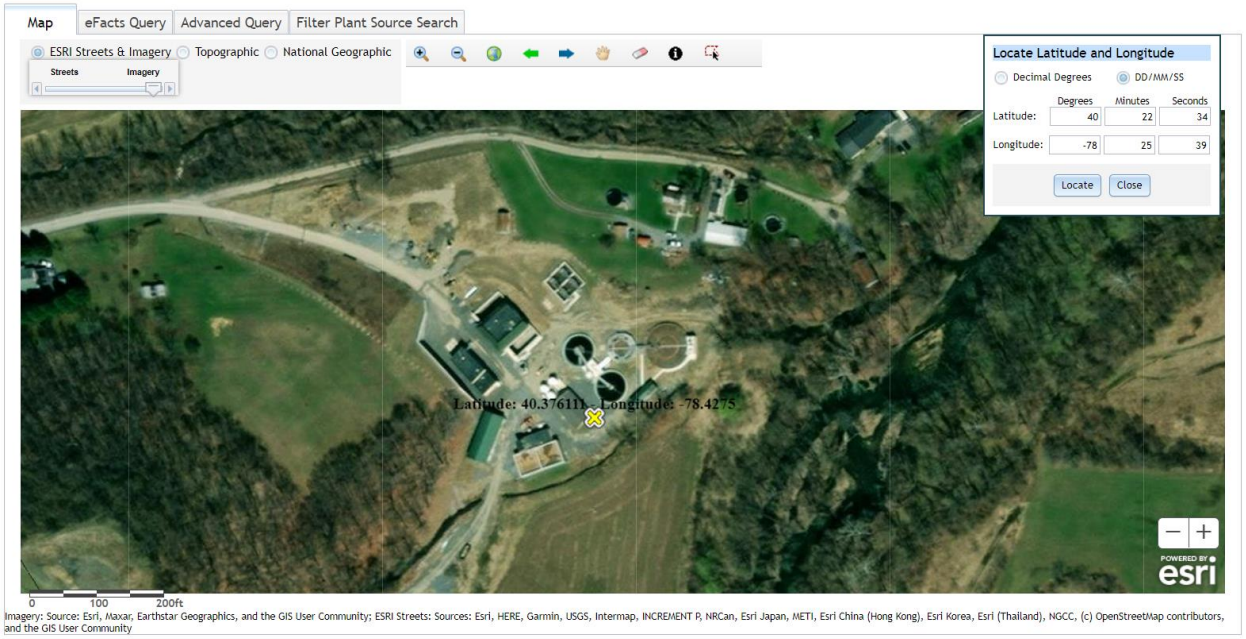



Figure 2: Aerial Photograph of the subject facility



### 2.1.2 Sources of Wastewater/Stormwater

The table summarizes the sources of wastewater contributions the facility receives. The flow contribution is slightly less than 100% due to rounding.

| Municipalities Served | Flow Contribution | Population |
|---|---|---|
| Freedom Township | 80% | 2308 |
| Blair Township | 14% | 1012 |
| Newry Borough-Greenfield Township | 5% | 270 |
| Total | 99% | |

The facility did not receive hauled-in wastes in the past three years and does not anticipate receiving hauled in wastes in the next five years.

The facility does not have an EPA-approved pretreatment program.

The table summarizes the facilities' commercial and industrial user list.

**Freedom Township Water and Sewer Authority**
**Non-Residential Sewer Customer List**

**Metered Sewer Customers**

| Customer Name | Use | Gallons per Day | Municipal Service Area | 2021 Water Usage |
|---|---|---|---|---|
| Walmart | Retail sales | 3256 | FTWSA | 1,188,400 |
| St Patricks School | School | 740 | Newry Borough | 270,000 |
| Inlows Drive-in Rest | Restaurant | 619 | BTWSA | 226,000 |
| Daisy McCoy-Apts above bar only | Bar | 71 | Newry Borough | 26,000 |
| Harkens | Business office | 452 | Newry Borough | 165,000 |
| Eds Furniture & Apts | Retail sales | 268 | Newry Borough | 98,000 |
| Mauk | Beauty shop | 205 | Newry Borough | 75,000 |
| Kenyon-Restaurant | Restaurant | 52 | Newry Borough | 19,000 |
| Leighty's Flea Market | Retail sales | 125 | BTWSA | 45,648 |
| Leamersville Grace Breth Chrch | Church | 173 | FTWSA | 63,000 |
| Gentry Antiques & Apt | Retail sales | 318 | Newry Borough | 116,000 |
| Season-Aire | HVAC sales/service | 124 | FTWSA | 45,389 |
| Wonder Bar & Apt | Bar | 272 | Newry Borough | 99,190 |
| Leamersville Grace Breth Parsonage | Church | 170 | FTWSA | 62,000 |
| Puzzletown Church | Church | 47 | FTWSA | 17,000 |
| Keystone Kawasaki | Motorcycle sales | 4 | BTWSA | 1,622 |
| St Patricks Church | Church | 14 | Newry Borough | 5,000 |
| Northwestern Mutual Financial | Financial Advising | 21 | Newry Borough | 7,495 |
| Benton Insurance | Business office | 19 | Newry Borough | 7,000 |
| Bettwey Electric | Electrician | 30 | FTWSA | 11,000 |
| Outreach Puzzletown Church | Church | 47 | FTWSA | 17,000 |
| Wagners Garage | Auto repairs | 0 | Newry Borough | 0 |
| Ritchey Pump House | Pump sales/service | 22 | Newry Borough | 8,000 |
| Allegheny Forklift | Sales | 186 | BTWSA | 68,000 |
| Bills Used Furniture | Furniture sales | 0 | Newry Borough | |
| Burchfield - Junk Yard | Office | 74 | BTWSA | 26,850 |
| US Post Office | Post Office | 3 | Newry Borough | 1,000 |
| Kneezle Fuel Terminal | Office | 30 | BTWSA | 11,000 |
| Newry Lutheran Church | Church | 3 | Newry Borough | 1,000 |
| Yingling | Business office | 110 | Newry Borough | 40,000 |
| Burchfield-fire station | Emergency service | 0 | BTWSA | 0 |
| Yeckley Electric | Electrician | 3 | FTWSA | 1,000 |
| Scranton-Altoona Terminal | Office | 0 | BTWSA | 0 |
| Teppco | Office | 2 | BTWSA | 682 |
| Through Inc. | Clinic/social services | 263 | FTWSA | 96,000 |
| Creekside Inn | Restaurant | 274 | FTWSA | 100,000 |
| Bickel's Surplus Two | Discount Store | 14 | Duncansville | 5000 |
| Freedom Metals | Roofing/Siding | 33 | Duncansville? | 12,000 |
| Mamma Mia's Pizza | Restaurant | 195 | Newry Borough | 71,000 |
| Freedom Twp Municipal Bld | Gov | 77 | East Freedom | 28,000 |
| Freedom Twp Vol. Fire | Emergency service | 82 | East Freedom | 30,000 |

**Freedom Township Non-Metered Sewer Customers**

| Customer Name | Use | EDU's | Municipal Service Area | |
|---|---|---|---|---|
| Backyard Burgers | Restaurant | 5 | FTWSA | Gone |
| Schneider & Speck Car Wash | Car Wash | 4 | FTWSA | |
| Little Rock & Herbs | Herb sales | 3 | FTWSA | |
| Leightys Farm Market | Farm market | 3 | FTWSA | |
| Best Way Pizza | Pizza Shop | 3 | FTWSA | |
| Wyland Car Wash | Car Wash | 3 | FTWSA | |
| Shirleys Cookies | Bakery | 1 | FTWSA | |
| Blair Tools and Plastic | Machine shop | 2 | FTWSA | 21,000 |
| Tussey Mtn Mulch | Business office | 1 | FTWSA | |
| Insurance Auto Auctions | Sales office | 1 | FTWSA | |
| Lake View Sheds | Sales office | 1 | FTWSA | |
| Jed Claar Garage | Auto repairs | 1 | FTWSA | |
| Beavertown Block | Concrete products | 1 | FTWSA | |
| East Freedom Chapel | Church | 1 | FTWSA | |
| McKee Electric | Electric sales/supply | 1 | FTWSA | |
| McKee Playground | Playground/Bingo Hall | 1 | FTWSA | |
| St Pauls Lutheran Church | Church | 1 | FTWSA | |
| East Freedom Post Office | Post Office | 1 | FTWSA | |
| Dragon Print (vacant) | Stitching company | 1 | FTWSA | |
| Suburban Propane | Sales/service office | 1 | FTWSA | |
| United Methodist Church | Church | 1 | FTWSA | |
| Imlers Garage | Auto repairs | 1 | FTWSA | |
| Rt 220 Distributors | Beer Distributor | 1 | FTWSA | |
| Get Go Gas Station | Gas Station | 1 | FTWSA | |
| Thomas Auto Sales (vacant) | Auto sales | 1 | FTWSA | |
| Becky's School of Dance | Dance studio | 1 | FTWSA | |
| Clay Hoover Pizza | Pizza Shop | 1 | FTWSA | 12,000 |
| Leamersville Bretheran Church | Church | 1 | FTWSA | 0 |
| Loren Keith Garage | Truck repair shop | 1 | FTWSA | 22,000 |
| Wyant restaurant | Restaurant | 1 | FTWSA | |
| Wyant auto sales | Auto sales | 1 | FTWSA | |
| Leighty NIC | Gas/Tobacco sales | 1 | FTWSA | |
| Keystone Auto | Auto parts sales | 1 | FTWSA | |
| Buzzy's Car Sales | Auto sales | 1 | FTWSA | |
| Leighty's Hunting Outlet | Retail sales | 1 | FTWSA | |
| Golf World | Driving range/sales | 1 | FTWSA | |
| Milky Way | Ice Cream Stand | 1 | FTWSA | |
| Schneider & Speck Rentals | Rental Office | 1 | FTWSA | |

## 2.2 Description of Wastewater Treatment Process

The subject facility is a 0.97 MGD design flow facility. The subject facility treats wastewater using an equalization tank, anoxic tank, aerobic tank, aerobic/anoxic unit, clarifier, and uv disinfection prior to discharge through the outfall. Primary discharge occurs through Outfall 001 on the Frankstown Branch Juniata River. The secondary outfall (Outfall 002) is used in the event of extreme peak flows that exceed the hydraulic capacity of Outfall 001.

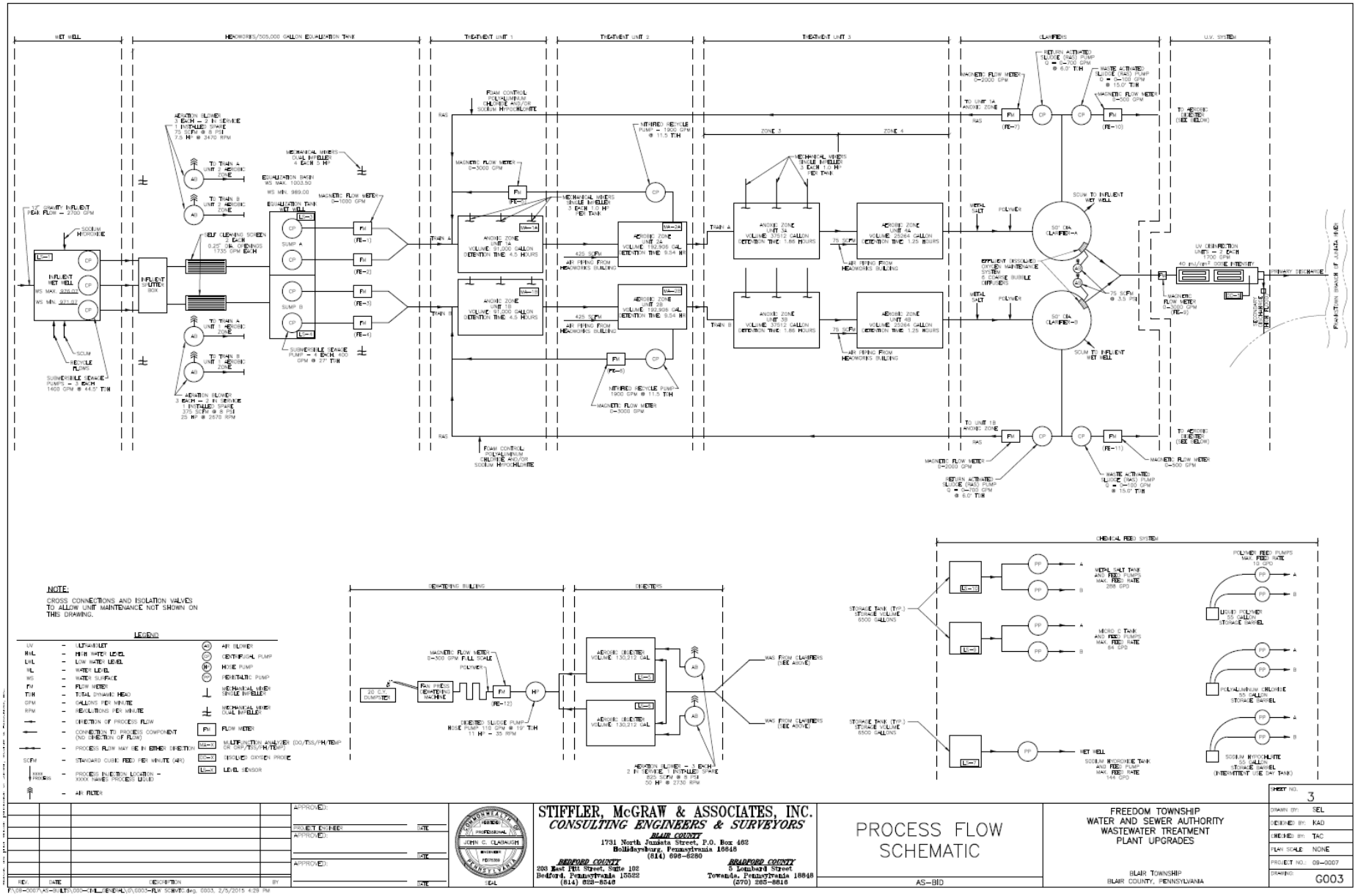
The application lists Outfall 002 as discharging to UNT to Frankstown Branch. Using eMAP, Outfall 002 appears to discharge to Tributary 16564 To McDonald Run. This receiving name stream was also consistent with the previous Fact Sheet.

The facility is being evaluated for flow, pH, dissolved oxygen, CBOD5, TSS, fecal coliform, UV residual, nitrogen species, and phosphorus. The existing permits limits for the facility is summarized in Section 2.4.

The treatment process is summarized in the table.

| Treatment Facility Summary | | | | |
|---|---|---|---|---|
| **Treatment Facility Name:** Freedom Township - STP | | | | |
| **Waste Type** | **Degree of Treatment** | **Process Type** | **Disinfection** | **Avg Annual Flow (MGD)** |
| Sewage | Secondary With Ammonia Reduction | Extended Aeration | Ultraviolet | 0.97 |
| | | | | |
| **Hydraulic Capacity (MGD)** | **Organic Capacity (lbs/day)** | **Load Status** | **Biosolids Treatment** | **Biosolids Use/Disposal** |
| 0.97 | 1620 | Not Overloaded | Aerobic Digestion | Land Application |

A schematic of the process is depicted.


WET WELL
HEADWORKS/505,000 GALLON EQUALIZATION TANK
TREATMENT UNIT 1
TREATMENT UNIT 2
TREATMENT UNIT 3
CLARIFIERS
U.V. SYSTEM
INFLUENT WET WELL
INFLUENT SLUICE GATE BOX
AERATION BLOWERS
EQUALIZATION TANK WET WELL
SUBMERSIBLE SEWAGE PUMPS
SELF CLEANING SCREEN
FOAM CONTROL POLYALUMINUM CHLORIDE AND/OR SODIUM HYPOCHLORITE
MECHANICAL MIXERS
MAGNETIC FLOW METER
NITRIFIED RECYCLE PUMP
ANOXIC ZONE
AEROBIC ZONE
RAS
WAS
SCUM
POLYMER
METAL SALT
EFFLUENT DISCHARGE
SECONDARY CONTACT CHAMBER
UV DISINFECTION UNITS
RETURN ACTIVATED SLUDGE (RAS) PUMP
WASTE ACTIVATED SLUDGE (WAS) PUMP
TO UNIT 1A ANOXIC ZONE
TO UNIT 1B ANOXIC ZONE
TO AEROBIC DIGESTER (SEE BELOW)
SCUM TO INFLUENT WET WELL
CHEMICAL FEED SYSTEM
STORAGE TANK (TYP.) STORAGE VOLUME 6500 GALLONS
METAL SALT TANK AND FEED PUMPS MAX. FEED RATE 288 GPD
MICRO-C TANK AND FEED PUMPS MAX. FEED RATE 84 GPD
POLYMER FEED PUMPS MAX. FEED RATE 10 GPD
LIQUID POLYMER 55 GALLON STORAGE BARREL
POLYALUMINUM CHLORIDE 55 GALLON STORAGE BARREL
SODIUM HYPOCHLORITE 55 GALLON STORAGE BARREL (INTERMITTENT USE DAY TANK)
WET WELL SODIUM HYPOCHLORITE TANK AND FEED PUMP MAX. FEED RATE 144 GPD
DEWATERING BUILDING
DIGESTERS
AEROBIC DIGESTER VOLUME 130,212 GAL
FAN PRESS DEWATERING MACHINE
DEWATERED SLUDGE PUMP
AERATION BLOWER
WAS FROM CLARIFIERS (SEE ABOVE)
NOTE:
CROSS CONNECTIONS AND ISOLATION VALVES TO ALLOW UNIT MAINTENANCE NOT SHOWN ON THIS DRAWING.
LEGEND
UV – ULTRAVIOLET
HWL – HIGH WATER LEVEL
LWL – LOW WATER LEVEL
WL – WATER LEVEL
WS – WATER SURFACE
FM – FLOW METER
TDH – TOTAL DYNAMIC HEAD
GPM – GALLONS PER MINUTE
RPM – REVOLUTIONS PER MINUTE
AIR FILTER
AB AIR BLOWER
CP CENTRIFUGAL PUMP
HP HOSE PUMP
PP PERISTALTIC PUMP
MULTI-FUNCTION ANALYZER (DO/TSS/PH/TEMP)
DISSOLVED OXYGEN PROBE
LEVEL SENSOR
STIFFLER, McGRAW & ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
BLAIR COUNTY
1731 North Juniata Street, P.O. Box 462
Hollidaysburg, Pennsylvania 16648
(814) 696-6280
BEDFORD COUNTY
203 East Pitt Street, Suite 102
Bedford, Pennsylvania 15522
(814) 623-6548
BRADFORD COUNTY
5 Lombard Street
Towanda, Pennsylvania 18848
(570) 265-8818
PROCESS FLOW SCHEMATIC
AS-BID
FREEDOM TOWNSHIP
WATER AND SEWER AUTHORITY
WASTEWATER TREATMENT
PLANT UPGRADES
BLAIR TOWNSHIP
BLAIR COUNTY, PENNSYLVANIA
SHEET NO. 3
DRAWN BY: SEL
DESIGNED BY: KAD
CHECKED BY: TAC
PLAN SCALE: NONE
PROJECT NO.: 09-0007
DRAWING: G003
APPROVED:
PROJECT ENGINEER
JOHN C. CLABAUGH
SEAL

## 2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

| | | | |
|---|---|---|---|
| **Outfall No.** | 001 | **Design Flow (MGD)** | .97 |
| **Latitude** | 40º 22' 34.57" | **Longitude** | -78º 25' 34.74" |
| **Wastewater Description:** | Sewage Effluent | | |

| | | | |
|---|---|---|---|
| **Outfall No.** | 002 | **Design Flow (MGD)** | .97 |
| **Latitude** | 40º 22' 34.45" | **Longitude** | -78º 25' 37.71" |
| **Wastewater Description:** | Sewage Effluent | | |

The subject facility outfall is within the vicinity of another sewage/wastewater outfall. Other outfalls include Greenfield, Roaring Springs, and Hollidaysburg. The Appvion outfall location was included in the modeling without discharge flow rates and discharge limits for CBOD and ammonia. The NPDES permit for Appvion is pending termination. It may be replaced with a new permit with the new facility owner. It is unclear what permit limits the new owner of the Appvion facility will contain.

### 2.3.1 Operational Considerations- Chemical Additives

Chemical additives are chemical products introduced into a waste stream that is used for cleaning, disinfecting, or maintenance and which may be detected in effluent discharged to waters of the Commonwealth. Chemicals excluded are those used for neutralization of waste streams, the production of goods, and treatment of wastewater.

The subject facility utilizes the following chemicals as part of their treatment process.

- Sodium hydroxide for alkalinity adjustment for enhanced nutrient removal.
- Aluminum sulfate for phosphorus precipitation in clarifiers and digestors
- Polymer for phosphorus precipitation ais and sludge dewatering
- Micro C 2000 for carbon source and nitrogen removal process
- PAX-14 (Polyaluminum chloride) for filamentous foam control.

## 2.4 Existing NPDES Permits Limits

The existing NPDES permit limits are summarized in the table.

**PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS**

**I. A. For Outfall** 001 , **Latitude** 40° 22' 34.57" , **Longitude** 78° 25' 34.82" , **River Mile Index** 38.9 , **Stream Code** 16061

**Receiving Waters:** Frankstown Branch Juniata River

**Type of Effluent:** Sewage Effluent

1. The permittee is authorized to discharge during the period from **December 1, 2017** through **November 30, 2022**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) [1] | | Concentrations (mg/L) | | | | Minimum [2] Measurement Frequency | Required Sample Type |
| | Average Monthly | Weekly Average | Minimum | Average Monthly | Weekly Average | Instant. Maximum | | |
| Flow (MGD) | Report | Report Daily Max | XXX | XXX | XXX | XXX | Continuous | Measured |
| pH (S.U.) | XXX | XXX | 6.0 | XXX | 9.0 Max | XXX | 1/day | Grab |
| Dissolved Oxygen | XXX | XXX | 5.0 | XXX | XXX | XXX | 1/day | Grab |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30 | 162 | 243 | XXX | 20.0 | 30.0 | 40 | 1/week | 24-Hr Composite |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31 | 202 | 324 | XXX | 25.0 | 40.0 | 50 | 1/week | 24-Hr Composite |
| Biochemical Oxygen Demand (BOD5) Raw Sewage Influent | Report | Report Daily Max | XXX | Report | XXX | XXX | 1/week | 24-Hr Composite |
| Total Suspended Solids | 243 | 364 | XXX | 30.0 | 45.0 | 60 | 1/week | 24-Hr Composite |
| Total Suspended Solids Raw Sewage Influent | Report | Report Daily Max | XXX | Report | XXX | XXX | 1/week | 24-Hr Composite |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2,000 Geo Mean | XXX | 10,000 | 1/week | Grab |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1,000 | 1/week | Grab |

**Outfall 001 , Continued (from December 1, 2017 through November 30, 2022)**

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) [1] | | Concentrations (mg/L) | | | | Minimum [2] Measurement Frequency | Required Sample Type |
| | Average Monthly | Weekly Average | Minimum | Average Monthly | Weekly Average | Instant. Maximum | | |
| Ammonia-Nitrogen Nov 1 - Apr 30 | 145 | XXX | XXX | 18.0 | XXX | 36 | 2/week | 24-Hr Composite |
| Ammonia-Nitrogen May 1 - Oct 31 | 49 | XXX | XXX | 6.0 | XXX | 12 | 2/week | 24-Hr Composite |
| Ultraviolet light dosage (mjoules/cm²) | XXX | XXX | Report | XXX | XXX | XXX | 1/day | Recorded |

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

**PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS**

**I. B. For Outfall** 002* , **Latitude** 40° 22' 34.45" , **Longitude** 78° 25' 37.71" , **River Mile Index** 0.0300 , **Stream Code** 16564

**Receiving Waters:** Unnamed Tributary to Frankstown Branch Juniata River

**Type of Effluent:** Sewage Effluent

1. The permittee is authorized to discharge during the period from **December 1, 2017** through **November 30, 2022**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) [1] | | Concentrations (mg/L) | | | | Minimum [2] | Required |
| | Average Monthly | Weekly Average | Minimum | Average Monthly | Weekly Average | Instant. Maximum | Measurement Frequency | Sample Type |
| Flow (MGD) | Report | Report Daily Max | XXX | XXX | XXX | XXX | Daily when Discharging | Measured |
| pH (S.U.) | XXX | XXX | 6.0 | XXX | 9.0 Max | XXX | Daily when Discharging | Grab |
| Dissolved Oxygen | XXX | XXX | 5.0 | XXX | XXX | XXX | Daily when Discharging | Grab |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) | 80 | 121 | XXX | 10.0 | 15.0 | 20 | Weekly when Discharging | 24-Hr Composite |
| Total Suspended Solids | 80 | 121 | XXX | 10.0 | 15.0 | 20 | Weekly when Discharging | 24-Hr Composite |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2,000 Geo Mean | XXX | 10,000 | Weekly when Discharging | Grab |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1,000 | Weekly when Discharging | Grab |
| Total Nitrogen | 40 | XXX | XXX | 5.0 | XXX | 10 | Weekly when Discharging | Calculation |
| Ammonia-Nitrogen Nov 1 - Apr 30 | 31.5 | XXX | XXX | 3.9 | XXX | 7.8 | Weekly when Discharging | 24-Hr Composite |
| Ammonia-Nitrogen May 1 - Oct 31 | 10.5 | XXX | XXX | 1.3 | XXX | 2.6 | Weekly when Discharging | 24-Hr Composite |
| Total Phosphorus | 4.0 | XXX | XXX | 0.5 | XXX | 1 | Weekly when Discharging | 24-Hr Composite |

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at Outfall 002

*Outfall 002 shall be used only under emergency.

**PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS**

**I. C. For Outfall** 001 , **Latitude** 40° 22' 34.57" , **Longitude** 78° 25' 34.82" , **River Mile Index** 38.9 , **Stream Code** 16061

**Receiving Waters:** Frankstown Branch Juniata River

**Type of Effluent:** Sewage Effluent

1. The permittee is authorized to discharge during the period from **December 1, 2017** through **November 30, 2022**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Monthly | Annual | Monthly | Monthly Average | Maximum | Instant. Maximum | | |
| Ammonia--N | Report | Report | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| Kjeldahl--N | Report | XXX | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| Nitrate-Nitrite as N | Report | XXX | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| Total Nitrogen | Report | Report | XXX | Report | XXX | XXX | 1/month | Calculation |
| Total Phosphorus | Report | Report | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| Net Total Nitrogen | Report | 10,959 | XXX | XXX | XXX | XXX | 1/month | Calculation |
| Net Total Phosphorus | Report | 1,461 | XXX | XXX | XXX | XXX | 1/month | Calculation |

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfalls 001 and Outfall 002

Footnotes:
(1) See Part C for Chesapeake Bay Requirements.
(2) This is the minimum number of sampling events required. Permittees are encouraged, and it may be advantageous in demonstrating compliance, to perform more than the minimum number of sampling events required.

## 3.0 Facility NPDES Compliance History

### 3.1 Summary of Inspections

A summary of the most recent inspections during the existing permit review cycle is as follows.

The DEP inspector noted the following during the inspection.

02/14/2018: One (of three) influent pump was out of service and currently being repaired. One clarifier blower was also being repaired. The SOP was updated to include general checks of the plant conducted by non-certified operators. The facility accepted 12,000 gallons of tank wash water in November 2017 and reported it as hauled in waste on the DMR supplemental form. Plant does not usually accept septage waste or sewage sludge.

12/02/2019: The inspection was precipitated by a report of a sewage overflow. The facility stated that on the morning of November 28th an operator called him to report that one of the aeration tanks foamed up and overflowed onto the ground and into an unnamed tributary of the Frankstown Branch. The facility thinks that a petroleum product, likely home heating oil, entered the waste stream and caused a malfunction of the DO sensor in the aeration tanks leading to excessive aeration and foaming. Foam from the #2 tank overflowed the tank in several spots and some of it flowed into the unnamed tributary that runs along the edge of the treatment plant property. The facility stated that the foam was very thick and could be collected off the ground with a skid loader. Foam was also removed from the stream bank. The foam was placed in roll off container used for dewatered sludge. There was also excessive foam in the #1 aeration tank, but it did not overflow. Because of the solids loss, the facility has ordered some bioaugmentation products to help enhance the bug life in the aeration tanks. A defoaming agent was also purchased.

12/18/2019: The plant experienced an upset on November 28, 2019, likely due to petroleum contamination. This resulted in one of the aeration tanks foaming over and discharging partially treated sewage on to the ground and into unnamed tributary of the Frankstown Branch. Sewage solids was observed along the stream bank and in the tributary. The operator has been adding freeze-dried bugs and a defoaming agent to the treatment system since the upset began. A recent lab test for fecal coliform had a high result and operators have since cleaned the UV bulb sleeves.

03/06/2020: The facility was in the process of repairing an anoxic mixer. The facility also planned on replacing ballasts and lights in second unit. The facility was cited for failure to monitor pollutants as required by the permit and failure to properly operate the facility in compliance with the WQM permit.

01/05/2021: The facility was consulted about the stream bank being eroded at Lions Club park. The facility should find a solution to stabilize the stream bank. Possible assistance may be sought at the Blair County Conservation for technical assistance.

03/09/2022: There was nothing significant to report.

### 3.2 Summary of DMR Data

A review of approximately 1-year of DMR data shows that the monthly average flow data for the facility below the design capacity of the treatment system. The maximum average flow data for the DMR reviewed was 0.75 MGD in February 2022. The design capacity of the treatment system is 0.97 MGD.

The off-site laboratory used for the analysis of the parameters was Fairway Laboratories located at 2019 9th Avenue, Altoona, PA.

**DMR Data for Outfall 001 (from July 1, 2021 to June 30, 2022)**

| Parameter | JUN-22 | MAY-22 | APR-22 | MAR-22 | FEB-22 | JAN-22 | DEC-21 | NOV-21 | OCT-21 | SEP-21 | AUG-21 | JUL-21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD) Average Monthly | 0.4 | 0.69 | 0.57 | 0.44 | 0.75 | 0.43 | 0.42 | 0.31 | 0.33 | 0.59 | 0.29 | 0.32 |
| Flow (MGD) Daily Maximum | 1.18 | 2.72 | 1.12 | 0.58 | 2.12 | 0.91 | 1.48 | 0.44 | 0.79 | 3.02 | 0.51 | 0.55 |
| pH (S.U.) Minimum | 7.2 | 7.0 | 7.1 | 7.0 | 6.9 | 7.0 | 7.1 | 7.5 | 7.4 | 7.0 | 7.5 | 7.3 |
| pH (S.U.) Maximum | 7.8 | 7.7 | 7.6 | 7.4 | 7.4 | 7.3 | 7.9 | 7.9 | 8.0 | 7.9 | 7.8 | 7.8 |
| DO (mg/L) Minimum | 9.9 | 8.2 | 7.7 | 8.9 | 9.7 | 8.3 | 8.3 | 7.7 | 7.1 | 6.6 | 6.7 | 6.4 |
| CBOD5 (lbs/day) Average Monthly | < 14 | < 18 | 19 | < 15 | < 41 | < 18 | < 11 | < 8 | < 8 | < 9 | < 7 | < 8 |
| CBOD5 (lbs/day) Weekly Average | 18 | < 32 | 23 | 18 | 118 | 25 | < 19 | < 11 | < 9 | < 12 | < 7 | < 13 |
| CBOD5 (mg/L) Average Monthly | < 4.9 | < 3.9 | 5.0 | < 4.2 | < 9.1 | < 5.4 | < 3.4 | < 3.2 | < 3.0 | < 3.0 | < 3.0 | < 3.0 |
| CBOD5 (mg/L) Weekly Average | 8.1 | 5.4 | 7.8 | 4.9 | 26.1 | 9.2 | 5.0 | < 3.0 | < 3.0 | < 3.0 | < 3.0 | < 3.0 |
| BOD5 (lbs/day) Raw Sewage Influent <br/> Average Monthly | 260 | 280 | 281 | 331 | 213 | 261 | 427 | 297 | 200 | 157 | 391 | 277 |
| BOD5 (lbs/day) Raw Sewage Influent <br/> Daily Maximum | 330 | 393 | 354 | 496 | 298 | 355 | 538 | 498 | 255 | 211 | 662 | 357 |
| BOD5 (mg/L) Raw Sewage Influent <br/> Average Monthly | 97 | 83 | 84 | 110 | 57 | 91 | 157 | 127 | 88 | 60 | 158 | 99 |
| TSS (lbs/day) Average Monthly | < 7 | 24 | 22 | < 14 | < 13 | < 21 | < 15 | < 5 | < 10 | 12 | 12 | 10 |
| TSS (lbs/day) Raw Sewage Influent <br/> Average Monthly | 174 | 186 | 141 | 169 | 106 | 101 | 209 | 141 | 194 | 879 | 339 | 192 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TSS (lbs/day) Raw Sewage Influent <br/> Daily Maximum | 228 | 290 | 213 | 295 | 137 | 158 | 359 | 241 | 272 | 3163 | 424 | 246 |
| TSS (lbs/day) Weekly Average | 13 | 50 | 60 | 25 | 19 | 56 | 33 | 7 | 16 | 23 | 20 | 15 |
| TSS (mg/L) Average Monthly | < 2.3 | 5.0 | 7.0 | < 4.3 | < 2.9 | < 6.6 | < 4.1 | < 2.1 | < 4.0 | 3.7 | 5.3 | 4.4 |
| TSS (mg/L) Raw Sewage Influent <br/> Average Monthly | 68 | 53 | 41 | 58 | 29 | 36 | 88 | 62 | 88 | 424 | 135 | 64 |
| TSS (mg/L) Weekly Average | 3.2 | 8.8 | 21.0 | 8.0 | 5.2 | 17.2 | 6.0 | 3.0 | 6.0 | 7.0 | 11.0 | 7.0 |
| Fecal Coliform (No./100 ml) Geometric Mean | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1 | < 1 | < 2 | < 1 | < 3.0 | < 2 | < 2 |
| Fecal Coliform (No./100 ml) Instantaneous Maximum | < 1.0 | 1.0 | 1.0 | 1.0 | 4.1 | 1 | 1 | 8.5 | 2 | 8.4 | 2 | 5.2 |
| Nitrate-Nitrite (mg/L) Average Monthly | < 5.868 | 3.527 | < 3.796 | 5.492 | < 4.9 | 4.953 | 7.241 | 5.903 | < 5.399 | < 9.343 | < 3.231 | < 1.838 |
| Nitrate-Nitrite (lbs) Total Monthly | < 645 | 557 | < 517 | 603 | < 584 | 523 | 692 | 435 | < 417 | < 1116 | < 281 | < 153 |
| Total Nitrogen (mg/L) Average Monthly | < 6.391 | < 4.155 | < 4.585 | < 6.007 | < 5.588 | < 5.547 | < 7.741 | < 6.607 | < 6.106 | < 9.872 | < 3.87 | < 2.338 |
| Total Nitrogen (lbs) Effluent Net <br/> Total Monthly | < 697 | < 646 | < 613 | < 657 | < 670 | < 586 | < 753 | < 488 | < 471 | < 1220 | < 328 | < 195 |
| Total Nitrogen (lbs) Total Monthly | < 697 | < 646 | < 613 | < 657 | < 670 | < 586 | < 753 | < 488 | < 471 | < 1220 | < 328 | < 195 |
| Total Nitrogen (lbs) Effluent Net <br/> Total Annual | | | | | | | | | | < 7040 | | |
| Total Nitrogen (lbs) Total Annual | | | | | | | | | | < 7040 | | |
| Ammonia (lbs/day) Average Monthly | < 0.2 | < 0.2 | < 0.8 | < 0.2 | < 0.2 | < 0.2 | < 0.4 | < 0.3 | < 0.2 | < 0.6 | < 0.3 | < 0.3 |
| Ammonia (mg/L) Average Monthly | < 0.0475 | < 0.0475 | < 0.2082 | < 0.0475 | < 0.0475 | < 0.0592 | < 0.1 | < 0.1 | < 0.1 | < 0.123 | < 0.12 | < 0.112 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia (lbs)<br>Total Monthly | < 5 | < 7 | < 24 | < 5 | < 6 | < 7 | < 12 | < 8 | < 8 | < 19 | < 328 | < 9 |
| Ammonia (lbs)<br>Total Annual | | | | | | | | | | < 139 | | |
| TKN (mg/L)<br>Average Monthly | < 0.523 | < 0.627 | < 0.788 | < 0.571 | < 0.688 | < 0.594 | < 0.5 | < 0.704 | < 0.706 | < 0.529 | < 0.639 | < 0.5 |
| TKN (lbs)<br>Total Monthly | < 53 | < 89 | < 96 | < 62 | < 86 | < 2 | < 61 | < 53 | < 54 | < 104 | < 47 | < 42 |
| Total Phosphorus (mg/L)<br>Average Monthly | 3.96 | 2.086 | 2.04 | 2.24 | 2.13 | 2.06 | 2.76 | 2.62 | 3.48 | 2.99 | 3.59 | 2.48 |
| Total Phosphorus (lbs)<br>Effluent Net <br/><br>Total Monthly | 412 | 256 | 279 | 240 | 247 | 212 | 275 | 197 | 266 | 498 | 272 | 207 |
| Total Phosphorus (lbs)<br>Total Monthly | 412 | 256 | 279 | 240 | 247 | 212 | 275 | 197 | 266 | 498 | 272 | 207 |
| Total Phosphorus (lbs)<br>Effluent Net <br/><br>Total Annual | | | | | | | | | | 1453 | | |
| Total Phosphorus (lbs)<br>Total Annual | | | | | | | | | | 1453 | | |
| UV Dosage ($mjoules/cm^2$)<br>Minimum | 300 | 240 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |

### 3.2.1 Chesapeake Bay Truing

The table summarizes the facility's compliance/noncompliance with Chesapeake Bay cap loads. The facility did not meet their cap loads in 2019 for phosphorus.

The facility was in violation with the phosphorus cap load in 2019.

**Chesapeake Bay Annual Nutrient Summary**
**Freedom Township WWTP**
**PA0110361**

| Year for Truing Period (Oct 1 - Sept 30) | Nitrogen (lbs) | | | Phosphorus (lbs) | | | Compliant with Permit Limits (Yes/No) | |
|---|---|---|---|---|---|---|---|---|
| | Annual Total Mass | Credits Purchased | Net Mass Load 10,959 | Annual Total Mass | Credits Purchased | Net Mass Load 1,461 | Nitrogen | Phosphorus |
| 2017 | 11585 | 626 | 10,959 | 1,817 | 358 | 1,459 | Yes | Yes |
| 2018 | 10516 | 0 | 10,516 | 2,517 | 1,057 | 1,460 | Yes | Yes |
| 2019 | 8758 | 0 | 8,758 | 1,902 | 0 | 1,902 | Yes | No |
| 2020 | 6239 | 0 | 6,239 | 2,011 | 576 | 1,435 | Yes | Yes |

## 3.3 Non-Compliance

### 3.3.1 Non-Compliance- NPDES Effluent

A summary of the non-compliance to the permit limits for the existing permit cycle is as follows.

From the DMR data beginning in February 1, 2017 to August 23, 2022, the following were observed effluent non-compliances.

| NON_COMPLIANCE_DATE | NON_COMPL_TYPE_DESC | NON_COMPL_CATEGORY_DESC | PARAMETER | SAMPLE_VALUE | VIOLATION_CONDITION | PERMIT_VALUE | UNIT_OF_MEASURE | STAT_BASE_CODE | DISCHARGE_COMMENTS | FACILITY_COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 6/21/2017 | | Unauthorized Discharges | | | | | | | | |
| 8/22/2017 | Violation of permit condition | Effluent | Carbonaceous Biochemical Oxygen Demand (CBOD5) | 53 | > | 40 | mg/L | Weekly Average | | It is unknown why my CBOD was out of compliance for the week of 07/02/2017. There was no process changes, no equipment failure, no high flows and I also contacted Fairway Labs to confirm the test results. All results for the following weeks were back to normal. We will continue to monitor all test results. |
| 3/23/2018 | | Unauthorized Discharges | | | | | | | Pump Failure | |
| 2/20/2019 | Violation of permit condition | Effluent | otal Suspended Solid | 463 | > | 364 | lbs/day | Weekly Average | | |
| 2/20/2019 | Violation of permit condition | Effluent | otal Suspended Solid | 56.0 | > | 45.0 | mg/L | Weekly Average | | |
| 8/26/2019 | Violation of permit condition | Effluent | Fecal Coliform | 2419.6 | > | 1000 | No./100 ml | Instantaneous Maximum | | Power outage occurred during time of sampling. When the outage was discovered the system was reset and came back up full operation. We did a grab sample on 7/31/19 for a follow up and the sample result came back normal. |
| 7/30/2020 | Late DMR Submission | Other Violations | | | | | | | | |

### 3.3.2 Non-Compliance- Enforcement Actions

A summary of the non-compliance enforcement actions for the current permit cycle is as follows:

Beginning in February 1, 2017 to August 23, 2022, there were no observed enforcement actions.

### 3.4 Summary of Biosolids Disposal

A summary of the biosolids disposed of from the facility is as follows.

| 2021 | | | | | | |
|---|---|---|---|---|---|---|
| Sewage Sludge / Biosolids Production Information | | | | | | |
| | | | | | | |
| Hauled Off-Site | | | | | | |
| 2021 | Gallons | % Solids | Dry Tons | Tons Dewatered | % Solids | Dry Tons |
| January | | | | | | |
| February | | | | | | |
| March | | | | 16.23 | 10.42 | 1.69 |
| April | 31,024 | 1.7 | 2.199 | | | |
| May | 110,501 | | 7.833 | | | |
| June | | | | | | |
| July | | | | | | |
| August | | | | | | |
| September | 16,050 | 1.9 | 1.272 | | | |
| October | 21,965 | 1.8 | 1.649 | | | |
| November | 143,385 | 1.8 | 10.762 | | | |
| December | | | | | | |
| | | | | | | |
| Notes: | | | | | | |
| Sewage sludge/biosolids disposed at | | | | | | |
| - Laurel Highlands Landfill in Johnstown Township, Cambria County | | | | | | |
| - Gary Stiffler Farm in Freedom Township, Blair County | | | | | | |
| - Frank Musselman Farm in Freedom/Greenfield Township in Blair County | | | | | | |

### 3.5 Open Violations

No open violations existed as of September 2022.

### 4.0 Receiving Waters and Water Supply Information Detail Summary

### 4.1 Receiving Waters

The receiving waters has been determined to be Frankstown Branch Juniata River. The sequence of receiving streams that the Frankstown Branch Juniata River discharges into are Juniata River and the Susquehanna River which eventually drains into the Chesapeake Bay.

### 4.2 Public Water Supply (PWS) Intake

The closest PWS to the subject facility is Mifflintown Municipal Authority (PWS ID #4340008) located approximately 103 miles downstream of the subject facility on the Juniata River. Based upon the distance and the flow rate of the facility, the PWS should not be impacted.

### 4.3 Class A Wild Trout Streams

Class A Wild Trout Streams are waters that support a population of naturally produced trout of sufficient size and abundance to support long-term and rewarding sport fishery. DEP classifies these waters as high-quality coldwater fisheries.

The information obtained from EMAP suggests that no Class A Wild Trout Fishery will be impacted by this discharge.

**4.4 2022 Integrated List of All Waters (303d Listed Streams)**

Section 303(d) of the Clean Water Act requires States to list all impaired surface waters not supporting uses even after appropriate and required water pollution control technologies have been applied. The 303(d) list includes the reason for impairment which may be one or more point sources (i.e. industrial or sewage discharges) or non-point sources (i.e. abandoned mine lands or agricultural runoff and the pollutant causing the impairment such as metals, pH, mercury or siltation).

States or the U.S. Environmental Protection Agency (EPA) must determine the conditions that would return the water to a condition that meets water quality standards. As a follow-up to listing, the state or EPA must develop a Total Maximum Daily Load (TMDL) for each waterbody on the list. A TMDL identifies allowable pollutant loads to a waterbody from both point and non-point sources that will prevent a violation of water quality standards. A TMDL also includes a margin of safety to ensure protection of the water.

The water quality status of Pennsylvania's waters uses a five-part categorization (lists) of waters per their attainment use status. The categories represent varying levels of attainment, ranging from Category 1, where all designated water uses are met to Category 5 where impairment by pollutants requires a TMDL for water quality protection.

**For Outfall 001, the receiving waters is listed in the 2022 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 waterbody. The surface waters is an attaining stream that supports aquatic life and fish consumption. The designated use has been classified as protected waters for trout stocking fishes (TSF) and migratory fishes (MF).**

**Since Outfall 002 is used for emergency purposes, this Fact Sheet does not detail the classification on the Outfall 002 for the 2022 Pennsylvania Integrated Water Quality Monitoring and Assessment Report.**

**4.5 Low Flow Stream Conditions**

Water quality modeling estimates are based upon conservative data inputs. The data are typically estimated using either a stream gauge or through USGS web based StreamStats program. The NPDES effluent limits are based upon the combined flows from both the stream and the facility discharge.

A conservative approach to estimate the impact of the facility discharge using values which minimize the total combined volume of the stream and the facility discharge. The volumetric flow rate for the stream is based upon the seven-day, 10-year low flow (Q710) which is the lowest estimated flow rate of the stream during a 7 consecutive day period that occurs once in 10 -year time period. The facility discharge is based upon a known design capacity of the subject facility.

The closest WQN station to the subject facility is the Frankstown Branch Juniata station (WQN224). This WQN station is located approximately 22 miles downstream of the subject facility.

The closest gauge station to the subject facility is the Frankstown Branch Juniata River at Williamsburg, PA (USGS station number 1556000). This gauge station is located approximately 20 miles downstream of the subject facility.

For WQM modeling, pH and stream water temperature data from the water quality network station was used. pH was estimated to be 7.84 and the stream water temperature was estimated to be 22 C.

The hardness of the stream was estimated from the water quality network to be 135 mg/l $CaCO_3$.

For Outfall 001, the low flow yield and the Q710 for the subject facility was estimated as shown below.

| Gauge Station Data | | | |
|---|---|---|---|
| USGS Station Number | 1556000 | | |
| Station Name | Frankstown Branch Juniata River at Williamsburg, PA | | |
| Q710 | 47.8 | $ft^3/sec$ | |
| Drainage Area (DA) | 291 | $mi^2$ | |
| | | | |
| ***Calculations*** | | | |
| The low flow yield of the gauge station is: | | | |
| Low Flow Yield (LFY) = Q710 / DA | | | |
| LFY = | ( 47.8 $ft^3/sec$ / 291 $mi^2$) | | |
| LFY = | 0.1643 | $ft^3/sec/mi^2$ | |
| | | | |
| The low flow at the subject site is based upon the DA of | | 55.5 | $mi^2$ |
| | | | |
| Q710 = (LFY@gauge station)(DA@Subject Site) | | | |
| Q710 = (0.1643 $ft^3/sec/mi^2$)(55.5 $mi^2$) | | | |
| Q710 = | 9.116 | $ft^3/sec$ | |

For Outfall 002, the low flow yield and the Q710 for the subject facility was estimated as shown below.

| Gauge Station Data | | | |
|---|---|---|---|
| USGS Station Number | 1556000 | | |
| Station Name | Frankstown Branch Juniata River at Williamsburg, PA | | |
| Q710 | 47.8 | | |
| Drainage Area (DA) | 291 | | |
| | | | |
| ***Calculations*** | | | |
| The low flow yield of the gauge station is: | | | |
| Low Flow Yield (LFY) = Q710 / DA | | | |
| LFY = | ( 47.8 $ft^3$/sec / 291 $mi^2$) | | |
| LFY = | 0.1643 | $ft^3/sec/mi^2$ | |
| | | | |
| The low flow at the subject site is based upon the DA of | | 0.38 | $mi^2$ |
| | | | |
| Q710 = (LFY@gauge station)(DA@Subject Site) | | | |
| Q710 = (0.1643 $ft^3/sec/mi^2$)(0.38 $mi^2$) | | | |
| Q710 = | 0.062 | $ft^3$/sec | |

For Outfall 002, the rationale for development of effluent limits shall continue as described by the Fact Sheet dated from August 2017.

For a discharge of 0.97 MGD, the ratio of Q7-10 to discharge is 1 to 24. DEP requires compliance with advance treatment limitations recommended in DEP's *Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers* (391-2000-014) whenever the ratio of Q7-10 to discharge is less than 3 parts stream flow (Q7-10) to 1 part effluent discharge flow.

The permittee is required to comply with the following advance treatment requirements:

CBOD5 - 10 mg/L as a monthly average;
TSS - 10 mg/L as a monthly average;
Total N - 5 mg/L as a monthly average;
Dissolved oxygen - minimum 6 mg/L at all times;
Phosphorus – 0.5 mg/L as a monthly average.

**4.6.1 Summary of Discharge, Receiving Waters and Water Supply Information**

| | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | .97 |
| Latitude | 40º 22' 33.99" | Longitude | -78º 25' 33.68" |
| Quad Name | | Quad Code | |
| Wastewater Description: | Sewage Effluent | | |
| Receiving Waters | Frankstown Branch Juniata River (TSF, MF) | Stream Code | 16061 |
| NHD Com ID | | RMI | 39.63 |
| Drainage Area | 55.5 | Yield (cfs/mi$^2$) | 0.1643 |
| $Q_{7-10}$ Flow (cfs) | 9.116 | $Q_{7-10}$ Basis | StreamStats/Streamgauge |
| Elevation (ft) | 987 | Slope (ft/ft) | |
| Watershed No. | 11-A | Chapter 93 Class. | TSF, MF |
| Existing Use | Same as Chapter 93 class | Existing Use Qualifier | |
| Exceptions to Use | | Exceptions to Criteria | |
| Assessment Status | Attaining Use(s) for aquatic life/fish consumption | | |
| Cause(s) of Impairment | Not applicable | | |
| Source(s) of Impairment | Not applicable | | |
| TMDL Status | Not applicable | Name | |

| Background/Ambient Data | | Data Source |
|---|---|---|
| pH (SU) | 7.84 | WQN224; median July to Sept |
| Temperature (°C) | 22 | WQN224; median July to Sept |
| Hardness (mg/L) | 135 | WQN224; historical median |
| Other: | | |

| | | | |
|---|---|---|---|
| Nearest Downstream Public Water Supply Intake | | Mifflintown MA | |
| PWS Waters | Juniata River | Flow at Intake (cfs) | |
| PWS RMI | 37 | Distance from Outfall (mi) | 103 |

**4.6.2 Summary of Discharge, Receiving Waters and Water Supply Information**

| | | | |
|---|---|---|---|
| Outfall No. | 002 | Design Flow (MGD) | .97 |
| Latitude | 40º 22' 32.51" | Longitude | -78º 25' 37.35" |
| Quad Name | | Quad Code | |
| Wastewater Description: | Sewage Effluent | | |

| | | | |
|---|---|---|---|
| Receiving Waters | Tributary 16564 To McDonald Run | Stream Code | 16564 |
| NHD Com ID | 65609644 | RMI | 0.0300 |
| Drainage Area | 0.38 | Yield (cfs/mi$^2$) | 0.1643 |
| $Q_{7-10}$ Flow (cfs) | 0.062 | $Q_{7-10}$ Basis | StreamStats/streamgauge |
| Elevation (ft) | 992 | Slope (ft/ft) | |
| Watershed No. | 11-A | Chapter 93 Class. | WWF, MF |
| Existing Use | Same as Chapter 93 class | Existing Use Qualifier | |
| Exceptions to Use | | Exceptions to Criteria | |
| Assessment Status | Attaining Use(s) | | |
| Cause(s) of Impairment | Not applicable | | |
| Source(s) of Impairment | Not applicable | | |
| TMDL Status | Not applicable | Name | |

| Background/Ambient Data | | Data Source |
|---|---|---|
| pH (SU) | 7.84 | WQN224; median July to Sept |
| Temperature (°C) | 22 | WQN224; median July to Sept |
| Hardness (mg/L) | 135 | WQN224; historical median |
| Other: | | |

| | | | |
|---|---|---|---|
| Nearest Downstream Public Water Supply Intake | | Mifflintown MA | |
| PWS Waters | Juniata River | Flow at Intake (cfs) | |
| PWS RMI | 37 | Distance from Outfall (mi) | 103 |

## 5.0: Overview of Presiding Water Quality Standards

### 5.1 General

There are at least six (6) different policies which determines the effluent performance limits for the NPDES permit. The policies are technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), antidegradation, total maximum daily loading (TMDL), anti-backsliding, and whole effluent toxicity (WET) The effluent performance limitations enforced are the selected permit limits that is most protective to the designated use of the receiving waters. An overview of each of the policies that are applicable to the subject facility has been presented in Section 6.

### 5.2.1 Technology-Based Limitations

TBEL treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act (40 CFR 125.3). Available TBEL requirements for the state of Pennsylvania are itemized in PA Code 25, Chapter 92a.47.

The presiding sources for the basis for the effluent limitations are governed by either federal or state regulation. The reference sources for each of the parameters is itemized in the tables. The following technology-based limitations apply, subject to water quality analysis and best professional judgement (BPJ) where applicable:

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

### 5.2.2 Mass Based Limits

For publicly owned treatment works (POTW), mass loadings are calculated based upon design flow rate of the facility and the permit limit concentration. The generalized calculation for mass loadings is shown below:

$$Quantity\left(\frac{lb}{day}\right) = (MGD)(Concentration)(8.34)$$

### 5.3 Water Quality-Based Limitations

WQBEL are based on the need to attain or maintain the water quality criteria and to assure protection of designated and existing uses (PA Code 25, Chapter 92a.2). The subject facility that is typically enforced is the more stringent limit of either the TBEL or the WQBEL.

Determination of WQBEL is calculated by spreadsheet analysis or by a computer modeling program developed by DEP. DEP permit engineers utilize the following computing programs for WQBEL permit limitations: (1) MS Excel worksheet for Total Residual Chorine (TRC); (2) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen Version 1.1 (WQM Model) and (3) Toxics using DEP Toxics Management Spreadsheet for Toxics pollutants.

The modeling point nodes utilized for this facility are summarized below.

| Nodes for Outfall 001 | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***Parameter*** | ***Modeling Point #1 Furtherest Point Downstream*** | ***Modeling Point #2 Hollidaysburg*** | **Modeling Point #3 Formerly Appvion** | **Modeling Point #4 Freedom** | **Modeling Point #5 Roaring Springs** | **Modeling Point #6 Greenfield** | ***Units*** |
| Stream Code | 16061 | 16061 | 16061 | 39.74 | 16061 | 16061 | |
| River Mile Index | 32.23 | 33.3 | 39.09 | 16061 | 41.91 | 45.3 | miles |
| Elevation | 911 | 913 | 974 | 987 | 1009 | 1096 | feet |
| Latitude | 40.443959 | 40.43024 | 40.378966 | 40.376269 | 40.354737 | 40.311424 | |
| Longitude | -78.35364 | -78.360807 | -78.415911 | -78.426339 | -78.427562 | -78.443612 | |
| Drainage Area | 215 | 116 | 90.7 | 55.5 | 47.1 | 37.1 | sq miles |
| Low Flow Yield | 0.1643 | 0.1643 | 0.1643 | 0.1643 | 0.1643 | 0.1643 | cfs/sq mile |

| Nodes for Outfall 002 | | | |
|---|---|---|---|
| ***General Data 1*** | ***Modeling Point #1*** | ***Modeling Point #2*** | ***Units*** |
| Stream Code | 16564 | 16564 | |
| River Mile Index | 0.08 | 0 | miles |
| Elevation | 992 | 987 | feet |
| Latitude | 40.376236 | 40.377164 | |
| Longitude | -78.427142 | -78.4263 | |
| Drainage Area | 0.38 | 55.5 | sq miles |
| Low Flow Yield | 0.1643 | 0.1643 | cfs/sq mile |

**5.3.1 Water Quality Modeling 7.0**

The WQM Model is a computer model that is used to determine NPDES discharge effluent limitations for Carbonaceous BOD (CBOD5), Ammonia Nitrogen (NH3-N), and Dissolved Oxygen (DO) for single and multiple point source discharges scenarios. WQM Model is a complete-mix model which means that the discharge flow and the stream flow are assumed to instantly and completely mixed at the discharge node.

WQM recommends effluent limits for DO, CBOD5, and $NH_3$-N in mg/l for the discharge(s) in the simulation.

Four types of limits may be recommended. The limits are

*(a)* a *minimum concentration for DO in the discharge as 30-day average;*
*(b) a 30-day average concentration for CBOD5 in the discharge;*
*(c) a 30-day average concentration for the $NH_3$-N in the discharge;*
(d) *24-hour average concentration for $NH_3$-N in the discharge*.

The WQM Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

**The applicable WQM Effluent Limit Type are discussed in Section 6 under the corresponding parameter which is either DO, CBOD, or ammonia-nitrogen.**

## 5.3.2 Toxics Modeling

The Toxics Management Spreadsheet model is a computer model that is used to determine effluent limitations for toxics (and other substances) for single discharge wasteload allocations. This computer model uses a mass-balance water quality analysis that includes consideration for mixing, first-order decay, and other factors used to determine recommended water quality-based effluent limits. Toxics Management Spreadsheet does not assume that all discharges completely mix with the stream. The point of compliance with water quality criteria are established using criteria compliance times (CCTs). The available CCTs are either acute fish criterion (AFC), chronic fish criterion (CFC), or human health criteria (THH & CRL).

**Acute Fish Criterion (AFC)** measures the criteria compliance time as either the maximum criteria compliance time (i.e.15 minutes travel time downstream of the current discharge) or the complete mix time whichever comes first. AFC is evaluated at Q710 conditions.

**Chronic Fish Criterion (CFC)** measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CFC is evaluated at Q710 conditions.

**Threshold Human Health (THH)** measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the estimated travel time downstream to the nearest potable water supply intake whichever comes first. THH is evaluated at Q710 conditions.

**Cancer Risk Level (CRL)** measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CRL is evaluated at Qh (harmonic mean or normal flow) conditions.

The Toxics Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

### 5.3.2.1 Determining if NPDES Permit Will Require Monitoring/Limits in the Proposed Permit for Toxic Pollutants

To determine if Toxics modeling is necessary, DEP has developed a Toxics Management Spreadsheet to identify toxics of concern. Toxic pollutants whose maximum concentrations as reported in the permit application or on DMRs are greater than the most stringent applicable water quality criterion are pollutants of concern. A Reasonable Potential Analysis was utilized to determine (a) if the toxic parameters modeled would require monitoring or (b) if permit limitations would be required for the parameters. The toxics reviewed for reasonable potential were the following pollutants: TDS, chloride, bromide, sulfate, total copper, total lead, and total zinc.

Based upon the SOP- Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants (Revised January 10, 2019), monitoring and/or limits will be established as follows.

(a) When reasonable potential is demonstrated, establish limits where the maximum reported concentration equals or exceeds 50% of the WQBEL.
(b) For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.
(c) For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

**Applicable monitoring or permit limits for toxics are summarized in Section 6.**

**The Toxics Management Spreadsheet output has been included in Attachment B.**

### 5.3.3 Whole Effluent Toxicity (WET)

The facility is not subject to WET.

## 5.4 Total Maximum Daily Loading (TMDL)

### 5.4.1 TMDL

The goal of the Clean Water Act (CWA), which governs water pollution, is to ensure that all of the Nation's waters are clean and healthy enough to support aquatic life and recreation. To achieve this goal, the CWA created programs designed to regulate and reduce the amount of pollution entering United States waters. Section 303(d) of the CWA requires states to assess their waterbodies to identify those not meeting water quality standards. If a waterbody is not meeting standards, it is listed as impaired and reported to the U.S. Environmental Protection Agency. The state then develops a plan to clean up the impaired waterbody. This plan includes the development of a Total Maximum Daily Load (TMDL) for the pollutant(s) that were found to be the cause of the water quality violations. A Total Maximum Daily Load (TMDL) calculates the maximum amount of a specific pollutant that a waterbody can receive and still meet water quality standards.

A TMDL for a given pollutant and waterbody is composed of the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background levels. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody. The TMDL components are illustrated using the following equation:

$$TMDL = \Sigma WLAs + \Sigma LAs + MOS$$

Pennsylvania has committed to restoring all impaired waters by developing TMDLs and TMDL alternatives for all impaired waterbodies. The TMDL serves as the starting point or planning tool for restoring water quality.

#### 5.4.1.1 Local TMDL

The subject facility does not discharge into a local TMDL.

#### 5.4.1.2 Chesapeake Bay TMDL Requirement

The Chesapeake Bay Watershed is a large ecosystem that encompasses approximately 64,000 square miles in Maryland, Delaware, Virginia, West Virginia, Pennsylvania, New York and the District of Columbia. An ecosystem is composed of interrelated parts that interact with each other to form a whole. All of the plants and animals in an ecosystem depend on each other in some way. Every living thing needs a healthy ecosystem to survive. Human activities affect the Chesapeake Bay ecosystem by adding pollution, using resources and changing the character of the land.

Most of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the federal Water Pollution Control Act ("Clean Water Act"), 33 U.S.C. § 1313(d). While the Chesapeake Bay is outside the boundaries of Pennsylvania, more than half of the State lies within the watershed. Two major rivers in Pennsylvania are part of the Chesapeake Bay Watershed. They are (a) the Susquehanna River and (b) the Potomac River. These two rivers total 40 percent of the entire Chesapeake Bay watershed.

The overall management approach needed for reducing nitrogen, phosphorus and sediment are provided in the Bay TMDL document and the Phase I, II, and III WIPs which is described in the Bay TMDL document and Executive Order 13508.

The Bay TMDL is a comprehensive pollution reduction effort in the Chesapeake Bay watershed identifying the necessary pollution reductions of nitrogen, phosphorus and sediment across the seven Bay watershed jurisdictions of Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia to meet applicable water quality standards in the Bay and its tidal waters.

The Watershed Implementation Plans (WIPs) provides objectives for how the jurisdictions in partnership with federal and local governments will achieve the Bay TMDL's nutrient and sediment allocations.

Phase 3 WIP provides an update on Chesapeake Bay TMDL implementation activities for point sources and DEP's current implementation strategy for wastewater. The latest revision of the supplement was September 13, 2021.

The Chesapeake Bay TMDL (Appendix Q) categorizes point sources into four sectors:

- Sector A- significant sewage dischargers;
- Sector B- significant industrial waste (IW) dischargers;
- Sector C- non-significant dischargers (both sewage and IW facilities); and

- Sector D- combined sewer overflows (CSOs).

All sectors contain a listing of individual facilities with NPDES permits that were believed to be discharging at the time the TMDL was published (2010). All sectors with the exception of the non-significant dischargers have individual wasteload allocations (WLAs) for TN and TP assigned to specific facilities. Non-significant dischargers have a bulk or aggregate allocation for TN and TP based on the facilities in that sector that were believed to be discharging at that time and their estimated nutrient loads.

Cap Loads will be established in permits as Net Annual TN and TP loads (lbs/yr) that apply during the period of October 1 – September 30. For facilities that have received Cap Loads in any other form, the Cap Loads will be modified accordingly when the permits are renewed.

Offsets have been incorporated into Cap Loads in several permits issued to date. From this point forward, permits will be issued with the WLAs as Cap Loads and will identify Offsets separately to facilitate nutrient trading activities and compliance with the TMDL.

**Based upon the supplement the subject facility has been categorized as a Sector A discharger. The supplement defines Sector A as a sewage facility is considered significant if it has a design flow of at least 0.4 MGD.**

Table 5 of the Phase 3 WIP (revised September 13, 2021) presents all NPDES permits for Significant Sewage dischargers with Cap Loads. The NPDES Permit No., phase, facility name, latest permit issuance date, expiration date, Cap Load compliance start date, TN and TP Cap Loads, and TN and TP Delivery Ratios are presented. In addition, if TN Offsets were incorporated into the TN Cap Loads when the permit was issued, the amount is shown; these Offsets will be removed from Cap Loads upon issuance of renewed permits to implement Section IV of this document (i.e., a facility may use Offsets for compliance but may not register them as credits).

The total nitrogen (TN) and total phosphorus (TP) cap loads itemized by Table 5 for the subject facility are as follows:

| | |
|---|---|
| TN Cap Load (lbs/yr) | 10,959 |
| TN Delivery Ratio | 0.763 |
| TP Cap Load (lbs/yr) | 1,461 |
| TP Delivery Ratio | 0.519 |

Expansions by any Significant Sewage discharger will not result in any increase in Cap Loads. Where non-significant facilities expand to a design flow of 0.4 MGD or greater, the lesser of baseline Cap Loads of 7,306 lbs/yr TN and 974 lbs/yr TP or existing performance will be used for permits, and the load will be moved from the Non-Significant sector load to the Significant Sewage sector load. If considered necessary for environmental protection, DEP may decide to move load from the Point Source Reserve to the Significant Sewage sector in the future.

The minimum monitoring frequency for TN species and TP in new or renewed NPDES permits for Significant Sewage dischargers is 2/week.

This facility is subject to Sector A monitoring requirements. Monitoring shall be required at least 2x/week.

*Reporting*

Cap Loads will be established in permits as Net Annual TN and TP loads (lbs/yr) that apply during the period of October 1 – September 30.

Facilities with NPDES permits must use DEP's eDMR system for reporting, except small flow treatment facilities. An Annual DMR must be submitted by the end of the Truing Period, November 28. As attachments to the Annual DMR a facility must submit a completed Annual Chesapeake Bay Spreadsheet, available through DEP's Supplemental Reports website, which contains an Annual Nutrient Monitoring worksheet and an Annual Nutrient Budget worksheet. This Spreadsheet will be submitted once per Compliance Year only, and reflect all nutrient sample results (for the period October 1 – September 30), Credit transactions (including the Truing Period) and Offsets applied during the Compliance Year.

## 5.5 Anti-Degradation Requirement

Chapter 93.4a of the PA regulations requires that surface water of the Commonwealth of Pennsylvania may not be degraded below levels that protect the existing uses. The regulations specifically state that *Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected*. Antidegradation requirements are implemented through DEP's guidance manual entitled Water Quality Antidegradation Implementation Guidance (Document #391-0300-02).

The policy requires DEP to protect the existing uses of all surface waters and the existing quality of High Quality (HQ) and Exceptional Value (EV) Waters. Existing uses are protected when DEP makes a final decision on any permit or approval for an activity that may affect a protected use. Existing uses are protected based upon DEP's evaluation of the best available information (which satisfies DEP protocols and Quality Assurance/Quality Control (QA/QC) procedures) that indicates the protected use of the waterbody.

For a new, additional, or increased point source discharge to an HQ or EV water, the person proposing the discharge is required to utilize a nondischarge alternative that is cost-effective and environmentally sound when compared with the cost of the proposed discharge. If a nondischarge alternative is not cost-effective and environmentally sound, the person must use the best available combination of treatment, pollution prevention, and wastewater reuse technologies and assure that any discharge is nondegrading. In the case of HQ waters, DEP may find that after satisfaction of intergovernmental coordination and public participation requirements lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In addition, DEP will assure that cost-effective and reasonable best management practices for nonpoint source control in HQ and EV waters are achieved.

**The subject facility's discharge will be to a non-special protection waters and the permit conditions are imposed to protect existing instream water quality and uses. Neither HQ waters or EV waters is impacted by this discharge.**

## 5.6 Anti-Backsliding

Anti-backsliding is a federal regulation which prohibits a permit from being renewed, reissued, or modified containing effluent limitations which are less stringent than the comparable effluent limitations in the previous permit (40 CFR 122.l.1 and 40 CFR 122.l.2). A review of the existing permit limitations with the proposed permit limitations confirm that the facility is consistent with anti-backsliding requirements. The facility has proposed effluent limitations that are as stringent as the existing permit.

# 6.0 NPDES Parameter Details

The basis for the proposed sampling and their monitoring frequency that will appear in the permit for each individual parameter are itemized in this Section. The final limits are the more stringent of technology based effluent treatment (TBEL) requirements, water quality based (WQBEL) limits, TMDL, antidegradation, anti-degradation, or WET.

The reader will find in this section:

a) a justification of recommended permit monitoring requirements and limitations for each parameter in the proposed NPDES permit;
b) a summary of changes from the existing NPDES permit to the proposed permit; and
c) a summary of the proposed NPDES effluent limits.

## 6.1 Recommended Monitoring Requirements and Effluent Limitations

A summary of the recommended monitoring requirements and effluent limitations are itemized in the tables. The tables are categorized by (a) Conventional Pollutants and Disinfection, (b) Nitrogen Species and Phosphorus, and (c) Toxics.

### 6.1.1 Outfall 001- Conventional Pollutants and Disinfection

| Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection<br>Freedom Township WWTP; PA0110361; Outfall 001 | | | |
|---|---|---|---|
| **Parameter** | **Permit Limitation Required by[1]:** | **Recommendation** | |
| **pH (S.U.)** | TBEL | Monitoring: | The monitoring frequency shall be daily as a grab sample (Table 6-3). |
| | | Effluent Limit: | Effluent limits may range from pH = 6.0 to 9.0 |
| | | Rationale: | The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 95.2(1). |
| **Dissolved Oxygen** | BPJ | Monitoring: | The monitoring frequency shall be daily as a grab sample (Table 6-3). |
| | | Effluent Limit: | Effluent limits shall be greater than 5.0 mg/l. |
| | | Rationale: | The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by best professional judgement. |
| **CBOD** | WQBEL/Anti-backsliding | Monitoring: | The monitoring frequency shall be 1x/wk as 24-hr composite sample (Table 6-3). |
| | | Effluent Limit: | During the months of November 1 to April 30, effluent limits shall not exceed 162 lbs/day and 20 mg/l as an average monthly. During the months of May 1 to October 31, effluent limits shall not exceed 202 lbs/day and 25 mg/l as an average monthly. |
| | | Rationale: | The monitoring frequency has been assigned in accordance with Table 6-3. WQM modeling indicates that the WQBEL is more stringent than the TBEL. Thus, the permit limit is confined to WQBEL. Due to anti-backsliding the current permit limits shall continue the proposed permit. |
| **TSS** | TBEL | Monitoring: | The monitoring frequency shall be 1x/wk as 24-hr composite sample (Table 6-3). |
| | | Effluent Limit: | Effluent limits shall not exceed 243 lbs/day and 30 mg/l as an average monthly. |
| | | Rationale: | The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(1). While there is no WQM modeling for this parameter, the permit limit for TSS is generally assigned similar effluent limits as CBOD or BOD. Since the TBEL is more stringent than WQBEL, TBEL will apply. |
| **UV disinfection** | SOP | Monitoring: | The monitoring frequency is 1/day. The facility will be required to record the UV dosage. |
| | | Effluent Limit: | No effluent requirements. |
| | | Rationale: | Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised January 10, 2019), the facility will be required to have routine monitoring for UV transmittance, UV dosage, or UV intensity. |
| **Fecal Coliform** | TBEL | Monitoring: | The monitoring frequency shall be 1x/wk as a grab sample (Table 6-3). |
| | | Effluent Limit: | Summer effluent limits shall not exceed 200 No./100 mL as a geometric mean. Winter effluent limits shall not exceed 2000 No./100 mL as a geometric mean. |
| | | Rationale: | The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(4) and 92a.47(a)(5). |
| **E. Coli** | SOP; Chapter 92a.61 | Monitoring: | The monitoring frequency shall be 1x/quarter as a grab sample (SOP). |
| | | Effluent Limit: | No effluent requirements. |
| | | Rationale: | Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised March 22, 2019) and under the authority of Chapter 92a.61, the facility will be required to monitor for E.Coli. |
| **Notes:** | | | |
| 1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other | | | |
| 2 Monitoring frequency based on flow rate of 0.97 MGD. | | | |
| 3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97 | | | |
| 4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002) | | | |
| 5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021 | | | |

### 6.1.2 Outfall 001- Nitrogen Species and Phosphorus

**Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus**

**Freedom Township WWTP; PA0110361; Outfall 001**

| Parameter | Permit Limitation Required by[1]: | Recommendation | |
|---|---|---|---|
| **Ammonia-Nitrogen** | WQBEL | Monitoring: | The monitoring frequency shall be 2x/wk as a 24-hr composite sample |
| | | Effluent Limit: | During the months of November 1 to April 30, effluent limits shall not exceed 145 lbs/day and 18 mg/l as an average monthly. During the months of May 1 to October 31, effluent limits shall not exceed 49 lbs/day and 6.0 mg/l as an average monthly. |
| | | Rationale: | Modeling recommends water quality based effluent limits. Modeling resulted in a limit of 6.34 mg/l in the summer. Mathematical rounding places the effluent limit at 6.0 mg/l. The winter limit is 3x the summer limit. |
| **Nitrate-Nitrite as N** | Chesapeake Bay TMDL | Monitoring: | The monitoring frequency shall be 2x/wk as a 24-hr composite sample |
| | | Effluent Limit: | No effluent requirements. |
| | | Rationale: | Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/wk. |
| **Total Nitrogen** | Chesapeake Bay TMDL | Monitoring: | The monitoring frequency shall be 1x/mo as a calculation |
| | | Effluent Limit: | No effluent requirements. |
| | | Rationale: | Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/mo. |
| **TKN** | Chesapeake Bay TMDL | Monitoring: | The monitoring frequency shall be 2x/wk as a 24-hr composite sample |
| | | Effluent Limit: | No effluent requirements. |
| | | Rationale: | Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/wk. |
| **Total Phosphorus** | Chesapeake Bay TMDL | Monitoring: | The monitoring frequency shall be 2x/wk as a 24-hr composite sample |
| | | Effluent Limit: | No effluent requirements. |
| | | Rationale: | Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/wk. |
| **Net Total Nitrogen** | Chesapeake Bay TMDL | Monitoring: | The monitoring frequency shall be 1x/yr as a calculation |
| | | Effluent Limit: | Effluent limits shall not exceed 10,959 lbs/yr. |
| | | Rationale: | Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/yr. |
| **Net Total Phosphorus** | Chesapeake Bay TMDL | Monitoring: | The monitoring frequency shall be 1x/yr as a calculation |
| | | Effluent Limit: | Effluent limits shall not exceed 1,461 lbs/yr. |
| | | Rationale: | Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/yr. |
| **Notes:** | | | |

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.97 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

### 6.1.3 Outfall 001- Toxics

**Summary of Proposed NPDES Parameter Details for Toxics**

**Freedom Township WWTP; PA0110361; Outfall 001**

| Parameter | Permit Limitation Required by[1]: | Recommendation | |
|---|---|---|---|
| **Total Copper** | WQBEL | Monitoring: | The monitoring frequency shall be 1x/quarter as a 24-hr composite sample |
| | | Effluent Limit: | No effluent requirement |
| | | Rationale: | Pending favorable results from monitoring, future renewals may reduce or eliminate monitoring. |
| **Total Zinc** | WQBEL | Monitoring: | The monitoring frequency shall be 1x/quarter as a 24-hr composite sample |
| | | Effluent Limit: | No effluent requirement |
| | | Rationale: | Pending favorable results from monitoring, future renewals may reduce or eliminate monitoring. |

Notes:

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.97 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

### 6.1.4 Outfall 002- Conventional Pollutants and Disinfection

| Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection<br>Freedom Township WWTP; PA0110361; Outfall 002 | | | |
|---|---|---|---|
| **Parameter** | **Permit Limitation Required by[1]:** | **Recommendation** | |
| **pH (S.U.)** | TBEL | Monitoring: | The monitoring frequency shall be daily as a grab sample when discharging. |
| | | Effluent Limit: | Effluent limits may range from pH = 6.0 to 9.0 |
| | | Rationale: | The monitoring frequency has been assigned in accordance with best professional judgement (BPJ) and the effluent limits assigned by Chapter 95.2(1). |
| **Dissolved Oxygen** | BPJ | Monitoring: | The monitoring frequency shall be daily as a grab sample when discharging. |
| | | Effluent Limit: | Effluent limits shall be greater than 6.0 mg/l. |
| | | Rationale: | The monitoring frequency has been assigned in accordance with BPJ. Effluent limits consistent with Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers (391-2000-014) |
| **CBOD** | TBEL | Monitoring: | The monitoring frequency shall be 1x/wk as a 24-hr composite sample when discharging. |
| | | Effluent Limit: | Effluent limits shall not exceed 80 lbs/day and 10.0 mg/l as an average monthly. |
| | | Rationale: | Effluent limits consistent with Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers (391-2000-014) |
| **TSS** | TBEL | Monitoring: | The monitoring frequency shall be 1/wk as a 24-hr composite sample when discharging |
| | | Effluent Limit: | Effluent limits shall not exceed 80 lbs/day and 10.0 mg/l as an average monthly. |
| | | Rationale: | Effluent limits consistent with Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers (391-2000-014) |
| **UV disinfection** | SOP | Monitoring: | The monitoring frequency is 1x/day when discharging. The facility will be required to record UV dosage. |
| | | Effluent Limit: | No effluent requirements. |
| | | Rationale: | Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised January 10, 2019), the facility will be required to have routine monitoring for UV transmittance, UV dosage, or UV intensity. |
| **Fecal Coliform** | TBEL | Monitoring: | The monitoring frequency shall be 1x/wk as a grab sample when discharging |
| | | Effluent Limit: | Summer effluent limits shall not exceed 200 No./100 mL as a geometric mean. Winter effluent limits shall not exceed 2000 No./100 mL as a geometric mean. |
| | | Rationale: | The monitoring frequency has been assigned in accordance with BPJ and the effluent limits assigned by Chapter 92a.47(a)(4) and 92a.47(a)(5). |
| **Notes:** | | | |
| 1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other | | | |
| 2 Monitoring frequency based on flow rate of 0.97 MGD. | | | |
| 3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97 | | | |
| 4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002) | | | |
| 5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021 | | | |

## 6.1.5 Outfall 002- Nitrogen Species and Phosphorus

**Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus**

**Freedom Township WWTP; PA0110361; Outfall 002**

| Parameter | Permit Limitation Required by[1]: | Recommendation | |
|---|---|---|---|
| **Ammonia-Nitrogen** | **WQBEL/Anti-backsliding** | Monitoring: | The monitoring frequency shall be 1/wk as a 24-hr composite sample when discharging |
| | | Effluent Limit: | During the months of November 1 to April 30, effluent limits shall not exceed 31.5 lbs/day and 3.9 mg/l as an average monthly. During the months of May 1 to October 31, effluent limits shall not exceed 10.5 lbs/day and 1.3 mg/l as an average monthly. |
| | | Rationale: | Due to anti-backsliding, the current effluent limits shall continue to the proposed permit |
| | Chesapeake Bay TMDL | Monitoring: | The monitoring frequency shall be 2x/yr as a 24-hr composite sample |
| | | Effluent Limit: | No effluent requirements. |
| | | Rationale: | Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/yr. |
| **Nitrate-Nitrite as N** | Chesapeake Bay TMDL | Monitoring: | The monitoring frequency shall be 2x/wk as a 24-hr composite sample |
| | | Effluent Limit: | No effluent requirements. |
| | | Rationale: | Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/wk. |
| **Total Nitrogen** | WQBEL | Monitoring: | The monitoring frequency shall be 1/wk as a 24-hr composite sample when discharging |
| | | Effluent Limit: | Effluent limits shall not exceed 40 lbs/day and 5 mg/l. |
| | | Rationale: | Effluent limits consistent with Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers (391-2000-014) |
| | Chesapeake Bay TMDL | Monitoring: | The monitoring frequency shall be 1x/mo as a 24-hr composite sample |
| | | Effluent Limit: | No effluent requirements. |
| | | Rationale: | Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/mo. |
| **TKN** | Chesapeake Bay TMDL | Monitoring: | The monitoring frequency shall be 2x/wk as a 24-hr composite sample |
| | | Effluent Limit: | No effluent requirements. |
| | | Rationale: | Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/wk. |
| **Total Phosphorus** | TBEL | Monitoring: | The monitoring frequency shall be 1/wk as a 24-hr composite sample when discharging |
| | | Effluent Limit: | Effluent limits shall not exceed 4 lbs/day and 0.5 mg/l. |
| | | Rationale: | Effluent limits consistent with Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers (391-2000-014) |
| | Chesapeake Bay TMDL | Monitoring: | The monitoring frequency shall be 2x/wk as a 24-hr composite sample |
| | | Effluent Limit: | No effluent requirements. |
| | | Rationale: | Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/wk. |
| **Net Total Nitrogen** | Chesapeake Bay TMDL | Monitoring: | The monitoring frequency shall be 1x/yr as a calculation |
| | | Effluent Limit: | Effluent limits shall not exceed 10,959 lbs/yr |
| | | Rationale: | Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/yr. |
| **Net Total Phosphorus** | Chesapeake Bay TMDL | Monitoring: | The monitoring frequency shall be 1x/yr as a calculation |
| | | Effluent Limit: | Effluent limits shall not exceed 1,461 lbs/yr |
| | | Rationale: | Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/yr. |

**Notes:**

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.97 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

### 6.1.6 Outfall 002- Toxics

**Summary of Proposed NPDES Parameter Details for Toxics**

**Freedom Township WWTP; PA0110361; Outfall 002**

| Parameter | Permit Limitation Required by[1]: | Recommendation | |
|---|---|---|---|
| **Total Copper** | WQBEL | Monitoring: | The monitoring frequency shall be 1x/week during discharge as a 24-hr composite sample |
| | | Effluent Limit: | No effluent requirement |
| | | Rationale: | Pending favorable results from monitoring, future renewals may reduce or eliminate monitoring. |
| **Total Zinc** | WQBEL | Monitoring: | The monitoring frequency shall be 1x/week during discharge as a 24-hr composite sample |
| | | Effluent Limit: | No effluent requirement |
| | | Rationale: | Pending favorable results from monitoring, future renewals may reduce or eliminate monitoring. |

Notes:

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.97 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

### 6.1.3.1 Implementation of Regulation- Chapter 92a.61

Chapter 92a.61 provides provisions to DEP to monitor for pollutants that may have an impact on the quality of waters of the Commonwealth. Based upon DEP policy directives issued on March 22, 2021 and in conjunction with EPA's 2017 Triennial Review, monitoring for E. Coli shall be required.

## 6.2 Summary of Changes From Existing Permit to Proposed Permit

A summary of how the proposed NPDES permit differs from the existing NPDES permit is summarized as follows.

**Changes in Permit Monitoring or Effluent Quality- Outfall 001**

| Parameter | Existing Permit | Draft Permit |
|---|---|---|
| E. Coli | No monitoring or effluent requirement | Due to EPA triennial review, monitoring shall be required 1x/quarter |
| Total Copper | No monitoring or effluent requirement | Monitoring shall be 1x/quarter |
| Total Zinc | No monitoring or effluent requirement | Monitoring shall be 1x/quarter |

**Changes in Permit Monitoring or Effluent Quality- Outfall 002**

| Parameter | Existing Permit | Draft Permit |
|---|---|---|
| Dissolved Oxygen | Minimum effluent limit is 5.0 mg/l | The prior Fact Sheet recommended 6.0 mg/l. The NPDES errorneouly listed it at 5.0 mg/l. Consistent with Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers (391-2000-014) the minimum effluent limit shall be 6.0 mg/l |
| UV disinfection | No monitoring or effluent requirement | Monitoring shall be 1x/day when discharging |
| Total Copper | No monitoring or effluent requirement | Monitoring shall be 1x/week when discharging |
| Total Zinc | No monitoring or effluent requirement | Monitoring shall be 1x/week when discharging |

### 6.3.1 Summary of Proposed NPDES Effluent Limits

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

The proposed NPDES effluent limitations are summarized in the table below.

**PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS**

**I. A. For Outfall** 001 , **Latitude** 40° 22' 34.57" , **Longitude** 78° 25' 34.74" , **River Mile Index** 39.74 , **Stream Code** 16061

**Receiving Waters:** Frankstown Branch Juniata River (TSF, MF)

**Type of Effluent:** Sewage Effluent

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

| 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 | Weekly Average | Instant. Maximum | | |
| Flow (MGD) | Report | Report Daily Max | XXX | XXX | XXX | XXX | Continuous | Measured |
| pH (S.U.) | XXX | XXX | 6.0 | XXX | XXX | 9.0 | 1/day | Grab |
| Dissolved Oxygen | XXX | XXX | 5.0 | XXX | XXX | XXX | 1/day | Grab |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30 | 162 | 243 | XXX | 20.0 | 30.0 | 40 | 1/week | 24-Hr Composite |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31 | 202 | 324 | XXX | 25.0 | 40.0 | 50 | 1/week | 24-Hr Composite |
| Biochemical Oxygen Demand (BOD5) Raw Sewage Influent | Report | Report Daily Max | XXX | Report | XXX | XXX | 1/week | 24-Hr Composite |
| Total Suspended Solids | 243 | 364 | XXX | 30.0 | 45.0 | 60 | 1/week | 24-Hr Composite |
| Total Suspended Solids Raw Sewage Influent | Report | Report Daily Max | XXX | Report | XXX | XXX | 1/week | 24-Hr Composite |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2000 Geo Mean | XXX | 10000 | 1/week | Grab |

**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 | Weekly Average | Instant. Maximum | | |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1000 | 1/week | Grab |
| E. Coli (No./100 ml) | XXX | XXX | XXX | XXX | Report Daily Max | XXX | 1/quarter | Grab |
| Ammonia-Nitrogen Nov 1 - Apr 30 | 145 | XXX | XXX | 18.0 | XXX | 36 | 2/week | 24-Hr Composite |
| Ammonia-Nitrogen May 1 - Oct 31 | 49 | XXX | XXX | 6.0 | XXX | 12 | 2/week | 24-Hr Composite |
| Copper, Total | Report Avg Qrtly | XXX | XXX | Report Avg Qrtly | XXX | XXX | 1/quarter | 24-Hr Composite |
| Zinc, Total | Report Avg Qrtly | XXX | XXX | Report Avg Qrtly | XXX | XXX | 1/quarter | 24-Hr Composite |
| Ultraviolet light dosage (mjoules/cm²) | XXX | XXX | Report | XXX | XXX | XXX | 1/day | Recorded |

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

**PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS**

**I. B. For Outfall** 002* , **Latitude** 40º 22' 34.45" , **Longitude** 78º 25' 37.71" , **River Mile Index** 0.08 , **Stream Code** 16564

**Receiving Waters:** Unnamed Tributary to Frankstown Branch Juniata River (WWF, MF)

**Type of Effluent:** Sewage Effluent

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

| 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 | Weekly Average | Instant. Maximum | | |
| Flow (MGD) | Report | Report Daily Max | XXX | XXX | XXX | XXX | Daily when Discharging | Measured |
| pH (S.U.) | XXX | XXX | 6.0 | XXX | XXX | 9.0 | Daily when Discharging | Grab |
| Dissolved Oxygen | XXX | XXX | 6.0 | XXX | XXX | XXX | Daily when Discharging | Grab |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) | 80 | 121 | XXX | 10.0 | 15.0 | 20 | Weekly when Discharging | 24-Hr Composite |
| Total Suspended Solids | 80 | 121 | XXX | 10.0 | 15.0 | 20 | Weekly when Discharging | 24-Hr Composite |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2000 Geo Mean | XXX | 10000 | Weekly when Discharging | Grab |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1000 | Weekly when Discharging | Grab |
| Total Nitrogen | 40 | XXX | XXX | 5.0 | XXX | 10 | Weekly when Discharging | Calculation |
| Ammonia-Nitrogen Nov 1 - Apr 30 | 31.5 | XXX | XXX | 3.9 | XXX | 7.8 | Weekly when Discharging | 24-Hr Composite |
| Ammonia-Nitrogen May 1 - Oct 31 | 10.5 | XXX | XXX | 1.3 | XXX | 2.6 | Weekly when Discharging | 24-Hr Composite |
| Total Phosphorus | 4.0 | XXX | XXX | 0.5 | XXX | 1 | Weekly when Discharging | 24-Hr Composite |

**Outfall 002 , 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 | Weekly Average | Instant. Maximum | | |
| Copper, Total | Report | XXX | XXX | Report | XXX | XXX | Weekly when Discharging | 24-Hr Composite |
| Zinc, Total | Report | XXX | XXX | Report | XXX | XXX | Weekly when Discharging | 24-Hr Composite |
| Ultraviolet light dosage (mjoules/cm²) | XXX | XXX | Report | XXX | XXX | XXX | 1/discharge | Recorded |

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

*Outfall 002 shall be used only under emergency.

**PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS**

**I. C. For Outfall** 001 , **Latitude** 40° 22' 34.57" , **Longitude** 78° 25' 34.74" , **River Mile Index** 39.74 , **Stream Code** 16061

**Receiving Waters:** Frankstown Branch Juniata River (TSF, MF)

**Type of Effluent:** Sewage Effluent

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Monthly | Annual | Monthly | Monthly Average | Maximum | Instant. Maximum | | |
| Ammonia--N | Report | Report | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| Kjeldahl--N | Report | XXX | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| Nitrate-Nitrite as N | Report | XXX | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| Total Nitrogen | Report | Report | XXX | Report | XXX | XXX | 1/month | Calculation |
| Total Phosphorus | Report | Report | XXX | Report | XXX | XXX | 2/week | 24-Hr Composite |
| Net Total Nitrogen | XXX | 10959 | XXX | XXX | XXX | XXX | 1/year | Calculation |
| Net Total Phosphorus | XXX | 1461 | XXX | XXX | XXX | XXX | 1/year | Calculation |

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001 and Outfall 002

Footnotes:
(1) See Part C for Chesapeake Bay Requirements.
(2) This is the minimum number of sampling events required. Permittees are encouraged, and it may be advantageous in demonstrating compliance, to perform more than the minimum number of sampling events required.

## 6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- Peak Flow Management Plan
- Hauled-in Waste Restrictions
- Chesapeake Bay Nutrient Definitions
- Solids Management for Non-Lagoon Treatment Systems

| Tools and References Used to Develop Permit | |
|---|---|
| | |
| ☒ | WQM for Windows Model (see Attachment ) |
| ☒ | Toxics Management Spreadsheet (see Attachment ) |
| ☐ | TRC Model Spreadsheet (see Attachment ) |
| ☐ | Temperature Model Spreadsheet (see Attachment ) |
| ☐ | Water Quality Toxics Management Strategy, 361-0100-003, 4/06. |
| ☐ | Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97. |
| ☐ | Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98. |
| ☐ | Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96. |
| ☐ | Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97. |
| ☐ | Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97. |
| ☐ | Pennsylvania CSO Policy, 385-2000-011, 9/08. |
| ☐ | Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03. |
| ☐ | Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97. |
| ☐ | Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97. |
| ☐ | Implementation Guidance Design Conditions, 391-2000-006, 9/97. |
| ☐ | Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004. |
| ☐ | Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997. |
| ☐ | Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99. |
| ☐ | Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004. |
| ☐ | Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97. |
| ☐ | Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008. |
| ☐ | Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994. |
| ☐ | Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09. |
| ☐ | Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97. |
| ☐ | Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97. |
| ☐ | Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99. |
| ☐ | Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999. |
| ☐ | Design Stream Flows, 391-2000-023, 9/98. |
| ☐ | Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98. |
| ☐ | Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97. |
| ☐ | Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07. |
| ☒ | SOP: New and Reissuance Sewage Individual NPDES Permit Applications, rev 2/3/2022 |
| ☐ | Other: |

# Attachment A

# Stream Stats/Gauge Data

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

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

| Streamgage number | Streamgage name | Latitude | Longitude | Drainage area (mi²) | Regulated[1] |
|---|---|---|---|---|---|
| 01541303 | West Branch Susquehanna River at Hyde, Pa. | 41.005 | -78.457 | 474 | Y |
| 01541308 | Bradley Run near Ashville, Pa. | 40.509 | -78.584 | 6.77 | N |
| 01541500 | Clearfield Creek at Dimeling, Pa. | 40.972 | -78.406 | 371 | Y |
| 01542000 | Moshannon Creek at Osceola Mills, Pa. | 40.850 | -78.268 | 68.8 | N |
| 01542500 | WB Susquehanna River at Karthaus, Pa. | 41.118 | -78.109 | 1,462 | Y |
| 01542810 | Waldy Run near Emporium, Pa. | 41.579 | -78.293 | 5.24 | N |
| 01543000 | Driftwood Branch Sinnemahoning Creek at Sterling Run, Pa. | 41.413 | -78.197 | 272 | N |
| 01543500 | Sinnemahoning Creek at Sinnemahoning, Pa. | 41.317 | -78.103 | 685 | N |
| 01544000 | First Fork Sinnemahoning Creek near Sinnemahoning, Pa. | 41.402 | -78.024 | 245 | Y |
| 01544500 | Kettle Creek at Cross Fork, Pa. | 41.476 | -77.826 | 136 | N |
| 01545000 | Kettle Creek near Westport, Pa. | 41.320 | -77.874 | 233 | Y |
| 01545500 | West Branch Susquehanna River at Renovo, Pa. | 41.325 | -77.751 | 2,975 | Y |
| 01545600 | Young Womans Creek near Renovo, Pa. | 41.390 | -77.691 | 46.2 | N |
| 01546000 | North Bald Eagle Creek at Milesburg, Pa. | 40.942 | -77.794 | 119 | N |
| 01546400 | Spring Creek at Houserville, Pa. | 40.834 | -77.828 | 58.5 | N |
| 01546500 | Spring Creek near Axemann, Pa. | 40.890 | -77.794 | 87.2 | N |
| 01547100 | Spring Creek at Milesburg, Pa. | 40.932 | -77.786 | 142 | N |
| 01547200 | Bald Eagle Creek below Spring Creek at Milesburg, Pa. | 40.943 | -77.786 | 265 | N |
| 01547500 | Bald Eagle Creek at Blanchard, Pa. | 41.052 | -77.604 | 339 | Y |
| 01547700 | Marsh Creek at Blanchard, Pa. | 41.060 | -77.606 | 44.1 | N |
| 01547800 | South Fork Beech Creek near Snow Shoe, Pa. | 41.024 | -77.904 | 12.2 | N |
| 01547950 | Beech Creek at Monument, Pa. | 41.112 | -77.702 | 152 | N |
| 01548005 | Bald Eagle Creek near Beech Creek Station, Pa. | 41.081 | -77.549 | 562 | Y |
| 01548500 | Pine Creek at Cedar Run, Pa. | 41.522 | -77.447 | 604 | N |
| 01549000 | Pine Creek near Waterville, Pa. | 41.313 | -77.379 | 750 | N |
| 01549500 | Blockhouse Creek near English Center, Pa. | 41.474 | -77.231 | 37.7 | N |
| 01549700 | Pine Creek below Little Pine Creek near Waterville, Pa. | 41.274 | -77.324 | 944 | Y |
| 01550000 | Lycoming Creek near Trout Run, Pa. | 41.418 | -77.033 | 173 | N |
| 01551500 | WB Susquehanna River at Williamsport, Pa. | 41.236 | -76.997 | 5,682 | Y |
| 01552000 | Loyalsock Creek at Loyalsockville, Pa. | 41.325 | -76.912 | 435 | N |
| 01552500 | Muncy Creek near Sonestown, Pa. | 41.357 | -76.535 | 23.8 | N |
| 01553130 | Sand Spring Run near White Deer, Pa. | 41.059 | -77.077 | 4.93 | N |
| 01553500 | West Branch Susquehanna River at Lewisburg, Pa. | 40.968 | -76.876 | 6,847 | Y |
| 01553700 | Chillisquaque Creek at Washingtonville, Pa. | 41.062 | -76.680 | 51.3 | N |
| 01554000 | Susquehanna River at Sunbury, Pa. | 40.835 | -76.827 | 18,300 | Y |
| 01554500 | Shamokin Creek near Shamokin, Pa. | 40.810 | -76.584 | 54.2 | N |
| 01555000 | Penns Creek at Penns Creek, Pa. | 40.867 | -77.048 | 301 | N |
| 01555500 | East Mahantango Creek near Dalmatia, Pa. | 40.611 | -76.912 | 162 | N |
| 01556000 | Frankstown Branch Juniata River at Williamsburg, Pa. | 40.463 | -78.200 | 291 | N |
| 01557500 | Bald Eagle Creek at Tyrone, Pa. | 40.684 | -78.234 | 44.1 | N |
| 01558000 | Little Juniata River at Spruce Creek, Pa. | 40.613 | -78.141 | 220 | N |
| 01559000 | Juniata River at Huntingdon, Pa. | 40.485 | -78.019 | 816 | LF |
| 01559500 | Standing Stone Creek near Huntingdon, Pa. | 40.524 | -77.971 | 128 | N |
| 01559700 | Sulphur Springs Creek near Manns Choice, Pa. | 39.978 | -78.619 | 5.28 | N |
| 01560000 | Dunning Creek at Belden, Pa. | 40.072 | -78.493 | 172 | N |

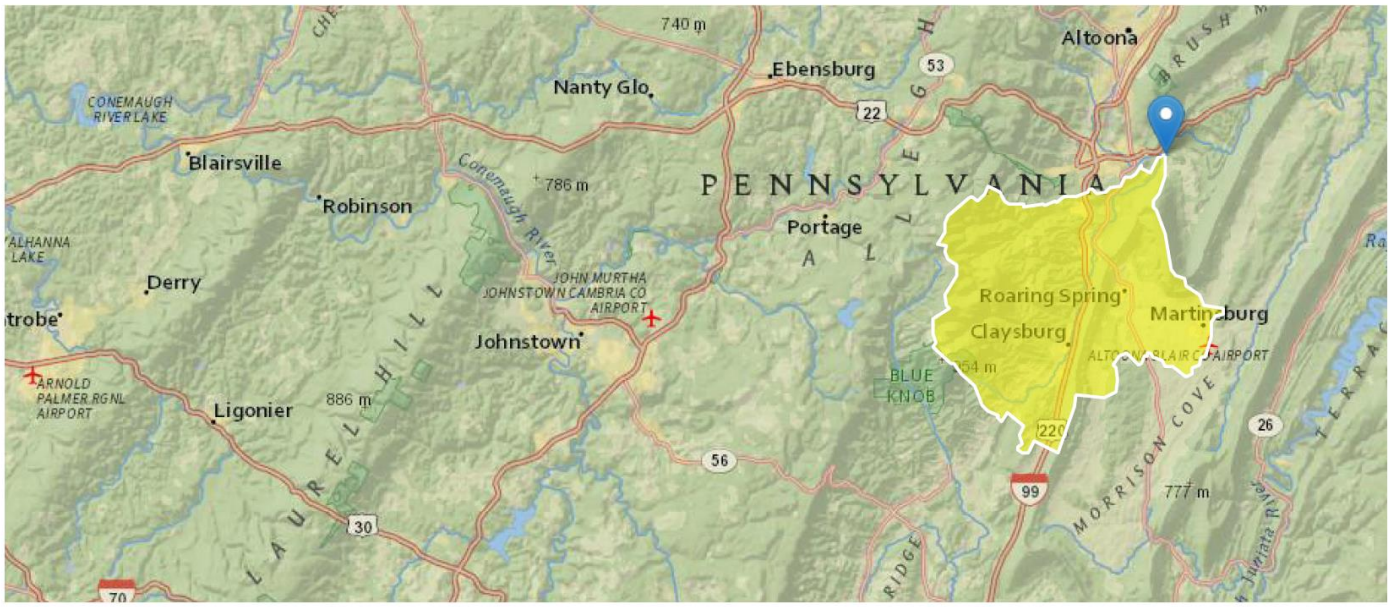
**Table 2.** Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

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

| Streamgage number | Period of record used in analysis[1] | Number of years used in analysis | 1-day, 10-year (ft³/s) | 7-day, 10-year (ft³/s) | 7-day, 2-year (ft³/s) | 30-day, 10-year (ft³/s) | 30-day, 2-year (ft³/s) | 90-day, 10-year (ft³/s) |
|---|---|---|---|---|---|---|---|---|
| 01546000 | 1912–1934 | 17 | 1.8 | 2.2 | 6.8 | 3.7 | 12.1 | 11.2 |
| 01546400 | 1986–2008 | 23 | 13.5 | 14.0 | 19.6 | 15.4 | 22.3 | 18.7 |
| 01546500 | 1942–2008 | 67 | 26.8 | 29.0 | 41.3 | 31.2 | 44.2 | 33.7 |
| 01547100 | 1969–2008 | 40 | 102 | 105 | 128 | 111 | 133 | 117 |
| 01547200 | 1957–2008 | 52 | 99.4 | 101 | 132 | 106 | 142 | 115 |
| 01547500 | [2]1971–2008 | 38 | 28.2 | 109 | 151 | 131 | 172 | 153 |
| 01547500 | [3]1956–1969 | 14 | 90.0 | 94.9 | 123 | 98.1 | 131 | 105 |
| 01547700 | 1957–2008 | 52 | .5 | .6 | 2.7 | 1.1 | 3.9 | 2.2 |
| 01547800 | 1971–1981 | 11 | 1.6 | 1.8 | 2.4 | 2.1 | 2.9 | 3.5 |
| 01547950 | 1970–2008 | 39 | 12.1 | 13.6 | 28.2 | 17.3 | 36.4 | 23.8 |
| 01548005 | [2]1971–2000 | 25 | 142 | 151 | 206 | 178 | 241 | 223 |
| 01548005 | [3]1912–1969 | 58 | 105 | 114 | 147 | 125 | 165 | 140 |
| 01548500 | 1920–2008 | 89 | 21.2 | 24.2 | 50.1 | 33.6 | 68.6 | 49.3 |
| 01549000 | 1910–1920 | 11 | 26.0 | 32.9 | 78.0 | 46.4 | 106 | 89.8 |
| 01549500 | 1942–2008 | 67 | .6 | .8 | 2.5 | 1.4 | 3.9 | 2.6 |
| 01549700 | 1959–2008 | 50 | 33.3 | 37.2 | 83.8 | 51.2 | 117 | 78.4 |
| 01550000 | 1915–2008 | 94 | 6.6 | 7.6 | 16.8 | 11.2 | 24.6 | 18.6 |
| 01551500 | [2]1963–2008 | 46 | 520 | 578 | 1,020 | 678 | 1,330 | 919 |
| 01551500 | [3]1901–1961 | 61 | 400 | 439 | 742 | 523 | 943 | 752 |
| 01552000 | 1927–2008 | 80 | 20.5 | 22.2 | 49.5 | 29.2 | 69.8 | 49.6 |
| 01552500 | 1942–2008 | 67 | .9 | 1.2 | 3.1 | 1.7 | 4.4 | 3.3 |
| 01553130 | 1969–1981 | 13 | 1.0 | 1.1 | 1.5 | 1.3 | 1.8 | 1.7 |
| 01553500 | [2]1968–2008 | 41 | 760 | 838 | 1,440 | 1,000 | 1,850 | 1,470 |
| 01553500 | [3]1941–1966 | 26 | 562 | 619 | 880 | 690 | 1,090 | 881 |
| 01553700 | 1981–2008 | 28 | 9.1 | 10.9 | 15.0 | 12.6 | 17.1 | 15.2 |
| 01554000 | [2]1981–2008 | 28 | 1,830 | 1,990 | 3,270 | 2,320 | 4,210 | 3,160 |
| 01554000 | [3]1939–1979 | 41 | 1,560 | 1,630 | 2,870 | 1,880 | 3,620 | 2,570 |
| 01554500 | 1941–1993 | 53 | 16.2 | 22.0 | 31.2 | 25.9 | 35.7 | 31.4 |
| 01555000 | 1931–2008 | 78 | 33.5 | 37.6 | 58.8 | 43.4 | 69.6 | 54.6 |
| 01555500 | 1931–2008 | 78 | 4.9 | 6.5 | 18.0 | 9.4 | 24.3 | 16.6 |
| 01556000 | 1918–2008 | 91 | 43.3 | 47.8 | 66.0 | 55.1 | 75.0 | 63.7 |
| 01557500 | 1946–2008 | 63 | 2.8 | 3.2 | 6.3 | 4.2 | 8.1 | 5.8 |
| 01558000 | 1940–2008 | 69 | 56.3 | 59.0 | 79.8 | 65.7 | 86.2 | 73.7 |
| 01559000 | 1943–2008 | 66 | 104 | 177 | 249 | 198 | 279 | 227 |
| 01559500 | 1931–1958 | 28 | 9.3 | 10.5 | 15.0 | 12.4 | 17.8 | 15.8 |
| 01559700 | 1963–1978 | 16 | .1 | .1 | .2 | .1 | .3 | .2 |
| 01560000 | 1941–2008 | 68 | 8.5 | 9.4 | 15.6 | 12.0 | 20.2 | 16.2 |
| 01561000 | 1932–1958 | 27 | .4 | .5 | 1.6 | .8 | 2.5 | 1.7 |
| 01562000 | 1913–2008 | 96 | 64.1 | 67.1 | 106 | 77.4 | 122 | 94.5 |
| 01562500 | 1931–1957 | 27 | 1.1 | 1.6 | 3.8 | 2.3 | 5.4 | 3.7 |
| 01563200 | [2]1974–2008 | 35 | — | — | — | 112 | 266 | 129 |
| 01563200 | [3]1948–1972 | 25 | 10.3 | 28.2 | 86.1 | 64.5 | 113 | 95.5 |
| 01563500 | [2]1974–2008 | 35 | 384 | 415 | 519 | 441 | 580 | 493 |
| 01563500 | [3]1939–1972 | 34 | 153 | 242 | 343 | 278 | 399 | 333 |
| 01564500 | 1940–2008 | 69 | 3.6 | 4.2 | 10.0 | 6.2 | 14.4 | 10.6 |

# StreamStats Report

**Region ID:** PA
**Workspace ID:** PA20220907141509481000
**Clicked Point (Latitude, Longitude):** 40.43032, -78.36063
**Time:** 2022-09-07 10:15:30 -0400




Freedom WWTP PA0110361 Modeling Point # Hollidaysburg September 2022

Collapse All

## Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| CARBON | Percentage of area of carbonate rock | 24.24 | percent |
| DRNAREA | Area that drains to a point on a stream | 116 | square miles |
| PRECIP | Mean Annual Precipitation | 38 | inches |
| ROCKDEP | Depth to rock | 4.6 | feet |
| STRDEN | Stream Density -- total length of streams divided by drainage area | 2.3 | miles per square mile |

## Low-Flow Statistics

### Low-Flow Statistics Parameters [100.0 Percent (116 square miles) Low Flow Region 2]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 116 | square miles | 4.93 | 1280 |
| PRECIP | Mean Annual Precipitation | 38 | inches | 35 | 50.4 |
| STRDEN | Stream Density | 2.3 | miles per square mile | 0.51 | 3.1 |
| ROCKDEP | Depth to Rock | 4.6 | feet | 3.32 | 5.65 |
| CARBON | Percent Carbonate | 24.24 | percent | 0 | 99 |

### Low-Flow Statistics Flow Report [100.0 Percent (116 square miles) Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 7 Day 2 Year Low Flow | 12.8 | ft^3/s | 38 | 38 |

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 30 Day 2 Year Low Flow | 16.3 | ft^3/s | 33 | 33 |
| 7 Day 10 Year Low Flow | 7.21 | ft^3/s | 51 | 51 |
| 30 Day 10 Year Low Flow | 9.15 | ft^3/s | 46 | 46 |
| 90 Day 10 Year Low Flow | 12.6 | ft^3/s | 36 | 36 |

*Low-Flow Statistics Citations*

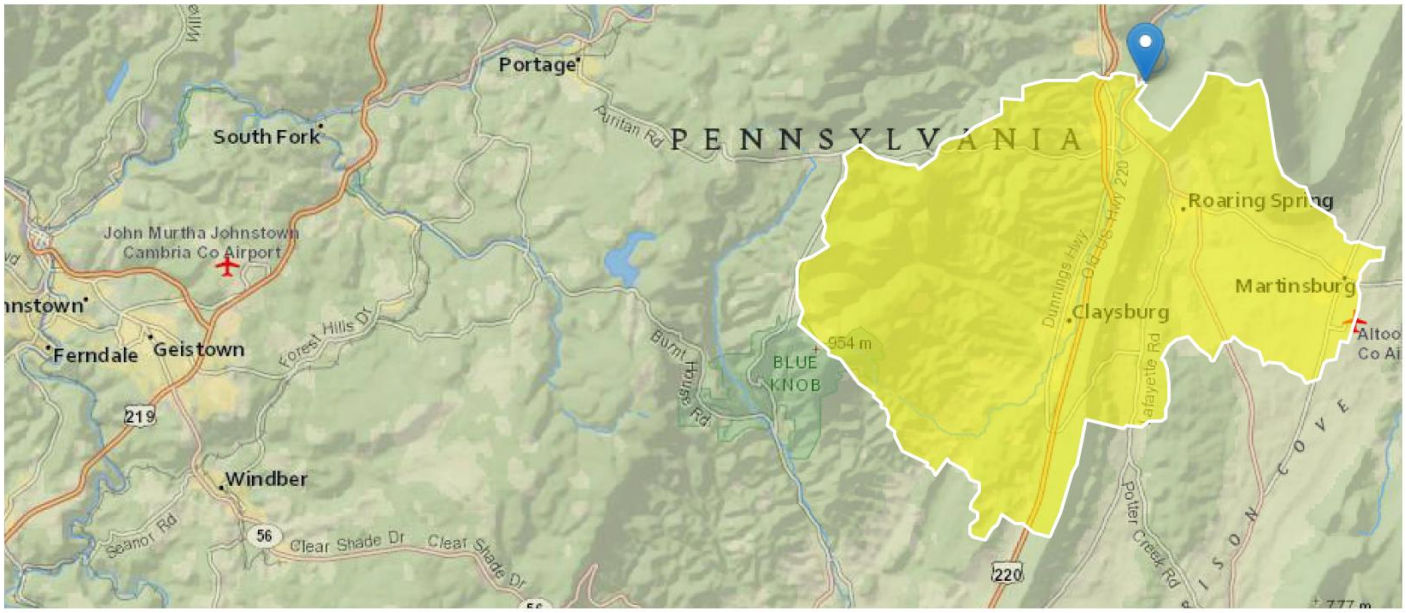
**Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)**



Application Version: 4.10.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

# StreamStats Report

**Region ID:** PA
**Workspace ID:** PA20220907142206746000
**Clicked Point (Latitude, Longitude):** 40.37908, -78.41590
**Time:** 2022-09-07 10:22:27 -0400




Freedom WWTP PA0110361 Modeling Point # Formerly Appvion September 2022

Collapse All

## Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| CARBON | Percentage of area of carbonate rock | 29.93 | percent |
| DRNAREA | Area that drains to a point on a stream | 90.7 | square miles |
| PRECIP | Mean Annual Precipitation | 38 | inches |
| ROCKDEP | Depth to rock | 4.7 | feet |
| STRDEN | Stream Density -- total length of streams divided by drainage area | 2.3 | miles per square mile |

## Low-Flow Statistics

### Low-Flow Statistics Parameters [Low Flow Region 2]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 90.7 | square miles | 4.93 | 1280 |
| PRECIP | Mean Annual Precipitation | 38 | inches | 35 | 50.4 |
| STRDEN | Stream Density | 2.3 | miles per square mile | 0.51 | 3.1 |
| ROCKDEP | Depth to Rock | 4.7 | feet | 3.32 | 5.65 |
| CARBON | Percent Carbonate | 29.93 | percent | 0 | 99 |

### Low-Flow Statistics Flow Report [Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 7 Day 2 Year Low Flow | 10.8 | ft^3/s | 38 | 38 |

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 30 Day 2 Year Low Flow | 13.6 | ft^3/s | 33 | 33 |
| 7 Day 10 Year Low Flow | 6.27 | ft^3/s | 51 | 51 |
| 30 Day 10 Year Low Flow | 7.8 | ft^3/s | 46 | 46 |
| 90 Day 10 Year Low Flow | 10.5 | ft^3/s | 36 | 36 |

*Low-Flow Statistics Citations*

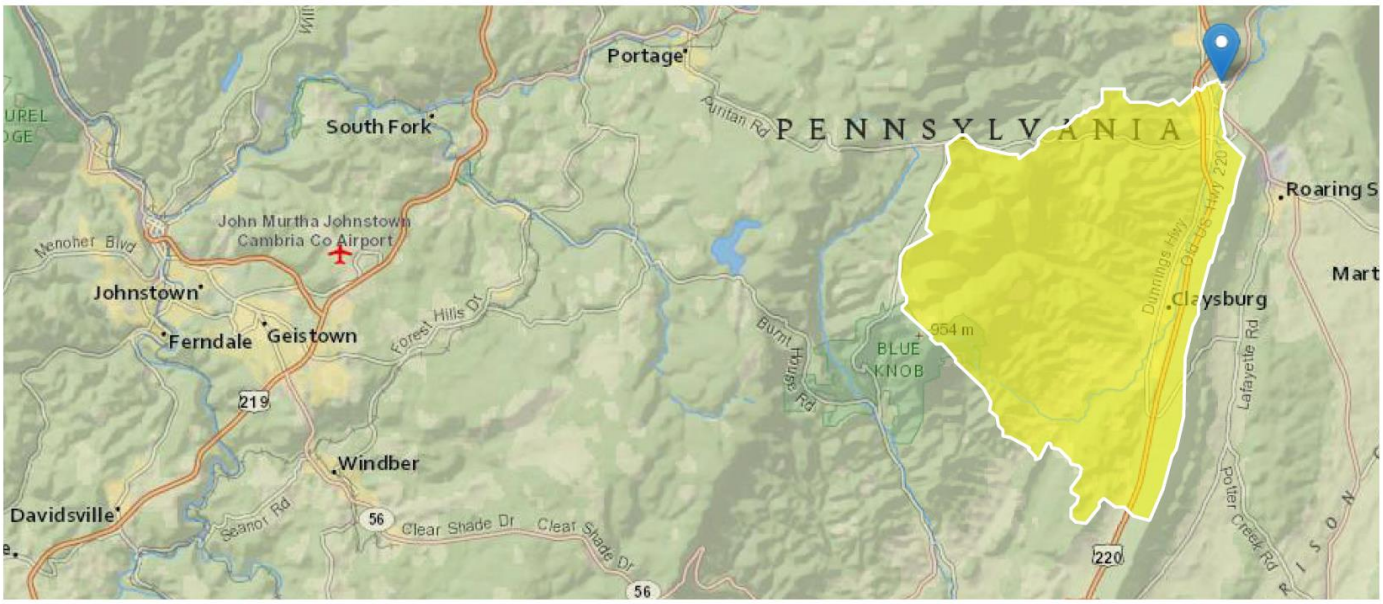
**Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)**



Application Version: 4.10.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

# StreamStats Report

**Region ID:** PA
**Workspace ID:** PA20220907142446523000
**Clicked Point (Latitude, Longitude):** 40.37601, -78.42614
**Time:** 2022-09-07 10:25:07 -0400




Freedom WWTP PA0110361 Modeling Point # Freedom September 2022

Collapse All

## Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| CARBON | Percentage of area of carbonate rock | 9.27 | percent |
| DRNAREA | Area that drains to a point on a stream | 55.5 | square miles |
| PRECIP | Mean Annual Precipitation | 39 | inches |
| ROCKDEP | Depth to rock | 4.3 | feet |
| STRDEN | Stream Density -- total length of streams divided by drainage area | 2.46 | miles per square mile |

## Low-Flow Statistics

### Low-Flow Statistics Parameters [Low Flow Region 2]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 55.5 | square miles | 4.93 | 1280 |
| PRECIP | Mean Annual Precipitation | 39 | inches | 35 | 50.4 |
| STRDEN | Stream Density | 2.46 | miles per square mile | 0.51 | 3.1 |
| ROCKDEP | Depth to Rock | 4.3 | feet | 3.32 | 5.65 |
| CARBON | Percent Carbonate | 9.27 | percent | 0 | 99 |

### Low-Flow Statistics Flow Report [Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 7 Day 2 Year Low Flow | 4.33 | ft^3/s | 38 | 38 |

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 30 Day 2 Year Low Flow | 5.9 | ft^3/s | 33 | 33 |
| 7 Day 10 Year Low Flow | 2.05 | ft^3/s | 51 | 51 |
| 30 Day 10 Year Low Flow | 2.81 | ft^3/s | 46 | 46 |
| 90 Day 10 Year Low Flow | 4.36 | ft^3/s | 36 | 36 |

*Low-Flow Statistics Citations*

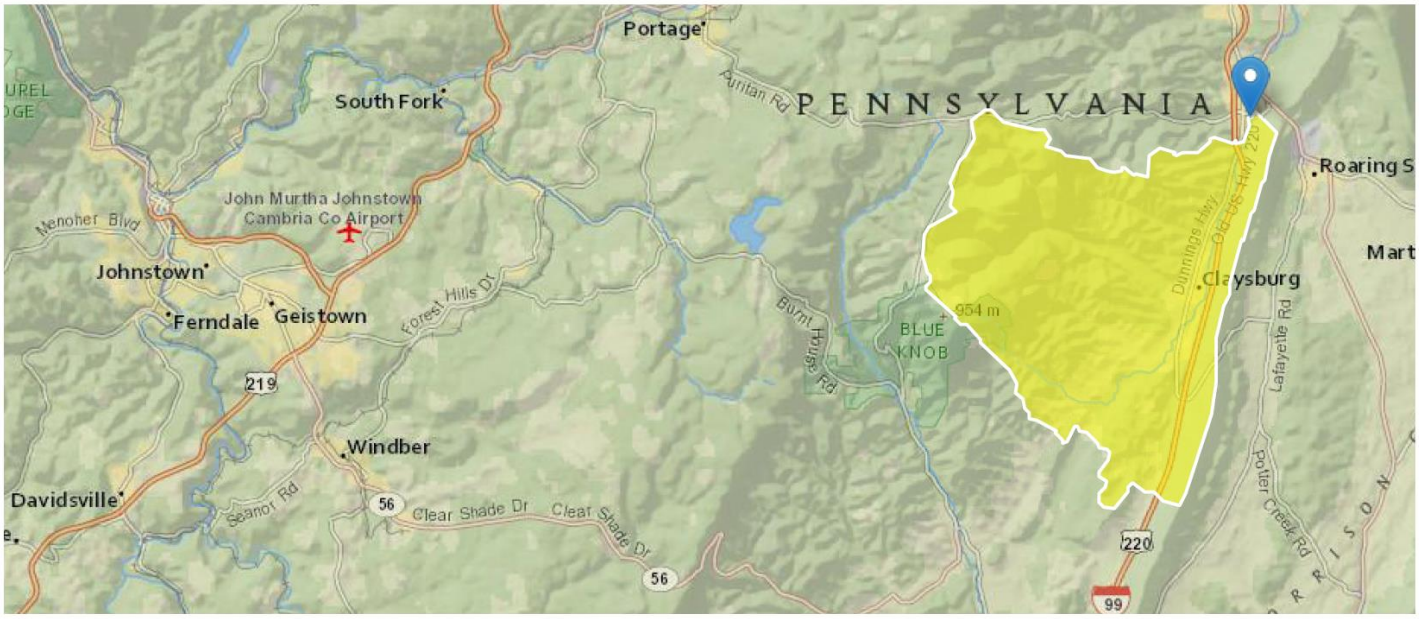
**Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)**



Application Version: 4.10.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

# StreamStats Report

**Region ID:** PA
**Workspace ID:** PA20220907142834774000
**Clicked Point (Latitude, Longitude):** 40.35482, -78.42745
**Time:** 2022-09-07 10:28:54 -0400




Freedom WWTP PA0110361 Modeling Point #Roaring Springs September 2022

Collapse All

## Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| CARBON | Percentage of area of carbonate rock | 10.93 | percent |
| DRNAREA | Area that drains to a point on a stream | 47.1 | square miles |
| PRECIP | Mean Annual Precipitation | 39 | inches |
| ROCKDEP | Depth to rock | 4.3 | feet |
| STRDEN | Stream Density -- total length of streams divided by drainage area | 2.38 | miles per square mile |

## Low-Flow Statistics

### Low-Flow Statistics Parameters [Low Flow Region 2]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 47.1 | square miles | 4.93 | 1280 |
| PRECIP | Mean Annual Precipitation | 39 | inches | 35 | 50.4 |
| STRDEN | Stream Density | 2.38 | miles per square mile | 0.51 | 3.1 |
| ROCKDEP | Depth to Rock | 4.3 | feet | 3.32 | 5.65 |
| CARBON | Percent Carbonate | 10.93 | percent | 0 | 99 |

### Low-Flow Statistics Flow Report [Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 7 Day 2 Year Low Flow | 3.81 | ft^3/s | 38 | 38 |

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 30 Day 2 Year Low Flow | 5.17 | ft^3/s | 33 | 33 |
| 7 Day 10 Year Low Flow | 1.8 | ft^3/s | 51 | 51 |
| 30 Day 10 Year Low Flow | 2.46 | ft^3/s | 46 | 46 |
| 90 Day 10 Year Low Flow | 3.81 | ft^3/s | 36 | 36 |

*Low-Flow Statistics Citations*

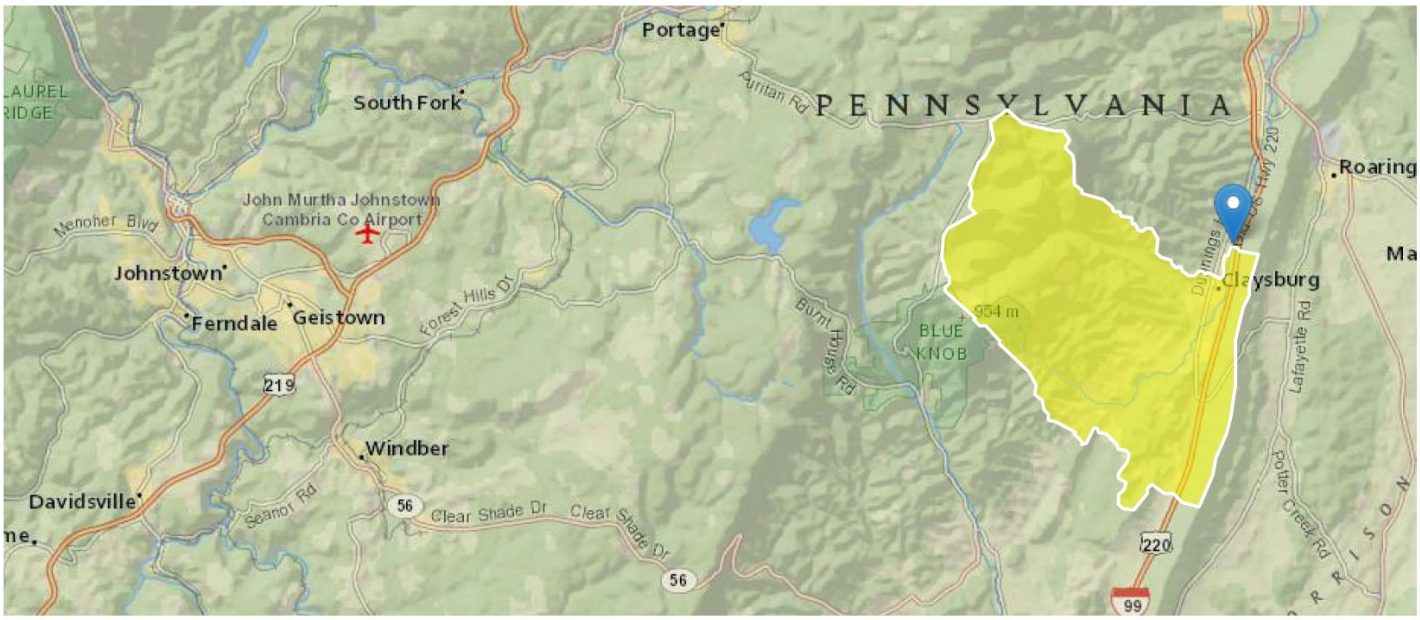
**Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)**



Application Version: 4.10.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

# StreamStats Report

**Region ID:** PA
**Workspace ID:** PA20220907143159117000
**Clicked Point (Latitude, Longitude):** 40.31137, -78.44376
**Time:** 2022-09-07 10:32:18 -0400




Freedom WWTP PA0110361 Modeling Point # Greenfield September 2022

Collapse All

## Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| CARBON | Percentage of area of carbonate rock | 12.85 | percent |
| DRNAREA | Area that drains to a point on a stream | 37.1 | square miles |
| PRECIP | Mean Annual Precipitation | 39 | inches |
| ROCKDEP | Depth to rock | 4.3 | feet |
| STRDEN | Stream Density -- total length of streams divided by drainage area | 2.28 | miles per square mile |

## Low-Flow Statistics

### Low-Flow Statistics Parameters [Low Flow Region 2]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 37.1 | square miles | 4.93 | 1280 |
| PRECIP | Mean Annual Precipitation | 39 | inches | 35 | 50.4 |
| STRDEN | Stream Density | 2.28 | miles per square mile | 0.51 | 3.1 |
| ROCKDEP | Depth to Rock | 4.3 | feet | 3.32 | 5.65 |
| CARBON | Percent Carbonate | 12.85 | percent | 0 | 99 |

### Low-Flow Statistics Flow Report [Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 7 Day 2 Year Low Flow | 3.12 | ft^3/s | 38 | 38 |

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 30 Day 2 Year Low Flow | 4.23 | ft^3/s | 33 | 33 |
| 7 Day 10 Year Low Flow | 1.47 | ft^3/s | 51 | 51 |
| 30 Day 10 Year Low Flow | 2.01 | ft^3/s | 46 | 46 |
| 90 Day 10 Year Low Flow | 3.1 | ft^3/s | 36 | 36 |

*Low-Flow Statistics Citations*

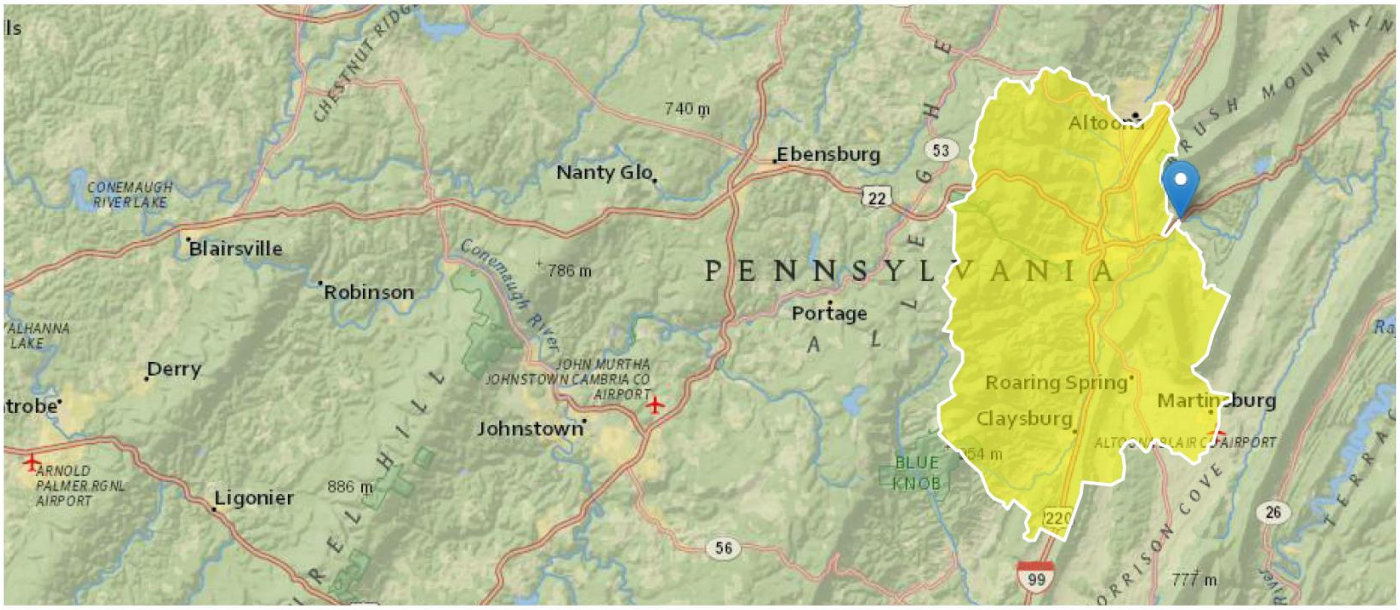
**Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)**



Application Version: 4.10.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

# StreamStats Report

**Region ID:** PA
**Workspace ID:** PA20220907152552538000
**Clicked Point (Latitude, Longitude):** 40.44375, -78.35355
**Time:** 2022-09-07 11:26:13 -0400




Freedom WWTP PA0110361 Modeling Point # Furthest Point Downstream September 2022

Collapse All

## Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| CARBON | Percentage of area of carbonate rock | 16.3 | percent |
| DRNAREA | Area that drains to a point on a stream | 215 | square miles |
| PRECIP | Mean Annual Precipitation | 40 | inches |
| ROCKDEP | Depth to rock | 4.6 | feet |
| STRDEN | Stream Density -- total length of streams divided by drainage area | 2.1 | miles per square mile |

## Low-Flow Statistics

### Low-Flow Statistics Parameters [100.0 Percent (215 square miles) Low Flow Region 2]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 215 | square miles | 4.93 | 1280 |
| PRECIP | Mean Annual Precipitation | 40 | inches | 35 | 50.4 |
| STRDEN | Stream Density | 2.1 | miles per square mile | 0.51 | 3.1 |
| ROCKDEP | Depth to Rock | 4.6 | feet | 3.32 | 5.65 |
| CARBON | Percent Carbonate | 16.3 | percent | 0 | 99 |

### Low-Flow Statistics Flow Report [100.0 Percent (215 square miles) Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 7 Day 2 Year Low Flow | 30.4 | ft^3/s | 38 | 38 |

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 30 Day 2 Year Low Flow | 38.2 | ft^3/s | 33 | 33 |
| 7 Day 10 Year Low Flow | 17.7 | ft^3/s | 51 | 51 |
| 30 Day 10 Year Low Flow | 22.1 | ft^3/s | 46 | 46 |
| 90 Day 10 Year Low Flow | 30 | ft^3/s | 36 | 36 |

*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/)**

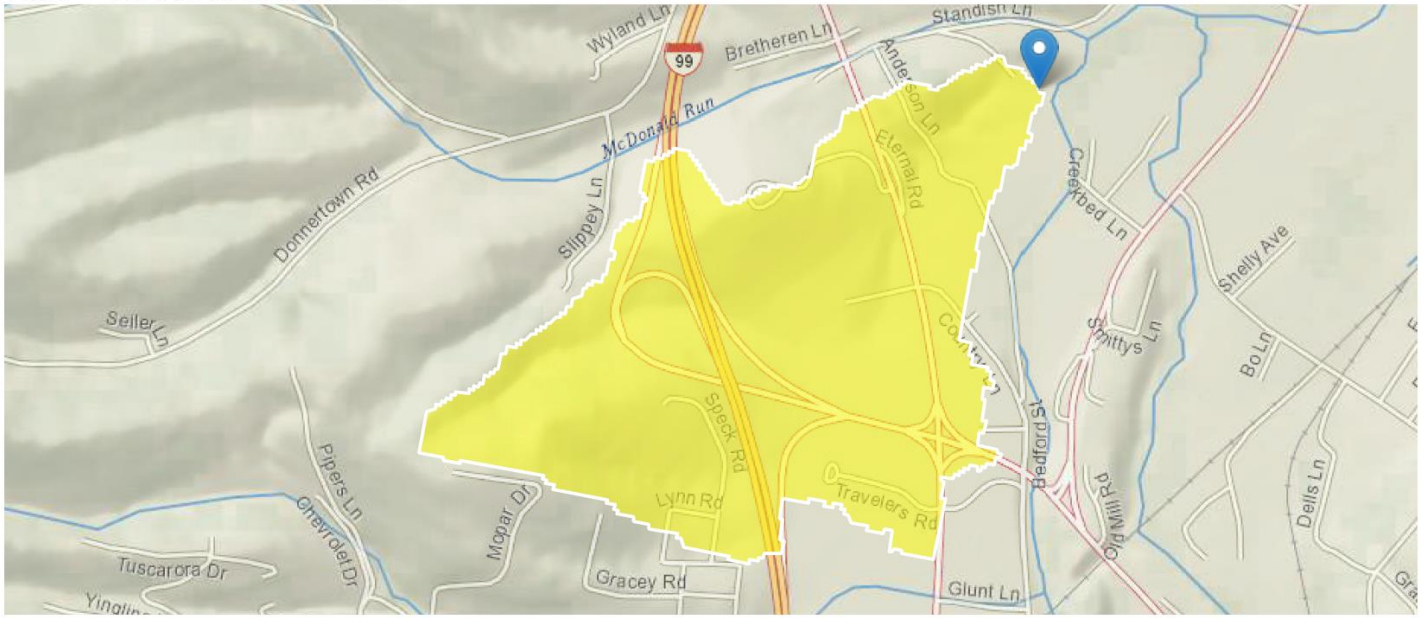


Application Version: 4.10.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

## Outfall 002

### StreamStats Report

**Region ID:** PA
**Workspace ID:** PA20220906120915513000
**Clicked Point (Latitude, Longitude):** 40.37571, -78.42700
**Time:** 2022-09-06 08:09:36 -0400




Freedom Township STP PA0110361 M0deling Point #1- Outfall 002 September 2022

Collapse All

## Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| CARBON | Percentage of area of carbonate rock | 0 | percent |
| DRNAREA | Area that drains to a point on a stream | 0.38 | square miles |
| PRECIP | Mean Annual Precipitation | 37 | inches |
| ROCKDEP | Depth to rock | 5.1 | feet |
| STRDEN | Stream Density -- total length of streams divided by drainage area | 2.94 | miles per square mile |

## Low-Flow Statistics

### Low-Flow Statistics Parameters [Low Flow Region 2]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 0.38 | square miles | 4.93 | 1280 |
| PRECIP | Mean Annual Precipitation | 37 | inches | 35 | 50.4 |
| STRDEN | Stream Density | 2.94 | miles per square mile | 0.51 | 3.1 |
| ROCKDEP | Depth to Rock | 5.1 | feet | 3.32 | 5.65 |
| CARBON | Percent Carbonate | 0 | percent | 0 | 99 |

### Low-Flow Statistics Disclaimers [Low Flow Region 2]

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

### Low-Flow Statistics Flow Report [Low Flow Region 2]

| Statistic | Value | Unit |
|---|---|---|
| 7 Day 2 Year Low Flow | 0.015 | ft^3/s |
| 30 Day 2 Year Low Flow | 0.0216 | ft^3/s |
| 7 Day 10 Year Low Flow | 0.00621 | ft^3/s |
| 30 Day 10 Year Low Flow | 0.00865 | ft^3/s |
| 90 Day 10 Year Low Flow | 0.0149 | ft^3/s |

*Low-Flow Statistics Citations*

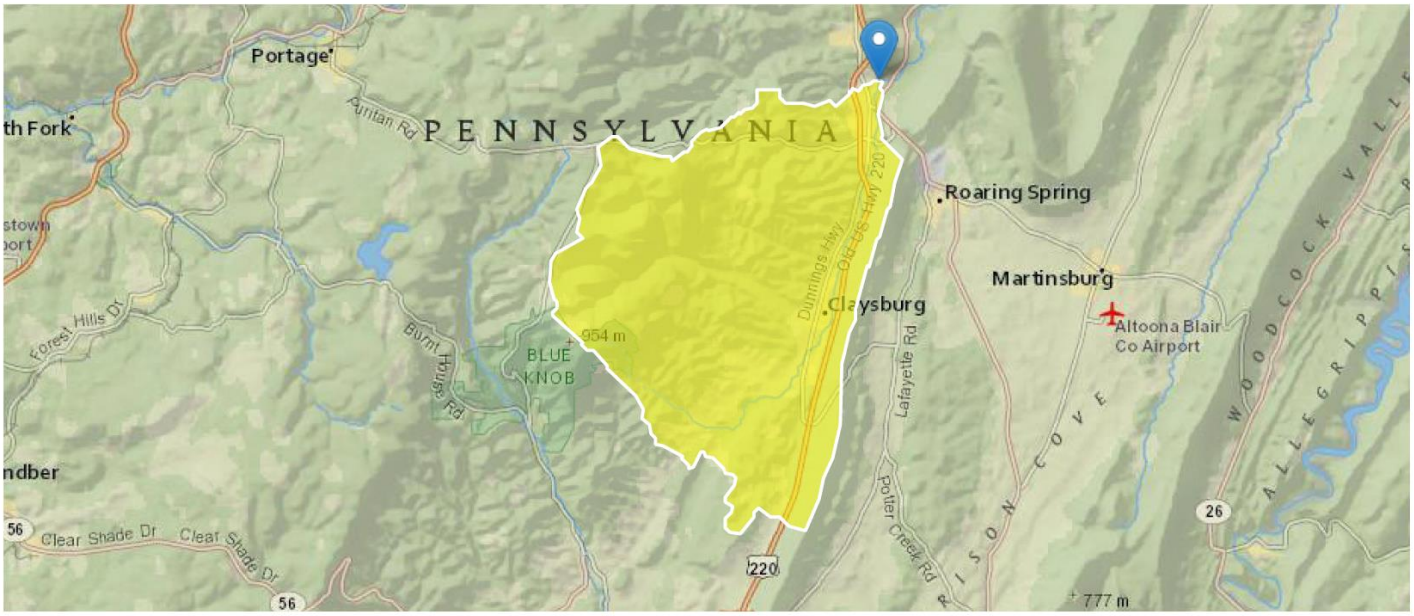
**Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)**



Application Version: 4.10.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

# StreamStats Report

**Region ID:** PA
**Workspace ID:** PA20220906121528442000
**Clicked Point (Latitude, Longitude):** 40.37674, -78.42562
**Time:** 2022-09-06 08:15:49 -0400




Freedom Township STP PA0110361 Modeling Point #2 - Outfall 002 September 2022

Collapse All

## Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| CARBON | Percentage of area of carbonate rock | 9.27 | percent |
| DRNAREA | Area that drains to a point on a stream | 55.5 | square miles |
| PRECIP | Mean Annual Precipitation | 39 | inches |
| ROCKDEP | Depth to rock | 4.3 | feet |
| STRDEN | Stream Density -- total length of streams divided by drainage area | 2.46 | miles per square mile |

## Low-Flow Statistics

### Low-Flow Statistics Parameters [Low Flow Region 2]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 55.5 | square miles | 4.93 | 1280 |
| PRECIP | Mean Annual Precipitation | 39 | inches | 35 | 50.4 |
| STRDEN | Stream Density | 2.46 | miles per square mile | 0.51 | 3.1 |
| ROCKDEP | Depth to Rock | 4.3 | feet | 3.32 | 5.65 |
| CARBON | Percent Carbonate | 9.27 | percent | 0 | 99 |

### Low-Flow Statistics Flow Report [Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 7 Day 2 Year Low Flow | 4.33 | ft^3/s | 38 | 38 |

| Statistic | Value | Unit | SE | ASEp |
|---|---|---|---|---|
| 30 Day 2 Year Low Flow | 5.9 | ft^3/s | 33 | 33 |
| 7 Day 10 Year Low Flow | 2.05 | ft^3/s | 51 | 51 |
| 30 Day 10 Year Low Flow | 2.81 | ft^3/s | 46 | 46 |
| 90 Day 10 Year Low Flow | 4.36 | ft^3/s | 36 | 36 |

*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: 4.10.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

# Attachment B

# WQM 7.0 Modeling Output Values
# Toxics Management Spreadsheet Output Values

## Outfall 001

# WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 11A | 16061 | FRANKSTOWN BRANCH JUNIATA RIVER |

| 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) |
|---|---|---|---|---|---|---|---|
| 45.300 | Greenfield | PA0029106-22 | 0.800 | CBOD5 | 25 | | |
| | | | | NH3-N | 5.45 | 10.9 | |
| | | | | Dissolved Oxygen | | | 5 |

| 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) |
|---|---|---|---|---|---|---|---|
| 41.910 | Roaring Springs | PA0020249-22 | 0.700 | CBOD5 | 25 | | |
| | | | | NH3-N | 7.16 | 14.32 | |
| | | | | Dissolved Oxygen | | | 5 |

| 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) |
|---|---|---|---|---|---|---|---|
| 39.740 | Freedom | PA0110361-22 | 0.970 | CBOD5 | 25 | | |
| | | | | NH3-N | 6.34 | 12.68 | |
| | | | | Dissolved Oxygen | | | 5 |

| 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) |
|---|---|---|---|---|---|---|---|
| 33.300 | Hollidaysburg | PA0043273-22 | 6.000 | CBOD5 | 16.53 | | |
| | | | | NH3-N | 4.08 | 8.16 | |
| | | | | Dissolved Oxygen | | | 5 |

# WQM 7.0 Wasteload Allocations

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 11A | 16061 | FRANKSTOWN BRANCH JUNIATA RIVER |

## 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 |
|---|---|---|---|---|---|---|---|
| 45.300 | Greenfield | 7.24 | 39.61 | 7.24 | 33.94 | 3 | 14 |
| 41.910 | Roaring Springs | 6.62 | 49.57 | 7.95 | 42.47 | 3 | 14 |
| 39.740 | Freedom | 6.88 | 44.84 | 8.56 | 38.42 | 3 | 14 |
| 39.090 | | NA | NA | 7.66 | NA | NA | NA |
| 33.300 | Hollidaysburg | 8.82 | 25.28 | 9.38 | 25.28 | 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 |
|---|---|---|---|---|---|---|---|
| 45.300 | Greenfield | 1.12 | 7.47 | 1.12 | 5.45 | 3 | 27 |
| 41.910 | Roaring Springs | 1.07 | 9.81 | 1.18 | 7.16 | 3 | 27 |
| 39.740 | Freedom | 1.09 | 8.7 | 1.23 | 6.34 | 3 | 27 |
| 39.090 | | NA | NA | 1.16 | NA | NA | NA |
| 33.300 | Hollidaysburg | 1.26 | 4.22 | 1.3 | 4.08 | 5 | 3 |

## 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) | | |
| 45.30 | Greenfield | 25 | 25 | 5.45 | 5.45 | 5 | 5 | 0 | 0 |
| 41.91 | Roaring Springs | 25 | 25 | 7.16 | 7.16 | 5 | 5 | 0 | 0 |
| 39.74 | Freedom | 25 | 25 | 6.34 | 6.34 | 5 | 5 | 0 | 0 |
| 39.09 | | NA | NA | NA | NA | NA | NA | NA | NA |
| 33.30 | Hollidaysburg | 16.53 | 16.53 | 4.08 | 4.08 | 5 | 5 | 0 | 0 |

## 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 |
|---|---|---|---|---|---|---|---|---|
| 11A | 16061 | FRANKSTOWN BRANCH JUNIATA R | **45.300** | 1096.00 | 37.10 | 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** | 0.164 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 22.00 | 7.84 | 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 |
|---|---|---|---|---|---|---|---|
| Greenfield | PA0029106-22 | 0.8000 | 0.8000 | 0.8000 | 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 | 5.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 25.00 | 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 |
|---|---|---|---|---|---|---|---|---|
| 11A | 16061 | FRANKSTOWN BRANCH JUNIATA R | **41.910** | 1009.00 | 47.10 | 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** | 0.164 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 22.00 | 7.84 | 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 |
|---|---|---|---|---|---|---|---|
| Roaring Springs | PA0020249-22 | 0.7000 | 0.7000 | 0.7000 | 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 | 5.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 25.00 | 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 |
|---|---|---|---|---|---|---|---|---|
| 11A | 16061 | FRANKSTOWN BRANCH JUNIATA R | **39.740** | 987.00 | 55.50 | 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** | 0.164 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 22.00 | 7.84 | 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 |
|---|---|---|---|---|---|---|---|
| Freedom | PA0110361-22 | 0.9700 | 0.9700 | 0.9700 | 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 | 5.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 25.00 | 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 |
|---|---|---|---|---|---|---|---|---|
| 11A | 16061 | FRANKSTOWN BRANCH JUNIATA R | **39.090** | 974.00 | 90.70 | 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** | 0.164 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 22.00 | 7.84 | 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 | 5.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 25.00 | 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 |
|---|---|---|---|---|---|---|---|---|
| 11A | 16061 | FRANKSTOWN BRANCH JUNIATA R | **33.300** | 913.00 | 116.00 | 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** | 0.164 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 22.00 | 7.84 | 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 |
|---|---|---|---|---|---|---|---|
| Hollidaysburg | PA0043273-22 | 6.0000 | 6.0000 | 6.0000 | 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 | 5.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 25.00 | 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 |
|---|---|---|---|---|---|---|---|---|
| 11A | 16061 | FRANKSTOWN BRANCH JUNIATA R | **32.230** | 911.00 | 215.00 | 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** | 0.164 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 22.00 | 7.84 | 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 | 5.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 25.00 | 0.00 | 0.00 | 0.70 |

# WQM 7.0 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 11A | 16061 | FRANKSTOWN BRANCH JUNIATA RIVER |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 45.300 | 0.800 | 22.507 | 7.539 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 36.207 | 0.701 | 51.675 | 0.289 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 5.89 | 0.869 | 0.92 | 0.849 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 7.695 | 14.146 | Tsivoglou | 5 |
| **Reach Travel Time (days)** | | | |
| 0.718 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.072 | 5.49 | 0.87 | 7.84 |
| 0.144 | 5.12 | 0.82 | 7.87 |
| 0.215 | 4.77 | 0.77 | 7.87 |
| 0.287 | 4.45 | 0.72 | 7.87 |
| 0.359 | 4.15 | 0.68 | 7.87 |
| 0.431 | 3.87 | 0.64 | 7.87 |
| 0.502 | 3.61 | 0.60 | 7.87 |
| 0.574 | 3.36 | 0.57 | 7.87 |
| 0.646 | 3.14 | 0.53 | 7.87 |
| 0.718 | 2.92 | 0.50 | 7.87 |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 41.910 | 1.500 | 22.693 | 7.466 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 44.575 | 0.745 | 59.865 | 0.303 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 5.15 | 0.926 | 1.14 | 0.861 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 7.624 | 4.227 | Tsivoglou | 5 |
| **Reach Travel Time (days)** | | | |
| 0.438 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.044 | 4.92 | 1.09 | 7.32 |
| 0.088 | 4.70 | 1.05 | 7.08 |
| 0.131 | 4.49 | 1.01 | 6.91 |
| 0.175 | 4.29 | 0.98 | 6.78 |
| 0.219 | 4.10 | 0.94 | 6.70 |
| 0.263 | 3.91 | 0.91 | 6.64 |
| 0.307 | 3.74 | 0.87 | 6.61 |
| 0.351 | 3.57 | 0.84 | 6.61 |
| 0.394 | 3.41 | 0.81 | 6.61 |
| 0.438 | 3.26 | 0.78 | 6.64 |

# WQM 7.0 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 11A | 16061 | FRANKSTOWN BRANCH JUNIATA RIVER |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 39.740 | 2.470 | 22.887 | 7.401 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 47.678 | 0.762 | 62.560 | 0.356 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 5.65 | 1.098 | 1.34 | 0.874 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 6.617 | 9.845 | Tsivoglou | 5 |
| **Reach Travel Time (days)** | | | |
| 0.112 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.011 | 5.57 | 1.33 | 6.66 |
| 0.022 | 5.49 | 1.32 | 6.71 |
| 0.034 | 5.41 | 1.30 | 6.75 |
| 0.045 | 5.34 | 1.29 | 6.79 |
| 0.056 | 5.27 | 1.28 | 6.83 |
| 0.067 | 5.19 | 1.27 | 6.87 |
| 0.078 | 5.12 | 1.25 | 6.90 |
| 0.089 | 5.05 | 1.24 | 6.93 |
| 0.101 | 4.98 | 1.23 | 6.96 |
| 0.112 | 4.91 | 1.22 | 6.99 |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 39.090 | 2.470 | 22.613 | 7.496 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 61.259 | 0.820 | 74.714 | 0.372 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 4.01 | 0.573 | 0.84 | 0.856 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 7.379 | 5.392 | Tsivoglou | 5 |
| **Reach Travel Time (days)** | | | |
| 0.951 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.095 | 3.77 | 0.78 | 7.41 |
| 0.190 | 3.55 | 0.71 | 7.46 |
| 0.285 | 3.34 | 0.66 | 7.52 |
| 0.380 | 3.14 | 0.61 | 7.59 |
| 0.475 | 2.95 | 0.56 | 7.66 |
| 0.570 | 2.78 | 0.52 | 7.73 |
| 0.665 | 2.61 | 0.48 | 7.79 |
| 0.760 | 2.46 | 0.44 | 7.86 |
| 0.856 | 2.31 | 0.40 | 7.86 |
| 0.951 | 2.17 | 0.37 | 7.86 |

# WQM 7.0 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 11A | 16061 | FRANKSTOWN BRANCH JUNIATA RIVER |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 33.300 | 8.470 | 23.224 | 7.307 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 84.345 | 0.921 | 91.598 | 0.414 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 6.30 | 0.782 | 1.40 | 0.897 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 7.083 | 0.737 | Tsivoglou | 5 |
| **Reach Travel Time (days)** | | | |
| 0.158 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.016 | 6.21 | 1.38 | 6.88 |
| 0.032 | 6.12 | 1.36 | 6.68 |
| 0.047 | 6.03 | 1.34 | 6.48 |
| 0.063 | 5.95 | 1.32 | 6.30 |
| 0.079 | 5.86 | 1.30 | 6.11 |
| 0.095 | 5.78 | 1.28 | 5.93 |
| 0.111 | 5.70 | 1.26 | 5.76 |
| 0.126 | 5.62 | 1.25 | 5.59 |
| 0.142 | 5.54 | 1.23 | 5.43 |
| 0.158 | 5.46 | 1.21 | 5.27 |

# WQM 7.0 Hydrodynamic Outputs

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 11A | 16061 | FRANKSTOWN BRANCH JUNIATA RIVER |

| 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** | | | | | | | | | | | | |
| 45.300 | 6.08 | 0.00 | 6.08 | 1.2376 | 0.00486 | .701 | 36.21 | 51.68 | 0.29 | 0.718 | 22.51 | 7.54 |
| 41.910 | 7.72 | 0.00 | 7.72 | 2.3205 | 0.00192 | .745 | 44.57 | 59.86 | 0.30 | 0.438 | 22.69 | 7.47 |
| 39.740 | 9.10 | 0.00 | 9.10 | 3.8211 | 0.00379 | .762 | 47.68 | 62.56 | 0.36 | 0.112 | 22.89 | 7.40 |
| 39.090 | 14.87 | 0.00 | 14.87 | 3.8211 | 0.00200 | .82 | 61.26 | 74.71 | 0.37 | 0.951 | 22.61 | 7.50 |
| 33.300 | 19.02 | 0.00 | 19.02 | 13.1031 | 0.00035 | .921 | 84.35 | 91.6 | 0.41 | 0.158 | 23.22 | 7.31 |
| **Q1-10 Flow** | | | | | | | | | | | | |
| 45.300 | 5.54 | 0.00 | 5.54 | 1.2376 | 0.00486 | NA | NA | NA | 0.28 | 0.750 | 22.55 | 7.52 |
| 41.910 | 7.03 | 0.00 | 7.03 | 2.3205 | 0.00192 | NA | NA | NA | 0.29 | 0.456 | 22.74 | 7.45 |
| 39.740 | 8.28 | 0.00 | 8.28 | 3.8211 | 0.00379 | NA | NA | NA | 0.34 | 0.116 | 22.95 | 7.38 |
| 39.090 | 13.54 | 0.00 | 13.54 | 3.8211 | 0.00200 | NA | NA | NA | 0.36 | 0.991 | 22.66 | 7.48 |
| 33.300 | 17.31 | 0.00 | 17.31 | 13.1031 | 0.00035 | NA | NA | NA | 0.40 | 0.163 | 23.29 | 7.29 |
| **Q30-10 Flow** | | | | | | | | | | | | |
| 45.300 | 7.00 | 0.00 | 7.00 | 1.2376 | 0.00486 | NA | NA | NA | 0.31 | 0.672 | 22.45 | 7.56 |
| 41.910 | 8.88 | 0.00 | 8.88 | 2.3205 | 0.00192 | NA | NA | NA | 0.32 | 0.412 | 22.62 | 7.49 |
| 39.740 | 10.47 | 0.00 | 10.47 | 3.8211 | 0.00379 | NA | NA | NA | 0.38 | 0.106 | 22.80 | 7.43 |
| 39.090 | 17.11 | 0.00 | 17.11 | 3.8211 | 0.00200 | NA | NA | NA | 0.40 | 0.892 | 22.55 | 7.52 |
| 33.300 | 21.88 | 0.00 | 21.88 | 13.1031 | 0.00035 | NA | NA | NA | 0.43 | 0.151 | 23.12 | 7.33 |

# 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 | 0.91 | Use Inputted Reach Travel Times | ☐ |
| Q30-10/Q7-10 Ratio | 1.15 | Temperature Adjust Kr | ☑ |
| D.O. Saturation | 90.00% | Use Balanced Technology | ☑ |
| D.O. Goal | 5 | | |

## Outfall 002

### WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 11A | 16564 | Trib 16564 to McDonald Run |

| 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) |
|---|---|---|---|---|---|---|---|
| 0.080 | Freedom 002 | PA0110361-02 | 0.970 | CBOD5 | 25 | | |
| | | | | NH3-N | 1.58 | 3.16 | |
| | | | | Dissolved Oxygen | | | 5 |

# WQM 7.0 Wasteload Allocations

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 11A | 16564 | Trib 16564 to McDonald Run |

## 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 |
|---|---|---|---|---|---|---|---|
| 0.080 | Freedom 002 | 10.74 | 11.15 | 10.74 | 11.15 | 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 |
|---|---|---|---|---|---|---|---|
| 0.080 | Freedom 002 | 1.51 | 1.58 | 1.51 | 1.58 | 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) | | |
| 0.08 | Freedom 002 | 25 | 25 | 1.58 | 1.58 | 5 | 5 | 0 | 0 |

## 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 |
|---|---|---|---|---|---|---|---|---|
| 11A | 16564 | Trib 16564 to McDonald Run | **0.080** | 992.00 | 0.38 | 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** | 0.164 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 22.00 | 7.84 | 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 |
|---|---|---|---|---|---|---|---|
| Freedom 002 | PA0110361-02 | 0.9700 | 0.9700 | 0.9700 | 0.000 | 20.00 | 7.38 |

**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 | 5.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 25.00 | 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 |
|---|---|---|---|---|---|---|---|---|
| 11A | 16564 | Trib 16564 to McDonald Run | **0.000** | 987.00 | 55.50 | 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** | 0.164 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 22.00 | 7.84 | 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 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 11A | 16564 | Trib 16564 to McDonald Run |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 0.080 | 0.970 | 20.080 | 7.391 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 7.597 | 0.574 | 13.238 | 0.359 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 24.08 | 1.495 | 1.52 | 0.704 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 5.130 | 40.404 | Tsivoglou | 5 |
| **Reach Travel Time (days)** | | | |
| 0.014 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.001 | 24.03 | 1.52 | 5.27 |
| 0.003 | 23.98 | 1.52 | 5.40 |
| 0.004 | 23.93 | 1.52 | 5.52 |
| 0.005 | 23.89 | 1.51 | 5.64 |
| 0.007 | 23.84 | 1.51 | 5.75 |
| 0.008 | 23.79 | 1.51 | 5.85 |
| 0.010 | 23.74 | 1.51 | 5.95 |
| 0.011 | 23.69 | 1.51 | 6.04 |
| 0.012 | 23.64 | 1.51 | 6.13 |
| 0.014 | 23.59 | 1.50 | 6.22 |

# WQM 7.0 Hydrodynamic Outputs

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 11A | 16564 | Trib 16564 to McDonald Run |

| 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** | | | | | | | | | | | | |
| 0.080 | 0.06 | 0.00 | 0.06 | 1.5006 | 0.01184 | .574 | 7.6 | 13.24 | 0.36 | 0.014 | 20.08 | 7.39 |
| **Q1-10 Flow** | | | | | | | | | | | | |
| 0.080 | 0.06 | 0.00 | 0.06 | 1.5006 | 0.01184 | NA | NA | NA | 0.36 | 0.014 | 20.07 | 7.39 |
| **Q30-10 Flow** | | | | | | | | | | | | |
| 0.080 | 0.07 | 0.00 | 0.07 | 1.5006 | 0.01184 | NA | NA | NA | 0.36 | 0.014 | 20.09 | 7.39 |

# 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 | 0.91 | Use Inputted Reach Travel Times | ☐ |
| Q30-10/Q7-10 Ratio | 1.15 | Temperature Adjust Kr | ☑ |
| D.O. Saturation | 90.00% | Use Balanced Technology | ☑ |
| D.O. Goal | 5 | | |

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# Discharge Information

Instructions | Discharge | Stream

Facility: **Freedom Township WWTP** NPDES Permit No.: **PA0110361** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Sewage effluent**

| Discharge Characteristics | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Design Flow (MGD)* | Hardness (mg/l)* | pH (SU)* | Partial Mix Factors (PMFs) | | | | Complete Mix Times (min) | |
| | | | AFC | CFC | THH | CRL | $Q_{7-10}$ | $Q_h$ |
| 0.97 | 100 | 7.43 | | | | | | |

| | | | | | *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 | | 498 | | | | | | | | | |
| | Chloride (PWS) | mg/L | | 150 | | | | | | | | | |
| | Bromide | mg/L | < | 0.2 | | | | | | | | | |
| | Sulfate (PWS) | mg/L | | 38.4 | | | | | | | | | |
| | 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 | µg/L | | 8 | | | | | | | | | |
| | Free Cyanide | µg/L | | | | | | | | | | | |
| | Total Cyanide | µg/L | | | | | | | | | | | |
| | Dissolved Iron | µg/L | | | | | | | | | | | |
| | Total Iron | µg/L | | | | | | | | | | | |
| | Total Lead | µg/L | | 0.3 | | | | | | | | | |
| | 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 | µg/L | | 95.4 | | | | | | | | | |
| | Total Molybdenum | µg/L | | | | | | | | | | | |
| | Acrolein | µg/L | < | | | | | | | | | | |
| | Acrylamide | µg/L | < | | | | | | | | | | |
| | Acrylonitrile | µg/L | < | | | | | | | | | | |
| | Benzene | µg/L | < | | | | | | | | | | |
| | Bromoform | µg/L | < | | | | | | | | | | |
| | Carbon Tetrachloride | µg/L | < | | | | | | | | | | |
| | Chlorobenzene | µg/L | | | | | | | | | | | |
| | Chlorodibromomethane | µg/L | < | | | | | | | | | | |
| | Chloroethane | µg/L | < | | | | | | | | | | |
| | 2-Chloroethyl Vinyl Ether | µg/L | < | | | | | | | | | | |

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## Stream / Surface Water Information

**Freedom Township WWTP, NPDES Permit No. PA0110361, Outfall 001**

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Frankstown Branch Juniata 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 | 016061 | 39.74 | 987 | 55.5 | | | Yes |
| End of Reach 1 | 016061 | 32.23 | 911 | 215 | | | Yes |

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

| Location | RMI | LFY (cfs/mi²)* | Flow (cfs) | | W/D Ratio | Width (ft) | Depth (ft) | Velocity (fps) | Travel Time | Tributary | | Stream | | Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stream | Tributary | | | | | | Hardness | pH | Hardness* | pH* | Hardness | pH |
| Point of Discharge | 39.74 | 0.1643 | | | | | | | | | | 135 | 7.84 | | |
| End of Reach 1 | 32.23 | 0.1643 | | | | | | | | | | 135 | 7.84 | | |

$Q_h$

| Location | RMI | LFY (cfs/mi²) | Flow (cfs) | | W/D Ratio | Width (ft) | Depth (ft) | Velocity (fps) | Travel Time | Tributary | | Stream | | Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stream | Tributary | | | | | | Hardness | pH | Hardness | pH | Hardness | pH |
| Point of Discharge | 39.74 | | | | | | | | | | | | | | |
| End of Reach 1 | 32.23 | | | | | | | | | | | | | | |

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## Model Results

**Freedom Township WWTP, NPDES Permit No. PA0110361, Outfall 001**

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.442 Analysis Hardness (mg/l): 125.51 Analysis pH: 7.69

| Pollutants | Stream Conc | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Copper | 0 | 0 | | 0 | 16.647 | 17.3 | 64.0 | Chem Translator of 0.96 applied |
| Total Lead | 0 | 0 | | 0 | 82.633 | 109 | 402 | Chem Translator of 0.758 applied |
| Total Zinc | 0 | 0 | | 0 | 142.057 | 145 | 536 | Chem Translator of 0.978 applied |

☑ ***CFC*** CCT (min): 76.670 PMF: 1 Analysis Hardness (mg/l): 130.05 Analysis pH: 7.75

| Pollutants | Stream Conc | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments |
|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Chloride (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Sulfate (PWS) | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Copper | 0 | 0 | | 0 | 11.210 | 11.7 | 82.6 | Chem Translator of 0.96 applied |
| Total Lead | 0 | 0 | | 0 | 3.346 | 4.45 | 31.5 | Chem Translator of 0.753 applied |
| Total Zinc | 0 | 0 | | 0 | 147.602 | 150 | 1,059 | Chem Translator of 0.986 applied |

☑ ***THH*** CCT (min): 76.670 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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

☑ ***CRL*** CCT (min): 34.062 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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

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

**No. Samples/Month:** 4

| | *Mass Limits* | | *Concentration Limits* | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Pollutants | AML (lbs/day) | MDL (lbs/day) | AML | MDL | IMAX | Units | Governing WQBEL | WQBEL Basis | Comments |
| Total Copper | Report | Report | Report | Report | Report | µg/L | 41.0 | AFC | Discharge Conc > 10% WQBEL (no RP) |
| Total Zinc | Report | Report | Report | Report | Report | µg/L | 343 | AFC | Discharge Conc > 10% WQBEL (no RP) |

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

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

| Pollutants | Governing WQBEL | Units | Comments |
|---|---|---|---|
| Total Dissolved Solids (PWS) | N/A | N/A | PWS Not Applicable |
| Chloride (PWS) | N/A | N/A | PWS Not Applicable |
| Bromide | N/A | N/A | No WQS |
| Sulfate (PWS) | N/A | N/A | PWS Not Applicable |
| Total Lead | 31.5 | µg/L | Discharge Conc ≤ 10% WQBEL |

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# Discharge Information

Instructions | Discharge | Stream

Facility: **Freedom Township WWTP** NPDES Permit No.: **PA0110361** Outfall No.: **002**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Emergency sewage effluent**

| Discharge Characteristics | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Flow (MGD)* | Hardness (mg/l)* | pH (SU)* | Partial Mix Factors (PMFs) | | | | Complete Mix Times (min) | |
| | | | AFC | CFC | THH | CRL | $Q_{7-10}$ | $Q_h$ |
| 0.97 | 100 | 7.43 | | | | | | |

| | | | | | *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 | | 498 | | | | | | | | | |
| | Chloride (PWS) | mg/L | | 150 | | | | | | | | | |
| | Bromide | mg/L | < | 0.2 | | | | | | | | | |
| | Sulfate (PWS) | mg/L | | 38.4 | | | | | | | | | |
| | 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 | µg/L | | 8 | | | | | | | | | |
| | Free Cyanide | µg/L | | | | | | | | | | | |
| | Total Cyanide | µg/L | | | | | | | | | | | |
| | Dissolved Iron | µg/L | | | | | | | | | | | |
| | Total Iron | µg/L | | | | | | | | | | | |
| | Total Lead | µg/L | | 0.3 | | | | | | | | | |
| | 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 | µg/L | | 95.4 | | | | | | | | | |
| | Total Molybdenum | µg/L | | | | | | | | | | | |
| | Acrolein | µg/L | < | | | | | | | | | | |
| | Acrylamide | µg/L | < | | | | | | | | | | |
| | Acrylonitrile | µg/L | < | | | | | | | | | | |
| | Benzene | µg/L | < | | | | | | | | | | |
| | Bromoform | µg/L | < | | | | | | | | | | |

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## Stream / Surface Water Information

**Freedom Township WWTP, NPDES Permit No. PA0110361, Outfall 002**

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Trib 16564 To McDonald Run**

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 | 016564 | 0.08 | 992 | 0.38 | | | Yes |
| End of Reach 1 | 016564 | 0 | 987 | 55.5 | | | 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 | 0.08 | 0.1643 | | | | | | | | | | 135 | 7.84 | | |
| End of Reach 1 | 0 | 0.1643 | | | | | | | | | | 135 | 7.84 | | |

$Q_h$

| 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 | 0.08 | | | | | | | | | | | | | | |
| End of Reach 1 | 0 | | | | | | | | | | | | | | |

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## Model Results

**Freedom Township WWTP, NPDES Permit No. PA0110361, Outfall 002**

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.003 PMF: 1 Analysis Hardness (mg/l): 101.4 Analysis pH: 7.44

| 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 Copper | 0 | 0 | | 0 | 13.616 | 14.2 | 14.8 | Chem Translator of 0.96 applied |
| Total Lead | 0 | 0 | | 0 | 65.565 | 83.1 | 86.6 | Chem Translator of 0.789 applied |
| Total Zinc | 0 | 0 | | 0 | 118.567 | 121 | 126 | Chem Translator of 0.978 applied |

☑ ***CFC*** CCT (min): 0.003 PMF: 1 Analysis Hardness (mg/l): 101.4 Analysis pH: 7.44

| 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 Copper | 0 | 0 | | 0 | 9.063 | 9.44 | 9.83 | Chem Translator of 0.96 applied |
| Total Lead | 0 | 0 | | 0 | 2.555 | 3.24 | 3.37 | Chem Translator of 0.789 applied |
| Total Zinc | 0 | 0 | | 0 | 119.537 | 121 | 126 | Chem Translator of 0.986 applied |

☑ ***THH*** CCT (min): 0.003 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 Copper | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Lead | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Zinc | 0 | 0 | | 0 | N/A | N/A | N/A | |

☑ ***CRL*** CCT (min): 0.126 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 Copper | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Lead | 0 | 0 | | 0 | N/A | N/A | N/A | |
| Total Zinc | 0 | 0 | | 0 | N/A | N/A | N/A | |

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

**No. Samples/Month:** 4

| | *Mass Limits* | | *Concentration Limits* | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Pollutants | AML (lbs/day) | MDL (lbs/day) | AML | MDL | IMAX | Units | Governing WQBEL | WQBEL Basis | Comments |
| Total Copper | 0.08 | 0.12 | 9.83 | 14.8 | 14.8 | µg/L | 9.83 | CFC | Discharge Conc ≥ 50% WQBEL (RP) |
| Total Zinc | 0.98 | 1.02 | 121 | 126 | 126 | µg/L | 121 | AFC | 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 Lead | 3.37 | µg/L | Discharge Conc ≤ 10% WQBEL |