

Application Type Renewal  
 Facility Type Municipal  
 Major / Minor Minor

**NPDES PERMIT FACT SHEET  
INDIVIDUAL SEWAGE**

Application No. PA0038733  
 APS ID 275016  
 Authorization ID 1394449

**Applicant and Facility Information**

|                           |  |                  |   |
|---------------------------|--|------------------|---|
| Applicant Name            | <u>East Providence Township Municipal Authority Bedford County</u> | Facility Name    | <u>East Providence Township STP</u>                           |
| Applicant Address         | <u>PO Box 83</u><br><u>Breezewood, PA 15533-0083</u>               | Facility Address | <u>244 Municipal Lane</u><br><u>Breezewood, PA 15533-1011</u> |
| Applicant Contact         | <u>Joseph Payne</u>  | Facility Contact | <u>John Payne</u>   |
| Applicant Phone           | <u>(814) 735-4215</u>  | Facility Phone   | <u>(814) 735-4215</u>   |
| Client ID                 | <u>42504</u>   | Site ID          | <u>249252</u>   |
| Ch 94 Load Status         | <u>Not Overloaded</u>  | Municipality     | <u>East Providence Township</u>                               |
| Connection Status         | <u>No Limitations</u>  | County           | <u>Bedford</u>  |
| Date Application Received | <u>April 29, 2022</u>  | EPA Waived?      | <u>Yes</u>  |
| Date Application Accepted | <u>May 5, 2022</u>   | If No, Reason    | <u></u>   |
| Purpose of Application    | <u>This is an application for NPDES renewal.</u>                   |                  |   |

| Approve | Deny | Signatures   | Date          |
|---------|------|--|---------------|
| X       |      | Nicholas Hong, P.E. / Environmental Engineer<br>Nick Hong (via electronic signature) | June 16, 2022 |
| X       |      | Daniel W. Martin, P.E. / Environmental Engineer Manager<br>Daniel W. Martin          | June 27, 2022 |

### Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the East Providence Township STP located at 244 Municipal Lane, Breezewood, PA 15533 in Bedford County, municipality of East Providence Township. The existing permit became effective on November 1, 2017 and expires(d) on October 31, 2022. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on April 29, 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 0.38 MGD 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 Bedford County Commissioners and East Providence Township Supervisors and the notice was received by the parties in March 2022. A planning approval letter was not necessary as the facility is neither new or expanding.

Utilizing the DEP's web-based Emap-PA information system, the receiving waters has been determined to be Tributary 14144 to Tub Mill Run. The sequence of receiving streams that Tributary 14144 to Tub Mill Run discharges into are Tub Mill Run, Raystown Branch Juniata River, Juniata River, 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 warm water fishes (WWF) and migratory fishes (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 Tributary 14144 to Tub Mill Run is a Category 2 stream listed in the 2020 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an attaining stream that supports aquatic life. 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:

- **Effluent limits for ammonia-nitrogen have been reduced to 1.5 mg/l during summer months and 4.5 mg/l during winter months.**
- **Nitrate-Nitrogen as N, TKN, and Total Phosphorus shall reduce monitoring frequency from 1x/wk to 1x/month**
- **Due to the EPA Triennial Review, E. Coli shall be monitored 1x/quarter.**
- **Monitoring shall be required for total lead**
- **Monitoring for TDS, sulfate, chloride, and bromide have been eliminated.**

Sludge use and disposal description and location(s): Biosolids/Sewage sludge disposed at Site 1 located in East Providence in Bedford 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.

**Summary of Review**

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: East Providence Township MA

NPDES Permit # PA0038733

Physical Address: 244 Municipal Lane  
Breezewood, PA 15533

Mailing Address: PO Box 83  
Breezewood, PA 15533

Contact: Joseph Payne  
Operator  
[Joseph.payne@ftr.com](mailto:Joseph.payne@ftr.com)

Consultant: Maggie Weitzel  
Senior Environmental Scientist  
Gwin, Dobson, and Foreman, Inc.  
[mweitzel@gdfengineers.com](mailto:mweitzel@gdfengineers.com)

### **1.2 Permit History**

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 244 Municipal Lane, Breezewood, PA 15533. 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

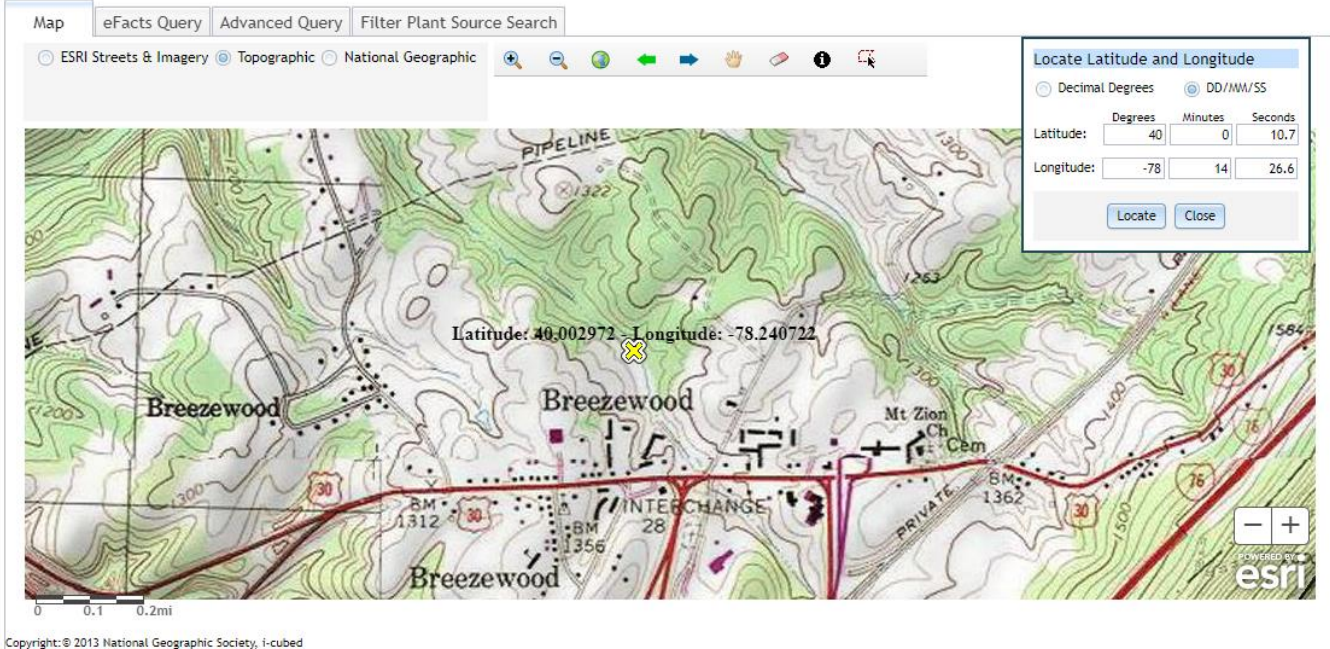
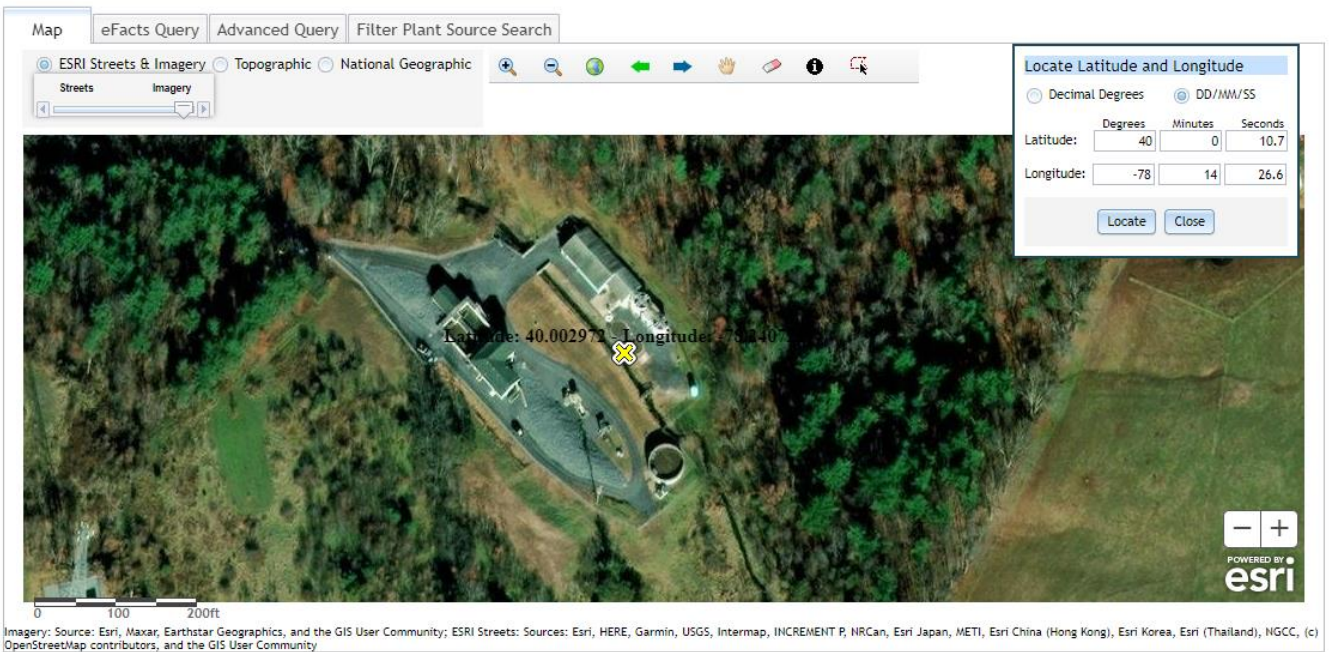


Figure 2: Aerial Photograph of the subject facility



**2.1.2 Sources of Wastewater/Stormwater**

The facility receives 100% flow contribution from East Providence Township.

The facility did not receive any hauled-in wastes in the last three years. The facility also does not anticipate receiving hauled-in wastes in the next five years.

The facility receives industrial / commercial wastewater contributions. A summary of contributors is in the table. The facility does not have an EPA approved pretreatment program.

COMMERCIAL WASTEWATER CONTRIBUTORS

| <u>COMMERCIAL ACCT</u>  | <u>AVG DAILY FLOW</u> |
|-------------------------|-----------------------|
| GATEWAY                 | 25,303                |
| BLUE BEACON             | 11,455                |
| ALL AMERICAN            | 14,099                |
| HOLIDAY INN EXPRESS     | 7,416                 |
| HOWARD JOHNSONS         | 3,288                 |
| JILL DAHARA INC         | 4,936                 |
| BOB EVANS               | 2,952                 |
| SHEETZ                  | 4,123                 |
| MCDONALDS               | 2,917                 |
| DENNYS                  | 2,439                 |
| BREEZEMANOR MOTEL       | 2,905                 |
| HINISH CAR WASH         | 1,641                 |
| BT COFFEE LLC           | 2,411                 |
| TRAVELER'S OASIS        | 2,864                 |
| SUNOCO                  | 1,107                 |
| TACO BELL               | 758                   |
| WENDY'S                 | 0                     |
| EXXON-UPPER             | 356                   |
| BREEZEWOOD MOTEL        | 1,154                 |
| PIZZA HUT               | 682                   |
| BREEZEWOOD ELEMENTARY   | 477                   |
| WILTSHIRE MOTEL         | 258                   |
| WILDWOOD INN            | 346                   |
| PA TURNPIKE             | 136                   |
| HI-WAY MOTEL            | 170                   |
| CRAWFORD' S MUSEUM      | 159                   |
| STONEWALL JACKSON MOTEL | 138                   |
| BREEZEWOOD FIRE CO.     | 80                    |
| INTERSTATE EMERGENCY    | 130                   |
| POST OFFICE             | 25                    |
| EAST PROV. TWP          | 25                    |
| LASALLES ENGINE         | 108                   |
| BREEZEWOOD METHODIST    | 6                     |
| FRONTIER                | 55                    |
| MT ZION CHURCH          | 8                     |
| BB&T BANK               | 30                    |
| DEL'S TRUCK REPAIR      | 20                    |
| WEAVERS DIESEL          | 21                    |
| BOB'S GARAGE            | 7                     |
| BREEZEWOOD TRANSFER     | 49                    |



**2.2 Description of Wastewater Treatment Process**

The subject facility is a 0.38 MGD design flow facility. The subject facility treats wastewater using an ICEAS reactor(s) and a UV disinfection prior to discharge through the outfall. The facility is being evaluated for flow, pH, dissolved oxygen, CBOD5, TSS, fecal coliform, nitrogen species, phosphorus, UV intensity, TDS, copper, sulfate, zinc, chloride, and bromide. The existing permits limits for the facility is summarized in Section 2.4.

The treatment process is summarized in the table.

| Treatment Facility Summary                                   |                                     |                          |                            |                               |
|--|-------------------------------------|--------------------------|----------------------------|-------------------------------|
| <b>Treatment Facility Name:</b> East Providence Township STP |                                     |                          |                            |                               |
| <b>WQM Permit No.</b>  |                                     | <b>Issuance Date</b>     |                            |                               |
| 0503405 A-1  |                                     | 05/13/2015               |                            |                               |
| 0503405 A-2  |                                     | 09/06/2016               |                            |                               |
| 0503405 A-3  |                                     | 11/22/2017               |                            |                               |
| <b>Waste Type</b>  | <b>Degree of Treatment</b>          | <b>Process Type</b>      | <b>Disinfection</b>        | <b>Avg Annual Flow (MGD)</b>  |
| Sewage   | Secondary With Phosphorus Reduction | Sequencing Batch Reactor | Ultraviolet                | 0.38                          |
| <b>Hydraulic Capacity (MGD)</b>                              | <b>Organic Capacity (lbs/day)</b>   | <b>Load Status</b>       | <b>Biosolids Treatment</b> | <b>Biosolids Use/Disposal</b> |
| 0.38   | 1090                                | Not Overloaded           | Drying                     | Land Application              |

**2.3 Facility Outfall Information**

The facility has the following outfall information for wastewater.

|  |               |                          |                 |
|--|---------------|--------------------------|-----------------|
| <b>Outfall No.</b>                             | 001           | <b>Design Flow (MGD)</b> | .38             |
| <b>Latitude</b>                                | 40° 0' 10.25" | <b>Longitude</b>         | -78° 14' 28.00" |
| <b>Wastewater Description:</b> Sewage Effluent |               |                          |                 |

**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.

- Polymer for improving the efficiency of sludge dewatering. This chemical is not currently used but may be utilized as needed.
- Caustic for pH adjustment. This chemical is not currently used but may be utilized as needed.
- Alum for removing phosphorus.



**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. B. For Outfall 001, Latitude 40° 0' 10.25", Longitude 78° 14' 28.00", River Mile Index 1.09, Stream Code 14144

Receiving Waters: Unnamed Tributary to Tub Mill Run

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from Completion of Construction 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) <sup>(1)</sup> |                | Concentrations (mg/L) |                 |         |                  | Minimum <sup>(2)</sup> Measurement Frequency | Required Sample Type |
|   | Average Monthly                     | Average Weekly | Minimum               | Average Monthly | Maximum | Instant. Maximum |  |                      |
| Total Dissolved Solids                                    | XXX                                 | XXX            | XXX                   | Report          | XXX     | XXX              | 1/month                                      | 24-Hr Composite      |
| Ultraviolet light intensity (microlules/cm <sup>2</sup> ) | XXX                                 | XXX            | Report                | XXX             | XXX     | XXX              | 1/day  | Metered              |
| Copper, Total   | XXX                                 | XXX            | XXX                   | Report          | XXX     | XXX              | 1/month                                      | 24-Hr Composite      |
| Sulfate, Total  | XXX                                 | XXX            | XXX                   | Report          | XXX     | XXX              | 1/month                                      | 24-Hr Composite      |
| Zinc, Total   | XXX                                 | XXX            | XXX                   | Report          | XXX     | XXX              | 1/month                                      | 24-Hr Composite      |
| Chloride  | XXX                                 | XXX            | XXX                   | Report          | XXX     | XXX              | 1/month                                      | 24-Hr Composite      |
| Bromide   | XXX                                 | XXX            | XXX                   | Report          | XXX     | XXX              | 1/month                                      | 24-Hr Composite      |

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. C. For Outfall 001, Latitude 40° 0' 10.25", Longitude 78° 14' 28.00", River Mile Index 1.09, Stream Code 14144

Receiving Waters: Unnamed Tributary to Tub Mill Run

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) <sup>(1)</sup> |                  | Concentrations (mg/L) |                 |                |                  | Minimum <sup>(2)</sup> 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)       | 79                                  | 127              | 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                               | 95                                  | 145              | 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 (CFU/100 ml) Oct 1 - Apr 30           | XXX                                 | XXX              | XXX                   | 2000 Geo Mean   | XXX            | 10000            | 1/week                                       | Grab                 |
| Fecal Coliform (CFU/100 ml) May 1 - Sep 30           | XXX                                 | XXX              | XXX                   | 200 Geo Mean    | XXX            | 1000             | 1/week                                       | Grab                 |
| Ammonia-Nitrogen Nov 1 - Apr 30                      | 19                                  | XXX              | XXX                   | 6.0             | XXX            | 12               | 1/week                                       | 24-Hr Composite      |
| Ammonia-Nitrogen May 1 - Oct 31                      | 6.3                                 | XXX              | XXX                   | 2.0             | XXX            | 4                | 1/week                                       | 24-Hr Composite      |

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Outfall001, Continued (from Permit Effective Date through Permit Expiration Date)

| Parameter        | Effluent Limitations                |                   |                       |                    |                   |                     | Monitoring Requirements                            |                            |
|------------------|-------------------------------------|-------------------|-----------------------|--------------------|-------------------|---------------------|--|----------------------------|
|                  | Mass Units (lbs/day) <sup>(1)</sup> |                   | Concentrations (mg/L) |                    |                   |                     | Minimum <sup>(2)</sup><br>Measurement<br>Frequency | Required<br>Sample<br>Type |
|                  | Average<br>Monthly                  | Weekly<br>Average | Minimum               | Average<br>Monthly | Weekly<br>Average | Instant.<br>Maximum |  |                            |
| Total Phosphorus | 6.3                                 | XXX               | XXX                   | 2.0                | XXX               | 4                   | 1/week   | 24-Hr<br>Composite         |

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. D. For Outfall 001, Latitude 40° 0' 10.25", Longitude 78° 14' 28.00", River Mile Index 1.09, Stream Code 14144

Receiving Waters: Unnamed Tributary to Tub Mill Run

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) <sup>(1)</sup> |        | Concentrations (mg/L) |                    |         |                     | Minimum <sup>(2)</sup><br>Measurement<br>Frequency | Required<br>Sample<br>Type |
|                      | Monthly                             | Annual | Monthly               | Monthly<br>Average | Maximum | Instant.<br>Maximum |  |                            |
| Ammonia--N           | Report                              | Report | XXX                   | Report             | XXX     | XXX                 | 1/week   | 24-Hr<br>Composite         |
| Kjeldahl--N          | Report                              | XXX    | XXX                   | Report             | XXX     | XXX                 | 1/week   | 24-Hr<br>Composite         |
| Nitrate-Nitrite as N | Report                              | XXX    | XXX                   | Report             | XXX     | XXX                 | 1/week   | 24-Hr<br>Composite         |
| Total Nitrogen       | Report                              | Report | XXX                   | Report             | XXX     | XXX                 | 1/month  | Calculation                |
| Total Phosphorus     | Report                              | Report | XXX                   | Report             | XXX     | XXX                 | 1/week   | 24-Hr<br>Composite         |
| Net Total Nitrogen   | Report                              | Report | XXX                   | XXX                | XXX     | XXX                 | 1/month  | Calculation                |
| Net Total Phosphorus | Report                              | Report | 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 Outfall 001

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.

08/30/2018:

- The UV system was sending out frequent alarms. The unit is being examined.
- The facility had been dealing with filamentous bacteria issues in the new SBRs.
- The facility had errors on DMRS for nitrite-nitrate and TN. Other errors involved TSS. The facility was requested to review all reports since November 2017.
- The facility should update SOPs to reflect changes at the plant and include routine maintenance work
- The sample refrigerator needed a new thermometer.

10/3/2019:

- The facility completed a major upgrade last year. All treatment units were replaced except for grit removal and sludge digesters. One equalization tank was converted to an additional digester.
- The facility was dealing with a filamentous bacteria problem in the SBRs. One tank had the entire surface covered with a thick dark foam and the other tank had a layer of scum and green algae on the surface. Filamentous is being treated with chlorine.
- One sludge digester was out for repair and one pump station was being repaired.
- The facility was having difficulty with the fine screen clogging up near the exit end of the unit.
- The terms of the COA signed on 9/3/2015 were met and the agreement was terminated on 10/11/2019

12/15/2021:

- A review of EDMR showed that some test parameters in Part A of the NPDES permit were sampled for but not included in the eDMR. The eDMR help desk should be contact and made aware of the necessary changes.
- The facility contracted to clean and televise the collection system mainlines.

#### **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 0.129 MGD in November 2021. The design capacity of the treatment system is 0.38 MGD.

The off-site laboratory used for the analysis of the parameters was Fairway Laboratories located at 2019 9<sup>th</sup> Avenue, Altoona, PA 16601.

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East Providence Township STP

NPDES Permit No. PA0038733

DMR Data for Outfall 001 (from May 1, 2021 to April 30, 2022)

| Parameter   | APR-22   | MAR-22  | FEB-22   | JAN-22  | DEC-21  | NOV-21  | OCT-21  | SEP-21  | AUG-21  | JUL-21  | JUN-21  | MAY-21  |
|---|----------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Flow (MGD)<br>Average Monthly                                     | 0.099    | 0.086   | 0.103    | 0.078   | 0.067   | 0.129   | 0.078   | 0.126   | 0.105   | 0.096   | 0.086   | 0.082   |
| Flow (MGD)<br>Daily Maximum                                       | 0.128    | 0.122   | 0.229    | 0.126   | 0.101   | 0.188   | 0.122   | 0.715   | 0.223   | 0.173   | 0.162   | 0.131   |
| pH (S.U.)<br>Minimum  | 6.7      | 6.8     | 6.3      | 6.8     | 6.8     | 6.8     | 7.0     | 7.0     | 7.0     | 6.9     | 6.9     | 6.8     |
| pH (S.U.)<br>Maximum  | 7.4      | 7.3     | 7.3      | 7.3     | 7.6     | 7.5     | 7.5     | 7.4     | 7.6     | 7.5     | 8.0     | 7.5     |
| DO (mg/L)<br>Minimum  | 7.4      | 7.6     | 7.6      | 7.4     | 7.8     | 7.4     | 7.8     | 7.8     | 5.6     | 7.3     | 7.4     | 7.9     |
| TRC (mg/L)<br>Average Monthly                                     | < 0.0001 | < 0.001 | < 0.0001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| TRC (mg/L)<br>Instantaneous<br>Maximum                            | < 0.0001 | < 0.001 | < 0.0001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| CBOD5 (lbs/day)<br>Average Monthly                                | 2        | 2       | 2        | 2       | 2       | 15      | 2       | 2       | 2       | 3       | 3       | 2       |
| CBOD5 (lbs/day)<br>Weekly Average                                 | 3        | 4       | 2        | 3       | 3       | 65      | 3       | 2       | 4       | 6       | 5       | 2       |
| CBOD5 (mg/L)<br>Average Monthly                                   | 3.0      | 4.0     | < 3.0    | 3.0     | 3.9     | 4.4     | 3.5     | 3.1     | 3.6     | 4.1     | 4.2     | 3.0     |
| CBOD5 (mg/L)<br>Weekly Average                                    | 5.0      | 6.0     | < 3.0    | 5.0     | 6.0     | 10.0    | 5.0     | 4.0     | 5.0     | 6.0     | 7.0     | 3.0     |
| BOD5 (lbs/day)<br>Raw Sewage Influent<br><br/> Average<br>Monthly | 266      | 210     | 227      | 181     | 299     | 223     | 353     | 198     | 220     | 284     | 194     | 162     |
| BOD5 (lbs/day)<br>Raw Sewage Influent<br><br/> Daily Maximum      | 333      | 286     | 253      | 193     | 405     | 392     | 540     | 253     | 310     | 544     | 292     | 209     |
| BOD5 (mg/L)<br>Raw Sewage Influent<br><br/> Average<br>Monthly    | 369      | 307     | 318      | 318     | 390     | 369     | 421     | 315     | 306     | 342     | 292     | 288     |
| TSS (lbs/day)<br>Average Monthly                                  | 5        | 4       | 6        | 4       | 6       | 16      | 6       | 4       | 4       | 6       | 6       | 6       |
| TSS (lbs/day)<br>Raw Sewage Influent<br><br/> Average<br>Monthly  | 118      | 126     | 196      | 81      | 76      | 104     | 241     | 126     | 137     | 179     | 92      | 75      |

**NPDES Permit Fact Sheet  
East Providence Township STP**

**NPDES Permit No. PA0038733**

|   |      |      |        |     |      |     |      |     |      |      |      |      |
|---|------|------|--------|-----|------|-----|------|-----|------|------|------|------|
| TSS (lbs/day)<br>Raw Sewage Influent<br><br/> Daily Maximum   | 159  | 196  | 290    | 120 | 84   | 142 | 330  | 159 | 244  | 404  | 120  | 80   |
| TSS (lbs/day)<br>Weekly Average                               | 8    | 6    | 8      | 5   | 7    | 59  | 7    | 5   | 6    | 11   | 8    | 7    |
| TSS (mg/L)<br>Average Monthly                                 | 8.0  | 6.0  | 9.0    | 3.0 | 10.2 | 8.5 | 10.0 | 6.7 | 7.1  | 8.3  | 9.6  | 9.1  |
| TSS (mg/L)<br>Raw Sewage Influent<br><br/> Average<br>Monthly | 166  | 179  | 275    | 141 | 104  | 170 | 291  | 197 | 200  | 211  | 141  | 136  |
| TSS (mg/L)<br>Weekly Average                                  | 13.0 | 10.0 | 15.0   | 8.0 | 12.0 | 9.2 | 13.6 | 9.6 | 10.0 | 11.6 | 12.4 | 10.4 |
| Fecal Coliform<br>(CFU/100 ml)<br>Geometric Mean              | < 1  | < 1  | < 2    | < 1 | 1    | 1   | < 1  | < 1 | 10   | 1    | 3    | 3    |
| Fecal Coliform<br>(CFU/100 ml)<br>Instantaneous<br>Maximum    | < 1  | 2    | 4      | < 1 | 1    | 1   | 1    | < 1 | 145  | 1    | 142  | 22.8 |
| Nitrate-Nitrite (mg/L)<br>Average Monthly                     | 2.6  | 1    | 0.9    | 1   | 0.8  | 1.2 | 1.4  | 1.4 | 1.4  | 1.3  | 1.3  | 1.3  |
| Nitrate-Nitrite (lbs)<br>Total Monthly                        | 60   | 22   | 17     | 19  | 13   | 67  | 24   | 24  | 27   | 29   | 25   | 25   |
| Total Nitrogen (mg/L)<br>Average Monthly                      | 4    | 3.6  | 2.4    | 2.9 | 4.9  | 4.4 | 3.8  | 4.2 | 4    | 2.3  | 2.9  | 1.9  |
| Total Nitrogen (lbs)<br>Effluent Net <br/><br>Total Monthly   | 92   | 76   | 46     | 56  | 86   | 236 | 66   | 70  | 75   | 50   | 56   | 36   |
| Total Nitrogen (lbs)<br>Total Monthly                         | 92   | 76   | 46     | 56  | 86   | 236 | 66   | 70  | 75   | 50   | 56   | 36   |
| Total Nitrogen (lbs)<br>Effluent Net <br/><br>Total Annual    |      |      |        |     |      |     |      | 150 |      |      |      |      |
| Total Nitrogen (lbs)<br>Total Annual                          |      |      |        |     |      |     |      | 150 |      |      |      |      |
| Ammonia (lbs/day)<br>Average Monthly                          | 0.1  | 0.5  | < 0.6  | 0.9 | 1    | 2   | 0.5  | 0.6 | 0.4  | 0.3  | 0.2  | 0.1  |
| Ammonia (mg/L)<br>Average Monthly                             | 0.18 | 0.7  | < 0.79 | 0.5 | 2.57 | 1.2 | 1.0  | 1.0 | 0.7  | 0.5  | 0.33 | 0.19 |
| Ammonia (lbs)<br>Total Monthly                                | 4    | 15   | < 15   | 16  | 44   | 52  | 16   | 17  | 13   | 10   | 6    | 4    |
| Ammonia (lbs)<br>Total Annual                                 |      |      |        |     |      |     |      | 58  |      |      |      |      |

**NPDES Permit Fact Sheet  
East Providence Township STP**

**NPDES Permit No. PA0038733**

|   |     |     |     |      |      |      |     |     |      |      |     |      |
|---|-----|-----|-----|------|------|------|-----|-----|------|------|-----|------|
| TKN (mg/L)<br>Average Monthly                                 | 1.4 | 2.6 | 1.5 | 1.9  | 4.2  | 3    | 2.4 | 2.8 | 2.6  | 1    | 1.6 | 0.6  |
| TKN (lbs)<br>Total Monthly                                    | 32  | 54  | 29  | 37   | 72   | 165  | 41  | 46  | 49   | 20   | 31  | 11   |
| Total Phosphorus<br>(lbs/day)<br>Average Monthly              | 0.2 | 0.2 | 0.2 | 0.08 | 0.4  | 0.4  | 0.3 | 0.2 | 0.4  | 0.3  | 0.2 | 0.06 |
| Total Phosphorus<br>(mg/L)<br>Average Monthly                 | 0.3 | 0.3 | 0.4 | 0.1  | 0.6  | 0.2  | 0.5 | 0.3 | 0.7  | 0.5  | 0.3 | 0.1  |
| Total Phosphorus (lbs)<br>Effluent Net <br/><br>Total Monthly | 5.9 | 5.5 | 6.4 | 2.4  | 10.9 | 11.2 | 8.8 | 5.1 | 12.8 | 10.2 | 5.4 | 1.9  |
| Total Phosphorus (lbs)<br>Total Monthly                       | 5.9 | 5.5 | 6.4 | 2.4  | 10.9 | 11.2 | 8.8 | 70  | 12.8 | 10.2 | 5.4 | 1.9  |
| Total Phosphorus (lbs)<br>Effluent Net <br/><br>Total Annual  |     |     |     |      |      |      |     | 11  |      |      |     |      |
| Total Phosphorus (lbs)<br>Total Annual                        |     |     |     |      |      |      |     | 11  |      |      |     |      |

**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 November 1, 2017 to June 7, 2022, there were no observed effluent non-compliances.

**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 November 1, 2017 to June 7, 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   |         |          |          |
| Date (2021)   | Gallons | % Solids | Dry Tons |
| January   |         |          |          |
| February  |         |          |          |
| March   |         |          |          |
| April   | 52,000  | 2.05     | 4.445    |
| May   | 42,000  | 1.95     | 3.353    |
| June  | 46,000  | 2.5      | 4.812    |
| July  |         |          |          |
| August  |         |          |          |
| September   |         |          |          |
| October   | 62,000  | 2.03     | 5.213    |
| November  | 68,000  | 1.85     | 5.421    |
| December  |         |          |          |
| Notes:  |         |          |          |
| Biosolids/Sewage sludge disposed at Site 1 located in East Providence in Bedford County |         |          |          |

**3.5 Open Violations**

No open violations existed as of June 2022.

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

**4.1 Receiving Waters**

The receiving waters has been determined to be Tributary 14144 to Tub Mill Run. The sequence of receiving streams that Tributary 14144 to Tub Mill Run discharges into are Tub Mill Run, Raystown Branch Juniata River, Juniata River, 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 Saxton Municipal Water Authority (PWS ID # 4050021) located approximately 36 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 2020 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.

**The receiving waters is listed in the 2020 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 waterbody. The surface waters is an attaining stream that supports aquatic life. The designated use has been classified as protected waters for warm water fishes (WWF) and migratory fishes (MF).**

#### **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 Raystown Branch Juniata (WQN223). This WQN station is located approximately 37 miles downstream of the subject facility.

The closest gauge station to the subject facility is the Raystown Branch Juniata River at Saxton, PA (USGS station number 1562000). This gauge station is located approximately 37 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 8.0 and the stream water temperature was estimated to be 23.3 C.

The hardness of the stream was estimated from the water quality network to be 96 mg/l CaCO<sub>3</sub>.

The low flow yield and the Q710 for the subject facility was estimated using StreamStats.

The low flow yield is 0.0043 ft<sup>3</sup>/s/mi<sup>2</sup> and the Q710 is 0.00131 ft<sup>3</sup>/s.

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

|  |  |   |                        |
|--|--|---|------------------------|
| Outfall No.                                    | <u>001</u>                                     | Design Flow (MGD)                       | <u>.38</u>             |
| Latitude                                       | <u>40° 0' 10.20"</u>                           | Longitude                               | <u>-78° 14' 26.18"</u> |
| Quad Name                                      | <u></u>  | Quad Code                               | <u></u>                |
| Wastewater Description: <u>Sewage Effluent</u> |  |   |                        |
| Receiving Waters                               | <u>Unnamed Tributary to Tub Mill Run (WWF)</u> | Stream Code                             | <u>14144</u>           |
| NHD Com ID                                     | <u>65847241</u>                                | RMI                                     | <u>1.1</u>             |
| Drainage Area                                  | <u>0.3</u>                                     | Yield (cfs/mi <sup>2</sup> )            | <u>0.0043</u>          |
| Q <sub>7-10</sub> Flow (cfs)                   | <u>0.00131</u>                                 | Q <sub>7-10</sub> Basis                 | <u>StreamStats</u>     |
| Elevation (ft)                                 | <u>1240</u>                                    | Slope (ft/ft)                           | <u></u>                |
| Watershed No.                                  | <u>11-D</u>                                    | Chapter 93 Class.                       | <u>WWF, MF</u>         |
| Existing Use                                   | <u>Same as Chapter 93 class</u>                | Existing Use Qualifier                  | <u></u>                |
| Exceptions to Use                              | <u></u>  | Exceptions to Criteria                  | <u></u>                |
| Assessment Status                              | <u>Attaining Use(s) supports aquatic life</u>  |   |                        |
| Cause(s) of Impairment                         | <u>Not appl.</u>                               |   |                        |
| Source(s) of Impairment                        | <u>Not appl.</u>                               |   |                        |
| TMDL Status                                    | <u>Not appl.</u>                               | Name                                    | <u></u>                |
| Background/Ambient Data                        |  | Data Source                             |                        |
| pH (SU)  | <u>8</u>                                       | <u>WQN 223; median July to Sept</u>     |                        |
| Temperature (°C)                               | <u>23.3</u>                                    | <u>WQN 223; median July to Sept</u>     |                        |
| Hardness (mg/L)                                | <u>96</u>                                      | <u>WQN 223; median historical</u>       |                        |
| Other:   | <u></u>  | <u></u>                                 |                        |
| Nearest Downstream Public Water Supply Intake  |  | <u>Saxton Municipal Water Authority</u> |                        |
| PWS Waters                                     | <u>Juniata River</u>                           | Flow at Intake (cfs)                    | <u></u>                |
| PWS RMI  | <u>42</u>                                      | Distance from Outfall (mi)              | <u>36</u>              |

**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 <sub>5</sub>            | 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 Chlorine (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.

| <b>General Data 1<br/>(Modeling Point #1)</b> | <b>Input Value</b> | <b>Units</b> |
|---|--------------------|--------------|
| Stream Code                                   | 14144              |              |
| River Mile Index                              | 1.1                | miles        |
| Elevation                                     | 1240               | feet         |
| Latitude                                      | 40.002972          |              |
| Longitude                                     | -78.240722         |              |
| Drainage Area                                 | 0.3                | sq miles     |
| Low Flow Yield                                | 0.00437            | cfs/sq mile  |
|   |                    |              |
| <b>General Data 2<br/>(Modeling Point #2)</b> | <b>Input Value</b> | <b>Units</b> |
| Stream Code                                   | 14144              |              |
| River Mile Index                              | 0                  | miles        |
| Elevation                                     | 1126               | feet         |
| Latitude                                      | 40.015266          |              |
| Longitude                                     | -78.250721         |              |
| Drainage Area                                 | 0.62               | sq miles     |
| Low Flow Yield                                | 0.00437            | 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 (NH<sub>3</sub>-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<sub>3</sub>-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<sub>3</sub>-N in the discharge;
- (d) 24-hour average concentration for NH<sub>3</sub>-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: copper, lead, zinc, bromide, and chloride

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:

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

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 C discharger. The supplement defines Sector C as a non-significant dischargers include sewage facilities (Phase 4 facilities:  $\geq 0.2$  MGD and  $< 0.4$  MGD and Phase 5 facilities:  $> 0.002$  MGD and  $< 0.2$  MGD), small flow/single residence sewage treatment facilities ( $\leq 0.002$  MGD), and non-significant IW facilities, all of which may be covered by statewide General Permits or may have individual NPDES permits.

At this time, there are approximately 850 Phase 4 and 5 sewage facilities, approximately 715 small flow sewage treatment facilities covered by a statewide General Permit, and approximately 300 non-significant IW facilities.

For Phase 4 sewage facilities (average annual design flow on August 29, 2005  $\geq 0.2$  MGD and  $< 0.4$  MGD), a future decision may be made as to the establishment of Cap Loads in permits. Until then, DEP will permit Phase 4 sewage facilities as follows:

1. Renewed or amended permits for facilities that do not increase design flow (compared to the date of the latest prior permit action) will contain monitoring and reporting for TN and TP throughout the permit term at a frequency no less than monthly.
2. Renewed or amended permits that include an increase in design flow will contain Cap Loads based on the lesser of a) existing TN and TP concentrations at current design average annual flow or b) 7,306 lbs/yr TN and 974 lbs/yr TP.

If no data are available to determine existing concentrations for expanding Phase 4 or 5 facilities, default concentrations of 25 mg/l TN and 4 mg/l TP may be used (these are the average estimated concentrations of all non-significant sewage facilities).

DEP will not issue permits to existing Phase 4 and 5 facilities containing Cap Loads unless it is done on a broad scale or unless the facilities are expanding.

For new Phase 4 and 5 sewage discharges, in general DEP will issue new permits containing Cap Loads of "0" and new facilities will be expected to purchase credits and/or apply offsets to achieve compliance, with the exception of small flow and single residence facilities.

**This facility is subject to Sector C monitoring requirements. Monitoring shall be at least 1x/month.**

### **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.I.1 and 40 CFR 122.I.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 Conventional Pollutants and Disinfection**

| Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection<br>East Providence Township MA, PA0038733 |  |                 |  |
|--|--|-----------------|--|
| Parameter  | Permit Limitation Required by <sup>1</sup> : | 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   | TBEL   | Monitoring:     | The monitoring frequency shall be 1x/wk as a 24-hr composite sample (Table 6-3).   |
|  |  | Effluent Limit: | Effluent limits shall not exceed 79 lbs/day and 25 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). WQM modeling indicates that the TBEL is more stringent than the WQBEL. Thus, the permit limit is confined to TBEL.   |
| TSS  | TBEL   | Monitoring:     | The monitoring frequency shall be 1x/wk as a 24-hr composite sample (Table 6-3).   |
|  |  | Effluent Limit: | Effluent limits shall not exceed 95 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 TBEL, TBEL will apply. |
| UV disinfection  | SOP  | Monitoring:     | The monitoring frequency is 1/day. The facility will be required to record the UV intensity.   |
|  |  | 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 0.38 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 Nitrogen Species and Phosphorus**

| Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus |  |                 |   |
|---|--|-----------------|---|
| East Providence Township MA, PA0038733  |  |                 |   |
| Parameter   | Permit Limitation Required by <sup>1</sup> : | Recommendation  |   |
| Ammonia-Nitrogen  | WQBEL  | Monitoring:     | The monitoring frequency shall be 1x/wk as a 24-hr composite sample   |
|   |  | Effluent Limit: | During the months of May 1 to October 31, effluent limits shall not exceed 4.5 lbs/day and 1.5 mg/l as an average monthly. During the months of November 1 to April 30, effluent limits shall not exceed 14 lbs/day and 4.5 mg/l as an average monthly. |
|   |  | Rationale:      | Water quality modeling recommends effluent limits   |
| Nitrate-Nitrite as N  | 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.  |
| 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 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.  |
| Total Phosphorus  | 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.  |

**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 0.38 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 Toxics**

Discussions with Maggie Weitzel occurred on June 16, 2022. The current NPDES permit included monitoring for toxics on a monthly basis. The consultant claims that there were eDMR issue which did not include entries for this data. A separate Excel sheet summarized data for toxics for 2020, 2021 and the first few months of 2022. Monitoring for TDS, chloride, bromide, and sulfate have been eliminated by both EPA and DEP Central Office. Maximum copper and zinc results from the sampling were 0.0316 mg/l and 0.41 mg/l, respectively. The values reported on the NPDES were 0.0121 mg/l for copper and 0.21 mg/l for zinc.

The values in the separate Excel were larger than those reported in the NPDES application. For modeling, the values in the NPDES application were used. DEP recommends collection of additional samples for further review. The NPDES permit may be reopened in 2 years to evaluate total copper, total lead, and total zinc for permit limits.

Consultation with DEP Central Office determined that the toxics did not populate in eDMR since the current permit had a generic start date as Completion of Construction. This effective date should have been entered in DEP computer system when construction was completed.

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

**East Providence Township MA, PA0038733**

| Parameter    | Permit Limitation Required by <sup>1</sup> : | Recommendation  |   |
|--------------|--|-----------------|---|
| Total Copper | WQBEL  | Monitoring:     | The monitoring frequency shall be 1x/mo as a 24-hr composite sample   |
|              |  | Effluent Limit: | No effluent limit   |
|              |  | Rationale:      | While Toxics Management Spreadsheet recommends limits, monitoring has been recommended to collect additional samples. Pending favorable results, monitoring may be reduced or eliminated in future renewals |
| Total Lead   | WQBEL  | Monitoring:     | The monitoring frequency shall be 1x/mo as a 24-hr composite sample   |
|              |  | Effluent Limit: | No effluent limit   |
|              |  | Rationale:      | Toxics Management Spreadsheet recommends monitoring. Pending favorable results, monitoring may be reduced or eliminated in future renewals  |
| Total Zinc   | WQBEL  | Monitoring:     | The monitoring frequency shall be 1x/mo as a 24-hr composite sample   |
|              |  | Effluent Limit: | No effluent limit   |
|              |  | Rationale:      | While Toxics Management Spreadsheet recommends limits, monitoring has been recommended to collect additional samples. Pending favorable results, monitoring may be reduced or eliminated in future renewals |

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 0.38 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 |   |  |
|--|---|--|
| Parameter  | Existing Permit   | Draft Permit   |
| Ammonia-Nitrogen                                 | During the months of May 1 to October 31, effluent limits shall not exceed 6.3 lbs/day and 2.0 mg/l as an average monthly. During the months of November 1 to April 30, effluent limits shall not exceed 19 lbs/day and 6.0 mg/l as an average monthly. | During the months of May 1 to October 31, effluent limits shall not exceed 4.5 lbs/day and 1.5 mg/l as an average monthly. During the months of November 1 to April 30, effluent limits shall not exceed 14 lbs/day and 4.5 mg/l as an average monthly. Based upon the 12 months of DMR from May 2021 to April 2022, the facility should be able to meet the reduced effluent limits |
| Nitrate-Nitrogen as N, TKN, and Total Phosphorus | Monitoring is required 1x/wk  | Monitoring shall be at least 1x/month  |
| E. Coli  | No monitoring or effluent limits  | Due to the EPA Triennial Review, E. Coli shall be monitored 1x/quarter.  |
| Total Lead                                       | No monitoring or effluent limits  | Monitoring shall be at least 1x/month  |
| TDS, sulfate, chloride, and bromide              | Monitoring is required 1x/month   | EPA and DEP Central Office has directed that no further sample collection for these parameters is needed. Monitoring has been eliminated.  |

**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° 0' 10.25", Longitude 78° 14' 28.00", River Mile Index 1.1, Stream Code 14144

Receiving Waters: Unnamed Tributary to Tub Mill Run (WWF)

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) <sup>(1)</sup> |                  | Concentrations (mg/L) |                 |                  |                  | Minimum <sup>(2)</sup> 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)       | 79                                  | 127              | 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                               | 95                                  | 145              | 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                 |
| 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                 |
| Ultraviolet light intensity (mW/cm²)                 | XXX                                 | XXX              | Report                | XXX             | XXX              | XXX              | 1/day  | Metered              |



Outfall001 , Continued (from Permit Effective Date through Permit Expiration Date)

| Parameter                                       | Effluent Limitations                |                |                       |                 |                |                  | Monitoring Requirements                      |                      |
|---|-------------------------------------|----------------|-----------------------|-----------------|----------------|------------------|--|----------------------|
|   | Mass Units (lbs/day) <sup>(1)</sup> |                | Concentrations (mg/L) |                 |                |                  | Minimum <sup>(2)</sup> Measurement Frequency | Required Sample Type |
|   | Average Monthly                     | Weekly Average | Instantaneous Minimum | Average Monthly | Weekly Average | Instant. Maximum |  |                      |
| Nitrate-Nitrite as N                            | XXX                                 | XXX            | XXX                   | Report          | XXX            | XXX              | 1/month                                      | 24-Hr Composite      |
| Nitrate-Nitrite as N (Total Load, lbs) (lbs)    | Report Total Mo                     | XXX            | XXX                   | XXX             | XXX            | XXX              | 1/month                                      | Calculation          |
| Total Nitrogen                                  | XXX                                 | XXX            | XXX                   | Report          | XXX            | XXX              | 1/month                                      | Calculation          |
| Total Nitrogen (Total Load, lbs) (lbs)          | Report Total Mo                     | XXX            | XXX                   | XXX             | XXX            | XXX              | 1/month                                      | Calculation          |
| Ammonia-Nitrogen Nov 1 - Apr 30                 | 14                                  | XXX            | XXX                   | 4.5             | XXX            | 9                | 1/week                                       | 24-Hr Composite      |
| Ammonia-Nitrogen May 1 - Oct 31                 | 4.5                                 | XXX            | XXX                   | 1.5             | XXX            | 3                | 1/week                                       | 24-Hr Composite      |
| Ammonia-Nitrogen (Total Load, lbs) (lbs)        | Report Total Mo                     | XXX            | XXX                   | XXX             | XXX            | XXX              | 1/month                                      | Calculation          |
| Total Kjeldahl Nitrogen                         | XXX                                 | XXX            | XXX                   | Report          | XXX            | XXX              | 1/month                                      | 24-Hr Composite      |
| Total Kjeldahl Nitrogen (Total Load, lbs) (lbs) | Report Total Mo                     | XXX            | XXX                   | XXX             | XXX            | XXX              | 1/month                                      | Calculation          |
| Total Phosphorus                                | 6.3                                 | XXX            | XXX                   | 2.0             | XXX            | 4                | 1/month                                      | 24-Hr Composite      |
| Total Phosphorus (Total Load, lbs) (lbs)        | Report Total Mo                     | XXX            | XXX                   | XXX             | XXX            | XXX              | 1/month                                      | Calculation          |
| Copper, Total                                   | Report                              | XXX            | XXX                   | Report          | XXX            | XXX              | 1/month                                      | 24-Hr Composite      |
| Lead, Total                                     | Report                              | XXX            | XXX                   | Report          | XXX            | XXX              | 1/month                                      | 24-Hr Composite      |
| Zinc, Total                                     | Report                              | XXX            | XXX                   | Report          | XXX            | XXX              | 1/month                                      | 24-Hr Composite      |

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

at Outfall 001

### 6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- SBR Batch Discharge Condition
- Hauled-in Waste Restrictions
- Chesapeake Bay Nutrient Definitions
- Solids Management for Non-Lagoon Treatment Systems

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

# Attachment A

## Stream Stats/Gauge Data

14 Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

**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; mi<sup>2</sup>, square miles]

| Streamgage number | Streamgage name   | Latitude | Longitude | Drainage area (mi <sup>2</sup> ) | Regulated <sup>1</sup> |
|-------------------|---|----------|-----------|----------------------------------|------------------------|
| 01561000          | Brush Creek at Gapsville, Pa.                                   | 39.956   | -78.254   | 36.8                             | N                      |
| 01562000          | Raystown Branch Juniata River at Saxton, Pa.                    | 40.216   | -78.265   | 756                              | N                      |
| 01562500          | Great Trough Creek near Marklesburg, Pa.                        | 40.350   | -78.130   | 84.6                             | N                      |
| 01563200          | Raystown Branch Juniata River below Rays Dam nr Huntingdon, Pa. | 40.429   | -77.991   | 960                              | Y                      |
| 01563500          | Juniata River at Mapleton Depot, Pa.                            | 40.392   | -77.935   | 2,030                            | Y                      |
| 01564500          | Aughwick Creek near Three Springs, Pa.                          | 40.213   | -77.925   | 205                              | N                      |
| 01565000          | Kishacoquillas Creek at Reedsville, Pa.                         | 40.655   | -77.583   | 164                              | N                      |
| 01565700          | Little Lost Creek at Oakland Mills, Pa.                         | 40.605   | -77.311   | 6.52                             | N                      |
| 01566000          | Tuscarora Creek near Port Royal, Pa.                            | 40.515   | -77.419   | 214                              | N                      |
| 01566500          | Cocolamus Creek near Millerstown, Pa.                           | 40.566   | -77.118   | 57.2                             | N                      |
| 01567000          | Juniata River at Newport, Pa.                                   | 40.478   | -77.129   | 3,354                            | Y                      |
| 01567500          | Bixler Run near Loysville, Pa.                                  | 40.371   | -77.402   | 15.0                             | N                      |
| 01568000          | Sherman Creek at Shermans Dale, Pa.                             | 40.323   | -77.169   | 207                              | N                      |
| 01568500          | Clark Creek near Carsonville, Pa.                               | 40.460   | -76.751   | 22.5                             | LF                     |
| 01569000          | Stony Creek nr Dauphin, Pa.                                     | 40.380   | -76.907   | 33.2                             | N                      |
| 01569800          | Letort Spring Run near Carlisle, Pa.                            | 40.235   | -77.139   | 21.6                             | N                      |
| 01570000          | Conodoguinet Creek near Hogestown, Pa.                          | 40.252   | -77.021   | 470                              | LF                     |
| 01570500          | Susquehanna River at Harrisburg, Pa.                            | 40.255   | -76.886   | 24,100                           | Y                      |
| 01571000          | Paxton Creek near Penbrook, Pa.                                 | 40.308   | -76.850   | 11.2                             | N                      |
| 01571500          | Yellow Breeches Creek near Camp Hill, Pa.                       | 40.225   | -76.898   | 213                              | N                      |
| 01572000          | Lower Little Swatara Creek at Pine Grove, Pa.                   | 40.538   | -76.377   | 34.3                             | N                      |
| 01572025          | Swatara Creek near Pine Grove, Pa.                              | 40.533   | -76.402   | 116                              | N                      |
| 01572190          | Swatara Creek near Inwood, Pa.                                  | 40.479   | -76.531   | 167                              | N                      |
| 01573000          | Swatara Creek at Harper Tavern, Pa.                             | 40.403   | -76.577   | 337                              | N                      |
| 01573086          | Beck Creek near Cleona, Pa.                                     | 40.323   | -76.483   | 7.87                             | N                      |
| 01573160          | Quittapahilla Creek near Belle Grove, Pa.                       | 40.343   | -76.562   | 74.2                             | N                      |
| 01573500          | Manada Creek at Manada Gap, Pa.                                 | 40.397   | -76.709   | 13.5                             | N                      |
| 01573560          | Swatara Creek near Hershey, Pa.                                 | 40.298   | -76.668   | 483                              | N                      |
| 01574000          | West Conewago Creek near Manchester, Pa.                        | 40.082   | -76.720   | 510                              | N                      |
| 01574500          | Codorus Creek at Spring Grove, Pa.                              | 39.879   | -76.853   | 75.5                             | Y                      |
| 01575000          | South Branch Codorus Creek near York, Pa.                       | 39.921   | -76.749   | 117                              | Y                      |
| 01575500          | Codorus Creek near York, Pa.                                    | 39.946   | -76.755   | 222                              | Y                      |
| 01576000          | Susquehanna River at Marietta, Pa.                              | 40.055   | -76.531   | 25,990                           | Y                      |
| 01576085          | Little Conestoga Creek near Churchtown, Pa.                     | 40.145   | -75.989   | 5.82                             | N                      |
| 01576500          | Conestoga River at Lancaster, Pa.                               | 40.050   | -76.277   | 324                              | N                      |
| 01576754          | Conestoga River at Conestoga, Pa.                               | 39.946   | -76.368   | 470                              | N                      |
| 01578310          | Susquehanna River at Conowingo, Md.                             | 39.658   | -76.174   | 27,100                           | Y                      |
| 01578400          | Bowery Run near Quarryville, Pa.                                | 39.895   | -76.114   | 5.98                             | N                      |
| 01580000          | Deer Creek at Rocks, Md.  | 39.630   | -76.403   | 94.4                             | N                      |
| 01581500          | Bynum Run at Bel Air, Md.                                       | 39.541   | -76.330   | 8.52                             | N                      |
| 01581700          | Winters Run near Benson, Md.                                    | 39.520   | -76.373   | 34.8                             | N                      |
| 01582000          | Little Falls at Blue Mount, Md.                                 | 39.604   | -76.620   | 52.9                             | N                      |
| 01582500          | Gunpowder Falls at Glencoe, Md.                                 | 39.550   | -76.636   | 160                              | Y                      |
| 01583000          | Slade Run near Glyndon, Md.                                     | 39.495   | -76.795   | 2.09                             | N                      |
| 01583100          | Piney Run at Dover, Md.   | 39.521   | -76.767   | 12.3                             | N                      |

26 Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

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

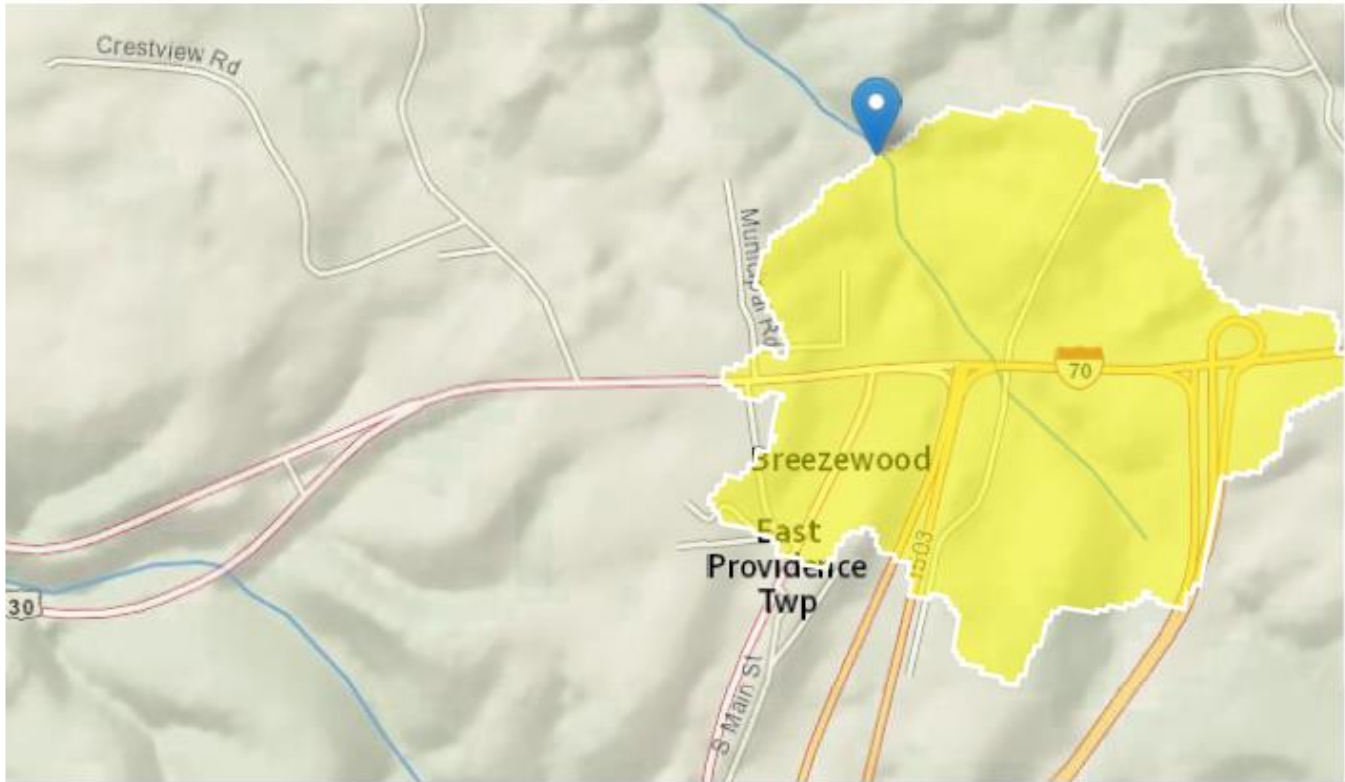
[ft<sup>3</sup>/s; cubic feet per second; —, statistic not computed; <, less than]

| Streamgage number | Period of record used in analysis <sup>1</sup> | Number of years used in analysis | 1-day, 10-year (ft <sup>3</sup> /s) | 7-day, 10-year (ft <sup>3</sup> /s) | 7-day, 2-year (ft <sup>3</sup> /s) | 30-day, 10-year (ft <sup>3</sup> /s) | 30-day, 2-year (ft <sup>3</sup> /s) | 90-day, 10-year (ft <sup>3</sup> /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          | <sup>2</sup> 1971–2008                         | 38                               | 28.2                                | 109                                 | 151                                | 131                                  | 172                                 | 153                                  |
| 01547500          | <sup>3</sup> 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          | <sup>2</sup> 1971–2000                         | 25                               | 142                                 | 151                                 | 206                                | 178                                  | 241                                 | 223                                  |
| 01548005          | <sup>3</sup> 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          | <sup>2</sup> 1963–2008                         | 46                               | 520                                 | 578                                 | 1,020                              | 678                                  | 1,330                               | 919                                  |
| 01551500          | <sup>3</sup> 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          | <sup>2</sup> 1968–2008                         | 41                               | 760                                 | 838                                 | 1,440                              | 1,000                                | 1,850                               | 1,470                                |
| 01553500          | <sup>3</sup> 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          | <sup>2</sup> 1981–2008                         | 28                               | 1,830                               | 1,990                               | 3,270                              | 2,320                                | 4,210                               | 3,160                                |
| 01554000          | <sup>3</sup> 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          | <sup>2</sup> 1974–2008                         | 35                               | —                                   | —                                   | —                                  | 112                                  | 266                                 | 129                                  |
| 01563200          | <sup>3</sup> 1948–1972                         | 25                               | 10.3                                | 28.2                                | 86.1                               | 64.5                                 | 113                                 | 95.5                                 |
| 01563500          | <sup>2</sup> 1974–2008                         | 35                               | 384                                 | 415                                 | 519                                | 441                                  | 580                                 | 493                                  |
| 01563500          | <sup>3</sup> 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: PA20220601151826923000  
 Clicked Point (Latitude, Longitude): 40.00295, -78.24068  
 Time: 2022-06-01 11:18:46 -0400



East Providence Township MA PA0038733 Modeling Point #1 June 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 | 0.3   | square miles |
| PRECIP         | Mean Annual Precipitation               | 37    | inches       |
| ROCKDEP        | Depth to rock                           | 3     | feet         |

| Parameter Code | Parameter Description  | Value | Unit                  |
|----------------|--|-------|-----------------------|
| STRDEN         | Stream Density -- total length of streams divided by drainage area | 2.02  | 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             | 0.3   | square miles          | 4.93      | 1280      |
| PRECIP         | Mean Annual Precipitation | 37    | inches                | 35        | 50.4      |
| STRDEN         | Stream Density            | 2.02  | miles per square mile | 0.51      | 3.1       |
| ROCKDEP        | Depth to Rock             | 3     | 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   | 0.00609 | ft <sup>3</sup> /s |
| 30 Day 2 Year Low Flow  | 0.0108  | ft <sup>3</sup> /s |
| 7 Day 10 Year Low Flow  | 0.00131 | ft <sup>3</sup> /s |
| 30 Day 10 Year Low Flow | 0.00253 | ft <sup>3</sup> /s |
| 90 Day 10 Year Low Flow | 0.00631 | ft <sup>3</sup> /s |

*Low-Flow Statistics Citations*

**Stuckey, M.H., 2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-**

5130, 84 p. (<http://pubs.usgs.gov/sir/2006/5130/>)

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Application Version: 4.9.0

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.0



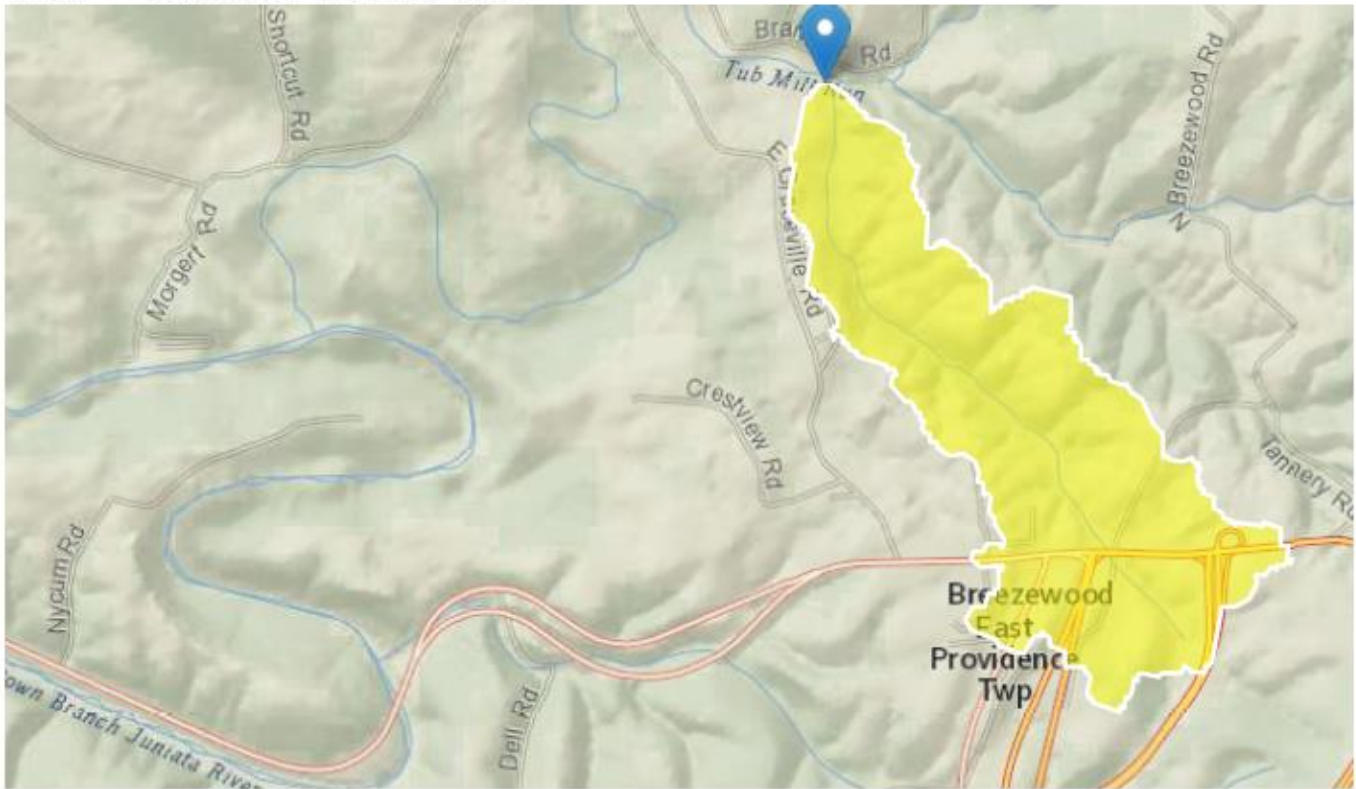
## StreamStats Report

Region ID: PA

Workspace ID: PA20220601152224620000

Clicked Point (Latitude, Longitude): 40.01514, -78.25047

Time: 2022-06-01 11:22:46 -0400



East Providence PA0038733 Modeling Point #2 June 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 | 0.62  | square miles |
| PRECIP         | Mean Annual Precipitation               | 37    | inches       |
| ROCKDEP        | Depth to rock                           | 3     | feet         |

| Parameter Code | Parameter Description  | Value | Unit                  |
|----------------|--|-------|-----------------------|
| STRDEN         | Stream Density -- total length of streams divided by drainage area | 2.75  | 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             | 0.62  | square miles          | 4.93      | 1280      |
| PRECIP         | Mean Annual Precipitation | 37    | inches                | 35        | 50.4      |
| STRDEN         | Stream Density            | 2.75  | miles per square mile | 0.51      | 3.1       |
| ROCKDEP        | Depth to Rock             | 3     | 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   | 0.0102  | ft <sup>3</sup> /s |
| 30 Day 2 Year Low Flow  | 0.0182  | ft <sup>3</sup> /s |
| 7 Day 10 Year Low Flow  | 0.00223 | ft <sup>3</sup> /s |
| 30 Day 10 Year Low Flow | 0.00431 | ft <sup>3</sup> /s |
| 90 Day 10 Year Low Flow | 0.0105  | ft <sup>3</sup> /s |

*Low-Flow Statistics Citations*

**Stuckey, M.H., 2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-**

**5130, 84 p. (<http://pubs.usgs.gov/sir/2006/5130/>)**

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Application Version: 4.9.0

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.0

# Attachment B

## WQM 7.0 Modeling Output Values

### Toxics Management Spreadsheet Output Values

**WQM 7.0 Effluent Limits**

| <u>SWP Basin</u> |                 | <u>Stream Code</u> |                 | <u>Stream Name</u>         |                                |                            |                            |
|------------------|-----------------|--------------------|-----------------|----------------------------|--------------------------------|----------------------------|----------------------------|
| 11D              |                 | 14144              |                 | Trib 14144 to Tub Mill 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) |
| 1.100            | East Providence | PA0038733          | 0.380           | CBOD5                      | 25                             |                            |                            |
|                  |                 |                    |                 | NH3-N                      | 1.77                           | 3.54                       |                            |
|                  |                 |                    |                 | Dissolved Oxygen           |                                |                            | 5                          |

**WQM 7.0 Wasteload Allocations**

| <u>SWP Basin</u> | <u>Stream Code</u> | <u>Stream Name</u>         |
|------------------|--------------------|----------------------------|
| 11D              | 14144              | Trib 14144 to Tub Mill 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 |
|-------|-----------------|---------------------------|---------------------|---------------------------|---------------------|----------------|-------------------|
| 1.100 | East Providence | 14.47                     | 14.5                | 14.47                     | 14.5                | 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 |
|-------|-----------------|---------------------------|---------------------|---------------------------|---------------------|----------------|-------------------|
| 1.100 | East Providence | 1.76                      | 1.77                | 1.76                      | 1.77                | 0              | 0                 |

**Dissolved Oxygen Allocations**

| RMI  | Discharge Name  | <u>CBOD5</u>    |                 | <u>NH3-N</u>    |                 | <u>Dissolved Oxygen</u> |                 | Critical Reach | Percent Reduction |
|------|-----------------|-----------------|-----------------|-----------------|-----------------|-------------------------|-----------------|----------------|-------------------|
|      |                 | Baseline (mg/L) | Multiple (mg/L) | Baseline (mg/L) | Multiple (mg/L) | Baseline (mg/L)         | Multiple (mg/L) |                |                   |
| 1.10 | East Providence | 25              | 25              | 1.77            | 1.77            | 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                            |
|-----------|-------------|----------------------------|-------|----------------|-----------------------|---------------|----------------------|-------------------------------------|
| 11D       | 14144       | Trib 14144 to Tub Mill Run | 1.100 | 1240.00        | 0.30                  | 0.00000       | 0.00                 | <input checked="" type="checkbox"/> |

**Stream Data**

| Design Cond. | LFY    | Trib Flow | Stream Flow | Rch Trav Time | Rch Velocity | WD Ratio | Rch Width | Rch Depth | Tributary Temp | Tributary pH | Stream Temp | Stream pH |
|--------------|--------|-----------|-------------|---------------|--------------|----------|-----------|-----------|----------------|--------------|-------------|-----------|
|              | (cfsm) | (cfs)     | (cfs)       | (days)        | (fps)        |          | (ft)      | (ft)      | (°C)           |              | (°C)        |           |
| Q7-10        | 0.004  | 0.00      | 0.00        | 0.000         | 0.000        | 0.0      | 0.00      | 0.00      | 23.30          | 8.00         | 0.00        | 0.00      |
| Q1-10        |        | 0.00      | 0.00        | 0.000         | 0.000        |          |           |           |                |              |             |           |
| Q30-10       |        | 0.00      | 0.00        | 0.000         | 0.000        |          |           |           |                |              |             |           |

**Discharge Data**

| Name            | Permit Number | Existing Disc Flow (mgd) | Permitted Disc Flow (mgd) | Design Disc Flow (mgd) | Reserve Factor | Disc Temp (°C) | Disc pH |
|-----------------|---------------|--------------------------|---------------------------|------------------------|----------------|----------------|---------|
| East Providence | PA0038733     | 0.3800                   | 0.3800                    | 0.3800                 | 0.000          | 20.00          | 7.15    |

**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                            |
|-----------|-------------|----------------------------|-------|----------------|-----------------------|---------------|----------------------|-------------------------------------|
| 11D       | 14144       | Trib 14144 to Tub Mill Run | 0.000 | 1126.00        | 0.62                  | 0.00000       | 0.00                 | <input checked="" type="checkbox"/> |

**Stream Data**

| Design Cond. | LFY    | Trib Flow | Stream Flow | Rch Trav Time | Rch Velocity | WD Ratio | Rch Width | Rch Depth | Tributary Temp | Tributary pH | Stream Temp | Stream pH |
|--------------|--------|-----------|-------------|---------------|--------------|----------|-----------|-----------|----------------|--------------|-------------|-----------|
|              | (cfsm) | (cfs)     | (cfs)       | (days)        | (fps)        |          | (ft)      | (ft)      | (°C)           |              | (°C)        |           |
| Q7-10        | 0.004  | 0.00      | 0.00        | 0.000         | 0.000        | 0.0      | 0.00      | 0.00      | 23.30          | 8.00         | 0.00        | 0.00      |
| Q1-10        |        | 0.00      | 0.00        | 0.000         | 0.000        |          |           |           |                |              |             |           |
| Q30-10       |        | 0.00      | 0.00        | 0.000         | 0.000        |          |           |           |                |              |             |           |

| Discharge Data   |                  |                          |                           |                        |                |                |         |
|------------------|------------------|--------------------------|---------------------------|------------------------|----------------|----------------|---------|
| Name             | Permit Number    | Existing Disc Flow (mgd) | Permitted Disc Flow (mgd) | Design Disc Flow (mgd) | Reserve Factor | Disc Temp (°C) | Disc pH |
|                  |                  | 0.0000                   | 0.0000                    | 0.0000                 | 0.000          | 0.00           | 7.00    |
| Parameter Data   |                  |                          |                           |                        |                |                |         |
| Parameter Name   | Disc Conc (mg/L) | Trib Conc (mg/L)         | Stream Conc (mg/L)        | Fate Coef (1/days)     |                |                |         |
| CBOD5            | 25.00            | 2.00                     | 0.00                      | 1.50                   |                |                |         |
| Dissolved Oxygen | 3.00             | 8.24                     | 0.00                      | 0.00                   |                |                |         |
| NH3-N            | 25.00            | 0.00                     | 0.00                      | 0.70                   |                |                |         |



### WQM 7.0 D.O. Simulation

| <u>SWP Basin</u>                | <u>Stream Code</u>                | <u>Stream Name</u>               |                             |                    |
|---------------------------------|-----------------------------------|----------------------------------|-----------------------------|--------------------|
| 11D                             | 14144                             | Trib 14144 to Tub Mill Run       |                             |                    |
| <hr/>                           |                                   |                                  |                             |                    |
| <u>RMI</u>                      | <u>Total Discharge Flow (mgd)</u> | <u>Analysis Temperature (°C)</u> | <u>Analysis pH</u>          |                    |
| 1.100                           | 0.380                             | 20.007                           | 7.151                       |                    |
| <u>Reach Width (ft)</u>         | <u>Reach Depth (ft)</u>           | <u>Reach WDRatio</u>             | <u>Reach Velocity (fps)</u> |                    |
| 5.244                           | 0.493                             | 10.646                           | 0.228                       |                    |
| <u>Reach CBOD5 (mg/L)</u>       | <u>Reach Kc (1/days)</u>          | <u>Reach NH3-N (mg/L)</u>        | <u>Reach Kn (1/days)</u>    |                    |
| 24.95                           | 1.500                             | 1.77                             | 0.700                       |                    |
| <u>Reach DO (mg/L)</u>          | <u>Reach Kr (1/days)</u>          | <u>Kr Equation</u>               | <u>Reach DO Goal (mg/L)</u> |                    |
| 5.007                           | 29.877                            | Owens                            | 5                           |                    |
| <u>Reach Travel Time (days)</u> | <b>Subreach Results</b>           |                                  |                             |                    |
| 0.295                           | <u>TravTime (days)</u>            | <u>CBOD5 (mg/L)</u>              | <u>NH3-N (mg/L)</u>         | <u>D.O. (mg/L)</u> |
|                                 | 0.029                             | 23.87                            | 1.73                        | 6.25               |
|                                 | 0.059                             | 22.84                            | 1.69                        | 6.82               |
|                                 | 0.088                             | 21.85                            | 1.66                        | 7.10               |
|                                 | 0.118                             | 20.91                            | 1.63                        | 7.26               |
|                                 | 0.147                             | 20.00                            | 1.59                        | 7.37               |
|                                 | 0.177                             | 19.14                            | 1.56                        | 7.46               |
|                                 | 0.206                             | 18.31                            | 1.53                        | 7.53               |
|                                 | 0.236                             | 17.52                            | 1.50                        | 7.60               |
|                                 | 0.265                             | 16.76                            | 1.47                        | 7.67               |
|                                 | 0.295                             | 16.03                            | 1.44                        | 7.73               |

### WQM 7.0 Hydrodynamic Outputs

| <u>SWP Basin</u>   |                      | <u>Stream Code</u> |                          |                             |                        | <u>Stream Name</u>         |               |           |                   |                           |                       |             |
|--------------------|----------------------|--------------------|--------------------------|-----------------------------|------------------------|----------------------------|---------------|-----------|-------------------|---------------------------|-----------------------|-------------|
| 11D                |                      | 14144              |                          |                             |                        | Trib 14144 to Tub Mill Run |               |           |                   |                           |                       |             |
| RMI                | Stream Flow<br>(cfs) | PWS With<br>(cfs)  | Net Stream Flow<br>(cfs) | Disc Analysis Flow<br>(cfs) | Reach Slope<br>(ft/ft) | Depth<br>(ft)              | Width<br>(ft) | W/D Ratio | Velocity<br>(fps) | Reach Trav Time<br>(days) | Analysis Temp<br>(°C) | Analysis pH |
| <b>Q7-10 Flow</b>  |                      |                    |                          |                             |                        |                            |               |           |                   |                           |                       |             |
| 1.100              | 0.00                 | 0.00               | 0.00                     | .5879                       | 0.01963                | .493                       | 5.24          | 10.65     | 0.23              | 0.295                     | 20.01                 | 7.15        |
| <b>Q1-10 Flow</b>  |                      |                    |                          |                             |                        |                            |               |           |                   |                           |                       |             |
| 1.100              | 0.00                 | 0.00               | 0.00                     | .5879                       | 0.01963                | NA                         | NA            | NA        | 0.23              | 0.295                     | 20.01                 | 7.15        |
| <b>Q30-10 Flow</b> |                      |                    |                          |                             |                        |                            |               |           |                   |                           |                       |             |
| 1.100              | 0.00                 | 0.00               | 0.00                     | .5879                       | 0.01963                | NA                         | NA            | NA        | 0.23              | 0.295                     | 20.01                 | 7.15        |

## WQM 7.0 Modeling Specifications

|                    |        |                                     |                                     |
|--------------------|--------|-------------------------------------|-------------------------------------|
| Parameters         | Both   | Use Inputted Q1-10 and Q30-10 Flows | <input type="checkbox"/>            |
| WLA Method         | EMPR   | Use Inputted W/D Ratio              | <input type="checkbox"/>            |
| Q1-10/Q7-10 Ratio  | 0.96   | Use Inputted Reach Travel Times     | <input type="checkbox"/>            |
| Q30-10/Q7-10 Ratio | 1.15   | Temperature Adjust Kr               | <input checked="" type="checkbox"/> |
| D.O. Saturation    | 90.00% | Use Balanced Technology             | <input checked="" type="checkbox"/> |
| D.O. Goal          | 5      |                                     |                                     |



## Discharge Information

Instructions **Discharge** Stream

Facility: **East Providence** NPDES Permit No.: **PA0038733** 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 <sub>7-10</sub>        | Q <sub>h</sub> |
| 0.38                      | 100              | 7.15     |                            |     |     |     |                          |                |

| Discharge Pollutant       | Units                           | Max Discharge Conc | 0 if left blank |             | 0.5 if left blank |           | 0 if left blank |            |     | 1 if left blank |             |
|---------------------------|---------------------------------|--------------------|-----------------|-------------|-------------------|-----------|-----------------|------------|-----|-----------------|-------------|
|                           |                                 |                    | 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               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Chloride (PWS)                  | mg/L               | 968             |             |                   |           |                 |            |     |                 |             |
|                           | Bromide                         | mg/L               | 0.122           |             |                   |           |                 |            |     |                 |             |
|                           | Sulfate (PWS)                   | mg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Fluoride (PWS)                  | mg/L               |                 |             |                   |           |                 |            |     |                 |             |
| Group 2                   | Total Aluminum                  | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Total Antimony                  | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Total Arsenic                   | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Total Barium                    | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Total Beryllium                 | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Total Boron                     | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Total Cadmium                   | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Total Chromium (III)            | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Hexavalent Chromium             | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Total Cobalt                    | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Total Copper                    | mg/L               | 0.0121          |             |                   |           |                 |            |     |                 |             |
|                           | Free Cyanide                    | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Total Cyanide                   | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Dissolved Iron                  | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Total Iron                      | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Total Lead                      | mg/L               | 0.000538        |             |                   |           |                 |            |     |                 |             |
|                           | Total Manganese                 | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Total Mercury                   | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Total Nickel                    | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
|                           | Total Phenols (Phenolics) (PWS) | µg/L               |                 |             |                   |           |                 |            |     |                 |             |
| Total Selenium            | µg/L                            |                    |                 |             |                   |           |                 |            |     |                 |             |
| Total Silver              | µg/L                            |                    |                 |             |                   |           |                 |            |     |                 |             |
| Total Thallium            | µg/L                            |                    |                 |             |                   |           |                 |            |     |                 |             |
| Total Zinc                | mg/L                            | 0.21               |                 |             |                   |           |                 |            |     |                 |             |
| 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                            | <                  |                 |             |                   |           |                 |            |     |                 |             |



Stream / Surface Water Information

East Providence, NPDES Permit No. PA0038733, Outfall 001

Instructions Discharge **Stream**

Receiving Surface Water Name: **Tributary 14144 to Tub Mill Run** No. Reaches to Model: **1**

- Statewide Criteria
- Great Lakes Criteria
- ORSANCO Criteria

| Location           | Stream Code* | RMI* | Elevation (ft)* | DA (mi <sup>2</sup> )* | Slope (ft/ft) | PWS Withdrawal (MGD) | Apply Fish Criteria* |
|--------------------|--------------|------|-----------------|------------------------|---------------|----------------------|----------------------|
| Point of Discharge | 014144       | 1.1  | 1240            | 0.3                    |               |                      | Yes                  |
| End of Reach 1     | 014144       | 0    | 1126            | 0.62                   |               |                      | Yes                  |

**Q<sub>7-10</sub>**

| Location           | RMI | LFY (cfs/mi <sup>2</sup> )* | 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 | 1.1 | 0.0043                      |            |           |           |            |            |                |             |           |    | 96        | 8   |          |    |
| End of Reach 1     | 0   | 0.0043                      |            |           |           |            |            |                |             |           |    | 96        | 8   |          |    |

**Q<sub>n</sub>**

| Location           | RMI | LFY (cfs/mi <sup>2</sup> )* | 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 | 1.1 |                             |            |           |           |            |            |                |             |           |    |          |    |          |    |
| End of Reach 1     | 0   |                             |            |           |           |            |            |                |             |           |    |          |    |          |    |



Model Results

East Providence, NPDES Permit No. PA0038733, Outfall 001

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

All  Inputs  Results  Limits

Hydrodynamics

Wasteload Allocations

AFC

CCT (min): 0.000

PMF: 1

Analysis Hardness (mg/l): 99.991

Analysis pH: 7.15

| Pollutants     | Stream Conc | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments                         |
|----------------|-------------|-----------|------------------|-----------|------------|---------------|------------|----------------------------------|
| Chloride (PWS) | 0           | 0         |                  | 0         | N/A        | N/A           | N/A        |                                  |
| Total Copper   | 0           | 0         |                  | 0         | 13.438     | 14.0          | 14.0       | Chem Translator of 0.96 applied  |
| Total Lead     | 0           | 0         |                  | 0         | 64.575     | 81.6          | 81.8       | Chem Translator of 0.791 applied |
| Total Zinc     | 0           | 0         |                  | 0         | 117.172    | 120           | 120        | Chem Translator of 0.978 applied |

CFC

CCT (min): 0.000

PMF: 1

Analysis Hardness (mg/l): 99.991

Analysis pH: 7.15

| Pollutants     | Stream Conc | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments                         |
|----------------|-------------|-----------|------------------|-----------|------------|---------------|------------|----------------------------------|
| Chloride (PWS) | 0           | 0         |                  | 0         | N/A        | N/A           | N/A        |                                  |
| Total Copper   | 0           | 0         |                  | 0         | 8.955      | 9.33          | 9.35       | Chem Translator of 0.96 applied  |
| Total Lead     | 0           | 0         |                  | 0         | 2.516      | 3.18          | 3.19       | Chem Translator of 0.791 applied |
| Total Zinc     | 0           | 0         |                  | 0         | 118.130    | 120           | 120        | Chem Translator of 0.986 applied |

THH

CCT (min): 0.000

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 |
|----------------|-------------|-----------|------------------|-----------|------------|---------------|------------|----------|
| Chloride (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): 0.001

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 |
|----------------|-------------|-----------|------------------|-----------|------------|---------------|------------|----------|
| Chloride (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

| Pollutants   | Mass Limits   |               | Concentration Limits |        |        |       | Governing WQBEL | WQBEL Basis | Comments                           |
|--------------|---------------|---------------|----------------------|--------|--------|-------|-----------------|-------------|------------------------------------|
|              | AML (lbs/day) | MDL (lbs/day) | AML                  | MDL    | IMAX   | Units |                 |             |                                    |
| Total Copper | 0.03          | 44.5          | 0.009                | 14.0   | 14.0   | mg/L  | 0.009           | CFC         | Discharge Conc ≥ 50% WQBEL (RP)    |
| Total Lead   | Report        | Report        | Report               | Report | Report | mg/L  | 0.003           | CFC         | Discharge Conc > 10% WQBEL (no RP) |
| Total Zinc   | 0.38          | 381           | 0.12                 | 120    | 120    | mg/L  | 0.12            | 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           |
|----------------|-----------------|-------|--------------------|
| Chloride (PWS) | N/A             | N/A   | PWS Not Applicable |
| Bromide        | N/A             | N/A   | No WQS             |
|                |                 |       |                    |
|                |                 |       |                    |