

Application Type Renewal  
Facility Type Municipal  
Major / Minor Major

## NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application No. PA0080225  
APS ID 28589  
Authorization ID 1405378

### Applicant and Facility Information

|  |  |
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| <p>Applicant Name <u>Washington Township Municipal Authority</u><br/>Applicant Address <u>11102 Buchanan Trail East Washington Twp Mun Authority</u><br/><u>Waynesboro, PA 17268-9503</u><br/>Applicant Contact <u>Sean McFarland</u><br/>Applicant Phone <u>(717) 762-3108</u><br/>Client ID <u>83421</u><br/>Ch 94 Load Status <u>Not Overloaded</u><br/>Connection Status <u>No Limitations</u><br/>Date Application Received <u>August 3, 2022</u><br/>Date Application Accepted <u>August 8, 2022</u><br/>Purpose of Application <u>NPDES Permit Renewal.</u></p> | <p>Facility Name <u>Washington Township MA WWTP</u><br/>Facility Address <u>11102 Buchanan Trail E</u><br/><u>Waynesboro, PA 17268-8523</u><br/>Facility Contact <u>Sean McFarland</u><br/>Facility Phone <u>(717) 762-3108</u><br/>Site ID <u>453656</u><br/>Municipality <u>Washington Township</u><br/>County <u>Franklin</u><br/>EPA Waived? <u>No</u><br/>If No, Reason <u>, DEP Discretion</u></p> |
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### Summary of Review

Washington Township Municipal Authority (WTMA) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of the NPDES permit. The permit was last reissued on January 12, 2018 and expired on January 31, 2023.

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

Sludge use and disposal description and location(s): Sludge is processed onsite and then land applied under PAG083538.

#### Public Participation

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

| Approve | Deny | Signatures  | Date               |
|---------|------|---|--------------------|
| X       |      | Jinsu Kim<br>Jinsu Kim / Environmental Engineering Specialist                   | August 14, 2023    |
| X       |      | Maria D. Bebenek for<br>Daniel W. Martin, P.E. / Environmental Engineer Manager | September 11, 2023 |
| X       |      | Maria D. Bebenek<br>Maria D. Bebenek, P.E. / Program Manager                    | September 11, 2023 |

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

|   |                                 |                              |                 |
|---|---------------------------------|------------------------------|-----------------|
| Outfall No.                                   | 001                             | Design Flow (MGD)            | 1.85            |
| Latitude                                      | 39° 43' 34.35"                  | Longitude                    | -77° 35' 30.49" |
| Quad Name                                     | Smithburg                       | Quad Code                    | 2125            |
| Wastewater Description:                       | Sewage Effluent                 |                              |                 |
| Receiving Waters                              | East Branch Antietam Creek      | Stream Code                  | 59291           |
| NHD Com ID                                    | 49469074                        | RMI                          | 0.94            |
| Drainage Area                                 | 49.6 mi <sup>2</sup>            | Yield (cfs/mi <sup>2</sup> ) | 0.19375         |
| Q <sub>7-10</sub> Flow (cfs)                  | 9.61                            | Q <sub>7-10</sub> Basis      | StreamStats     |
| Elevation (ft)                                | 563                             | Slope (ft/ft)                |                 |
| Watershed No.                                 | 13-C                            | Chapter 93 Class.            | CWF, MF         |
| Existing Use                                  | None                            | Existing Use Qualifier       | None            |
| Exceptions to Use                             | None                            | Exceptions to Criteria       | None            |
| Assessment Status                             | Impaired                        |                              |                 |
| Cause(s) of Impairment                        | Habitat Alterations             |                              |                 |
| Source(s) of Impairment                       | Habitat Modification            |                              |                 |
| TMDL Status                                   | N/A                             | Name                         | N/A             |
| Nearest Downstream Public Water Supply Intake | Brunswick Mayor and Council, MD |                              |                 |
| PWS Waters                                    | Potomac River                   | Flow at Intake (cfs)         |                 |
| PWS RMI                                       |                                 | Distance from Outfall (mi)   |                 |

**Drainage Area**

A drainage area upstream of the point of discharge is estimated to be 49.6 sq.mi according to USGS StreamStats (<https://streamstats.usgs.gov/ss/>).

**Streamflow**

StreamStats produced a Q<sub>7-10</sub> of 9.61 cfs at the point of discharge.

**East Branch Antietam Creek**

Under 25 Pa Code §93.9z, East Branch Antietam Creek (main stem, Vineyard Run to confluence with West Branch) is designated as cold water & migratory fishes. It is not classified as a Class A Trout stream; therefore no Class A Wild Trout Fishery is impacted by this discharge. DEP's 2022 PA Integrated Water Quality Monitoring and Assessment report indicates that East Branch Antietam Creek near the discharge point is currently impaired for habitat alterations as a result of habitat modifications. This impairment is listed in Category 4C, waters impaired for one or more uses, not needing a TMDL because the impairment is not caused by a pollutant. No TMDL has been developed.

**Public Water Supply Intake**

The fact sheet prepared for the last permit renewal indicates that the nearest downstream public water supply is for Brunswick Mayor and Council located in Brunswick MD. We do not have flow data for the Potomac River at the PWS. The previous protection report indicated that the drainage area at the Hancock MD upstream of Brunswick is 4,073 mi<sup>2</sup>. Because of the distance, dilution with much larger stream, and effluent limits, the discharge will not affect the intake.

| Treatment Facility Summary                              |                                   |                             |                            |                               |
|---|-----------------------------------|-----------------------------|----------------------------|-------------------------------|
| <b>Treatment Facility Name:</b> Washington Township STP |                                   |                             |                            |                               |
| <b>WQM Permit No.</b>                                   | <b>Issuance Date</b>              | <b>WQM Permit No.</b>       | <b>Issuance Date</b>       |                               |
| 2894402 A-4   | September 6, 2016                 | WQG02280701                 | September 28, 2007         |                               |
| 2813401 A-1   | March 2, 2016                     | 2807401                     | March 2, 2007              |                               |
| 2813401   | June 5, 2013                      | 2803405 Amendment           | December 16, 2003          |                               |
| 2812401   | November 8, 2012                  | 2894402 Amendment           | January 25, 2000           |                               |
| 2894402 Amendment                                       | May 9, 2011                       | 2894402 A-4                 | January 23, 2023           |                               |
| <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 Ammonia Reduction  | Sequencing Batch Reactor    | Gas Chlorine               | 1.85                          |
|   |                                   |                             |                            |                               |
| <b>Hydraulic Capacity (MGD)</b>                         | <b>Organic Capacity (lbs/day)</b> | <b>Load Status</b>          | <b>Biosolids Treatment</b> | <b>Biosolids Use/Disposal</b> |
| 1.85  | 2896                              | Existing Hydraulic Overload | Aerobic Digestion          | Land Application              |

WTMA operates a sanitary wastewater treatment plant serving Washington Township (91.2%) and Waynesboro Borough (8.8%). All sewer systems are 100% separated. WTMA utilizes a Sequencing Batch Reactor (SBR) activated sludge treatment process including a screening, grit/grease removal, SBRs (2), chlorine contact tanks (2), post aeration tank and outfall structure. The treatment plant is designed for 1.85 MGD for both annual average and hydraulic design capacity. Sodium bisulfite is used for dechlorination. The facility also has a stormwater outfall receiving stormwater draining from the site (mostly paved/grassy areas); no interior floor drains are tied into the storm sewer system.

Sludge is processed through sludge digesters (4), thickener and sludge holding tank. Solids generated from this facility will be land applied under PAG083538.

According to the application, WTMA serves a number of commercial users that are mostly related to car washing and commercial laundromat. These users are shown below.

| Name                      | Description           | Categorical/SIU | ELG subpart | Flow          |            |                |             |             |
|---------------------------|-----------------------|-----------------|-------------|---------------|------------|----------------|-------------|-------------|
|                           |                       |                 |             | Process (GPD) | NCCW (GPD) | Sanitary (GPD) | Other (GPD) | Total (GPD) |
| AC&T Car Wash/Gas station | Commercial car wash   | No              | N/A         | 3125          | 0          | 50             | 0           | 3175        |
| J&J Laundromat            | Commercial laundromat | No              | N/A         | 2700          | 0          | 100            | 0           | 2800        |
| Health Network Labs       | Sanitary discharge    | No              | N/A         | 0             | 0          | 50             | 0           | 50          |
| Roberts Car Wash          | Commercial car wash   | No              | N/A         | 1410          | 0          | 50             | 0           | 1460        |
| Rouzerville Laundry       | Commercial laundromat | No              | N/A         | 1170          | 0          | 100            | 0           | 1270        |
| Waynesboro Hospital       | Hospital              | No              | N/A         | 9825          | 0          | 4700           | 0           | 14525       |

Since none of the commercial/industrial contributors are significant or categorical and the average annual design flow of the treatment plant is less than 5.0 MGD, no formal pretreatment program is warranted at this time.

| Compliance History             |  |
|--------------------------------|--|
| <b>Summary of DMRs:</b>        | A summary of past 12-month DMR data is presented on the next page.   |
| <b>Summary of Inspections:</b> | <p>05/10/2023: Cody Hoy conducted a routine inspection and noted grit removal was not operational which is considered a permit violation.</p> <p>05/12/2022: Cody Hoy conducted a routine inspection and noted that the facility failed to comply with requirement to conduct semiannual stormwater inspections which is considered a permit violation.</p> <p>02/24/2021: Brandon Bettinger conducted a routine inspection and noted that no violation was found during the inspection.</p> |
| <b>Other Comments:</b>         | <p>DEP's database shows there are a number of open violations associated with this facility or permittee. A draft permit cover letter will indicate that the permit may not be finalized until all violations are resolved.</p> <p>Since the last permit reissuance, there were a number of permit violations reported. These violations are shown below.</p>  |

| Date       | Description                                   | PARAMETER  | Results  | Limits | Units      | SBC                   |
|------------|---|--|----------|--------|------------|-----------------------|
| 4/25/2018  | Unauthorized Discharges                       |  |          |        |            |                       |
| 5/30/2018  | Late DMR Submission                           |  |          |        |            |                       |
| 5/23/2018  | Sample collection less frequent than required | Total Nitrogen (Total Load, lbs)   |          |        |            |                       |
| 5/23/2018  | Sample collection less frequent than required | Total Phosphorus (Total Load, lbs)   |          |        |            |                       |
| 5/23/2018  | Sample collection less frequent than required | Total Kjeldahl Nitrogen  |          |        |            |                       |
| 5/23/2018  | Sample collection less frequent than required | Biochemical Oxygen Demand (BOD5)   |          |        |            |                       |
| 5/23/2018  | Sample collection less frequent than required | Total Suspended Solids   |          |        |            |                       |
| 6/22/2018  | Sample collection less frequent than required | CBOD   |          |        |            |                       |
| 8/27/2018  | Unauthorized Discharges                       |  |          |        |            |                       |
| 8/27/2018  | Unauthorized Discharges                       | Heavy Rainfall   |          |        |            |                       |
| 9/20/2018  | Unauthorized Discharges                       | Flash flood event. Blue Ridge summit area received 3" of rain in a 30 minute period.         |          |        |            |                       |
| 9/20/2018  | Effluent Violation                            | Fecal Coliform   | 5800     | 1000   | No./100 ml | Instantaneous Maximum |
| 10/26/2018 | Effluent Violation                            | Dissolved Oxygen   | 4.82     | 5      | mg/L       | Daily Minimum         |
| 2/26/2019  | Unauthorized Discharges                       | We had an overflow event that had very diluted wastewater exit the manhole. See lett         |          |        |            |                       |
| 4/16/2019  | Unauthorized Discharges                       | WTMA is working with there engineer on finding the cause of this problem. We have b          |          |        |            |                       |
| 6/12/2019  | Unauthorized Discharges                       | We had the consecutive days of rainfall which totaled 3.56" of rain. This caused flash flo   |          |        |            |                       |
| 7/23/2019  | Effluent Violation                            | Fecal Coliform   | 1350     | 1000   | No./100 ml | Instantaneous Maximum |
| 9/11/2020  | Effluent Violation                            | Dissolved Oxygen   | 4.97     | 5      | mg/L       | Daily Minimum         |
| 10/20/2020 | Effluent Violation                            | Ammonia-Nitrogen   | 9.2      | 4.2    | mg/L       | Average Monthly       |
| 10/20/2020 | Effluent Violation                            | Fecal Coliform   | 16500    | 1000   | No./100 ml | Instantaneous Maximum |
| 10/20/2020 | Effluent Violation                            | Fecal Coliform   | 217      | 200    | No./100 ml | Geometric Mean        |
| 11/18/2020 | Effluent Violation                            | Ammonia-Nitrogen   | 16       | 4.2    | mg/L       | Average Monthly       |
| 11/18/2020 | Effluent Violation                            | Ammonia-Nitrogen   | 71       | 64     | lbs/day    | Average Monthly       |
| 7/30/2021  | Late DMR Submission                           |  |          |        |            |                       |
| 10/4/2021  | Late DMR Submission                           |  |          |        |            |                       |
| 9/2/2021   | Unauthorized Discharges                       | Due to large rain even caused by hurricane Ida we experienced an overflow at our pum         |          |        |            |                       |
| 9/2/2021   | Unauthorized Discharges                       |  |          |        |            |                       |
| 10/26/2021 | Effluent Violation                            | Fecal Coliform   | > 2419.6 | 1000   | No./100 ml | Instantaneous Maximum |
| 9/24/2021  | Unauthorized Discharges                       | Due to a large rain event, we experienced an overflow at Blue Ridge Pump Station. We         |          |        |            |                       |
| 1/13/2022  | Late DMR Submission                           |  |          |        |            |                       |
| 5/10/2022  | Unauthorized Discharges                       | Heavy rainfall event 2.56" in less 24 hours. Flash flooding event                            |          |        |            |                       |
| 5/10/2022  | Unauthorized Discharges                       | Heavy rainfall event 3.99" of rain in a 48 hour period.                                      |          |        |            |                       |
| 1/20/2023  | Unauthorized Discharges                       | 1.67" of rain in a 4-hour period with 2.65" total rain in the 12-hour period led to a slow c |          |        |            |                       |
| 12/27/2022 | Unauthorized Discharges                       | Large rainfall event 2.65" in 12 hours (1.67" in 4 hours).                                   |          |        |            |                       |
| 1/23/2023  | Unauthorized Discharges                       | A blockage, assumed grease, in the 8" sewer main caused a backup which we had unclo          |          |        |            |                       |

Effluent Data

DMR Data for Outfall 001 (from July 1, 2022 to June 30, 2023)

| Parameter  | JUN-23 | MAY-23 | APR-23 | MAR-23 | FEB-23 | JAN-23 | DEC-22 | NOV-22 | OCT-22 | SEP-22 | AUG-22 | JUL-22 |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Flow (MGD)<br>Average Monthly                            | 0.603  | 0.770  | 0.780  | 0.990  | 0.830  | 0.940  | 1.100  | 0.730  | 0.650  | 0.640  | 0.630  | 0.740  |
| Flow (MGD)<br>Daily Maximum                              | 0.720  | 1.120  | 1.220  | 1.820  | 0.940  | 1.180  | 2.980  | 0.930  | 0.770  | 0.930  | 0.700  | 1.090  |
| pH (S.U.)<br>Daily Minimum                               | 6.84   | 6.87   | 7.0    | 6.89   | 6.89   | 6.88   | 6.89   | 6.97   | 7.02   | 7.02   | 7.06   | 7.04   |
| pH (S.U.)<br>Instantaneous<br>Maximum                    | 7.34   | 7.42   | 7.4    | 7.39   | 7.58   | 7.62   | 7.37   | 7.27   | 7.16   | 7.2    | 7.24   | 7.25   |
| DO (mg/L)<br>Daily Minimum                               | 5.87   | 6.2    | 6.17   | 5.54   | 5.41   | 6.35   | 5.82   | 6.06   | 5.95   | 5.78   | 5.89   | 5.94   |
| TRC (mg/L)<br>Average Monthly                            | 0.11   | 0.10   | 0.13   | 0.12   | 0.12   | 0.15   | 0.15   | 0.11   | 0.11   | 0.09   | 0.05   | < 0.07 |
| TRC (mg/L)<br>Instantaneous<br>Maximum                   | 0.34   | 0.26   | 0.22   | 0.24   | 0.22   | 0.28   | 0.55   | 0.28   | 0.21   | 0.19   | 0.09   | 0.18   |
| CBOD5 (lbs/day)<br>Average Monthly                       | < 13   | < 16   | < 15   | < 20   | < 17   | < 20   | < 21   | < 15   | < 13   | < 16   | < 13   | 20.0   |
| CBOD5 (lbs/day)<br>Weekly Average                        | < 13   | < 22   | < 17   | < 25   | < 17   | < 23   | 27.00  | 19.00  | 17.00  | < 22   | 16.00  | 28.0   |
| CBOD5 (mg/L)<br>Average Monthly                          | < 2.4  | < 2.4  | < 2.4  | < 2.4  | < 2.4  | < 2.5  | < 3.1  | < 2.4  | < 2.4  | < 2.8  | < 2.6  | 3.0    |
| CBOD5 (mg/L)<br>Weekly Average                           | < 2.4  | < 2.4  | < 2.4  | < 2.4  | < 2.4  | < 3.00 | 4.70   | 3.00   | 3.10   | < 3.10 | 3.00   | 3.90   |
| BOD5 (lbs/day)<br>Raw Sewage Influent<br>Average Monthly | 803    | 725    | 877    | 965    | 1065   | 1118   | 721    | 668    | 591    | 600    | 970    | 1041   |
| BOD5 (lbs/day)<br>Raw Sewage Influent<br>Daily Maximum   | 1122   | 1285   | 1170   | 1459   | 1433   | 1902   | 1107   | 846    | 837    | 846    | 1231   | 1701   |
| BOD5 (mg/L)<br>Raw Sewage Influent<br>Average Monthly    | 151    | 110    | 137    | 117    | 151    | 139    | 107    | 110    | 110    | 108    | 185    | 159    |
| TSS (lbs/day)<br>Average Monthly                         | 16     | 15     | 13     | 14     | 16     | 9      | < 38   | < 30   | < 27   | < 34   | < 26   | < 36   |
| TSS (lbs/day)<br>Raw Sewage Influent<br>Average Monthly  | 695    | 505    | 484    | 570    | 744.00 | 768    | 486    | 1304   | 1281   | 818    | 1071   | 1039   |

**NPDES Permit Fact Sheet**  
**Washington Township MA WWTP**

**NPDES Permit No. PA0080225**

| Parameter  | JUN-23 | MAY-23 | APR-23 | MAR-23 | FEB-23 | JAN-23 | DEC-22 | NOV-22  | OCT-22  | SEP-22  | AUG-22 | JUL-22 |
|--|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|--------|--------|
| TSS (lbs/day)<br>Raw Sewage Influent<br>Daily Maximum      | 1041   | 1239   | 813    | 1270   | 1217   | 2016   | 1103   | 1836    | 1514    | 1699    | 1350   | 2102   |
| TSS (lbs/day)<br>Weekly Average                            | 37     | 23     | 28     | 16     | 20.00  | 11     | < 46   | < 35    | < 28    | < 51.00 | < 28   | < 48   |
| TSS (mg/L)<br>Average Monthly                              | 3.0    | 2.0    | 2.0    | 2.0    | 2.0    | 1.0    | < 5.0  | < 5.0   | < 5.0   | < 6.0   | < 5.0  | < 5.0  |
| TSS (mg/L)<br>Raw Sewage Influent<br>Average Monthly       | 131    | 78     | 75     | 67     | 105    | 94     | 74     | 217     | 237     | 138     | 205    | 159    |
| TSS (mg/L)<br>Weekly Average                               | 7.0    | 4.0    | 4.0    | 2.0    | 3.00   | 2.0    | < 7.0  | < 5.0   | < 5.0   | < 10.0  | < 5.0  | < 7.0  |
| Fecal Coliform<br>(No./100 ml)<br>Geometric Mean           | 17     | 29     | 14     | 9      | 7      | 7      | 4      | 16      | 6.0     | 5       | 14     | 14     |
| Fecal Coliform<br>(No./100 ml)<br>Instantaneous<br>Maximum | 35     | 727    | 40     | 14     | 15     | 30     | 10     | 64      | 16      | 16      | 148    | 29     |
| Nitrate-Nitrite (mg/L)<br>Average Monthly                  | < 3.21 | < 3.31 | < 3.11 | < 3.30 | < 3.28 | < 3.52 | 4.10   | < 4.79  | < 4.45  | < 3.78  | < 4.41 | < 4.29 |
| Nitrate-Nitrite (lbs)<br>Total Monthly                     | < 514  | < 676  | < 593  | < 846  | < 647  | < 874  | 883    | < 873   | < 744   | < 642   | 722    | < 885  |
| Total Nitrogen (mg/L)<br>Average Monthly                   | < 4.6  | < 4.44 | < 4.55 | < 4.27 | < 4.61 | < 5.17 | 5.2    | < 6.28  | < 5.76  | < 5.2   | < 5.69 | < 5.71 |
| Total Nitrogen (lbs)<br>Effluent Net<br>Total Monthly      | < 736  | < 907  | < 867  | < 1094 | < 908  | < 1288 | 1122   | < 1145  | < 965   | < 882   | < 931  | < 1179 |
| Total Nitrogen (lbs)<br>Total Monthly                      | < 736  | < 907  | < 867  | < 1094 | < 908  | < 1288 | 1122   | < 1145  | < 965   | < 882   | < 931  | < 1179 |
| Total Nitrogen (lbs)<br>Effluent Net<br>Total Annual       |        |        |        |        |        |        |        |         |         | < 13198 |        |        |
| Total Nitrogen (lbs)<br>Total Annual                       |        |        |        |        |        |        |        |         |         | < 13198 |        |        |
| Ammonia (lbs/day)<br>Average Monthly                       | < 0.5  | < 0.7  | < 0.6  | < 0.8  | < 0.7  | < 0.8  | 1.00   | < 1     | < 1     | < 0.7   | < 0.65 | < 0.9  |
| Ammonia (mg/L)<br>Average Monthly                          | < 0.1  | < 0.1  | < 0.1  | < 0.1  | < 0.1  | < 0.1  | 0.168  | < 0.215 | < 0.248 | < 0.125 | < 0.12 | < 0.15 |
| Ammonia (lbs)<br>Total Monthly                             | < 16   | < 21   | < 19   | < 26   | < 20   | < 0.8  | 37     | < 41    | < 42    | < 21    | < 20   | < 29   |
| Ammonia (lbs)<br>Total Annual                              |        |        |        |        |        |        |        |         |         | < 612   |        |        |

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| Parameter                                     | JUN-23  | MAY-23  | APR-23  | MAR-23  | FEB-23  | JAN-23  | DEC-22 | NOV-22 | OCT-22  | SEP-22  | AUG-22  | JUL-22  |
|---|---------|---------|---------|---------|---------|---------|--------|--------|---------|---------|---------|---------|
| TKN (mg/L)                                    |         |         |         |         |         |         |        |        |         |         |         |         |
| Average Monthly                               | 1.39    | 1.13    | 1.44    | 1.09    | 1.33    | 1.65    | 1.1    | 1.49   | 1.31    | < 1.43  | < 1.28  | 1.43    |
| TKN (lbs)                                     |         |         |         |         |         |         |        |        |         |         |         |         |
| Total Monthly                                 | 222     | 231     | 274     | 286     | 261     | 414     | 240    | 272    | 220     | < 240   | < 209   | 295     |
| Total Phosphorus (mg/L)                       |         |         |         |         |         |         |        |        |         |         |         |         |
| Average Monthly                               | 1.95    | 1.63    | 1.09    | 0.91    | 0.88    | 0.83    | 0.62   | 1.15   | 1.5     | 1.9     | 2.68    | 1.88    |
| Total Phosphorus (lbs)                        |         |         |         |         |         |         |        |        |         |         |         |         |
| Effluent Net                                  |         |         |         |         |         |         |        |        |         |         |         |         |
| Total Monthly                                 | 311     | 326     | 198     | 233     | 175     | 207     | 124    | 209    | 244     | 321     | 437     | < 388   |
| Total Phosphorus (lbs)                        |         |         |         |         |         |         |        |        |         |         |         |         |
| Total Monthly                                 | 311     | 326     | 198     | 233     | 175     | 207     | 124    | 209    | 244     | 321     | 437     | 388     |
| Total Phosphorus (lbs)                        |         |         |         |         |         |         |        |        |         |         |         |         |
| Effluent Net                                  |         |         |         |         |         |         |        |        |         |         |         |         |
| Total Annual                                  |         |         |         |         |         |         |        |        |         | < 3215  |         |         |
| Total Phosphorus (lbs)                        |         |         |         |         |         |         |        |        |         |         |         |         |
| Total Annual                                  |         |         |         |         |         |         |        |        |         | < 3215  |         |         |
| Total Copper (mg/L)                           |         |         |         |         |         |         |        |        |         |         |         |         |
| Average Monthly                               | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0036 | 0.0056 | 0.00600 | 0.00630 | 0.00880 | 0.00760 |
| Total Copper (mg/L)                           |         |         |         |         |         |         |        |        |         |         |         |         |
| Daily Maximum                                 | < 0.005 | < 0.005 | < 0.005 | < 0.006 | 0.006   | < 0.005 | 0.0042 | 0.007  | 0.0069  | 0.0067  | 0.012   | 0.0084  |
| Chronic WET - Ceriodaphnia Reproduction (TUc) |         |         |         |         |         |         |        |        |         |         |         |         |
| Daily Maximum                                 | 5.56    |         |         | 5.56    |         |         | 5.56   |        |         | 5.56    |         |         |

**Existing Effluent Limits and Monitoring Requirements**

A table below summarizes effluent limits and monitoring requirements specified in the existing permit:

| 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 |  |                            |
| Flow (MGD)   | Report                              | Report<br>Daily Max | XXX                   | XXX                | XXX                 | XXX                 | Continuous   | Measured                   |
| pH (S.U.)  | XXX                                 | XXX                 | 6.0<br>Daily Min      | XXX                | XXX                 | 9.0                 | 1/day  | Grab                       |
| Dissolved Oxygen   | XXX                                 | XXX                 | 5.0<br>Daily Min      | XXX                | XXX                 | XXX                 | 1/day  | Grab                       |
| Total Residual Chlorine (TRC)                              | XXX                                 | XXX                 | XXX                   | 0.5                | XXX                 | 1.6                 | 1/day  | Grab                       |
| Carbonaceous Biochemical<br>Oxygen Demand (CBOD5)          | 385                                 | 615                 | XXX                   | 25.0               | 40.0                | 50                  | 2/week   | 24-Hr<br>Composite         |
| Biochemical Oxygen Demand<br>(BOD5)<br>Raw Sewage Influent | Report                              | Report<br>Daily Max | XXX                   | Report             | XXX                 | XXX                 | 2/week   | 24-Hr<br>Composite         |
| Total Suspended Solids                                     | 460                                 | 690                 | XXX                   | 30.0               | 45.0                | 60                  | 2/week   | 24-Hr<br>Composite         |
| Total Suspended Solids<br>Raw Sewage Influent              | Report                              | Report<br>Daily Max | XXX                   | Report             | XXX                 | XXX                 | 2/week   | 24-Hr<br>Composite         |
| Fecal Coliform (No./100 ml)<br>Oct 1 - Apr 30              | XXX                                 | XXX                 | XXX                   | 2000<br>Geo Mean   | XXX                 | 10000               | 2/week   | Grab                       |
| Fecal Coliform (No./100 ml)<br>May 1 - Sep 30              | XXX                                 | XXX                 | XXX                   | 200<br>Geo Mean    | XXX                 | 1000                | 2/week   | Grab                       |
| Ammonia-Nitrogen<br>Nov 1 - Apr 30                         | 194                                 | XXX                 | XXX                   | 12.6               | XXX                 | 25.2                | 2/week   | 24-Hr<br>Composite         |
| Ammonia-Nitrogen<br>May 1 - Oct 31                         | 64                                  | XXX                 | XXX                   | 4.2                | XXX                 | 8.4                 | 2/week   | 24-Hr<br>Composite         |
| Copper, Total  | XXX                                 | XXX                 | XXX                   | Report             | Report<br>Daily Max | XXX                 | 1/week   | 24-Hr<br>Composite         |
| Toxicity, Chronic -<br>Ceriodaphnia Reproduction<br>(TUC)  | XXX                                 | XXX                 | XXX                   | 5.6<br>Daily Max   | XXX                 | XXX                 | See Permit   | 24-Hr<br>Composite         |



| 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                 | 2/week   | 24-Hr<br>Composite         |
| Kjeldahl--N          | Report                              | XXX                  | XXX                   | Report             | XXX     | XXX                 | 2/week   | 24-Hr<br>Composite         |
| Nitrate-Nitrite as N | Report                              | XXX                  | XXX                   | Report             | XXX     | XXX                 | 2/week   | 24-Hr<br>Composite         |
| Total Nitrogen       | Report                              | Report               | XXX                   | Report             | XXX     | XXX                 | 1/month  | Calculation                |
| Total Phosphorus     | Report                              | Report               | XXX                   | Report             | XXX     | XXX                 | 2/week   | 24-Hr<br>Composite         |
| Net Total Nitrogen   | Report                              | 35433 <sup>(3)</sup> | XXX                   | XXX                | XXX     | XXX                 | 1/month  | Calculation                |
| Net Total Phosphorus | Report                              | 4724                 | XXX                   | XXX                | XXX     | XXX                 | 1/month  | Calculation                |

(3) The permittee was approved to used 550 lbs. of TN/year as offset towards compliance for connecting 22 OLDs into their collection system on October 24, 2011. The OLDs were in existence prior to January 1, 2003

**Development of Effluent Limitations and Monitoring Requirements**

|                                |                 |                          |                 |
|--------------------------------|-----------------|--------------------------|-----------------|
| <b>Outfall No.</b>             | 001             | <b>Design Flow (MGD)</b> | 1.85            |
| <b>Latitude</b>                | 39° 43' 34.44"  | <b>Longitude</b>         | -77° 35' 34.00" |
| <b>Wastewater Description:</b> | Sewage Effluent |                          |                 |

**Technology-Based Limitations**

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

| Pollutant                    | Limit (mg/l)    | SBC             | Federal Regulation | State Regulation |
|------------------------------|-----------------|-----------------|--------------------|------------------|
| CBOD <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)     |

**Water Quality-Based Limitations**

*CBOD<sub>5</sub>, NH<sub>3</sub>-N and Dissolved Oxygen (DO)*

WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD<sub>5</sub>, NH<sub>3</sub>-N and DO. DEP's technical guidance no. 391-2000-007 describes the technical methods contained in the model for conducting wasteload allocation analyses and for determining recommended limits for point source discharges. DEP recently updated this model (ver. 1.1) to include new ammonia criteria that has been approved by US EPA as part of the 2017 Triennial Review. The model output indicates no further WQBELs are required and all existing limits are still appropriate. No changes are therefore recommended.

*Total Residual Chlorine*

Since chlorine is used for disinfection, Total Residual Chlorine (TRC) effluent levels must be regulated. The existing permit contains the BAT TBEL of 0.5 mg/L derived from 25 Pa Code §92a.48(b)(2). DEP's TRC\_CALC worksheet is utilized to determine if this existing limit is still appropriate. The worksheet indicated that existing limits of 0.5 mg/L (average monthly) and 1.6 mg/L (IMAX) are still protective of water quality. Therefore, no change is recommended.

*Toxics*

Effluent sample results for toxic pollutants reported on the renewal application were entered into DEP's Toxics Management Spreadsheet (TMD) to develop appropriate permit requirements for toxic pollutants of concern. TMS output shows WQBELs are needed for Chloroform and monitoring-only requirements for Total Zinc and Dissolved Iron. For Total Copper, DEP's TOXCON worksheet is utilized as ample data have been collected since the last reissuance. The average concentration as well as the daily coefficient of variation from TOXCON worksheet are entered into TMS. The TMS output shows the existing monitoring requirement is still appropriate. Based on the sample results, the facility is able to meet WQBELs for Chloroform. Therefore, it is recommended that WQBELs for chloroform be included in the permit in accordance with 40 CFR 122.44(d)(1)(i).

### **Best Professional Judgment (BPJ) Limitations**

#### *Total Phosphorus*

The existing monitoring-only requirements will remain unchanged in the permit. This approach is consistent with DEP's SOP no. BPNPSM-PMT-033.

#### *Dissolved Oxygen*

A minimum of 5.0 mg/L for DO is an existing effluent limit derived directly from state water quality criteria found in 25 Pa Code §93.7(a). This effluent limit will remain unchanged in the permit to ensure that the facility continues to achieve compliance with water quality standards. This approach is recommended by DEP's SOP no. BPNPSM-PMT-033 and therefore has been applied to other sewage facilities throughout the state.

### **Additional Considerations**

#### *Flow Monitoring*

The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii).

#### *Influent BOD & TSS Monitoring*

As a result of negotiation with EPA, the existing influent monitoring reporting requirement for TSS and BOD5 will be maintained in the draft permit. This requirement has been consistently assigned to all municipal wastewater treatment facilities.

#### *E. Coli Monitoring Requirement*

DEP's SOP no. BCW-PMT-033 recommends a routine monitoring for E. Coli in all new and reissued sewage permits. As a result, a monthly monitoring requirement for E. Coli will be included in the permit given the facility's design flow is greater than 1.0 MGD.

#### *Total Dissolved Solids (TDS)*

TDS and its associated solids including Bromide, Chloride, and Sulfate have become statewide pollutants of concern. The requirement to monitor these pollutants must be considered under the criteria specified in 25 Pa. Code § 95.10 and the following January 23, 2014 DEP Central Office Directive:

*For point source discharges and upon issuance or reissuance of an individual NPDES permit:*

*-Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.*

*- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.*

*-Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for 1,4-dioxane. Discharges of 0.1 MGD or less should monitor and report for 1,4-dioxane if the concentration of 1,4-dioxane in the discharge exceeds 100 µg/L.*

WTMA reported the maximum effluent TDS concentration of 348 mg/L, Bromide of 0.08 mg/L and 1,4-dioxane of <5.0 µg/L. Based on this, a routine monitoring of bromide is recommended.

#### *Chesapeake Bay TMDL*

In August 2019, DEP finalized Phase 3 Chesapeake Bay Watershed Implementation Plan to provide the plans in place by 2025 to further achieve the nutrient and sediment reduction targets that would ultimately meet U.S EPA's expectations for the Chesapeake Bay TMDL. The Chesapeake Bay TMDL identifies the necessary pollution reductions from major sources of nitrogen, phosphorus and sediment across the Bay jurisdictions and sets pollution limits necessary to meet water quality standards. The Phase 3 WIP is an update to the Pennsylvania's Chesapeake Bay TMDL Strategy (2004), the Chesapeake WIP Phase I (2011) and Phase 2 WIP (2012). The more details on the TMDL are available at [www.dep.pa.gov](http://www.dep.pa.gov).

A Supplement to the Phase 3 WIP which was last updated on December 17, 2019 provides an update on Chesapeake Bay TMDL implementation activities for point sources and DEP's current implementation strategy for wastewater. According to this document, Washington Township MA is a phase 3 significant discharger located within the Chesapeake Bay watershed. The following Cap Loads (annual net nutrient mass effluent limitations) specified in the current Supplement to the Phase 3 WIP will be included in the draft permit:

| NPDES Permit No. | Phase | Facility               | Latest Permit Issuance Date | Permit Expiration Date | Cap Load Compliance Start Date | TN Cap Load (lbs/yr) | TN Offsets Included in Cap Load (lbs/yr) | TP Cap Load (lbs/yr) | TN Delivery Ratio | TP Delivery Ratio |
|------------------|-------|------------------------|-----------------------------|------------------------|--------------------------------|----------------------|--|----------------------|-------------------|-------------------|
| PA0080225        | 3     | Washington Township MA | 1/12/2018                   | 1/31/2023              | 10/1/2013                      | 35,433               | -  | 4,724                | 0.908             | 0.725             |

A list of 22 retired on-lot systems connected to the collection system was submitted and accepted by DEP which resulted approved offsets of 550 lbs/yr (22\*25 lbs TN/year/offset). Additional language will be provided in the draft permit indicating the offsets may be applied throughout the compliance year or during the truing period.

#### *Stormwater Requirements*

Stormwater discharges from any POTWs (SIC Code 4952) described in 40 CFR § 122.26(b)(14)(ix) require coverage under an NPDES permit. There is currently one (1) stormwater outfall collecting stormwater drained from the property.

| Outfall No. | Area Drained (ft <sup>2</sup> ) | Latitude      | Longitude      | Description   |
|-------------|---------------------------------|---------------|----------------|---|
| 002         | 3,221                           | 39° 43' 33.6" | -77° 35' 28.2" | Part of chlorine building and post aeration tank area |

In general, DEP's standard Part C stormwater requirements and site-specific best management practices (BMPs) are included in the permit for those POTWs. The following standard BMPs for POTWs will be included in Part C of the draft permit:

1. Manage sludge in accordance with all applicable permit requirements.
2. Store chemicals in secure areas on impervious surfaces away from storm drains.
3. For new facilities and upgrades, design wastewater treatment facilities to avoid, to the maximum extent practicable, stormwater commingling with sanitary wastewater, sewage sludge, and biosolids.
4. Efficiently use pesticides for weed control; where practicable, use the least toxic herbicide that will achieve pest management objectives. Do not apply during windy conditions.
5. Do not wash parts or equipment over impervious surfaces that wash into storm drains.
6. Implement infiltration techniques, including infiltration basins, trenches, dry wells, porous pavement, etc., wherever practicable.

#### *Monitoring Frequency and Sample Type*

Unless otherwise specified throughout this fact sheet, monitoring frequencies and sample types are derived from the "NPDES Permit Writer's Manual" (362-0400-001) and/or BPJ.

#### *Mass Loading Limitations*

All effluent mass loading limits will be based on the formula: design flow x concentration limit x conversion factor of 8.34.

#### *Antidegradation Requirements*

All effluent limitations and monitoring requirements have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected.

#### *Class A Wild Trout Fishery*

No Class A Wild Trout Fisheries are also impacted by this discharge.

**Whole Effluent Toxicity (WET)**

For Outfall 001, ☐ Acute ☒ Chronic WET Testing was completed:

- ☒ For the permit renewal application (4 tests).  
☒ Quarterly throughout the permit term.  
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.  
☐ Other:

The dilution series used for the tests was: 100%, 59%, 18%, 9%, and 5%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 18%.

**Summary of Four Most Recent Test Results**

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

NOEC/LC50 Data Analysis

| Test Date    | Ceriodaphnia Results (% Effluent) |                   |  | Pimephales Results (% Effluent) |             |  | Pass? * |
|--------------|-----------------------------------|-------------------|--|---------------------------------|-------------|--|---------|
|              | NOEC Survival                     | NOEC Reproduction | LC50   | NOEC Survival                   | NOEC Growth | LC50   |         |
| March 2021   | 100                               | 100               | <span style="background-color: yellow;"> </span> | 100                             | 100         | <span style="background-color: yellow;"> </span> | Yes     |
| May 2021     | 100                               | 100               | <span style="background-color: yellow;"> </span> | 100                             | 100         | <span style="background-color: yellow;"> </span> | Yes     |
| August 2021  | 100                               | 100               | <span style="background-color: yellow;"> </span> | 100                             | 100         | <span style="background-color: yellow;"> </span> | Yes     |
| October 2021 | 100                               | 100               | <span style="background-color: yellow;"> </span> | 100                             | 100         | <span style="background-color: yellow;"> </span> | Yes     |

\* A "passing" result is that which is greater than or equal to the TIWC value.

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

☐ YES ☒ NO

**Comments:** DEP's Whole Effluent Toxicity (WET) Analysis Spreadsheet was utilized for verification purposes (see attachments).

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

Acute Partial Mix Factor (PMFa): **0.674**

Chronic Partial Mix Factor (PMFc): **1.0**

**1. Determine IWC – Acute (IWCa):**

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

$$[(1.85 \text{ MGD} \times 1.547) / ((9.61 \text{ cfs} \times 0.674) + (1.85 \text{ MGD} \times 1.547))] \times 100 = \mathbf{30\%}$$

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

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

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

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

$$[(1.85 \text{ MGD} \times 1.547) / ((9.61 \text{ cfs} \times 1.0) + (1.85 \text{ MGD} \times 1.547))] \times 100 = \mathbf{22.95 = 23\%}$$

### 3. Determine Dilution Series

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

Dilution Series = 100%, 62%, 23%, 12%, and 6%.

#### WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

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

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

**N/A**

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

**N/A**

**Comments:** The current permit contains WET limits for ceriodaphnia reproduction as the facility failed one endpoint for ceriodaphnia reproduction and the permit required a quarterly WET testing. For the upcoming permit renewal, since there are no endpoints failure, limits will not be included in the permit and annual WET testing will be required.

**Proposed Effluent Limitations and Monitoring Requirements**

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

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

| Parameter                                     | Effluent Limitations                |                     |                       |                    |                     |                     | Monitoring Requirements                            |                            |
|---|-------------------------------------|---------------------|-----------------------|--------------------|---------------------|---------------------|--|----------------------------|
|   | Mass Units (lbs/day) <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 |  |                            |
| Flow (MGD)                                    | Report                              | Report<br>Daily Max | XXX                   | XXX                | XXX                 | XXX                 | Continuous   | Measured                   |
| pH (S.U.)                                     | XXX                                 | XXX                 | 6.0<br>Daily Min      | XXX                | XXX                 | 9.0                 | 1/day  | Grab                       |
| DO  | XXX                                 | XXX                 | 5.0<br>Daily Min      | XXX                | XXX                 | XXX                 | 1/day  | Grab                       |
| TRC   | XXX                                 | XXX                 | XXX                   | 0.5                | XXX                 | 1.6                 | 1/day  | Grab                       |
| CBOD5   | 385                                 | 615                 | XXX                   | 25.0               | 40.0                | 50                  | 2/week   | 24-Hr<br>Composite         |
| BOD5<br>Raw Sewage Influent                   | Report                              | Report<br>Daily Max | XXX                   | Report             | XXX                 | XXX                 | 2/week   | 24-Hr<br>Composite         |
| TSS   | 460                                 | 690                 | XXX                   | 30.0               | 45.0                | 60                  | 2/week   | 24-Hr<br>Composite         |
| TSS<br>Raw Sewage Influent                    | Report                              | Report<br>Daily Max | XXX                   | Report             | XXX                 | XXX                 | 2/week   | 24-Hr<br>Composite         |
| Fecal Coliform (No./100 ml)<br>Oct 1 - Apr 30 | XXX                                 | XXX                 | XXX                   | 2000<br>Geo Mean   | XXX                 | 10000               | 2/week   | Grab                       |
| Fecal Coliform (No./100 ml)<br>May 1 - Sep 30 | XXX                                 | XXX                 | XXX                   | 200<br>Geo Mean    | XXX                 | 1000                | 2/week   | Grab                       |
| E. Coli (No./100 mL)                          | XXX                                 | XXX                 | XXX                   | XXX                | XXX                 | Report              | 1/month  | Grab                       |
| Ammonia<br>Nov 1 - Apr 30                     | 194                                 | XXX                 | XXX                   | 12.6               | XXX                 | 25.2                | 2/week   | 24-Hr<br>Composite         |
| Ammonia<br>May 1 - Oct 31                     | 64                                  | XXX                 | XXX                   | 4.2                | XXX                 | 8.4                 | 2/week   | 24-Hr<br>Composite         |
| Total Copper                                  | Report                              | Report<br>Daily Max | XXX                   | Report             | Report<br>Daily Max | XXX                 | 2/month  | 24-Hr<br>Composite         |

| 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 Zinc     | Report                              | Report<br>Daily Max | XXX                   | Report             | Report<br>Daily Max | XXX                 | 2/month  | 24-Hr<br>Composite         |
| Dissolved Iron | Report                              | Report<br>Daily Max | XXX                   | Report             | Report<br>Daily Max | XXX                 | 2/month  | 24-Hr<br>Composite         |
| Chloroform     | 0.38                                | 0.6<br>Daily Max    | XXX                   | 0.0249             | 0.0388<br>Daily Max | 0.0622              | 2/month  | 24-Hr<br>Composite         |



**Proposed Effluent Limitations and Monitoring Requirements**

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

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

| Parameter                              | Effluent Limitations                |                        |                       |                    |         |                     | Monitoring Requirements                            |                            |
|--|-------------------------------------|------------------------|-----------------------|--------------------|---------|---------------------|--|----------------------------|
|  | Mass Units (lbs/day) <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 |  |                            |
| Total Nitrogen (lbs)<br>Effluent Net   | XXX                                 | 35433<br>Total Annual  | XXX                   | XXX                | XXX     | XXX                 | 1/year   | Calculation                |
| Total Nitrogen (lbs)                   | XXX                                 | Report<br>Total Annual | XXX                   | XXX                | XXX     | XXX                 | 1/year   | Calculation                |
| Ammonia (lbs)                          | XXX                                 | Report<br>Total Annual | XXX                   | XXX                | XXX     | XXX                 | 1/year   | Calculation                |
| Total Phosphorus (lbs)<br>Effluent Net | XXX                                 | 4724<br>Total Annual   | XXX                   | XXX                | XXX     | XXX                 | 1/year   | Calculation                |
| Total Phosphorus (lbs)                 | XXX                                 | Report<br>Total Annual | XXX                   | XXX                | XXX     | XXX                 | 1/year   | Calculation                |

- In addition, the permittee was approved to use 550 lbs. of TN/year as offset towards compliance for connecting 22 OLDs into their collection system on October 24, 2011. The OLDs were in existence prior to January 1, 2003.

| Tools and References Used to Develop Permit |  |
|---|--|
| <input type="checkbox"/>                    | WQM for Windows Model (see Attachment <span style="background-color: yellow;">      </span> )  |
| <input type="checkbox"/>                    | Toxics Management Spreadsheet (see Attachment <span style="background-color: yellow;">      </span> )  |
| <input type="checkbox"/>                    | TRC Model Spreadsheet (see Attachment <span style="background-color: yellow;">      </span> )  |
| <input type="checkbox"/>                    | Temperature Model Spreadsheet (see Attachment <span style="background-color: yellow;">      </span> )  |
| <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, 386-0400-001, 10/97.   |
| <input type="checkbox"/>                    | Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.  |
| <input type="checkbox"/>                    | Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.  |
| <input type="checkbox"/>                    | Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.   |
| <input type="checkbox"/>                    | Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.  |
| <input type="checkbox"/>                    | Pennsylvania CSO Policy, 386-2000-002, 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, 386-2000-008, 4/97.   |
| <input type="checkbox"/>                    | Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.  |
| <input type="checkbox"/>                    | Implementation Guidance Design Conditions, 386-2000-007, 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, 386-2000-016, 6/2004.  |
| <input type="checkbox"/>                    | Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.   |
| <input type="checkbox"/>                    | Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.   |
| <input type="checkbox"/>                    | Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.  |
| <input type="checkbox"/>                    | Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.  |
| <input type="checkbox"/>                    | Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.   |
| <input type="checkbox"/>                    | Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.   |
| <input type="checkbox"/>                    | Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.  |
| <input type="checkbox"/>                    | Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 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, 386-2000-020, 10/97.       |
| <input type="checkbox"/>                    | Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 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, 386-2000-010, 3/1999. |
| <input type="checkbox"/>                    | Design Stream Flows, 386-2000-003, 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, 386-2000-006, 10/98.                                     |
| <input type="checkbox"/>                    | Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.   |
| <input type="checkbox"/>                    | Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.   |
| <input type="checkbox"/>                    | SOP: <span style="background-color: yellow;">      </span>   |
| <input type="checkbox"/>                    | Other: <span style="background-color: yellow;">      </span>   |

Attachments

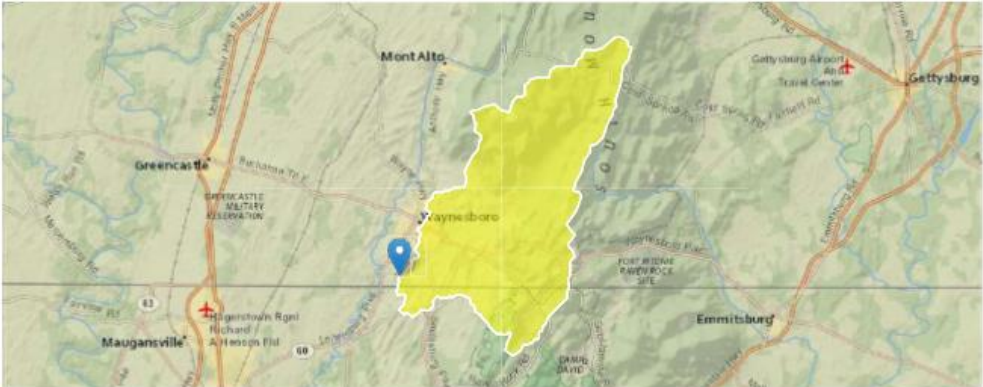
StreamStats

8/16/23, 9:00 AM

StreamStats

StreamStats Report

Region ID: PA  
Workspace ID: PA20230816124626589000  
Clicked Point (Latitude, Longitude): 39.72627, -77.59202  
Time: 2023-08-16 08:46:47 -0400



Collapse All

Basin Characteristics

| Parameter Code | Parameter Description  | Value | Unit                  |
|----------------|--|-------|-----------------------|
| CARBON         | Percentage of area of carbonate rock                               | 23.73 | percent               |
| DRNAREA        | Area that drains to a point on a stream                            | 49.6  | square miles          |
| PRECIP         | Mean Annual Precipitation  | 43    | inches                |
| ROCKDEP        | Depth to rock  | 5.2   | feet                  |
| STRDEN         | Stream Density -- total length of streams divided by drainage area | 1.53  | miles per square mile |

Low-Flow Statistics

Low-Flow Statistics Parameters [99.8 Percent (49.5 square miles) Low Flow Region 2]

| Parameter Code | Parameter Name            | Value | Units                 | Min Limit | Max Limit |
|----------------|---------------------------|-------|-----------------------|-----------|-----------|
| DRNAREA        | Drainage Area             | 49.6  | square miles          | 4.93      | 1280      |
| PRECIP         | Mean Annual Precipitation | 43    | inches                | 35        | 50.4      |
| STRDEN         | Stream Density            | 1.53  | miles per square mile | 0.51      | 3.1       |
| ROCKDEP        | Depth to Rock             | 5.2   | feet                  | 3.32      | 5.65      |
| CARBON         | Percent Carbonate         | 23.73 | percent               | 0         | 99        |

Low-Flow Statistics Flow Report [99.8 Percent (49.5 square miles) Low Flow Region 2]

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

| Statistic             | Value | Unit               | SE | ASEp |
|-----------------------|-------|--------------------|----|------|
| 7 Day 2 Year Low Flow | 14.5  | ft <sup>3</sup> /s | 38 | 38   |

<https://streamstats.usgs.gov/ss/>

1/2

8/16/23, 9:00 AM

StreamStats

| Statistic               | Value | Unit               | SE | ASEp |
|-------------------------|-------|--------------------|----|------|
| 30 Day 2 Year Low Flow  | 17    | ft <sup>3</sup> /s | 33 | 33   |
| 7 Day 10 Year Low Flow  | 9.61  | ft <sup>3</sup> /s | 51 | 51   |
| 30 Day 10 Year Low Flow | 10.9  | ft <sup>3</sup> /s | 46 | 46   |
| 90 Day 10 Year Low Flow | 13.3  | ft <sup>3</sup> /s | 36 | 36   |

*Low-Flow Statistics Citations*

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

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

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Application Version: 4.16.1

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

WQM 7.0 ver. 1.1

### Input Data WQM 7.0

| SWP<br>Basin | Stream<br>Code | Stream Name                | RMI   | Elevation<br>(ft) | Drainage<br>Area<br>(sq mi) | Slope<br>(ft/ft) | PWS<br>Withdrawal<br>(mgd) | Apply<br>FC                         |
|--------------|----------------|----------------------------|-------|-------------------|-----------------------------|------------------|----------------------------|-------------------------------------|
| 13C          | 59291          | EAST BRANCH ANTIETAM CREEK | 0.940 | 563.00            | 49.60                       | 0.00000          | 0.00                       | <input checked="" type="checkbox"/> |

### Stream Data

| Design<br>Cond. | LFY    | Trib<br>Flow | Stream<br>Flow | Rch<br>Trav<br>Time<br>(days) | Rch<br>Velocity<br>(fps) | WD<br>Ratio | Rch<br>Width<br>(ft) | Rch<br>Depth<br>(ft) | Tributary<br>Temp<br>(°C) | pH   | Stream<br>Temp<br>(°C) | pH   |
|-----------------|--------|--------------|----------------|-------------------------------|--------------------------|-------------|----------------------|----------------------|---------------------------|------|------------------------|------|
|                 | (cfsm) | (cfs)        | (cfs)          |                               |                          |             |                      |                      |                           |      |                        |      |
| Q7-10           | 0.194  | 0.00         | 0.00           | 0.000                         | 0.000                    | 0.0         | 0.00                 | 0.00                 | 20.00                     | 7.00 | 0.00                   | 0.00 |
| Q1-10           |        | 0.00         | 0.00           | 0.000                         | 0.000                    |             |                      |                      |                           |      |                        |      |
| Q30-10          |        | 0.00         | 0.00           | 0.000                         | 0.000                    |             |                      |                      |                           |      |                        |      |

### Discharge Data

| Name          | Permit Number | Existing<br>Disc<br>Flow<br>(mgd) | Permitted<br>Disc<br>Flow<br>(mgd) | Design<br>Disc<br>Flow<br>(mgd) | Reserve<br>Factor | Disc<br>Temp<br>(°C) | Disc<br>pH |
|---------------|---------------|-----------------------------------|------------------------------------|---------------------------------|-------------------|----------------------|------------|
| Washington MA | PA0080225     | 1.8500                            | 1.8500                             | 1.8500                          | 0.000             | 25.00                | 7.00       |

### Parameter Data

| Parameter Name   | Disc<br>Conc<br>(mg/L) | Trib<br>Conc<br>(mg/L) | Stream<br>Conc<br>(mg/L) | Fate<br>Coef<br>(1/days) |
|------------------|------------------------|------------------------|--------------------------|--------------------------|
| CBOD5            | 25.00                  | 2.00                   | 0.00                     | 1.50                     |
| Dissolved Oxygen | 5.00                   | 8.24                   | 0.00                     | 0.00                     |
| NH3-N            | 4.20                   | 0.00                   | 0.00                     | 0.70                     |

### Input Data WQM 7.0

| SWP<br>Basin | Stream<br>Code | Stream Name                | RMI   | Elevation<br>(ft) | Drainage<br>Area<br>(sq mi) | Slope<br>(ft/ft) | PWS<br>Withdrawal<br>(mgd) | Apply<br>FC                         |
|--------------|----------------|----------------------------|-------|-------------------|-----------------------------|------------------|----------------------------|-------------------------------------|
| 13C          | 59291          | EAST BRANCH ANTIETAM CREEK | 0.000 | 535.00            | 51.90                       | 0.00000          | 0.00                       | <input checked="" type="checkbox"/> |

### Stream Data

| Design<br>Cond. | LFY    | Trib<br>Flow | Stream<br>Flow | Rch<br>Trav<br>Time | Rch<br>Velocity | WD<br>Ratio | Rch<br>Width | Rch<br>Depth | Tributary<br>Temp | pH   | Stream<br>Temp | pH   |
|-----------------|--------|--------------|----------------|---------------------|-----------------|-------------|--------------|--------------|-------------------|------|----------------|------|
|                 | (cfsm) | (cfs)        | (cfs)          | (days)              | (fps)           |             | (ft)         | (ft)         | (°C)              |      | (°C)           |      |
| Q7-10           | 0.194  | 0.00         | 0.00           | 0.000               | 0.000           | 0.0         | 0.00         | 0.00         | 20.00             | 7.00 | 0.00           | 0.00 |
| Q1-10           |        | 0.00         | 0.00           | 0.000               | 0.000           |             |              |              |                   |      |                |      |
| Q30-10          |        | 0.00         | 0.00           | 0.000               | 0.000           |             |              |              |                   |      |                |      |

### Discharge Data

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

### Parameter Data

| Parameter Name   | Disc<br>Conc<br>(mg/L) | Trib<br>Conc<br>(mg/L) | Stream<br>Conc<br>(mg/L) | Fate<br>Coef<br>(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>         |                             |             |
|---------------------------------|----------------------------|----------------------------|-----------------------------|-------------|
| 13C                             | 59291                      | EAST BRANCH ANTIETAM CREEK |                             |             |
| RMI                             | Total Discharge Flow (mgd) | Analysis Temperature (°C)  | Analysis pH                 |             |
| 0.940                           | 1.850                      | 21.147                     | 7.000                       |             |
| <u>Reach Width (ft)</u>         | <u>Reach Depth (ft)</u>    | <u>Reach WDRatio</u>       | <u>Reach Velocity (fps)</u> |             |
| 44.713                          | 0.755                      | 59.212                     | 0.369                       |             |
| <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>    |             |
| 7.28                            | 1.150                      | 0.96                       | 0.765                       |             |
| <u>Reach DO (mg/L)</u>          | <u>Reach Kr (1/days)</u>   | <u>Kr Equation</u>         | <u>Reach DO Goal (mg/L)</u> |             |
| 7.499                           | 14.613                     | Tsivoglou                  | 5                           |             |
| <u>Reach Travel Time (days)</u> | <u>Subreach Results</u>    |                            |                             |             |
| 0.156                           | TravTime (days)            | CBOD5 (mg/L)               | NH3-N (mg/L)                | D.O. (mg/L) |
|                                 | 0.016                      | 7.14                       | 0.95                        | 7.57        |
|                                 | 0.031                      | 7.01                       | 0.94                        | 7.63        |
|                                 | 0.047                      | 6.88                       | 0.93                        | 7.68        |
|                                 | 0.062                      | 6.75                       | 0.92                        | 7.72        |
|                                 | 0.078                      | 6.62                       | 0.91                        | 7.76        |
|                                 | 0.093                      | 6.50                       | 0.90                        | 7.80        |
|                                 | 0.109                      | 6.38                       | 0.89                        | 7.83        |
|                                 | 0.124                      | 6.26                       | 0.88                        | 7.86        |
|                                 | 0.140                      | 6.14                       | 0.87                        | 7.88        |
|                                 | 0.156                      | 6.03                       | 0.86                        | 7.91        |

### WQM 7.0 Hydrodynamic Outputs

| <u>SWP Basin</u>   |             | <u>Stream Code</u> |                 | <u>Stream Name</u>         |             |       |       |           |          |                 |               |             |
|--------------------|-------------|--------------------|-----------------|----------------------------|-------------|-------|-------|-----------|----------|-----------------|---------------|-------------|
| 13C                |             | 59291              |                 | EAST BRANCH ANTIETAM CREEK |             |       |       |           |          |                 |               |             |
| RMI                | Stream Flow | PWS With           | Net Stream Flow | Disc Analysis Flow         | Reach Slope | Depth | Width | W/D Ratio | Velocity | Reach Trav Time | Analysis Temp | Analysis pH |
|                    | (cfs)       | (cfs)              | (cfs)           | (cfs)                      | (ft/ft)     | (ft)  | (ft)  |           | (fps)    | (days)          | (°C)          |             |
| <b>Q7-10 Flow</b>  |             |                    |                 |                            |             |       |       |           |          |                 |               |             |
| 0.940              | 9.61        | 0.00               | 9.61            | 2.8619                     | 0.00564     | .755  | 44.71 | 59.21     | 0.37     | 0.156           | 21.15         | 7.00        |
| <b>Q1-10 Flow</b>  |             |                    |                 |                            |             |       |       |           |          |                 |               |             |
| 0.940              | 6.15        | 0.00               | 6.15            | 2.8619                     | 0.00564     | NA    | NA    | NA        | 0.31     | 0.187           | 21.59         | 7.00        |
| <b>Q30-10 Flow</b> |             |                    |                 |                            |             |       |       |           |          |                 |               |             |
| 0.940              | 13.07       | 0.00               | 13.07           | 2.8619                     | 0.00564     | NA    | NA    | NA        | 0.42     | 0.136           | 20.90         | 7.00        |



**WQM 7.0 Modeling Specifications**

|                    |        |                                     |                                     |
|--------------------|--------|-------------------------------------|-------------------------------------|
| Parameters         | Both   | Use Inputted Q1-10 and Q30-10 Flows | <input checked="" type="checkbox"/> |
| WLA Method         | EMPR   | Use Inputted W/D Ratio              | <input type="checkbox"/>            |
| Q1-10/Q7-10 Ratio  | 0.64   | Use Inputted Reach Travel Times     | <input type="checkbox"/>            |
| Q30-10/Q7-10 Ratio | 1.38   | Temperature Adjust Kr               | <input checked="" type="checkbox"/> |
| D.O. Saturation    | 90.00% | Use Balanced Technology             | <input checked="" type="checkbox"/> |
| D.O. Goal          | 5      |                                     |                                     |

### WQM 7.0 Wasteload Allocations

| <u>SWP Basin</u> | <u>Stream Code</u> | <u>Stream Name</u>         |
|------------------|--------------------|----------------------------|
| 13C              | 59291              | EAST BRANCH ANTIETAM CREEK |

#### **NH3-N Acute Allocations**

| RMI   | Discharge Name | Baseline<br>Criterion<br>(mg/L) | Baseline<br>WLA<br>(mg/L) | Multiple<br>Criterion<br>(mg/L) | Multiple<br>WLA<br>(mg/L) | Critical<br>Reach | Percent<br>Reduction |
|-------|----------------|---------------------------------|---------------------------|---------------------------------|---------------------------|-------------------|----------------------|
| 0.940 | Washington MA  | 14.69                           | 8.4                       | 14.69                           | 8.4                       | 0                 | 0                    |

#### **NH3-N Chronic Allocations**

| RMI   | Discharge Name | Baseline<br>Criterion<br>(mg/L) | Baseline<br>WLA<br>(mg/L) | Multiple<br>Criterion<br>(mg/L) | Multiple<br>WLA<br>(mg/L) | Critical<br>Reach | Percent<br>Reduction |
|-------|----------------|---------------------------------|---------------------------|---------------------------------|---------------------------|-------------------|----------------------|
| 0.940 | Washington MA  | 1.78                            | 4.2                       | 1.78                            | 4.2                       | 0                 | 0                    |

#### **Dissolved Oxygen Allocations**

| RMI  | Discharge Name | <u>CBOD5</u>       |                    | <u>NH3-N</u>       |                    | <u>Dissolved Oxygen</u> |                    | Critical<br>Reach | Percent<br>Reduction |
|------|----------------|--------------------|--------------------|--------------------|--------------------|-------------------------|--------------------|-------------------|----------------------|
|      |                | Baseline<br>(mg/L) | Multiple<br>(mg/L) | Baseline<br>(mg/L) | Multiple<br>(mg/L) | Baseline<br>(mg/L)      | Multiple<br>(mg/L) |                   |                      |
| 0.94 | Washington MA  | 25                 | 25                 | 4.2                | 4.2                | 5                       | 5                  | 0                 | 0                    |

### WQM 7.0 Effluent Limits

| <u>SWP Basin</u> |               | <u>Stream Code</u> | <u>Stream Name</u>         |                  |                                |                            |                            |
|------------------|---------------|--------------------|----------------------------|------------------|--------------------------------|----------------------------|----------------------------|
| 13C              |               | 59291              | EAST BRANCH ANTIETAM CREEK |                  |                                |                            |                            |
| RMI              | Name          | Permit Number      | Disc Flow (mgd)            | Parameter        | Effl. Limit 30-day Ave. (mg/L) | Effl. Limit Maximum (mg/L) | Effl. Limit Minimum (mg/L) |
| 0.940            | Washington MA | PA0080225          | 1.850                      | CBOD5            | 25                             |                            |                            |
|                  |               |                    |                            | NH3-N            | 4.2                            | 8.4                        |                            |
|                  |               |                    |                            | Dissolved Oxygen |                                |                            | 5                          |

TRC\_CALC worksheet

TRC\_CALC

|    |   |  |                               |           |                                      |   |
|----|---|--|-------------------------------|-----------|--------------------------------------|---|
| 1A | B   | C  | D                             | E         | F                                    | G |
| 2  | TRC EVALUATION                              |  |                               |           |                                      |   |
| 3  | Input appropriate values in B4:B8 and E4:E7 |  |                               |           |                                      |   |
| 4  | 49.6  | = Q stream (cfs)   |                               | 0.5       | = CV Daily                           |   |
| 5  | 1.85  | = Q discharge (MGD)  |                               | 0.5       | = CV Hourly                          |   |
| 6  | 30  | = no. samples  |                               | 1         | = AFC_Partial Mix Factor             |   |
| 7  | 0.3   | = Chlorine Demand of Stream  |                               | 1         | = CFC_Partial Mix Factor             |   |
| 8  | 0   | = Chlorine Demand of Discharge   |                               | 15        | = AFC_Criteria Compliance Time (min) |   |
| 9  | 0.5   | = BAT/BPJ Value  |                               | 720       | = CFC_Criteria Compliance Time (min) |   |
|    | 0   | = % Factor of Safety (FOS)   |                               |           | =Decay Coefficient (K)               |   |
| 10 | Source                                      | Reference  | AFC Calculations              | Reference | CFC Calculations                     |   |
| 11 | TRC   | 1.3.2.iii  | WLA afc = 5.548               | 1.3.2.iii | WLA cfc = 5.401                      |   |
| 12 | PENTOXSD TRG                                | 5.1a   | LTAMULT afc = 0.373           | 5.1c      | LTAMULT cfc = 0.581                  |   |
| 13 | PENTOXSD TRG                                | 5.1b   | LTA_afc= 2.067                | 5.1d      | LTA_cfc = 3.140                      |   |
| 14 |   |  |                               |           |                                      |   |
| 15 | Source                                      | Effluent Limit Calculations  |                               |           |                                      |   |
| 16 | PENTOXSD TRG                                | 5.1f   | AML MULT = 1.231              |           |                                      |   |
| 17 | PENTOXSD TRG                                | 5.1g   | AVG MON LIMIT (mg/l) = 0.500  |           | BAT/BPJ                              |   |
| 18 |   |  | INST MAX LIMIT (mg/l) = 1.635 |           |                                      |   |
|    |   |  |                               |           |                                      |   |
|    | WLA afc                                     | $(.019/e(-k*AFC\_tc)) + [(AFC\_Yc*Qs*.019/Qd*e(-k*AFC\_tc))... \\ ...+ Xd + (AFC\_Yc*Qs*Xs/Qd)]*(1-FOS/100)$ |                               |           |                                      |   |
|    | LTAMULT afc                                 | $EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)$   |                               |           |                                      |   |
|    | LTA_afc                                     | $wla\_afc*LTAMULT\_afc$  |                               |           |                                      |   |
|    | WLA_cfc                                     | $(.011/e(-k*CFC\_tc)) + [(CFC\_Yc*Qs*.011/Qd*e(-k*CFC\_tc))... \\ ...+ Xd + (CFC\_Yc*Qs*Xs/Qd)]*(1-FOS/100)$ |                               |           |                                      |   |
|    | LTAMULT_cfc                                 | $EXP((0.5*LN(cvd^2/no\_samples+1))-2.326*LN(cvd^2/no\_samples+1)^0.5)$                                       |                               |           |                                      |   |
|    | LTA_cfc                                     | $wla\_cfc*LTAMULT\_cfc$  |                               |           |                                      |   |
|    | AML MULT                                    | $EXP(2.326*LN((cvd^2/no\_samples+1)^0.5)-0.5*LN(cvd^2/no\_samples+1))$                                       |                               |           |                                      |   |
|    | AVG MON LIMIT                               | $MIN(BAT\_BPJ,MIN(LTA\_afc,LTA\_cfc)*AML\_MULT)$   |                               |           |                                      |   |
|    | INST MAX LIMIT                              | $1.5*((av\_mon\_limit/AML\_MULT)/LTAMULT\_afc)$  |                               |           |                                      |   |

Toxics Management Spreadsheet



Toxics Management Spreadsheet  
Version 1.4, May 2023

## Discharge Information

Instructions Discharge Stream

Facility: Washington Township MA WWTP NPDES Permit No.: PA0080225 Outfall No.: 001  
Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Sewage

| 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> |
| 1.85                      | 189              | 7        |                            |     |     |     |                          |                |

|                     |                                 |      |   | 0 if left blank |                    | 0.5 if left blank |           | 0 if left blank |          |           | 1 if left blank |            |     |              |             |
|---------------------|---------------------------------|------|---|-----------------|--------------------|-------------------|-----------|-----------------|----------|-----------|-----------------|------------|-----|--------------|-------------|
| Discharge Pollutant |                                 |      |   | Units           | Max Discharge Conc |                   | Trib Conc | Stream Conc     | Daily CV | Hourly CV | Stream CV       | Fate Coeff | FOS | Criteria Mod | Chem Transl |
| Group 1             | Total Dissolved Solids (PWS)    | mg/L |   | 348             |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Chloride (PWS)                  | mg/L |   | 84              |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Bromide                         | mg/L |   | 0.08            |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Sulfate (PWS)                   | mg/L |   | 26              |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Fluoride (PWS)                  | mg/L |   |                 |                    |                   |           |                 |          |           |                 |            |     |              |             |
| Group 2             | Total Aluminum                  | µg/L |   | 78              |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Antimony                  | µg/L | < | 1               |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Arsenic                   | µg/L | < | 1               |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Barium                    | µg/L |   | 46.8            |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Beryllium                 | µg/L | < | 1               |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Boron                     | µg/L |   | 154             |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Cadmium                   | µg/L | < | 0.2             |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Chromium (III)            | µg/L |   | 0.8             |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Hexavalent Chromium             | µg/L | < | 0.25            |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Cobalt                    | µg/L | < | 0.3             |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Copper                    | mg/L |   | 0.0221379       |                    |                   | 0.7725    |                 |          |           |                 |            |     |              |             |
|                     | Free Cyanide                    | µg/L |   |                 |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Cyanide                   | µg/L |   | 6               |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Dissolved Iron                  | µg/L |   | 170             |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Iron                      | µg/L |   | 221             |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Lead                      | µg/L | < | 1               |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Manganese                 | µg/L |   | 16.1            |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Mercury                   | µg/L | < | 0.2             |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Nickel                    | µg/L |   | 2               |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Phenols (Phenolics) (PWS) | µg/L | < | 2               |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Selenium                  | µg/L |   | 0.8             |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Silver                    | µg/L | < | 0.3             |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Thallium                  | µg/L | < | 1               |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Zinc                      | µg/L |   | 46              |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Total Molybdenum                | µg/L |   | 2.5             |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Acrolein                        | µg/L | < | 2               |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Acrylamide                      | µg/L | < |                 |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Acrylonitrile                   | µg/L | < | 2               |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Benzene                         | µg/L | < | 0.5             |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Bromoform                       | µg/L | < | 0.5             |                    |                   |           |                 |          |           |                 |            |     |              |             |
|                     | Carbon Tetrachloride            | µg/L | < | 0.5             |                    |                   |           |                 |          |           |                 |            |     |              |             |

|         |                             |      |   |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---------|-----------------------------|------|---|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Group 3 | Chlorobenzene               | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Chlorodibromomethane        | µg/L |   | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Chloroethane                | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 2-Chloroethyl Vinyl Ether   | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Chloroform                  | µg/L |   | 14  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Dichlorobromomethane        | µg/L |   | 1.8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 1,1-Dichloroethane          | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 1,2-Dichloroethane          | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 1,1-Dichloroethylene        | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 1,2-Dichloropropane         | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 1,3-Dichloropropylene       | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 1,4-Dioxane                 | µg/L | < | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Ethylbenzene                | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Methyl Bromide              | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Methyl Chloride             | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Methylene Chloride          | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 1,1,2,2-Tetrachloroethane   | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Tetrachloroethylene         | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Toluene                     | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 1,2-trans-Dichloroethylene  | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 1,1,1-Trichloroethane       | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 1,1,2-Trichloroethane       | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Trichloroethylene           | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Vinyl Chloride              | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Group 4 | 2-Chlorophenol              | µg/L | < | 10  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 2,4-Dichlorophenol          | µg/L | < | 10  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 2,4-Dimethylphenol          | µg/L | < | 10  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 4,6-Dinitro-o-Cresol        | µg/L | < | 10  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 2,4-Dinitrophenol           | µg/L | < | 10  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 2-Nitrophenol               | µg/L | < | 10  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 4-Nitrophenol               | µg/L | < | 10  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | p-Chloro-m-Cresol           | µg/L | < | 10  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Pentachlorophenol           | µg/L | < | 10  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Phenol                      | µg/L | < | 10  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 2,4,6-Trichlorophenol       | µg/L | < | 10  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Acenaphthene                | µg/L | < | 2.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Group 5 | Acenaphthylene              | µg/L | < | 2.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Anthracene                  | µg/L | < | 2.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Benzidine                   | µg/L | < | 2.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Benzo(a)Anthracene          | µg/L | < | 2.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Benzo(a)Pyrene              | µg/L | < | 2.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 3,4-Benzofluoranthene       | µg/L | < | 2.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Benzo(ghi)Perylene          | µg/L | < | 2.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Benzo(k)Fluoranthene        | µg/L | < | 2.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Bis(2-Chloroethoxy)Methane  | µg/L | < | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Bis(2-Chloroethyl)Ether     | µg/L | < | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Bis(2-Chloroisopropyl)Ether | µg/L | < | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Bis(2-Ethylhexyl)Phthalate  | µg/L | < | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 4-Bromophenyl Phenyl Ether  | µg/L | < | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Butyl Benzyl Phthalate      | µg/L | < | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 2-Chloronaphthalene         | µg/L | < | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 4-Chlorophenyl Phenyl Ether | µg/L | < | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Chrysene                    | µg/L | < | 2.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Dibenzo(a,h)Anthracene      | µg/L | < | 2.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 1,2-Dichlorobenzene         | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 1,3-Dichlorobenzene         | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 1,4-Dichlorobenzene         | µg/L | < | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 3,3-Dichlorobenzidine       | µg/L | < | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Diethyl Phthalate           | µg/L | < | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Dimethyl Phthalate          | µg/L | < | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Di-n-Butyl Phthalate        | µg/L |   | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 2,4-Dinitrotoluene          | µg/L | < | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | 2,6-Dinitrotoluene          | µg/L | < | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|         | Di-n-Octyl Phthalate        | µg/L | < | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Page 3



Toxics Management Spreadsheet  
Version 1.4, May 2023

Stream / Surface Water Information

Washington Township MA WWTP, NPDES Permit No. PA0080225, Outfall 001

Instructions Discharge Stream

Receiving Surface Water Name: Yellow Breeches Creek 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 | 059291       | 0.94 | 563             | 49.6                   |               |                      | Yes                  |
| End of Reach 1     | 059291       | 0    | 535             | 51.9                   |               |                      | 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 (days) | Tributary |    | Stream   |     | Analysis |    |
|--------------------|------|-----------------------------|------------|-----------|-----------|------------|------------|----------------|--------------------|-----------|----|----------|-----|----------|----|
|                    |      |                             | Stream     | Tributary |           |            |            |                |                    | Hardness  | pH | Hardness | pH* | Hardness | pH |
| Point of Discharge | 0.94 | 0.194                       |            |           |           |            |            |                |                    |           |    | 100      | 7   |          |    |
| End of Reach 1     | 0    | 0.194                       |            |           |           |            |            |                |                    |           |    |          |     |          |    |

Q<sub>h</sub>

| Location           | RMI  | LFY (cfs/mi <sup>2</sup> )* | Flow (cfs) |           | W/D Ratio | Width (ft) | Depth (ft) | Velocity (fps) | Travel Time (days) | Tributary |    | Stream   |    | Analysis |    |
|--------------------|------|-----------------------------|------------|-----------|-----------|------------|------------|----------------|--------------------|-----------|----|----------|----|----------|----|
|                    |      |                             | Stream     | Tributary |           |            |            |                |                    | Hardness  | pH | Hardness | pH | Hardness | pH |
| Point of Discharge | 0.94 |                             |            |           |           |            |            |                |                    |           |    |          |    |          |    |
| End of Reach 1     | 0    |                             |            |           |           |            |            |                |                    |           |    |          |    |          |    |





Toxics Management Spreadsheet  
Version 1.4, May 2023

## Model Results

Washington Township MA WWTP, NPDES Permit No. PA0080225, Outfall 001

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

All

Inputs

Results

Limits

Hydrodynamics

Wasteload Allocations

AFC

CCT (min): 15

PMF:

0.674

Analysis Hardness (mg/l):

127.26

Analysis pH:

7.00

| Pollutants                      | Stream Conc (µg/L) | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L)    | WQ Obj (µg/L) | WLA (µg/L) | Comments                         |
|---------------------------------|--------------------|-----------|------------------|-----------|---------------|---------------|------------|----------------------------------|
| Total Dissolved Solids (PWS)    | 0                  | 0         |                  | 0         | N/A           | N/A           | N/A        |                                  |
| Chloride (PWS)                  | 0                  | 0         |                  | 0         | N/A           | N/A           | N/A        |                                  |
| Sulfate (PWS)                   | 0                  | 0         |                  | 0         | N/A           | N/A           | N/A        |                                  |
| Total Aluminum                  | 0                  | 0         |                  | 0         | 750           | 750           | 2,449      |                                  |
| Total Antimony                  | 0                  | 0         |                  | 0         | 1,100         | 1,100         | 3,592      |                                  |
| Total Arsenic                   | 0                  | 0         |                  | 0         | 340           | 340           | 1,110      |                                  |
| Total Barium                    | 0                  | 0         |                  | 0         | 21,000        | 21,000        | 68,570     |                                  |
| Total Boron                     | 0                  | 0         |                  | 0         | 8,100         | 8,100         | 26,448     |                                  |
| Total Cadmium                   | 0                  | 0         |                  | 0         | 2,545         | 2,73          | 8.9        |                                  |
| Total Chromium (III)            | 0                  | 0         |                  | 0         | 694,111       | 2,197         | 7,172      | Chem Translator of 0.934 applied |
| Hexavalent Chromium             | 0                  | 0         |                  | 0         | 16            | 16.3          | 53.2       | Chem Translator of 0.316 applied |
| Total Cobalt                    | 0                  | 0         |                  | 0         | 95            | 95.0          | 310        | Chem Translator of 0.982 applied |
| Total Copper                    | 0                  | 0         |                  | 0         | 16,866        | 17.6          | 57.4       | Chem Translator of 0.96 applied  |
| Dissolved Iron                  | 0                  | 0         |                  | 0         | N/A           | N/A           | N/A        |                                  |
| Total Iron                      | 0                  | 0         |                  | 0         | N/A           | N/A           | N/A        |                                  |
| Total Lead                      | 0                  | 0         |                  | 0         | 83,877        | 111           | 362        | Chem Translator of 0.756 applied |
| Total Manganese                 | 0                  | 0         |                  | 0         | N/A           | N/A           | N/A        |                                  |
| Total Mercury                   | 0                  | 0         |                  | 0         | 1,400         | 1.65          | 5.38       | Chem Translator of 0.85 applied  |
| Total Nickel                    | 0                  | 0         |                  | 0         | 574,150       | 575           | 1,878      | Chem Translator of 0.998 applied |
| Total Phenols (Phenolics) (PWS) | 0                  | 0         |                  | 0         | N/A           | N/A           | N/A        |                                  |
| Total Selenium                  | 0                  | 0         |                  | 0         | N/A           | N/A           | N/A        |                                  |
| Total Silver                    | 0                  | 0         |                  | 0         | 4,869         | 5.73          | 18.7       | Chem Translator of 0.922 applied |
| Total Thallium                  | 0                  | 0         |                  | 0         | 65            | 65.0          | 212        | Chem Translator of 0.85 applied  |
| Total Zinc                      | 0                  | 0         |                  | 0         | 143,731       | 147           | 480        |                                  |
| Acrolein                        | 0                  | 0         |                  | 0         | 3             | 3.0           | 9.8        | Chem Translator of 0.978 applied |
| Acrylonitrile                   | 0                  | 0         |                  | 0         | 650           | 650           | 2,122      |                                  |
| Benzene                         | 0                  | 0         |                  | 0         | 640           | 640           | 2,090      |                                  |
| Bromoform                       | 0                  | 0         |                  | 0         | 1,809,162,073 | 1,800         | 5,877      |                                  |

|                             |   |   |   |   |        |        |        |
|-----------------------------|---|---|---|---|--------|--------|--------|
| Carbon Tetrachloride        | 0 | 0 | 0 | 0 | 2,800  | 2,800  | 9,143  |
| Chlorobenzene               | 0 | 0 | 0 | 0 | 1,200  | 1,200  | 3,918  |
| Chlorodibromomethane        | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |
| 2-Chloroethyl Vinyl Ether   | 0 | 0 | 0 | 0 | 18,000 | 18,000 | 56,774 |
| Chloroform                  | 0 | 0 | 0 | 0 | 1,900  | 1,900  | 6,204  |
| Dichlorobromomethane        | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |
| 1,2-Dichloroethane          | 0 | 0 | 0 | 0 | 15,000 | 15,000 | 48,978 |
| 1,1-Dichloroethylene        | 0 | 0 | 0 | 0 | 7,500  | 7,500  | 24,489 |
| 1,2-Dichloropropane         | 0 | 0 | 0 | 0 | 11,000 | 11,000 | 35,917 |
| 1,3-Dichloropropylene       | 0 | 0 | 0 | 0 | 310    | 310    | 1,012  |
| Ethylbenzene                | 0 | 0 | 0 | 0 | 2,900  | 2,900  | 9,469  |
| Methyl Bromide              | 0 | 0 | 0 | 0 | 550    | 550    | 1,796  |
| Methyl Chloride             | 0 | 0 | 0 | 0 | 28,000 | 28,000 | 91,426 |
| Methylene Chloride          | 0 | 0 | 0 | 0 | 12,000 | 12,000 | 36,183 |
| 1,1,2,2-Tetrachloroethane   | 0 | 0 | 0 | 0 | 1,000  | 1,000  | 3,265  |
| Tetrachloroethylene         | 0 | 0 | 0 | 0 | 700    | 700    | 2,286  |
| Toluene                     | 0 | 0 | 0 | 0 | 1,700  | 1,700  | 5,551  |
| 1,2-trans-Dichloroethylene  | 0 | 0 | 0 | 0 | 6,800  | 6,800  | 22,204 |
| 1,1,1-Trichloroethane       | 0 | 0 | 0 | 0 | 3,000  | 3,000  | 9,796  |
| 1,1,2-Trichloroethane       | 0 | 0 | 0 | 0 | 3,400  | 3,400  | 11,102 |
| Trichloroethylene           | 0 | 0 | 0 | 0 | 2,300  | 2,300  | 7,510  |
| Vinyl Chloride              | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |
| 2-Chlorophenol              | 0 | 0 | 0 | 0 | 560    | 560    | 1,829  |
| 2,4-Dichlorophenol          | 0 | 0 | 0 | 0 | 1,700  | 1,700  | 5,551  |
| 2,4-Dimethylphenol          | 0 | 0 | 0 | 0 | 660    | 660    | 2,155  |
| 4,6-Dinitro-o-Cresol        | 0 | 0 | 0 | 0 | 80     | 80.0   | 261    |
| 2,4-Dinitrophenol           | 0 | 0 | 0 | 0 | 660    | 660    | 2,155  |
| 2-Nitrophenol               | 0 | 0 | 0 | 0 | 8,000  | 8,000  | 26,122 |
| 4-Nitrophenol               | 0 | 0 | 0 | 0 | 2,300  | 2,300  | 7,510  |
| p-Chloro-m-Cresol           | 0 | 0 | 0 | 0 | 160    | 160    | 522    |
| Pentachlorophenol           | 0 | 0 | 0 | 0 | 8,723  | 8,72   | 28.5   |
| Phenol                      | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |
| 2,4,6-Trichlorophenol       | 0 | 0 | 0 | 0 | 460    | 460    | 1,502  |
| Acenaphthene                | 0 | 0 | 0 | 0 | 83     | 83.0   | 271    |
| Anthracene                  | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |
| Benzidine                   | 0 | 0 | 0 | 0 | 300    | 300    | 980    |
| Benzo(a)Anthracene          | 0 | 0 | 0 | 0 | 0.5    | 0.5    | 1.63   |
| Benzo(a)Pyrene              | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |
| 3,4-Benzofluoranthene       | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |
| Benzo(k)Fluoranthene        | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |
| Bis(2-Chloroethyl)Ether     | 0 | 0 | 0 | 0 | 30,000 | 30,000 | 97,957 |
| Bis(2-Chloroisopropyl)Ether | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |
| Bis(2-Ethylhexyl)Phthalate  | 0 | 0 | 0 | 0 | 4,500  | 4,500  | 14,694 |
| 4-Bromophenyl Phenyl Ether  | 0 | 0 | 0 | 0 | 270    | 270    | 882    |
| Butyl Benzyl Phthalate      | 0 | 0 | 0 | 0 | 140    | 140    | 457    |
| 2-Chloronaphthalene         | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |
| Chrysene                    | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |
| Dibenz(a,h)Anthracene       | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |
| 1,2-Dichlorobenzene         | 0 | 0 | 0 | 0 | 820    | 820    | 2,677  |

|                           |   |   |   |   |        |        |        |  |
|---------------------------|---|---|---|---|--------|--------|--------|--|
| 1,3-Dichlorobenzene       | 0 | 0 | 0 | 0 | 350    | 350    | 1,143  |  |
| 1,4-Dichlorobenzene       | 0 | 0 | 0 | 0 | 730    | 730    | 2,384  |  |
| 3,3-Dichlorobenzidine     | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |  |
| Diethyl Phthalate         | 0 | 0 | 0 | 0 | 4,000  | 4,000  | 13,061 |  |
| Dimethyl Phthalate        | 0 | 0 | 0 | 0 | 2,500  | 2,500  | 8,163  |  |
| Di-n-Butyl Phthalate      | 0 | 0 | 0 | 0 | 110    | 110    | 359    |  |
| 2,4-Dinitrotoluene        | 0 | 0 | 0 | 0 | 1,600  | 1,600  | 5,224  |  |
| 2,6-Dinitrotoluene        | 0 | 0 | 0 | 0 | 990    | 990    | 3,233  |  |
| 1,2-Diphenylhydrazine     | 0 | 0 | 0 | 0 | 15     | 15.0   | 49.0   |  |
| Fluoranthene              | 0 | 0 | 0 | 0 | 200    | 200    | 653    |  |
| Fluorene                  | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |  |
| Hexachlorobenzene         | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |  |
| Hexachlorobutadiene       | 0 | 0 | 0 | 0 | 10     | 10.0   | 32.7   |  |
| Hexachlorocyclopentadiene | 0 | 0 | 0 | 0 | 5      | 5.0    | 16.3   |  |
| Hexachloroethane          | 0 | 0 | 0 | 0 | 60     | 60.0   | 196    |  |
| Indeno(1,2,3-cd)Pyrene    | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |  |
| Isophorone                | 0 | 0 | 0 | 0 | 10,000 | 10,000 | 32,652 |  |
| Naphthalene               | 0 | 0 | 0 | 0 | 140    | 140    | 457    |  |
| Nitrobenzene              | 0 | 0 | 0 | 0 | 4,000  | 4,000  | 13,061 |  |
| n-Nitrosodimethylamine    | 0 | 0 | 0 | 0 | 17,000 | 17,000 | 55,509 |  |
| n-Nitrosodi-n-Propylamine | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |  |
| n-Nitrosodiphenylamine    | 0 | 0 | 0 | 0 | 300    | 300    | 980    |  |
| Phenanthrene              | 0 | 0 | 0 | 0 | 5      | 5.0    | 16.3   |  |
| Pyrene                    | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A    |  |
| 1,2,4-Trichlorobenzene    | 0 | 0 | 0 | 0 | 130    | 130    | 424    |  |

✓ CFC CCT (min): 33.045 PMF: 1 Analysis Hardness (mg/l): 120.4 Analysis pH: 7.00

| Pollutants                   | Stream Conc (µg/L) | Stream CV | Trib Conc (µg/L) | Fate Coef | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L) | Comments                         |
|------------------------------|--------------------|-----------|------------------|-----------|------------|---------------|------------|----------------------------------|
| Total Dissolved Solids (PWS) | 0                  | 0         |                  | 0         | N/A        | N/A           | N/A        |                                  |
| Chloride (PWS)               | 0                  | 0         |                  | 0         | N/A        | N/A           | N/A        |                                  |
| Sulfate (PWS)                | 0                  | 0         |                  | 0         | N/A        | N/A           | N/A        |                                  |
| Total Aluminum               | 0                  | 0         |                  | 0         | N/A        | N/A           | N/A        |                                  |
| Total Antimony               | 0                  | 0         |                  | 0         | 220        | 220           | 960        |                                  |
| Total Arsenic                | 0                  | 0         |                  | 0         | 150        | 150           | 654        | Chem Translator of 1 applied     |
| Total Barium                 | 0                  | 0         |                  | 0         | 4,100      | 4,100         | 17,885     |                                  |
| Total Boron                  | 0                  | 0         |                  | 0         | 1,600      | 1,600         | 6,979      |                                  |
| Total Cadmium                | 0                  | 0         |                  | 0         | 0.280      | 0.31          | 1.35       | Chem Translator of 0.901 applied |
| Total Chromium (III)         | 0                  | 0         |                  | 0         | 86,287     | 100           | 438        | Chem Translator of 0.86 applied  |
| Hexavalent Chromium          | 0                  | 0         |                  | 0         | 10         | 10.4          | 45.3       | Chem Translator of 0.962 applied |
| Total Cobalt                 | 0                  | 0         |                  | 0         | 19         | 19.0          | 82.9       |                                  |
| Total Copper                 | 0                  | 0         |                  | 0         | 10,496     | 10.9          | 47.7       | Chem Translator of 0.96 applied  |
| Dissolved Iron               | 0                  | 0         |                  | 0         | N/A        | N/A           | N/A        |                                  |
| Total Iron                   | 0                  | 0         |                  | 0         | 1,500      | 1,500         | 6,543      | WQC = 30 day average; PMF = 1    |
| Total Lead                   | 0                  | 0         |                  | 0         | 3,079      | 4.03          | 17.6       | Chem Translator of 0.764 applied |
| Total Manganese              | 0                  | 0         |                  | 0         | N/A        | N/A           | N/A        |                                  |

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|                             |   |   |   |   |       |       |       |        |  |
|-----------------------------|---|---|---|---|-------|-------|-------|--------|--|
| Benzo(a)Anthracene          | 0 | 0 | 0 | 0 | 0.1   | 0.1   | 0.1   | 0.44   |  |
| Benzo(a)Pyrene              | 0 | 0 | 0 | 0 | N/A   | N/A   | N/A   | N/A    |  |
| 3,4-Benzofluoranthene       | 0 | 0 | 0 | 0 | N/A   | N/A   | N/A   | N/A    |  |
| Benzo(k)Fluoranthene        | 0 | 0 | 0 | 0 | N/A   | N/A   | N/A   | N/A    |  |
| Bis(2-Chloroethyl)Ether     | 0 | 0 | 0 | 0 | 6,000 | 6,000 | 6,000 | 26,173 |  |
| Bis(2-Chloroisopropyl)Ether | 0 | 0 | 0 | 0 | N/A   | N/A   | N/A   | N/A    |  |
| Bis(2-Ethylhexyl)Phthalate  | 0 | 0 | 0 | 0 | 910   | 910   | 910   | 3,970  |  |
| 4-Bromophenyl Phenyl Ether  | 0 | 0 | 0 | 0 | 54    | 54.0  | 54.0  | 236    |  |
| Butyl Benzyl Phthalate      | 0 | 0 | 0 | 0 | 35    | 35.0  | 35.0  | 153    |  |
| 2-Chloronaphthalene         | 0 | 0 | 0 | 0 | N/A   | N/A   | N/A   | N/A    |  |
| Chrysene                    | 0 | 0 | 0 | 0 | N/A   | N/A   | N/A   | N/A    |  |
| Dibenz(a,h)Anthracene       | 0 | 0 | 0 | 0 | N/A   | N/A   | N/A   | N/A    |  |
| 1,2-Dichlorobenzene         | 0 | 0 | 0 | 0 | 160   | 160   | 160   | 698    |  |
| 1,3-Dichlorobenzene         | 0 | 0 | 0 | 0 | 69    | 69.0  | 69.0  | 301    |  |
| 1,4-Dichlorobenzene         | 0 | 0 | 0 | 0 | 150   | 150   | 150   | 654    |  |
| 3,3-Dichlorobenzidine       | 0 | 0 | 0 | 0 | N/A   | N/A   | N/A   | N/A    |  |
| Diethyl Phthalate           | 0 | 0 | 0 | 0 | 800   | 800   | 800   | 3,490  |  |
| Dimethyl Phthalate          | 0 | 0 | 0 | 0 | 500   | 500   | 500   | 2,181  |  |
| Di-n-Butyl Phthalate        | 0 | 0 | 0 | 0 | 21    | 21.0  | 21.0  | 91.6   |  |
| 2,4-Dinitrotoluene          | 0 | 0 | 0 | 0 | 320   | 320   | 320   | 1,396  |  |
| 2,6-Dinitrotoluene          | 0 | 0 | 0 | 0 | 200   | 200   | 200   | 872    |  |
| 1,2-Diphenylhydrazine       | 0 | 0 | 0 | 0 | 3     | 3.0   | 3.0   | 13.1   |  |
| Fluoranthene                | 0 | 0 | 0 | 0 | 40    | 40.0  | 40.0  | 174    |  |
| Fluorene                    | 0 | 0 | 0 | 0 | N/A   | N/A   | N/A   | N/A    |  |
| Hexachlorobenzene           | 0 | 0 | 0 | 0 | N/A   | N/A   | N/A   | N/A    |  |
| Hexachlorobutadiene         | 0 | 0 | 0 | 0 | 2     | 2.0   | 2.0   | 8.72   |  |
| Hexachlorocyclopentadiene   | 0 | 0 | 0 | 0 | 1     | 1.0   | 1.0   | 4.36   |  |
| Hexachloroethane            | 0 | 0 | 0 | 0 | 12    | 12.0  | 12.0  | 52.3   |  |
| Indeno(1,2,3-cd)Pyrene      | 0 | 0 | 0 | 0 | N/A   | N/A   | N/A   | N/A    |  |
| Isophorone                  | 0 | 0 | 0 | 0 | 2,100 | 2,100 | 2,100 | 9,161  |  |
| Naphthalene                 | 0 | 0 | 0 | 0 | 43    | 43.0  | 43.0  | 188    |  |
| Nitrobenzene                | 0 | 0 | 0 | 0 | 810   | 810   | 810   | 3,533  |  |
| n-Nitrosodimethylamine      | 0 | 0 | 0 | 0 | 3,400 | 3,400 | 3,400 | 14,831 |  |
| n-Nitrosodi-n-Propylamine   | 0 | 0 | 0 | 0 | N/A   | N/A   | N/A   | N/A    |  |
| n-Nitrosodiphenylamine      | 0 | 0 | 0 | 0 | 59    | 59.0  | 59.0  | 257    |  |
| Phenanthrene                | 0 | 0 | 0 | 0 | 1     | 1.0   | 1.0   | 4.36   |  |
| Pyrene                      | 0 | 0 | 0 | 0 | N/A   | N/A   | N/A   | N/A    |  |
| 1,2,4-Trichlorobenzene      | 0 | 0 | 0 | 0 | 26    | 26.0  | 26.0  | 113    |  |

☒ THH CCT (min): 33.045 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

| Pollutants                   | Stream Conc (ug/L) | Stream CV | Trib Conc (ug/L) | Fate Coef | WQC (ug/L) | WQ Obj (ug/L) | WLA (ug/L) | Comments |
|------------------------------|--------------------|-----------|------------------|-----------|------------|---------------|------------|----------|
| Total Dissolved Solids (PWS) | 0                  | 0         | 0                | 0         | 500,000    | 500,000       | N/A        |          |
| Chloride (PWS)               | 0                  | 0         | 0                | 0         | 250,000    | 250,000       | N/A        |          |
| Sulfate (PWS)                | 0                  | 0         | 0                | 0         | 250,000    | 250,000       | N/A        |          |

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[illegible]

|                           |   |   |   |   |      |      |      |     |     |     |
|---------------------------|---|---|---|---|------|------|------|-----|-----|-----|
| n-Nitrosodi-n-Propylamine | 0 | 0 | 0 | 0 | N/A  | N/A  | N/A  | N/A | N/A | N/A |
| n-Nitrosodiphenylamine    | 0 | 0 | 0 | 0 | N/A  | N/A  | N/A  | N/A | N/A | N/A |
| Phenanthrene              | 0 | 0 | 0 | 0 | N/A  | N/A  | N/A  | N/A | N/A | N/A |
| Pyrene                    | 0 | 0 | 0 | 0 | 20   | 20.0 | 87.2 |     |     |     |
| 1,2,4-Trichlorobenzene    | 0 | 0 | 0 | 0 | 0.07 | 0.07 | 0.31 |     |     |     |

| CRL                             |                    | CCT (min): 18.488 | PMF: 1           | Analysis Hardness (mg/l): |            | N/A           | Analysis pH: |          | N/A |
|---------------------------------|--------------------|-------------------|------------------|---------------------------|------------|---------------|--------------|----------|-----|
| Pollutants                      | Stream Conc (µg/L) | Stream CV         | Trib Conc (µg/L) | Fate Coef                 | WQC (µg/L) | WQ Obj (µg/L) | WLA (µg/L)   | Comments |     |
| Total Dissolved Solids (PWS)    | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Chloride (PWS)                  | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Sulfate (PWS)                   | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Aluminum                  | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Antimony                  | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Arsenic                   | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Barium                    | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Boron                     | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Cadmium                   | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Chromium (III)            | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Hexavalent Chromium             | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Cobalt                    | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Copper                    | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Dissolved Iron                  | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Iron                      | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Lead                      | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Manganese                 | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Mercury                   | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Nickel                    | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Phenols (Phenolics) (PWS) | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Selenium                  | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Silver                    | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Thallium                  | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Total Zinc                      | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Acrolein                        | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Acrylonitrile                   | 0                  | 0                 | 0                | 0                         | 0.06       | 0.06          | 1.19         |          |     |
| Benzene                         | 0                  | 0                 | 0                | 0                         | 0.58       | 0.58          | 11.5         |          |     |
| Bromoform                       | 0                  | 0                 | 0                | 0                         | 7          | 7.0           | 138          |          |     |
| Carbon Tetrachloride            | 0                  | 0                 | 0                | 0                         | 0.4        | 0.4           | 7.91         |          |     |
| Chlorobenzene                   | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Chlorodibromomethane            | 0                  | 0                 | 0                | 0                         | 0.8        | 0.8           | 15.8         |          |     |
| 2-Chloroethyl Vinyl Ether       | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Chloroform                      | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |
| Dichlorobromomethane            | 0                  | 0                 | 0                | 0                         | 0.95       | 0.95          | 18.8         |          |     |
| 1,2-Dichloroethane              | 0                  | 0                 | 0                | 0                         | 9.9        | 9.9           | 196          |          |     |
| 1,1-Dichloroethylene            | 0                  | 0                 | 0                | 0                         | N/A        | N/A           | N/A          |          |     |



|                             |   |   |   |   |   |   |        |        |       |  |
|-----------------------------|---|---|---|---|---|---|--------|--------|-------|--|
| 1,2-Dichloropropane         | 0 | 0 | 0 | 0 | 0 | 0 | 0.9    | 0.9    | 17.8  |  |
| 1,3-Dichloropropylene       | 0 | 0 | 0 | 0 | 0 | 0 | 0.27   | 0.27   | 5.34  |  |
| Ethylbenzene                | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| Methyl Bromide              | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| Methyl Chloride             | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| Methylene Chloride          | 0 | 0 | 0 | 0 | 0 | 0 | 20     | 20.0   | 396   |  |
| 1,1,2,2-Tetrachloroethane   | 0 | 0 | 0 | 0 | 0 | 0 | 0.2    | 0.2    | 3.96  |  |
| Tetrachloroethylene         | 0 | 0 | 0 | 0 | 0 | 0 | 10     | 10.0   | 198   |  |
| Toluene                     | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| 1,2-trans-Dichloroethylene  | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| 1,1,1-Trichloroethane       | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| 1,1,2-Trichloroethane       | 0 | 0 | 0 | 0 | 0 | 0 | 0.55   | 0.55   | 10.9  |  |
| Trichloroethylene           | 0 | 0 | 0 | 0 | 0 | 0 | 0.6    | 0.6    | 11.9  |  |
| Vinyl Chloride              | 0 | 0 | 0 | 0 | 0 | 0 | 0.02   | 0.02   | 0.4   |  |
| 2-Chlorophenol              | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| 2,4-Dichlorophenol          | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| 2,4-Dimethylphenol          | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| 4,6-Dinitro-o-Cresol        | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| 2,4-Dinitrophenol           | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| 2-Nitrophenol               | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| 4-Nitrophenol               | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| p-Chloro-m-Cresol           | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| Pentachlorophenol           | 0 | 0 | 0 | 0 | 0 | 0 | 0.030  | 0.03   | 0.59  |  |
| Phenol                      | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| 2,4,6-Trichlorophenol       | 0 | 0 | 0 | 0 | 0 | 0 | 1.5    | 1.5    | 29.7  |  |
| Acenaphthene                | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| Anthracene                  | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| Benidine                    | 0 | 0 | 0 | 0 | 0 | 0 | 0.0001 | 0.0001 | 0.002 |  |
| Benzo(a)Anthracene          | 0 | 0 | 0 | 0 | 0 | 0 | 0.001  | 0.001  | 0.02  |  |
| Benzo(a)Pyrene              | 0 | 0 | 0 | 0 | 0 | 0 | 0.0001 | 0.0001 | 0.002 |  |
| 3,4-Benzofluoranthene       | 0 | 0 | 0 | 0 | 0 | 0 | 0.001  | 0.001  | 0.02  |  |
| Benzo(k)Fluoranthene        | 0 | 0 | 0 | 0 | 0 | 0 | 0.01   | 0.01   | 0.2   |  |
| Bis(2-Chloroethyl)Ether     | 0 | 0 | 0 | 0 | 0 | 0 | 0.03   | 0.03   | 0.59  |  |
| Bis(2-Chloroisopropyl)Ether | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| Bis(2-Ethylhexyl)Phthalate  | 0 | 0 | 0 | 0 | 0 | 0 | 0.32   | 0.32   | 6.33  |  |
| 4-Bromophenyl Phenyl Ether  | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| Butyl Benzyl Phthalate      | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| 2-Chloronaphthalene         | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| Chrysene                    | 0 | 0 | 0 | 0 | 0 | 0 | 0.12   | 0.12   | 2.37  |  |
| Dibenzo(a,h)Anthracene      | 0 | 0 | 0 | 0 | 0 | 0 | 0.0001 | 0.0001 | 0.002 |  |
| 1,2-Dichlorobenzene         | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| 1,3-Dichlorobenzene         | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| 1,4-Dichlorobenzene         | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| 3,3-Dichlorobenzidine       | 0 | 0 | 0 | 0 | 0 | 0 | 0.05   | 0.05   | 0.99  |  |
| Diethyl Phthalate           | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| Dimethyl Phthalate          | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |
| n-Butyl Phthalate           | 0 | 0 | 0 | 0 | 0 | 0 | N/A    | N/A    | N/A   |  |

|                           |   |   |   |   |         |         |       |  |
|---------------------------|---|---|---|---|---------|---------|-------|--|
| 2,4-Dinitrotoluene        | 0 | 0 | 0 | 0 | 0.05    | 0.05    | 0.99  |  |
| 2,6-Dinitrotoluene        | 0 | 0 | 0 | 0 | 0.05    | 0.05    | 0.99  |  |
| 1,2-Diphenylhydrazine     | 0 | 0 | 0 | 0 | 0.03    | 0.03    | 0.59  |  |
| Fluoranthene              | 0 | 0 | 0 | 0 | N/A     | N/A     | N/A   |  |
| Fluorene                  | 0 | 0 | 0 | 0 | N/A     | N/A     | N/A   |  |
| Hexachlorobenzene         | 0 | 0 | 0 | 0 | 0.00008 | 0.00008 | 0.002 |  |
| Hexachlorobutadiene       | 0 | 0 | 0 | 0 | 0.01    | 0.01    | 0.2   |  |
| Hexachlorocyclopentadiene | 0 | 0 | 0 | 0 | N/A     | N/A     | N/A   |  |
| Hexachloroethane          | 0 | 0 | 0 | 0 | 0.1     | 0.1     | 1.98  |  |
| Indeno(1,2,3-cd)pyrene    | 0 | 0 | 0 | 0 | 0.001   | 0.001   | 0.02  |  |
| Isophorone                | 0 | 0 | 0 | 0 | N/A     | N/A     | N/A   |  |
| Naphthalene               | 0 | 0 | 0 | 0 | N/A     | N/A     | N/A   |  |
| Nitrobenzene              | 0 | 0 | 0 | 0 | N/A     | N/A     | N/A   |  |
| n-Nitrosodimethylamine    | 0 | 0 | 0 | 0 | 0.0007  | 0.0007  | 0.014 |  |
| n-Nitrosodi-n-Propylamine | 0 | 0 | 0 | 0 | 0.005   | 0.005   | 0.099 |  |
| n-Nitrosodiphenylamine    | 0 | 0 | 0 | 0 | 3.3     | 3.3     | 65.3  |  |
| Phenanthrene              | 0 | 0 | 0 | 0 | N/A     | N/A     | N/A   |  |
| Pyrene                    | 0 | 0 | 0 | 0 | N/A     | N/A     | N/A   |  |
| 1,2,4-Trichlorobenzene    | 0 | 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   | Report        | Report        | Report               | Report | Report | mg/L  | 0.047           | AFC         | Discharge Conc > 10% WQBEL (no RP) |
| Dissolved Iron | Report        | Report        | Report               | Report | Report | µg/L  | 1,309           | THH         | Discharge Conc > 10% WQBEL (no RP) |
| Total Zinc     | Report        | Report        | Report               | Report | Report | µg/L  | 308             | AFC         | Discharge Conc > 10% WQBEL (no RP) |
| Chloroform     | 0.38          | 0.6           | 24.9                 | 38.8   | 62.2   | µg/L  | 24.9            | THH         | Discharge Conc ≥ 50% WQBEL (RP)    |

Other Pollutants without Limits or Monitoring

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

| Pollutants                   | Governing WQBEL | Units | Comments                   |
|------------------------------|-----------------|-------|----------------------------|
| Total Dissolved Solids (PWS) | N/A             | N/A   | PWS Not Applicable         |
| Chloride (PWS)               | N/A             | N/A   | PWS Not Applicable         |
| Bromide                      | N/A             | N/A   | No WQS                     |
| Sulfate (PWS)                | N/A             | N/A   | PWS Not Applicable         |
| Total Aluminum               | 1,570           | µg/L  | Discharge Conc ≤ 10% WQBEL |
| Total Antimony               | N/A             | N/A   | Discharge Conc < TQL       |
| Total Arsenic                | N/A             | N/A   | Discharge Conc < TQL       |

Model Results

8/16/2023

|                                 |        |      |                            |
|---------------------------------|--------|------|----------------------------|
| Total Barium                    | 10.469 | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Beryllium                 | N/A    | N/A  | No WQS                     |
| Total Boron                     | 6.979  | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Cadmium                   | 1.35   | µg/L | Discharge Conc < TQL       |
| Total Chromium (III)            | 438    | µg/L | Discharge Conc ≤ 10% WQBEL |
| Hexavalent Chromium             | 34.1   | µg/L | Discharge Conc < TQL       |
| Total Cobalt                    | 82.9   | µg/L | Discharge Conc < TQL       |
| Total Cyanide                   | N/A    | N/A  | No WQS                     |
| Total Iron                      | 6.543  | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Lead                      | 17.6   | µg/L | Discharge Conc < TQL       |
| Total Manganese                 | 4.362  | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Mercury                   | 0.22   | µg/L | Discharge Conc < TQL       |
| Total Nickel                    | 266    | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Phenols (Phenolics) (PWS) |        | µg/L | Discharge Conc < TQL       |
| Total Selenium                  | 21.8   | µg/L | Discharge Conc ≤ 10% WQBEL |
| Total Silver                    | 12.0   | µg/L | Discharge Conc < TQL       |
| Total Thallium                  | 1.05   | µg/L | Discharge Conc < TQL       |
| Total Molybdenum                | N/A    | N/A  | No WQS                     |
| Acrolein                        | 6.28   | µg/L | Discharge Conc < TQL       |
| Acrylonitrile                   | 1.19   | µg/L | Discharge Conc < TQL       |
| Benzene                         | 11.5   | µg/L | Discharge Conc < TQL       |
| Bromoform                       | 138    | µg/L | Discharge Conc < TQL       |
| Carbon Tetrachloride            | 7.91   | µg/L | Discharge Conc < TQL       |
| Chlorobenzene                   | 436    | µg/L | Discharge Conc < TQL       |
| Chlorodibromomethane            | 15.8   | µg/L | Discharge Conc ≤ 25% WQBEL |
| Chloroethane                    | N/A    | N/A  | No WQS                     |
| 2-Chloroethyl Vinyl Ether       | 15.268 | µg/L | Discharge Conc < TQL       |
| Dichlorobromomethane            | 18.8   | µg/L | Discharge Conc ≤ 25% WQBEL |
| 1,1-Dichloroethane              | N/A    | N/A  | No WQS                     |
| 1,2-Dichloroethane              | 196    | µg/L | Discharge Conc < TQL       |
| 1,1-Dichloroethylene            | 144    | µg/L | Discharge Conc < TQL       |
| 1,2-Dichloropropane             | 17.8   | µg/L | Discharge Conc < TQL       |
| 1,3-Dichloropropylene           | 5.34   | µg/L | Discharge Conc < TQL       |
| 1,4-Dioxane                     | N/A    | N/A  | No WQS                     |
| Ethylbenzene                    | 297    | µg/L | Discharge Conc < TQL       |
| Methyl Bromide                  | 436    | µg/L | Discharge Conc < TQL       |
| Methyl Chloride                 | 23.992 | µg/L | Discharge Conc < TQL       |
| Methylene Chloride              | 396    | µg/L | Discharge Conc < TQL       |
| 1,1,2,2-Tetrachloroethane       | 3.96   | µg/L | Discharge Conc < TQL       |
| Tetrachloroethylene             | 198    | µg/L | Discharge Conc < TQL       |
| Toluene                         | 249    | µg/L | Discharge Conc < TQL       |
| 1,2-trans-Dichloroethylene      | 436    | µg/L | Discharge Conc < TQL       |
| 1,1,1-Trichloroethane           | 2.961  | µg/L | Discharge Conc < TQL       |
| 1,1,2-Trichloroethane           | 10.9   | µg/L | Discharge Conc < TQL       |
| Trichloroethylene               | 11.9   | µg/L | Discharge Conc < TQL       |
| Vinyl Chloride                  | 0.4    | µg/L | Discharge Conc < TQL       |
| Model Results 2-Chlorophenol    | 131    | µg/L | Discharge Conc < TQL       |

|                                    |        |      |                      |
|------------------------------------|--------|------|----------------------|
| 2,4-Dichlorophenol                 | 43.6   | µg/L | Discharge Conc < TQL |
| 2,4-Dimethylphenol                 | 436    | µg/L | Discharge Conc < TQL |
| 4,6-Dinitro-o-Cresol               | 8.72   | µg/L | Discharge Conc < TQL |
| 2,4-Dinitrophenol                  | 43.6   | µg/L | Discharge Conc < TQL |
| 2-Nitrophenol                      | 6.979  | µg/L | Discharge Conc < TQL |
| 4-Nitrophenol                      | 2.050  | µg/L | Discharge Conc < TQL |
| p-Chloro-m-Cresol                  | 335    | µg/L | Discharge Conc < TQL |
| Pentachlorophenol                  | 0.59   | µg/L | Discharge Conc < TQL |
| Phenol                             | 17.449 | µg/L | Discharge Conc < TQL |
| 2,4,6-Trichlorophenol              | 29.7   | µg/L | Discharge Conc < TQL |
| Acenaphthene                       | 74.2   | µg/L | Discharge Conc < TQL |
| Acenaphthylene                     | N/A    | N/A  | No WQS               |
| Anthracene                         | 1.309  | µg/L | Discharge Conc < TQL |
| Benzo(a)anthracene                 | 0.002  | µg/L | Discharge Conc < TQL |
| Benzo(a)pyrene                     | 0.002  | µg/L | Discharge Conc < TQL |
| 3,4-Benzofluoranthene              | 0.02   | µg/L | Discharge Conc < TQL |
| Benzo(ghi)perylene                 | N/A    | N/A  | No WQS               |
| Benzo(k)fluoranthene               | 0.2    | µg/L | Discharge Conc < TQL |
| Bis(2-Chloroethoxy)Methane         | N/A    | N/A  | No WQS               |
| Bis(2-Chloroethyl)Ether            | 0.59   | µg/L | Discharge Conc < TQL |
| Bis(2-Chloroisopropyl)Ether        | 872    | µg/L | Discharge Conc < TQL |
| Bis(2-Ethylhexyl)Phthalate         | 6.33   | µg/L | Discharge Conc < TQL |
| 4-Bromophenyl Phenyl Ether         | 236    | µg/L | Discharge Conc < TQL |
| Butyl Benzyl Phthalate             | 0.44   | µg/L | Discharge Conc < TQL |
| 2-Chloronaphthalene                | 3.490  | µg/L | Discharge Conc < TQL |
| 4-Chlorophenyl Phenyl Ether        | N/A    | N/A  | No WQS               |
| Chrysene                           | 2.37   | µg/L | Discharge Conc < TQL |
| Dibenzo(a,h)anthracene             | 0.002  | µg/L | Discharge Conc < TQL |
| 1,2-Dichlorobenzene                | 698    | µg/L | Discharge Conc < TQL |
| 1,3-Dichlorobenzene                | 30.5   | µg/L | Discharge Conc < TQL |
| 1,4-Dichlorobenzene                | 654    | µg/L | Discharge Conc < TQL |
| 3,3-Dichlorobenzidine              | 0.99   | µg/L | Discharge Conc < TQL |
| Diethyl Phthalate                  | 2.617  | µg/L | Discharge Conc < TQL |
| Dimethyl Phthalate                 | 2.181  | µg/L | Discharge Conc < TQL |
| Di-n-Butyl Phthalate               | 87.2   | µg/L | Discharge Conc < TQL |
| 2,4-Dinitrotoluene                 | 0.99   | µg/L | Discharge Conc < TQL |
| 2,6-Dinitrotoluene                 | 0.99   | µg/L | Discharge Conc < TQL |
| Di-n-Octyl Phthalate               | N/A    | N/A  | No WQS               |
| 1,2-Diphenylhydrazine              | 0.59   | µg/L | Discharge Conc < TQL |
| Fluoranthene                       | 87.2   | µg/L | Discharge Conc < TQL |
| Fluorene                           | 218    | µg/L | Discharge Conc < TQL |
| Hexachlorobenzene                  | 0.002  | µg/L | Discharge Conc < TQL |
| Hexachlorobutadiene                | 0.2    | µg/L | Discharge Conc < TQL |
| Hexachlorocyclopentadiene          | 4.36   | µg/L | Discharge Conc < TQL |
| Hexachloroethane                   | 1.98   | µg/L | Discharge Conc < TQL |
| Benzo(a)anthracene(1,2,3-cd)Pyrene | 0.02   | µg/L | Discharge Conc < TQL |

Model Results 8/16/2023

|                           |       |      |                      |
|---------------------------|-------|------|----------------------|
| Isophorone                | 148   | µg/L | Discharge Conc < TQL |
| Naphthalene               | 188   | µg/L | Discharge Conc < TQL |
| Nitrobenzene              | 43.6  | µg/L | Discharge Conc < TQL |
| n-Nitrosodimethylamine    | 0.014 | µg/L | Discharge Conc < TQL |
| n-Nitrosodi-n-Propylamine | 0.099 | µg/L | Discharge Conc < TQL |
| n-Nitrosodiphenylamine    | 65.3  | µg/L | Discharge Conc < TQL |
| Phenanthrene              | 4.36  | µg/L | Discharge Conc < TQL |
| Pyrene                    | 87.2  | µg/L | Discharge Conc < TQL |
| 1,2,4-Trichlorobenzene    | 0.31  | µg/L | Discharge Conc < TQL |
|                           |       |      |                      |
|                           |       |      |                      |
|                           |       |      |                      |
|                           |       |      |                      |

[illegible]

WET Analysis Worksheet

| DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet |            |  |                        |  |  |
|--|------------|--|------------------------|--|--|
| Type of Test   | Chronic    |  | Facility Name          |  |  |
| Species Tested   | Pimephales |  | Washington Township MA |  |  |
| Endpoint   | Survival   |  | Permit No.             |  |  |
| TIWC (decimal)   | 0.18       |  | PA0080225              |  |  |
| No. Per Replicate                                      | 10         |  |                        |  |  |
| TST b value  | 0.75       |  |                        |  |  |
| TST alpha value  | 0.25       |  |                        |  |  |

| Test Completion Date |          |      | Test Completion Date |           |      |
|----------------------|----------|------|----------------------|-----------|------|
| Replicate            | 3/9/2021 |      | Replicate            | 5/11/2021 |      |
| No.                  | Control  | TIWC | No.                  | Control   | TIWC |
| 1                    | 10       | 10   | 1                    | 10        | 10   |
| 2                    | 10       | 10   | 2                    | 10        | 10   |
| 3                    | 10       | 10   | 3                    | 10        | 10   |
| 4                    | 10       | 10   | 4                    | 10        | 10   |
| 5                    |          |      | 5                    |           |      |
| 6                    |          |      | 6                    |           |      |
| 7                    |          |      | 7                    |           |      |
| 8                    |          |      | 8                    |           |      |
| 9                    |          |      | 9                    |           |      |
| 10                   |          |      | 10                   |           |      |
| 11                   |          |      | 11                   |           |      |
| 12                   |          |      | 12                   |           |      |
| 13                   |          |      | 13                   |           |      |
| 14                   |          |      | 14                   |           |      |
| 15                   |          |      | 15                   |           |      |

|              |        |        |              |        |        |
|--------------|--------|--------|--------------|--------|--------|
| Mean         | 10.000 | 10.000 | Mean         | 10.000 | 10.000 |
| Std Dev.     | 0.000  | 0.000  | Std Dev.     | 0.000  | 0.000  |
| # Replicates | 4      | 4      | # Replicates | 4      | 4      |

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

| Test Completion Date |           |      | Test Completion Date |            |      |
|----------------------|-----------|------|----------------------|------------|------|
| Replicate            | 8/17/2021 |      | Replicate            | 10/26/2021 |      |
| No.                  | Control   | TIWC | No.                  | Control    | TIWC |
| 1                    | 9         | 10   | 1                    | 9          | 10   |
| 2                    | 10        | 10   | 2                    | 10         | 10   |
| 3                    | 10        | 10   | 3                    | 10         | 9    |
| 4                    | 10        | 9    | 4                    | 10         | 9    |
| 5                    |           |      | 5                    |            |      |
| 6                    |           |      | 6                    |            |      |
| 7                    |           |      | 7                    |            |      |
| 8                    |           |      | 8                    |            |      |
| 9                    |           |      | 9                    |            |      |
| 10                   |           |      | 10                   |            |      |
| 11                   |           |      | 11                   |            |      |
| 12                   |           |      | 12                   |            |      |
| 13                   |           |      | 13                   |            |      |
| 14                   |           |      | 14                   |            |      |
| 15                   |           |      | 15                   |            |      |

|              |       |       |              |       |       |
|--------------|-------|-------|--------------|-------|-------|
| Mean         | 9.750 | 9.750 | Mean         | 9.750 | 9.500 |
| Std Dev.     | 0.500 | 0.500 | Std Dev.     | 0.500 | 0.577 |
| # Replicates | 4     | 4     | # Replicates | 4     | 4     |

|                  |        |  |                  |        |  |
|------------------|--------|--|------------------|--------|--|
| T-Test Result    | 6.7314 |  | T-Test Result    | 5.3848 |  |
| Deg. of Freedom  | 5      |  | Deg. of Freedom  | 5      |  |
| Critical T Value | 0.7267 |  | Critical T Value | 0.7267 |  |
| Pass or Fail     | PASS   |  | Pass or Fail     | PASS   |  |

| DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet |            |       |                        |         |       |  |  |  |  |
|--|------------|-------|------------------------|---------|-------|--|--|--|--|
| Type of Test   | Chronic    |       | Facility Name          |         |       |  |  |  |  |
| Species Tested   | Pimephales |       | Washington Township MA |         |       |  |  |  |  |
| Endpoint   | Growth     |       |                        |         |       |  |  |  |  |
| TIWC (decimal)   | 0.18       |       |                        |         |       |  |  |  |  |
| No. Per Replicate                                      | 10         |       | Permit No.             |         |       |  |  |  |  |
| TST b value  | 0.75       |       | PA0080225              |         |       |  |  |  |  |
| TST alpha value  | 0.25       |       |                        |         |       |  |  |  |  |
| Test Completion Date                                   |            |       |                        |         |       |  |  |  |  |
| Replicate  | 3/9/2021   |       | Replicate              |         |       |  |  |  |  |
| No.  | Control    | TIWC  | No.                    | Control | TIWC  |  |  |  |  |
| 1  | 0.332      | 0.371 | 1                      | 0.358   | 0.342 |  |  |  |  |
| 2  | 0.322      | 0.385 | 2                      | 0.385   | 0.326 |  |  |  |  |
| 3  | 0.34       | 0.388 | 3                      | 0.387   | 0.349 |  |  |  |  |
| 4  | 0.325      | 0.368 | 4                      | 0.339   | 0.348 |  |  |  |  |
| 5  |            |       | 5                      |         |       |  |  |  |  |
| 6  |            |       | 6                      |         |       |  |  |  |  |
| 7  |            |       | 7                      |         |       |  |  |  |  |
| 8  |            |       | 8                      |         |       |  |  |  |  |
| 9  |            |       | 9                      |         |       |  |  |  |  |
| 10   |            |       | 10                     |         |       |  |  |  |  |
| 11   |            |       | 11                     |         |       |  |  |  |  |
| 12   |            |       | 12                     |         |       |  |  |  |  |
| 13   |            |       | 13                     |         |       |  |  |  |  |
| 14   |            |       | 14                     |         |       |  |  |  |  |
| 15   |            |       | 15                     |         |       |  |  |  |  |
| Mean   | 0.330      | 0.373 | Mean                   | 0.362   | 0.341 |  |  |  |  |
| Std Dev.   | 0.008      | 0.010 | Std Dev.               | 0.020   | 0.011 |  |  |  |  |
| # Replicates   | 4          | 4     | # Replicates           | 4       | 4     |  |  |  |  |
| T-Test Result  | 21.0845    |       | T-Test Result          | 7.6134  |       |  |  |  |  |
| Deg. of Freedom  | 5          |       | Deg. of Freedom        | 5       |       |  |  |  |  |
| Critical T Value                                       | 0.7267     |       | Critical T Value       | 0.7267  |       |  |  |  |  |
| Pass or Fail   | PASS       |       | Pass or Fail           | PASS    |       |  |  |  |  |
| Test Completion Date                                   |            |       |                        |         |       |  |  |  |  |
| Replicate  | 8/17/2021  |       | Replicate              |         |       |  |  |  |  |
| No.  | Control    | TIWC  | No.                    | Control | TIWC  |  |  |  |  |
| 1  | 0.384      | 0.448 | 1                      | 0.218   | 0.307 |  |  |  |  |
| 2  | 0.438      | 0.409 | 2                      | 0.285   | 0.287 |  |  |  |  |
| 3  | 0.376      | 0.471 | 3                      | 0.27    | 0.281 |  |  |  |  |
| 4  | 0.409      | 0.429 | 4                      | 0.249   | 0.279 |  |  |  |  |
| 5  |            |       | 5                      |         |       |  |  |  |  |
| 6  |            |       | 6                      |         |       |  |  |  |  |
| 7  |            |       | 7                      |         |       |  |  |  |  |
| 8  |            |       | 8                      |         |       |  |  |  |  |
| 9  |            |       | 9                      |         |       |  |  |  |  |
| 10   |            |       | 10                     |         |       |  |  |  |  |
| 11   |            |       | 11                     |         |       |  |  |  |  |
| 12   |            |       | 12                     |         |       |  |  |  |  |
| 13   |            |       | 13                     |         |       |  |  |  |  |
| 14   |            |       | 14                     |         |       |  |  |  |  |
| 15   |            |       | 15                     |         |       |  |  |  |  |
| Mean   | 0.397      | 0.439 | Mean                   | 0.256   | 0.289 |  |  |  |  |
| Std Dev.   | 0.033      | 0.026 | Std Dev.               | 0.029   | 0.013 |  |  |  |  |
| # Replicates   | 4          | 4     | # Replicates           | 4       | 4     |  |  |  |  |
| T-Test Result  | 7.7885     |       | T-Test Result          | 7.6715  |       |  |  |  |  |
| Deg. of Freedom  | 5          |       | Deg. of Freedom        | 5       |       |  |  |  |  |
| Critical T Value                                       | 0.7267     |       | Critical T Value       | 0.7267  |       |  |  |  |  |
| Pass or Fail   | PASS       |       | Pass or Fail           | PASS    |       |  |  |  |  |



| DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet |              |  |               |                        |  |
|--|--------------|--|---------------|------------------------|--|
| Type of Test   | Chronic      |  | Facility Name | Washington Township MA |  |
| Species Tested   | Ceriodaphnia |  | Permit No.    | PA0080225              |  |
| Endpoint   | Survival     |  |               |                        |  |
| TIWC (decimal)   | 0.18         |  |               |                        |  |
| No. Per Replicate                                      | 1            |  |               |                        |  |
| TST b value  | 0.75         |  |               |                        |  |
| TST alpha value  | 0.2          |  |               |                        |  |

| Test Completion Date |          |      | Test Completion Date |           |      |
|----------------------|----------|------|----------------------|-----------|------|
| Replicate            | 3/9/2021 |      | Replicate            | 5/11/2011 |      |
| No.                  | Control  | TIWC | No.                  | Control   | TIWC |
| 1                    | 1        | 1    | 1                    | 1         | 1    |
| 2                    | 1        | 1    | 2                    | 1         | 1    |
| 3                    | 1        | 1    | 3                    | 1         | 1    |
| 4                    | 1        | 1    | 4                    | 1         | 1    |
| 5                    | 1        | 1    | 5                    | 1         | 1    |
| 6                    | 1        | 1    | 6                    | 1         | 1    |
| 7                    | 1        | 1    | 7                    | 1         | 1    |
| 8                    | 1        | 1    | 8                    | 1         | 1    |
| 9                    | 1        | 1    | 9                    | 1         | 1    |
| 10                   | 1        | 1    | 10                   | 1         | 1    |
| 11                   |          |      | 11                   |           |      |
| 12                   |          |      | 12                   |           |      |
| 13                   |          |      | 13                   |           |      |
| 14                   |          |      | 14                   |           |      |
| 15                   |          |      | 15                   |           |      |

|              |       |       |              |       |       |
|--------------|-------|-------|--------------|-------|-------|
| Mean         | 1.000 | 1.000 | Mean         | 1.000 | 1.000 |
| Std Dev.     | 0.000 | 0.000 | Std Dev.     | 0.000 | 0.000 |
| # Replicates | 10    | 10    | # Replicates | 10    | 10    |

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

| Test Completion Date |          |      | Test Completion Date |            |      |
|----------------------|----------|------|----------------------|------------|------|
| Replicate            | 8/1/2021 |      | Replicate            | 10/25/2021 |      |
| No.                  | Control  | TIWC | No.                  | Control    | TIWC |
| 1                    | 1        | 1    | 1                    | 1          | 1    |
| 2                    | 1        | 1    | 2                    | 1          | 1    |
| 3                    | 1        | 1    | 3                    | 1          | 1    |
| 4                    | 1        | 1    | 4                    | 1          | 1    |
| 5                    | 1        | 1    | 5                    | 1          | 1    |
| 6                    | 1        | 1    | 6                    | 1          | 1    |
| 7                    | 1        | 1    | 7                    | 1          | 1    |
| 8                    | 1        | 1    | 8                    | 1          | 1    |
| 9                    | 1        | 1    | 9                    | 1          | 1    |
| 10                   | 1        | 1    | 10                   | 1          | 1    |
| 11                   |          |      | 11                   |            |      |
| 12                   |          |      | 12                   |            |      |
| 13                   |          |      | 13                   |            |      |
| 14                   |          |      | 14                   |            |      |
| 15                   |          |      | 15                   |            |      |

|              |       |       |              |       |       |
|--------------|-------|-------|--------------|-------|-------|
| Mean         | 1.000 | 1.000 | Mean         | 1.000 | 1.000 |
| Std Dev.     | 0.000 | 0.000 | Std Dev.     | 0.000 | 0.000 |
| # Replicates | 10    | 10    | # Replicates | 10    | 10    |

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

| DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet |              |  |               |                        |  |
|--|--------------|--|---------------|------------------------|--|
| Type of Test   | Chronic      |  | Facility Name | Washington Township MA |  |
| Species Tested   | Ceriodaphnia |  | Permit No.    | PA0080225              |  |
| Endpoint   | Reproduction |  |               |                        |  |
| TIWC (decimal)   | 0.18         |  |               |                        |  |
| No. Per Replicate                                      | 1            |  |               |                        |  |
| TST b value  | 0.75         |  |               |                        |  |
| TST alpha value  | 0.2          |  |               |                        |  |

| Test Completion Date<br>3/9/2021 |         |      | Test Completion Date<br>5/11/2021 |         |      |
|----------------------------------|---------|------|-----------------------------------|---------|------|
| Replicate No.                    | Control | TIWC | Replicate No.                     | Control | TIWC |
| 1                                | 41      | 26   | 1                                 | 34      | 44   |
| 2                                | 20      | 40   | 2                                 | 35      | 32   |
| 3                                | 38      | 42   | 3                                 | 36      | 34   |
| 4                                | 32      | 35   | 4                                 | 34      | 40   |
| 5                                | 35      | 36   | 5                                 | 34      | 38   |
| 6                                | 33      | 36   | 6                                 | 33      | 40   |
| 7                                | 38      | 26   | 7                                 | 26      | 36   |
| 8                                | 34      | 38   | 8                                 | 26      | 28   |
| 9                                | 32      | 34   | 9                                 | 32      | 36   |
| 10                               | 26      | 32   | 10                                | 35      | 36   |
| 11                               |         |      | 11                                |         |      |
| 12                               |         |      | 12                                |         |      |
| 13                               |         |      | 13                                |         |      |
| 14                               |         |      | 14                                |         |      |
| 15                               |         |      | 15                                |         |      |

|                  |        |        |                  |        |        |
|------------------|--------|--------|------------------|--------|--------|
| Mean             | 32.900 | 34.500 | Mean             | 32.500 | 36.400 |
| Std Dev.         | 6.136  | 5.318  | Std Dev.         | 3.598  | 4.502  |
| # Replicates     | 10     | 10     | # Replicates     | 10     | 10     |
| T-Test Result    | 4.4178 |        | T-Test Result    | 7.2450 |        |
| Deg. of Freedom  | 17     |        | Deg. of Freedom  | 15     |        |
| Critical T Value | 0.8633 |        | Critical T Value | 0.8662 |        |
| Pass or Fail     | PASS   |        | Pass or Fail     | PASS   |        |

| Test Completion Date<br>8/17/2021 |         |      | Test Completion Date<br>10/25/2026 |         |      |
|-----------------------------------|---------|------|------------------------------------|---------|------|
| Replicate No.                     | Control | TIWC | Replicate No.                      | Control | TIWC |
| 1                                 | 28      | 28   | 1                                  | 18      | 36   |
| 2                                 | 25      | 26   | 2                                  | 36      | 33   |
| 3                                 | 24      | 28   | 3                                  | 36      | 32   |
| 4                                 | 25      | 35   | 4                                  | 43      | 35   |
| 5                                 | 24      | 26   | 5                                  | 39      | 38   |
| 6                                 | 28      | 28   | 6                                  | 28      | 41   |
| 7                                 | 20      | 30   | 7                                  | 11      | 34   |
| 8                                 | 16      | 26   | 8                                  | 34      | 45   |
| 9                                 | 24      | 32   | 9                                  | 31      | 28   |
| 10                                | 22      | 31   | 10                                 | 40      | 38   |
| 11                                |         |      | 11                                 |         |      |
| 12                                |         |      | 12                                 |         |      |
| 13                                |         |      | 13                                 |         |      |
| 14                                |         |      | 14                                 |         |      |
| 15                                |         |      | 15                                 |         |      |

|                  |        |        |                  |        |        |
|------------------|--------|--------|------------------|--------|--------|
| Mean             | 23.600 | 29.000 | Mean             | 31.600 | 36.000 |
| Std Dev.         | 3.596  | 2.981  | Std Dev.         | 10.124 | 4.807  |
| # Replicates     | 10     | 10     | # Replicates     | 10     | 10     |
| T-Test Result    | 8.8880 |        | T-Test Result    | 4.3282 |        |
| Deg. of Freedom  | 17     |        | Deg. of Freedom  | 17     |        |
| Critical T Value | 0.8633 |        | Critical T Value | 0.8633 |        |
| Pass or Fail     | PASS   |        | Pass or Fail     | PASS   |        |

### WET Summary and Evaluation

|                              |                             |
|------------------------------|-----------------------------|
| Facility Name                | Washington Township MA WWTP |
| Permit No.                   | PA0080225                   |
| Design Flow (MGD)            | 1.85                        |
| Q <sub>7-10</sub> Flow (cfs) | 9.61                        |
| PMF <sub>a</sub>             | 0.674                       |
| PMF <sub>c</sub>             | 1                           |

| Species    | Endpoint | Test Results (Pass/Fail) |           |           |           |
|------------|----------|--------------------------|-----------|-----------|-----------|
|            |          | Test Date                | Test Date | Test Date | Test Date |
| Pimephales | Survival | 3/9/21                   | 5/11/21   | 8/17/21   | 10/26/21  |
|            |          | PASS                     | PASS      | PASS      | PASS      |

| Species    | Endpoint | Test Results (Pass/Fail) |           |           |           |
|------------|----------|--------------------------|-----------|-----------|-----------|
|            |          | Test Date                | Test Date | Test Date | Test Date |
| Pimephales | Growth   | 3/9/21                   | 5/11/21   | 8/17/21   | 10/26/21  |
|            |          | PASS                     | PASS      | PASS      | PASS      |

| Species      | Endpoint | Test Results (Pass/Fail) |           |           |           |
|--------------|----------|--------------------------|-----------|-----------|-----------|
|              |          | Test Date                | Test Date | Test Date | Test Date |
| Ceriodaphnia | Survival | 3/9/21                   | 5/11/21   | 8/17/21   | 10/25/21  |
|              |          | PASS                     | PASS      | PASS      | PASS      |

| Species      | Endpoint     | Test Results (Pass/Fail) |           |           |           |
|--------------|--------------|--------------------------|-----------|-----------|-----------|
|              |              | Test Date                | Test Date | Test Date | Test Date |
| Ceriodaphnia | Reproduction | 3/9/21                   | 5/11/21   | 8/17/21   | 10/25/21  |
|              |              | PASS                     | PASS      | PASS      | PASS      |

Reasonable Potential? NO

#### Permit Recommendations

Test Type Chronic  
TIWC 23 % Effluent  
Dilution Series 6, 12, 23, 62, 100 % Effluent  
Permit Limit None  
Permit Limit Species

