Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

# NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0032760** |
| Facility Type | **Non-Municipal** | APS ID | **1152917** |
| Major / Minor | **Minor** | Authorization ID | **1553284** |

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **PA DOT Maintenance & Operations Bureau** | Facility Name | **PA DOT Rest Area 17** |
| Applicant Address | 400 North Street Floor 6 | Facility Address | Interstate 79 |
| | Harrisburg, PA 17120 | | Hadley, PA 16130 |
| Applicant Contact | Nick Sahd | Facility Contact | Nick Sahd |
| Applicant Phone | (717) 787-4457 | Facility Phone | (717) 787-4457 |
| Client ID | 189304 | Site ID | 263093 |
| Ch 94 Load Status | Not Overloaded | Municipality | Deer Creek Township |
| Connection Status | No Limitations | County | Mercer |
| Date Application Received | December 23, 2025 | EPA Waived? | Yes |
| Date Application Accepted | | If No, Reason | - |

Purpose of Application . Renewal of an NPDES Permit for an existing discharge of treated sanitary wastewater

## Summary of Review

On December 23, 2025, the Department received a renewal application for Individual Permit No. PA0032760. The facility is a rest area off I-79 that has one outfall (Outfall 001) that discharges to a drainage ditch and then to Tributary 58648 of Sandy Creek (WWF).

Act 14 notifications have been submitted and received.

The facility is currently in the eDMR system.

The last inspection was performed on November 20, 2024. No violations were noted.

There are 14 open violations in WMS for the subject Client ID (189304) as of January 13, 2026. None of the violations are associated with Rest Area 17.

Proposed Changes:

- More stringent TRC limits

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| X | | Carlee Wilson<br>Carlee Wilson / Environmental Engineering Specialist | January 15, 2026 |
| X | | Adam Olesnanik<br>Adam Olesnanik, P.E. / Environmental Engineer Manager | March 4, 2026 |

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

| | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | .0087 |
| Latitude | 41º 26' 42.77" | Longitude | -80º 9' 23.52" |
| Quad Name | Hadley | Quad Code | 070 |
| Wastewater Description: | Sewage Effluent | | |
| Receiving Waters | Unnamed Tributary to Sandy Creek (WWF) | Stream Code | 58648 |
| NHD Com ID | 100476847 | RMI | 0.97 |
| Drainage Area | 0.02 | Yield (cfs/mi$^2$) | 0.025 |
| $Q_{7-10}$ Flow (cfs) | 0.0005 | $Q_{7-10}$ Basis | USGS StreamStats |
| Elevation (ft) | 1360 | Slope (ft/ft) | - |
| Watershed No. | 16-G | Chapter 93 Class. | WWF |
| Existing Use | - | Existing Use Qualifier | - |
| Exceptions to Use | - | Exceptions to Criteria | - |
| Assessment Status | Attaining Use(s) | | |
| Cause(s) of Impairment | - | | |
| Source(s) of Impairment | - | | |
| TMDL Status | - | Name | - |

| Background/Ambient Data | | Data Source |
|---|---|---|
| pH (SU) | 7 | Default |
| Temperature (°F) | 68 | Default |
| Hardness (mg/L) | 100 | Default |
| Other: | - | - |

| | | | |
|---|---|---|---|
| Nearest Downstream Public Water Supply Intake | Aqua PA, Inc. - Emlenton | | |
| PWS Waters | Allegheny River | Flow at Intake (cfs) | 1376 |
| PWS RMI | 90.0 | Distance from Outfall (mi) | 40 |

Changes Since Last Permit Issuance: Drainage Area and $Q_{7-10}$ Flow were updated using StreamStats.

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.

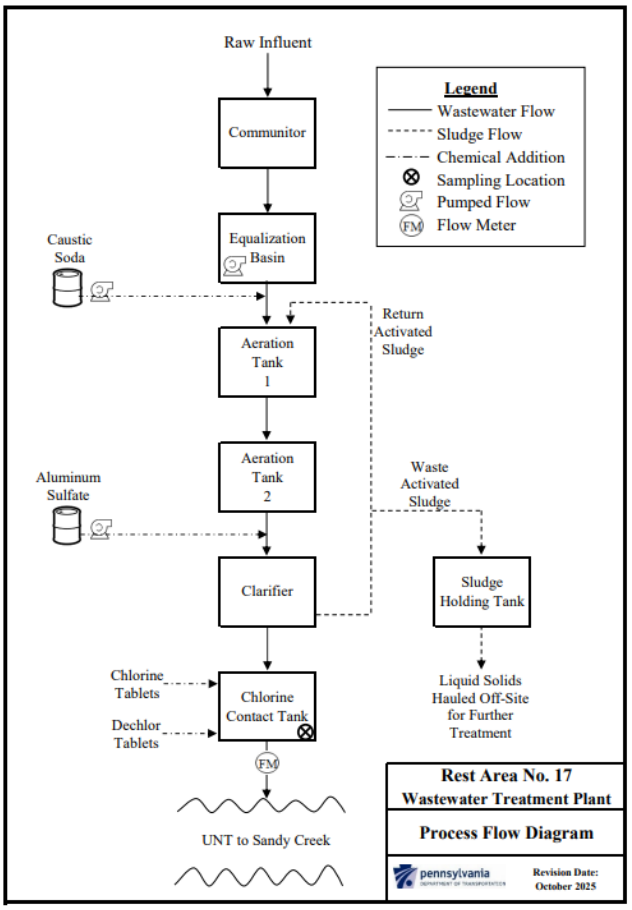
| Treatment Facility Summary | | | | |
|---|---|---|---|---|
| **Treatment Facility Name:** PA DOT - Rest Area 17 - I-79 Rest North | | | | |
| **WQM Permit No.** | **Issuance Date** | | | |
| 4317401 | May 18, 2017 | | | |
| **Waste Type** | **Degree of Treatment** | **Process Type** | **Disinfection** | **Avg Annual Flow (MGD)** |
| Sewage | Secondary | Extended Aeration | Chlorine With Dechlorination | 0.0087 |
| **Hydraulic Capacity (MGD)** | **Organic Capacity (lbs/day)** | **Load Status** | **Biosolids Treatment** | **Biosolids Use/Disposal** |
| 0.0087 | 17.5 | Not Overloaded | Aerated Sludge Holding Tank | Other WWTP |

Changes Since Last Permit Issuance: None

Previously, the facility had WQM permit No. 4372410, but it was canceled after construction of the new facility (WQM No. 4317401) was complete.

Treatment consists of (WQM Permit No. 4317401): The treatment consists of a comminutor w/ a bypass bar screen, equalization tank, (2) extended aeration tanks, final clarifier, aerated sludge holding tank, chlorine contact tank w/ chlorination/dechlorination, post-aeration and an effluent pump station.

Sludge use and disposal description and location(s): Septage is pumped and hauled off-site by a septage hauler for land application under a general permit authorized by DEP or disposal at an STP. (North and South Shenango Township WWTP)



## Compliance History

**DMR Data for Outfall 001 (from December 1, 2024, to November 30, 2025)**

| Parameter | NOV-25 | OCT-25 | SEP-25 | AUG-25 | JUL-25 | JUN-25 | MAY-25 | APR-25 | MAR-25 | FEB-25 | JAN-25 | DEC-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD) Average Monthly | 0.0017 | 0.0015 | 0.0027 | 0.0031 | 0.0032 | 0.0024 | 0.0019 | 0.0013 | 0.0015 | 0.0016 | 0.0015 | 0.0021 |
| Flow (MGD) Daily Maximum | 0.0018 | 0.0017 | 0.0029 | 0.0035 | 0.0037 | 0.0026 | 0.0023 | 0.0015 | 0.0016 | 0.0017 | 0.0016 | 0.0023 |
| pH (S.U.) Daily Minimum | 6.9 | 6.7 | 6.7 | 6.7 | 6.8 | 6.8 | 6.9 | 6.7 | 6.7 | 6.5 | 6.7 | 6.8 |
| pH (S.U.) Instantaneous Maximum | 7.4 | 7.4 | 7.4 | 7.5 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 |
| DO (mg/L) Daily Minimum | 6.8 | 6.8 | 6.8 | 6.8 | 6.9 | 6.7 | 6.7 | 6.8 | 6.7 | 6.7 | 7.0 | 6.8 |
| TRC (mg/L) Average Monthly | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| TRC (mg/L) Instantaneous Maximum | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| CBOD5 (mg/L) Average Monthly | 4.1 | 4.4 | 4.4 | 4.1 | 3.9 | 4.4 | 4.3 | 3.8 | 4.5 | 4.0 | 3.9 | 4.5 |
| CBOD5 (mg/L) Instantaneous Maximum | 4.2 | 4.8 | 4.9 | 4.6 | 3.9 | 4.7 | 4.3 | 3.8 | 4.9 | 4.6 | 3.9 | 4.6 |
| TSS (mg/L) Average Monthly | 11.0 | 10.0 | 11.0 | 10.5 | 11.5 | < 6.0 | 10.0 | 11.0 | 11.0 | 11.0 | 11.0 | 11.5 |
| TSS (mg/L) Instantaneous Maximum | 12.0 | 10.0 | 12.0 | 11.0 | 12.0 | 9.0 | 11.0 | 12.0 | 12.0 | 12.0 | 11.0 | 12.0 |
| Fecal Coliform (No./100 ml) Average Monthly | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| Fecal Coliform (No./100 ml) Instantaneous Maximum | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| E. Coli (No./100 ml) Instantaneous Maximum | | | | | | | | | | | | < 1 |
| Total Nitrogen (mg/L) Average Monthly | 26.0 | 26.2 | 25.7 | 26.0 | 25.8 | 25.1 | 26.0 | 25.8 | 26.6 | 26.5 | 26.0 | 27.0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia (mg/L) Average Monthly | 14.9 | 14.6 | 14.3 | 14.7 | 14.5 | 14.3 | 14.1 | 14.2 | 14.3 | 14.2 | 14.3 | 15.1 |
| Ammonia (mg/L) Instantaneous Maximum | 14.9 | 14.7 | 14.4 | 14.7 | 14.8 | 14.8 | 14.3 | 14.2 | 14.8 | 14.2 | 14.3 | 15.5 |
| Total Phosphorus (mg/L) Average Monthly | 1.605 | 0.820 | 0.760 | 0.755 | 0.780 | 0.910 | 0.735 | 0.760 | 0.945 | 0.885 | 0.945 | 0.705 |
| Total Phosphorus (mg/L) Instantaneous Maximum | 2.750 | 0.990 | 0.910 | 0.980 | 0.930 | 0.980 | 0.810 | 0.980 | 0.950 | 0.890 | 0.980 | 0.930 |

## Compliance History

**Effluent Violations for Outfall 001, from: January 1, 2025, To: November 30, 2025**

| Parameter | Date | SBC | DMR Value | Units | Limit Value | Units |
|---|---|---|---|---|---|---|
| Total Phosphorus | 11/30/25 | Avg Mo | 1.605 | mg/L | 1.0 | mg/L |
| Total Phosphorus | 11/30/25 | IMAX | 2.750 | mg/L | 2.0 | mg/L |

Comments: These violations are not considered to be chronic or significant.

**Table 1. Inspections of PennDOT Rest Area 17 in the Last 5 Years**

| Client ID | Site Name | Inspected Date | Inspection Type | Inspection Result | Inspector |
|---|---|---|---|---|---|
| 189304 | PA DOT REST AREA 17 | 11/20/2024 | Compliance Evaluation | No Violations Noted | CARVER, MELISSA |

**Table 2. Open Violations for subject Client ID (189304)**

| Client ID | Facility | Violation Date | Violation | Inspection Region |
|---|---|---|---|---|
| 189304 | FINDLAY | 10/23/2025 | Failure to meet underground storage tank system operational requirements | SWRO |
| 189304 | PA DOT CLINTON CNTY MAINT FAC 023 - 01 | 07/23/2025 | Failure to meet aboveground storage tank protective coating requirements | NCRO |
| 189304 | PA DOT CLINTON CNTY MAINT FAC 023 - 01 | 07/23/2025 | Failure to meet aboveground storage tank protective coating requirements | NCRO |
| 189304 | MONROE CNTY MAINT BLDG 0540 | 11/12/2025 | Failure to meet aboveground storage tank secondary and/or emergency containment requirements | NERO |
| 189304 | MONROE CNTY MAINT BLDG 0540 | 11/12/2025 | Failure to meet aboveground storage tank secondary and/or emergency containment requirements | NERO |
| 189304 | NORTHUMBERLAND CNTY MAINT BLDG 0340 | 08/19/2025 | Failure to meet performance standards for new and/or upgraded underground storage tank systems | NCRO |
| 189304 | PA DOT REST AREA 25 | 02/09/2022 | NPDES - Violation of effluent limits in Part A of permit | NWRO |
| 189304 | PA DOT REST AREA 25 | 12/13/2023 | NPDES - Violation of effluent limits in Part A of permit | NWRO |
| 189304 | PA DOT REST AREA 25 | 11/06/2025 | NPDES - Violation of effluent limits in Part A of permit | NWRO |
| 189304 | PA DOT REST AREA 26 | 02/09/2022 | NPDES - Violation of effluent limits in Part A of permit | NWRO |
| 189304 | PA DOT REST AREA 26 | 12/13/2023 | NPDES - Violation of effluent limits in Part A of permit | NWRO |
| 189304 | PA DOT REST AREA 26 | 10/31/2025 | NPDES - Violation of effluent limits in Part A of permit | NWRO |
| 189304 | PA DOT REST AREA 15 | 04/14/2025 | NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance | NWRO |
| 189304 | PA DOT REST AREA 16 - I-79 | 04/14/2025 | NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance | NWRO |

## Development of Effluent Limitations

**Outfall No.** 001 **Design Flow (MGD)** .0087
**Latitude** 41º 27' 11.24" **Longitude** -80º 9' 36.52"
**Wastewater Description:** Sewage Effluent

### Technology-Based Limitations

| Pollutant | Limit (mg/l) | SBC | Federal Regulation | State Regulation |
|---|---|---|---|---|
| $CBOD_5$ | 25 | Average Monthly | 133.102(a)(4)(i) | 92a.47(a)(1) |
| | 40 | Average Weekly | 133.102(a)(4)(ii) | 92a.47(a)(2) |
| Total Suspended Solids | 30 | Average Monthly | 133.102(b)(1) | 92a.47(a)(1) |
| | 45 | Average Weekly | 133.102(b)(2) | 92a.47(a)(2) |
| pH | 6.0 – 9.0 S.U. | Min – Max | 133.102(c) | 95.2(1) |
| Fecal Coliform (5/1 – 9/30) | 200 / 100 ml | Geo Mean | - | 92a.47(a)(4) |
| Fecal Coliform (5/1 – 9/30) | 1,000 / 100 ml | IMAX | - | 92a.47(a)(4) |
| Fecal Coliform (10/1 – 4/30) | 2,000 / 100 ml | Geo Mean | - | 92a.47(a)(5) |
| Fecal Coliform (10/1 – 4/30) | 10,000 / 100 ml | IMAX | - | 92a.47(a)(5) |
| Total Residual Chlorine | 0.5 | Average Monthly | - | 92a.48(b)(2) |
| Total Nitrogen | Report | Average Monthly | - | 92a.61 |
| Total Phosphorous | Report | Average Monthly | - | 92a.61 |
| E. Coli | Report | IMAX | - | 92a.61 |

The above limits are minimum technology-based and BPJ standards for individual sewage permits which are found in the Department's "*Establishing Effluent Limitations for Individual Sewage Permits"* document (SOP. No. BCW-PMT-033). The limits for pH are technology-based on Chapter 93.7. The limits for Total Suspended Solids, and Fecal Coliforms are technology-based on Chapter 92a.47. Monitoring for E. Coli, Total Nitrogen, and Total Phosphorus are based on Chapter 92a.61.

### Water Quality-Based Limitations

**Table 3. WQM Inputs**

| | | |
|---|---|---|
| **Dry Reach (Outfall 001)** | River Mile Index (RMI) | 2.17 |
| | Elevation (ft) | 1360 |
| | Drainage Area | 0.02 |
| | LFY | 0.025 |
| | Q7-10 Flow | 0.0005 |
| **Perennial Drainage** | River Mile Index (RMI) | 0.97 |
| | Elevation (ft) | 1275 |
| | Drainage Area | 0.9 |
| | LFY | 0.0352 |
| | Q7-10 Flow | 0.0317 |
| **Endpoint** | River Mile Index (RMI) | 0 |
| | Elevation (ft) | 1194 |
| | Drainage Area | 1.45 |
| | LFY | 0.0352 |
| | Q7-10 Flow | 0.051 |

**Table 4. WQM 7 Results**

| Parameter | Limit (mg/l) | SBC |
|---|---|---|
| CBOD5 | 25 | Average Monthly |
| | 50 | IMAX |
| NH3 - N | 16.0 | Average Monthly |
| | 32.0 | IMAX |
| DO | 4.0 | Daily Minimum |
| TRC | 0.35 | Average Monthly |
| | 1.2 | IMAX |

The parameters in Table 3 were found using google earth, StreamStats, and eMapPA. These parameters are entered into the Department's Water Quality Modeling program (WQM 7) to determine if more stringent WQBELs for CBOD5, NH3-N, and Dissolved Oxygen are necessary to protect water quality.

Since Outfall 001 discharges to a dry stream channel, a dry stream degradation analysis was performed to consider degradation of pollutants until the discharge reaches protected waters. In this evaluation, since the outputs of the perennial model (Attachment 8) equaled the inputs from the dry stream model (Attachment 7) this is indicative that the current permit limits are protective. Table 4 above displays the current limits and the limits that will be retained into this renewal.

Total Residual Chlorine is evaluated using the Department's TRC Spreadsheet. In this renewal, more stringent limits are proposed (Attachment 9) which are shown in Table 4 above. According to DMR data, the permittee demonstrates its ability to comply with these limits, so a compliance schedule will not be implemented.

**Notes**

A total phosphorus limit of 1.0 mg/l as a monthly average was implemented during the last permit renewal due to Lake Wilhelm being determined to have algae growth and eutrophication concerns that was determined by Department Biologists during the 2010 permit renewal. The limit will be retained into this renewal.

**Anti-Backsliding**

| Parameter | Effluent Limitations | | | |
|---|---|---|---|---|
| | Concentrations (mg/L) | | | |
| | Minimum | Average Monthly | Maximum | Instant. Maximum |
| Flow (MGD) | XXX | Report | Report Daily Max | XXX |
| pH (S.U.) | 6.0 Daily Min | XXX | XXX | 9.0 |
| DO | 4.0 Daily Min | XXX | XXX | XXX |
| TRC | XXX | 0.5 | XXX | 1.4 |
| CBOD5 | XXX | 25.0 | XXX | 50.0 |
| TSS | XXX | 30.0 | XXX | 60.0 |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | 2000 | XXX | 10000 |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | 200 | XXX | 1000 |
| E. Coli (No./100 ml) | XXX | XXX | XXX | Report |
| Total Nitrogen | XXX | Report | XXX | XXX |
| Ammonia Nov 1 - Apr 30 | XXX | 25.0 | XXX | 50.0 |
| Ammonia May 1 - Oct 31 | XXX | 16.0 | XXX | 32.0 |
| Total Phosphorus | XXX | 1.0 | XXX | 2.0 |

Comments: More stringent limits are proposed for the highlighted items above. All other permit limitations, monitoring requirements, and conditions will be retained into the next permit.

## Proposed Effluent Limitations and Monitoring Requirements

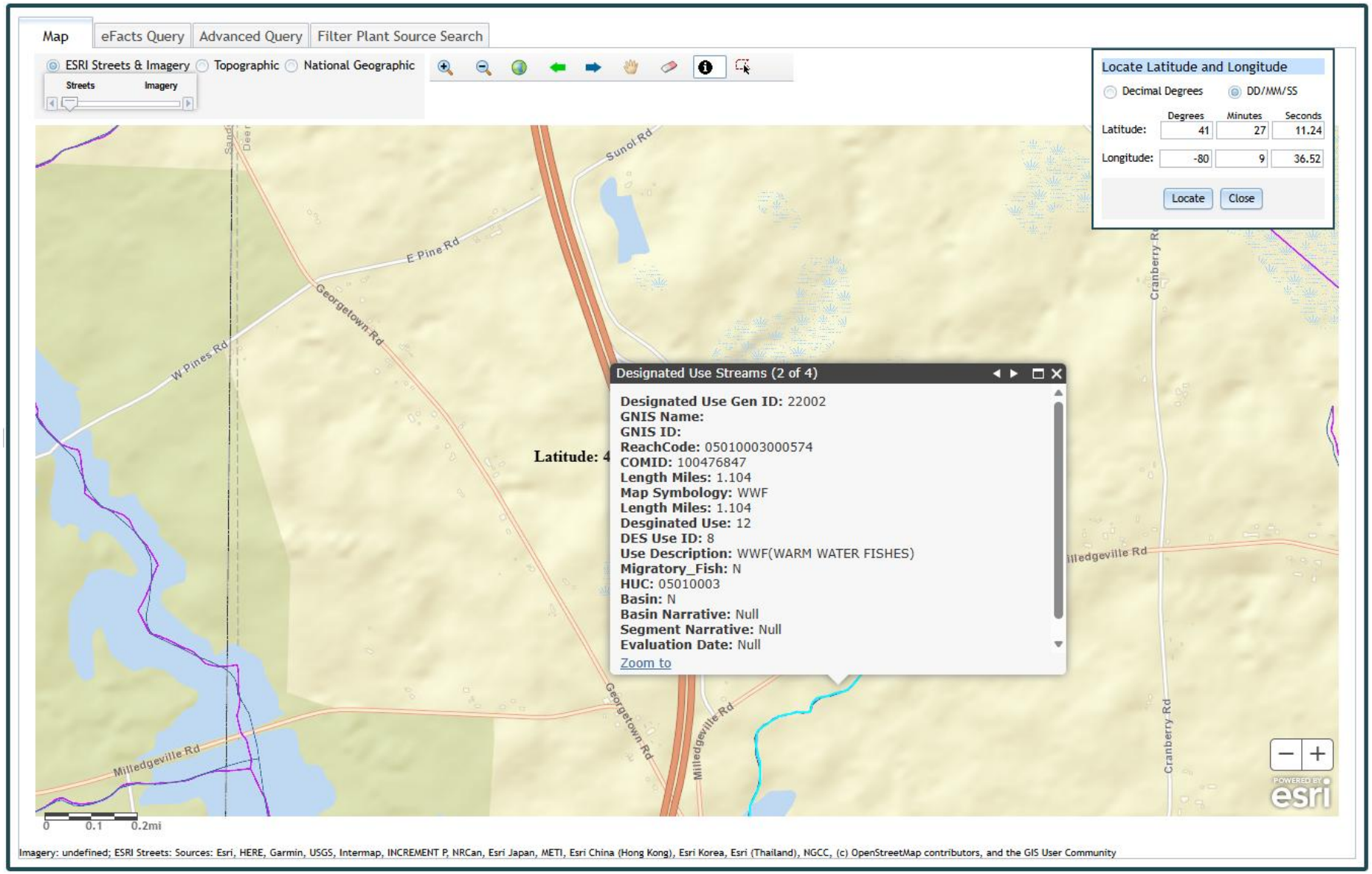
The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants).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

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

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) (1) | | Concentrations (mg/L) | | | | Minimum (2) Measurement Frequency | Required Sample Type |
| | Average Monthly | Average Weekly | Minimum | Average Monthly | Maximum | Instant. Maximum | | |
| Flow (MGD) | Report | Report Daily Max | XXX | XXX | XXX | XXX | 1/week | Measured |
| pH (S.U.) | XXX | XXX | 6.0 Daily Min | XXX | XXX | 9.0 | 1/day | Grab |
| DO | XXX | XXX | 4.0 Daily Min | XXX | XXX | XXX | 1/day | Grab |
| TRC | XXX | XXX | XXX | 0.35 | XXX | 1.2 | 1/day | Grab |
| CBOD5 | XXX | XXX | XXX | 25.0 | XXX | 50.0 | 2/month | Grab |
| TSS | XXX | XXX | XXX | 30.0 | XXX | 60.0 | 2/month | Grab |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2000 | XXX | 10000 | 2/month | Grab |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 | XXX | 1000 | 2/month | Grab |
| E. Coli (No./100 ml) | XXX | XXX | XXX | XXX | XXX | Report | 1/year | Grab |
| Total Nitrogen | XXX | XXX | XXX | Report | XXX | XXX | 2/month | Grab |
| Ammonia Nov 1 - Apr 30 | XXX | XXX | XXX | 25.0 | XXX | 50.0 | 2/month | Grab |
| Ammonia May 1 - Oct 31 | XXX | XXX | XXX | 16.0 | XXX | 32.0 | 2/month | Grab |
| Total Phosphorus | XXX | XXX | XXX | 1.0 | XXX | 2.0 | 2/month | Grab |

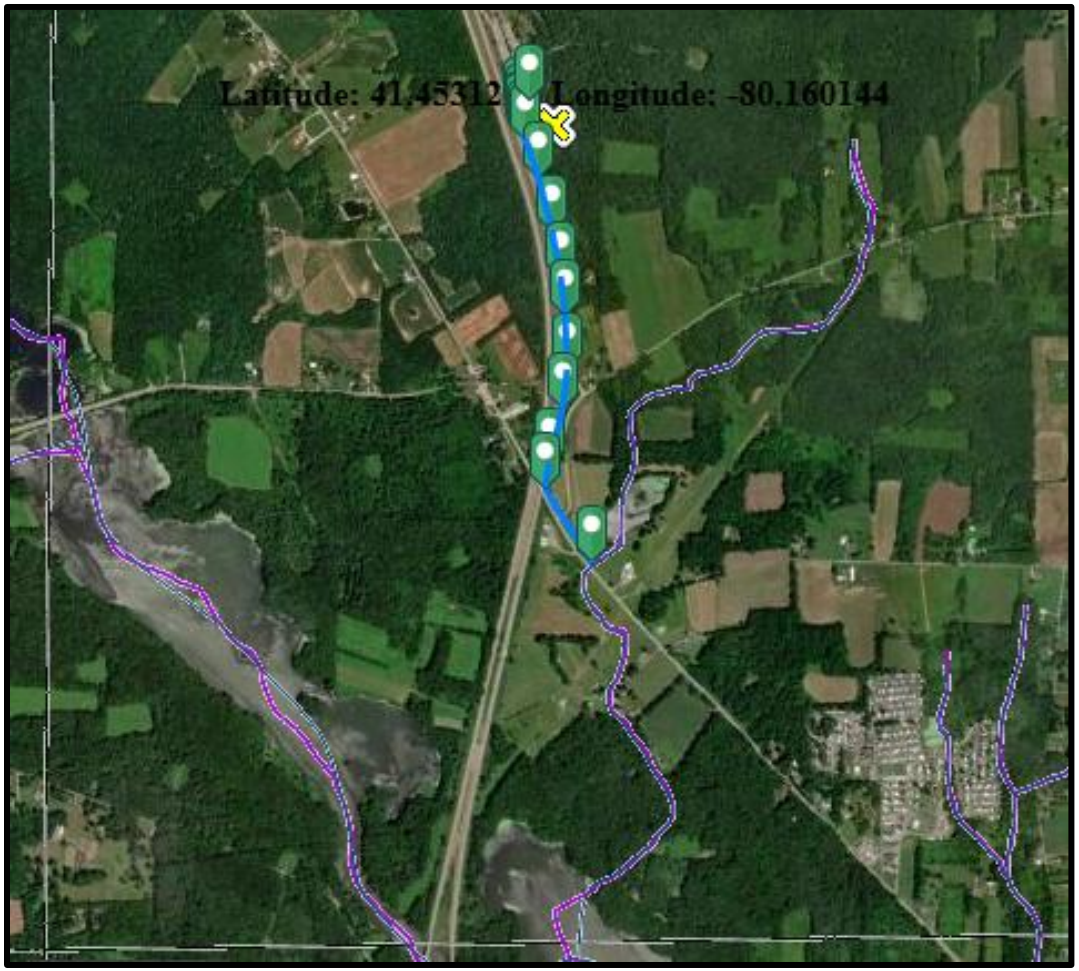
Compliance Sampling Location: Outfall 001 – after disinfection

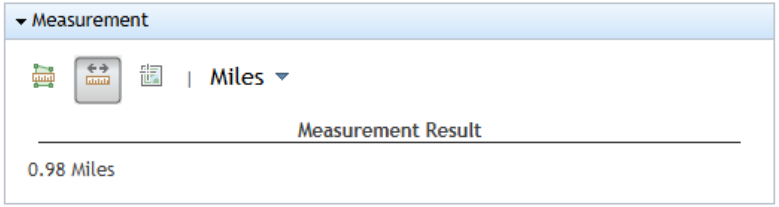
**Attachment 1**
**eMapPA – Receiving Stream Designation**



**Attachment 2**
**Google Earth – Aerial Site View**

**Attachment 3**
**Distance from Outfall to Perennial Conditions**

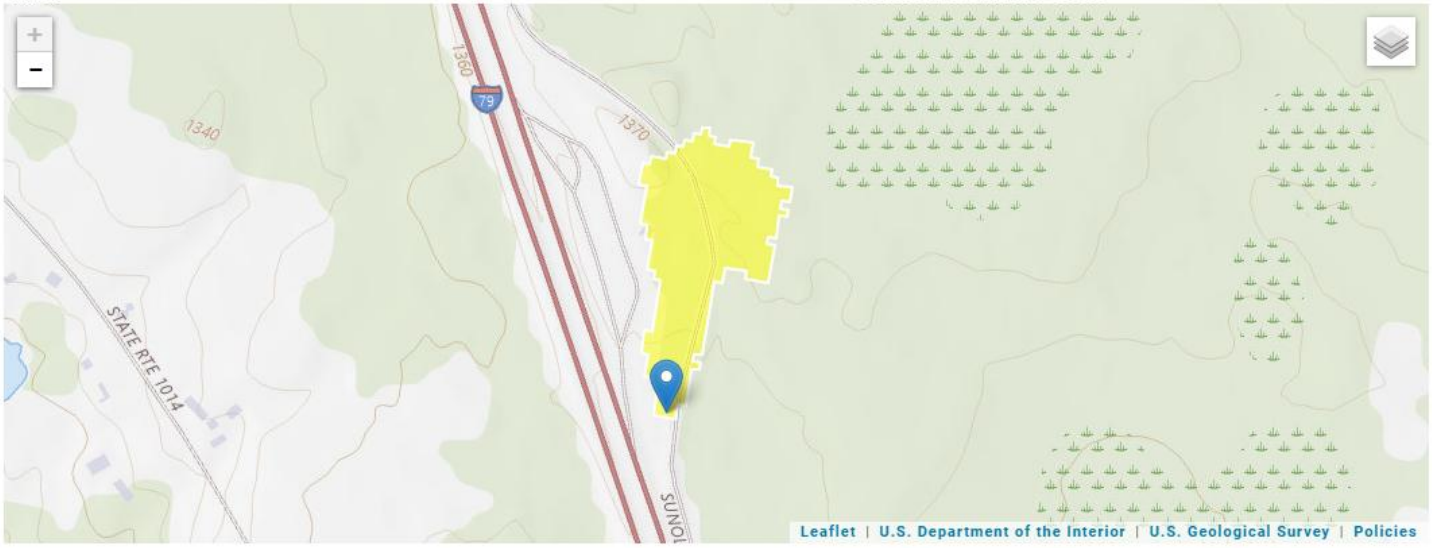


**Attachment 4**
**StreamStats Report (Outfall 001)**

# StreamStats Report

| | |
|---|---|
| **Region ID:** | PA |
| **Clicked Point (Latitude, Longitude):** | 41.45337, -80.16108 |
| **Time:** | 2026-01-13 11:16:16 -0500 |




## Low-Flow Statistics

### Low-Flow Statistics Parameters [Low Flow Region 3]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 0.02 | square miles | 2.33 | 1720 |
| ELEV | Mean Basin Elevation | 1390.9 | feet | 898 | 2700 |
| PRECIP | Mean Annual Precipitation | 43 | inches | 38.7 | 47.9 |

### Low-Flow Statistics Disclaimers [Low Flow Region 3]

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

### Low-Flow Statistics Flow Report [Low Flow Region 3]

| Statistic | Value | Unit |
|---|---|---|
| 7 Day 2 Year Low Flow | 0.0017 | ft^3/s |
| 30 Day 2 Year Low Flow | 0.00273 | ft^3/s |
| 7 Day 10 Year Low Flow | 0.000531 | ft^3/s |
| 30 Day 10 Year Low Flow | 0.00086 | ft^3/s |
| 90 Day 10 Year Low Flow | 0.00136 | ft^3/s |

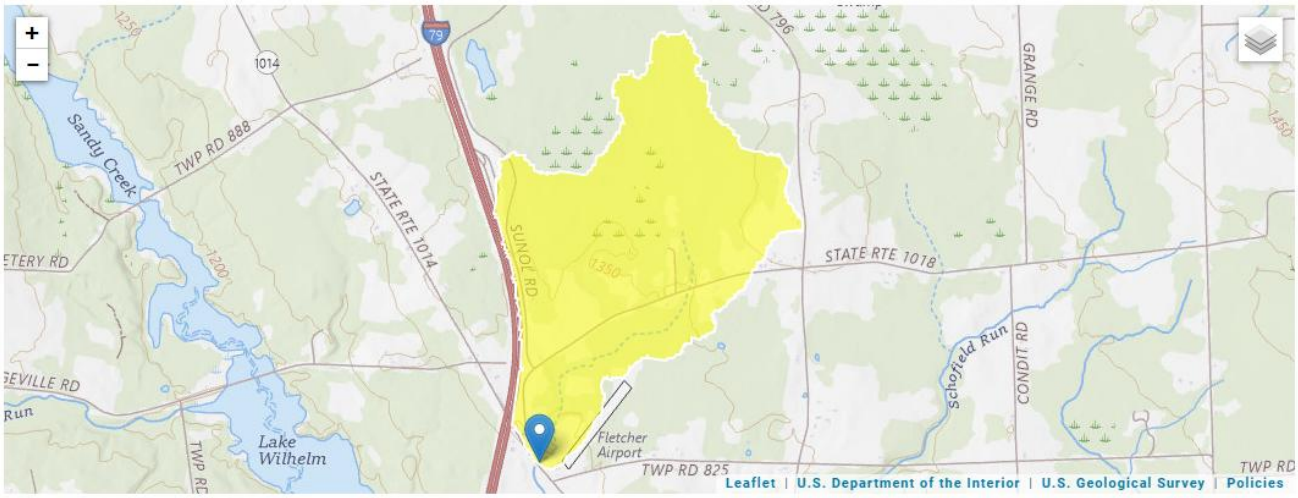
*Low-Flow Statistics Citations*

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p.

**Attachment 5**
**StreamStats Report (Perennial Start point)**

## StreamStats Report

| | |
|---|---|
| **Region ID:** | PA |
| **Clicked Point (Latitude, Longitude):** | 41.44036, -80.15865 |
| **Time:** | 2026-01-13 11:10:43 -0500 |




### Low-Flow Statistics

#### Low-Flow Statistics Parameters [Low Flow Region 3]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 0.9 | square miles | 2.33 | 1720 |
| ELEV | Mean Basin Elevation | 1386.8 | feet | 898 | 2700 |
| PRECIP | Mean Annual Precipitation | 43 | inches | 38.7 | 47.9 |

#### Low-Flow Statistics Disclaimers [Low Flow Region 3]

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

#### Low-Flow Statistics Flow Report [Low Flow Region 3]

| Statistic | Value | Unit |
|---|---|---|
| 7 Day 2 Year Low Flow | 0.0826 | ft^3/s |
| 30 Day 2 Year Low Flow | 0.124 | ft^3/s |
| 7 Day 10 Year Low Flow | 0.0317 | ft^3/s |
| 30 Day 10 Year Low Flow | 0.0474 | ft^3/s |
| 90 Day 10 Year Low Flow | 0.0718 | ft^3/s |

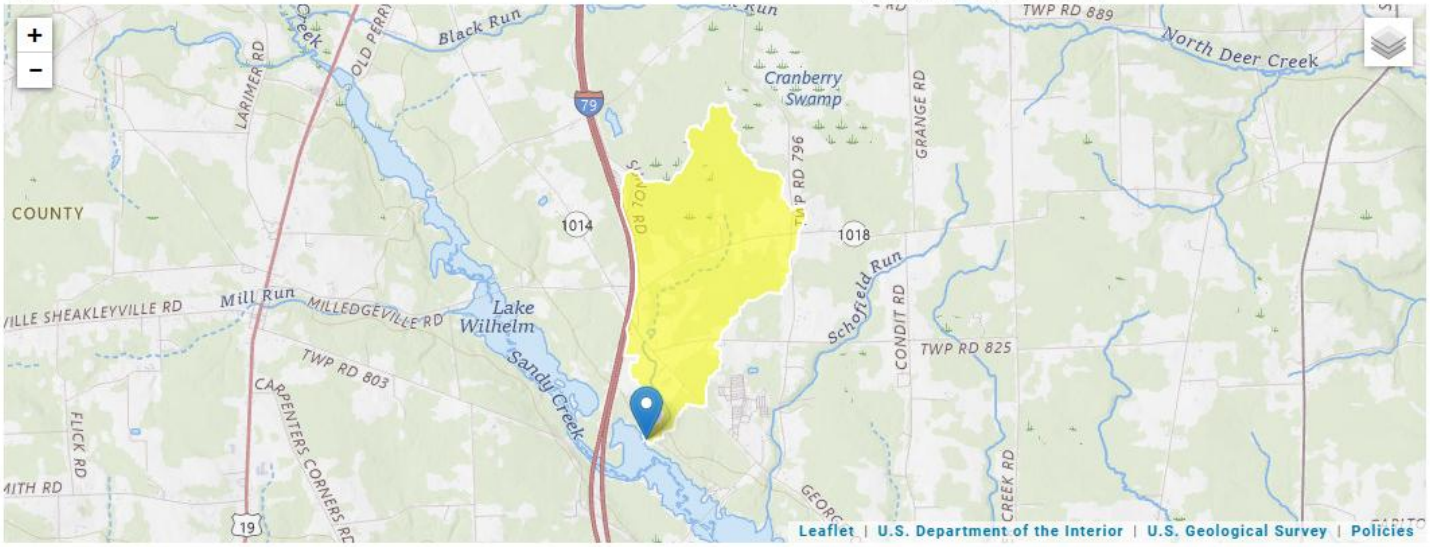
*Low-Flow Statistics Citations*

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p.

**Attachment 6**
**StreamStats Report (Endpoint)**

## StreamStats Report

| | |
|---|---|
| **Region ID:** | PA |
| **Clicked Point (Latitude, Longitude):** | 41.43093, -80.15870 |
| **Time:** | 2026-01-13 11:22:05 -0500 |




### Low-Flow Statistics

#### Low-Flow Statistics Parameters [Low Flow Region 3]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 1.45 | square miles | 2.33 | 1720 |
| ELEV | Mean Basin Elevation | 1369.1 | feet | 898 | 2700 |
| PRECIP | Mean Annual Precipitation | 42.7 | inches | 38.7 | 47.9 |

#### Low-Flow Statistics Disclaimers [Low Flow Region 3]

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

#### Low-Flow Statistics Flow Report [Low Flow Region 3]

| Statistic | Value | Unit |
|---|---|---|
| 7 Day 2 Year Low Flow | 0.131 | ft^3/s |
| 30 Day 2 Year Low Flow | 0.195 | ft^3/s |
| 7 Day 10 Year Low Flow | 0.051 | ft^3/s |
| 30 Day 10 Year Low Flow | 0.0759 | ft^3/s |
| 90 Day 10 Year Low Flow | 0.115 | ft^3/s |

*Low-Flow Statistics Citations*

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p.

**Attachment 7**
**WQM 7 (Dry Reach)**

## Input Data WQM 7.0

| SWP Basin | Stream Code | Stream Name | RMI | Elevation (ft) | Drainage Area (sq mi) | Slope (ft/ft) | PWS Withdrawal (mgd) | Apply FC |
|---|---|---|---|---|---|---|---|---|
| 16G | 58648 | Trib 58648 to Sandy Creek | **2.170** | 1360.00 | 0.02 | 0.00000 | 0.00 | ☑ |

**Stream Data**

| Design Cond. | LFY (cfsm) | Trib Flow (cfs) | Stream Flow (cfs) | Rch Trav Time (days) | Rch Velocity (fps) | WD Ratio | Rch Width (ft) | Rch Depth (ft) | Tributary Temp (°C) | Tributary pH | Stream Temp (°C) | Stream pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Q7-10 | 0.025 | 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 Disc Flow (mgd) | Permitted Disc Flow (mgd) | Design Disc Flow (mgd) | Reserve Factor | Disc Temp (°C) | Disc pH |
|---|---|---|---|---|---|---|---|
| Greenville Auth | PA0032760 | 0.0087 | 0.0087 | 0.0087 | 0.000 | 25.00 | 7.00 |

**Parameter Data**

| Parameter Name | Disc Conc (mg/L) | Trib Conc (mg/L) | Stream Conc (mg/L) | Fate Coef (1/days) |
|---|---|---|---|---|
| CBOD5 | 25.00 | 2.00 | 0.00 | 1.50 |
| Dissolved Oxygen | 4.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 25.00 | 0.00 | 0.00 | 0.70 |

## Input Data WQM 7.0

| SWP Basin | Stream Code | Stream Name | RMI | Elevation (ft) | Drainage Area (sq mi) | Slope (ft/ft) | PWS Withdrawal (mgd) | Apply FC |
|---|---|---|---|---|---|---|---|---|
| 16G | 58648 | Trib 58648 to Sandy Creek | **0.970** | 1275.00 | 0.90 | 0.00000 | 0.00 | ☑ |

**Stream Data**

| Design Cond. | LFY (cfsm) | Trib Flow (cfs) | Stream Flow (cfs) | Rch Trav Time (days) | Rch Velocity (fps) | WD Ratio | Rch Width (ft) | Rch Depth (ft) | Tributary Temp (°C) | Tributary pH | Stream Temp (°C) | Stream pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Q7-10 | 0.035 | 0.03 | 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 Disc Flow (mgd) | Permitted Disc Flow (mgd) | Design Disc Flow (mgd) | Reserve Factor | Disc Temp (°C) | Disc pH |
|---|---|---|---|---|---|---|---|
| | | 0.0000 | 0.0000 | 0.0000 | 0.000 | 25.00 | 7.00 |

**Parameter Data**

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

# WQM 7.0 Hydrodynamic Outputs

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 16G | 58648 | Trib 58648 to Sandy Creek |

| RMI | Stream Flow (cfs) | PWS With (cfs) | Net Stream Flow (cfs) | Disc Analysis Flow (cfs) | Reach Slope (ft/ft) | Depth (ft) | Width (ft) | W/D Ratio | Velocity (fps) | Reach Trav Time (days) | Analysis Temp (°C) | Analysis pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q7-10 Flow** | | | | | | | | | | | | |
| 2.170 | 0.00 | 0.00 | 0.00 | .0135 | 0.01342 | .312 | .91 | 2.9 | 0.05 | 1.487 | 24.82 | 7.00 |
| **Q1-10 Flow** | | | | | | | | | | | | |
| 2.170 | 0.00 | 0.00 | 0.00 | .0135 | 0.01342 | NA | NA | NA | 0.05 | 1.498 | 24.88 | 7.00 |
| **Q30-10 Flow** | | | | | | | | | | | | |
| 2.170 | 0.00 | 0.00 | 0.00 | .0135 | 0.01342 | NA | NA | NA | 0.05 | 1.477 | 24.76 | 7.00 |

# WQM 7.0 Modeling Specifications

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

# WQM 7.0 Wasteload Allocations

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 16G | 58648 | Trib 58648 to Sandy Creek |

## NH3-N Acute Allocations

| RMI | Discharge Name | Baseline Criterion (mg/L) | Baseline WLA (mg/L) | Multiple Criterion (mg/L) | Multiple WLA (mg/L) | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|
| 2.170 | Greenville Auth | 11.18 | 11.45 | 11.18 | 11.45 | 0 | 0 |

## NH3-N Chronic Allocations

| RMI | Discharge Name | Baseline Criterion (mg/L) | Baseline WLA (mg/L) | Multiple Criterion (mg/L) | Multiple WLA (mg/L) | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|
| 2.170 | Greenville Auth | 1.39 | 1.46 | 1.39 | 1.46 | 0 | 0 |

## Dissolved Oxygen Allocations

| RMI | Discharge Name | CBOD5 | | NH3-N | | Dissolved Oxygen | | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|---|---|
| | | Baseline (mg/L) | Multiple (mg/L) | Baseline (mg/L) | Multiple (mg/L) | Baseline (mg/L) | Multiple (mg/L) | | |
| 2.17 | Greenville Auth | 25 | 25 | 1.46 | 1.46 | 5 | 5 | 0 | 0 |

# WQM 7.0 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 16G | 58648 | Trib 58648 to Sandy Creek |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 2.170 | 0.009 | 24.821 | 7.000 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 0.906 | 0.312 | 2.899 | 0.049 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 24.18 | 1.343 | 1.41 | 1.014 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 5.116 | 27.853 | Owens | 5 |
| **Reach Travel Time (days)** | | | |
| 1.487 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.149 | 18.84 | 1.21 | 6.37 |
| 0.297 | 14.69 | 1.04 | 6.81 |
| 0.446 | 11.45 | 0.89 | 7.15 |
| 0.595 | 8.92 | 0.77 | 7.41 |
| 0.744 | 6.95 | 0.66 | 7.56 |
| 0.892 | 5.42 | 0.57 | 7.56 |
| 1.041 | 4.22 | 0.49 | 7.56 |
| 1.190 | 3.29 | 0.42 | 7.56 |
| 1.339 | 2.57 | 0.36 | 7.56 |
| 1.487 | 2.00 | 0.31 | 7.56 |

# WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 16G | 58648 | Trib 58648 to Sandy 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) |
|---|---|---|---|---|---|---|---|
| 2.170 | Greenville Auth | PA0032760 | 0.009 | CBOD5 | 25 | | |
| | | | | NH3-N | 1.46 | 2.92 | |
| | | | | Dissolved Oxygen | | | 5 |

**Attachment 8**
**WQM 7 (Perennial Stream)**

## Input Data WQM 7.0

| | SWP Basin | Stream Code | Stream Name | RMI | Elevation (ft) | Drainage Area (sq mi) | Slope (ft/ft) | PWS Withdrawal (mgd) | Apply FC |
|---|---|---|---|---|---|---|---|---|---|
| | 16G | 58648 | Trib 58648 to Sandy Creek | **0.970** | 1275.00 | 0.90 | 0.00000 | 0.00 | ☑ |

**Stream Data**

| Design Cond. | LFY (cfsm) | Trib Flow (cfs) | Stream Flow (cfs) | Rch Trav Time (days) | Rch Velocity (fps) | WD Ratio | Rch Width (ft) | Rch Depth (ft) | Tributary Temp (°C) | Tributary pH | Stream Temp (°C) | Stream pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Q7-10 | 0.035 | 0.03 | 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 Disc Flow (mgd) | Permitted Disc Flow (mgd) | Design Disc Flow (mgd) | Reserve Factor | Disc Temp (°C) | Disc pH |
|---|---|---|---|---|---|---|---|
| Greenville Auth | PA0032760 | 0.0087 | 0.0087 | 0.0087 | 0.000 | 25.00 | 7.00 |

**Parameter Data**

| Parameter Name | Disc Conc (mg/L) | Trib Conc (mg/L) | Stream Conc (mg/L) | Fate Coef (1/days) |
|---|---|---|---|---|
| CBOD5 | 2.00 | 2.00 | 0.00 | 1.50 |
| Dissolved Oxygen | 7.56 | 8.24 | 0.00 | 0.00 |
| NH3-N | 0.31 | 0.00 | 0.00 | 0.70 |

## Input Data WQM 7.0

| SWP Basin | Stream Code | Stream Name | RMI | Elevation (ft) | Drainage Area (sq mi) | Slope (ft/ft) | PWS Withdrawal (mgd) | Apply FC |
|---|---|---|---|---|---|---|---|---|
| 16G | 58648 | Trib 58648 to Sandy Creek | **0.000** | 1194.00 | 1.45 | 0.00000 | 0.00 | ☑ |

**Stream Data**

| Design Cond. | LFY (cfsm) | Trib Flow (cfs) | Stream Flow (cfs) | Rch Trav Time (days) | Rch Velocity (fps) | WD Ratio | Rch Width (ft) | Rch Depth (ft) | Tributary Temp (°C) | Tributary pH | Stream Temp (°C) | Stream pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Q7-10 | 0.035 | 0.05 | 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 Disc Flow (mgd) | Permitted Disc Flow (mgd) | Design Disc Flow (mgd) | Reserve Factor | Disc Temp (°C) | Disc pH |
|---|---|---|---|---|---|---|---|
| | | 0.0000 | 0.0000 | 0.0000 | 0.000 | 25.00 | 7.00 |

**Parameter Data**

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

## WQM 7.0 Hydrodynamic Outputs

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 16G | 58648 | Trib 58648 to Sandy Creek |

| RMI | Stream Flow (cfs) | PWS With (cfs) | Net Stream Flow (cfs) | Disc Analysis Flow (cfs) | Reach Slope (ft/ft) | Depth (ft) | Width (ft) | W/D Ratio | Velocity (fps) | Reach Trav Time (days) | Analysis Temp (°C) | Analysis pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q7-10 Flow** | | | | | | | | | | | | |
| 0.970 | 0.03 | 0.00 | 0.03 | .0135 | 0.01582 | .306 | 3.53 | 11.55 | 0.04 | 1.420 | 21.49 | 7.00 |
| **Q1-10 Flow** | | | | | | | | | | | | |
| 0.970 | 0.02 | 0.00 | 0.02 | .0135 | 0.01582 | NA | NA | NA | 0.04 | 1.671 | 21.99 | 7.00 |
| **Q30-10 Flow** | | | | | | | | | | | | |
| 0.970 | 0.04 | 0.00 | 0.04 | .0135 | 0.01582 | NA | NA | NA | 0.05 | 1.252 | 21.19 | 7.00 |

# WQM 7.0 Modeling Specifications

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

# WQM 7.0 Wasteload Allocations

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 16G | 58648 | Trib 58648 to Sandy Creek |

## NH3-N Acute Allocations

| RMI | Discharge Name | Baseline Criterion (mg/L) | Baseline WLA (mg/L) | Multiple Criterion (mg/L) | Multiple WLA (mg/L) | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|
| 0.970 | Greenville Auth | 14.21 | .62 | 14.21 | .62 | 0 | 0 |

## NH3-N Chronic Allocations

| RMI | Discharge Name | Baseline Criterion (mg/L) | Baseline WLA (mg/L) | Multiple Criterion (mg/L) | Multiple WLA (mg/L) | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|
| 0.970 | Greenville Auth | 1.75 | .31 | 1.75 | .31 | 0 | 0 |

## Dissolved Oxygen Allocations

| RMI | Discharge Name | CBOD5 | | NH3-N | | Dissolved Oxygen | | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|---|---|
| | | Baseline (mg/L) | Multiple (mg/L) | Baseline (mg/L) | Multiple (mg/L) | Baseline (mg/L) | Multiple (mg/L) | | |
| 0.97 | Greenville Auth | 2 | 2 | .31 | .31 | 7.56 | 7.56 | 0 | 0 |

# WQM 7.0 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 16G | 58648 | Trib 58648 to Sandy Creek |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 0.970 | 0.009 | 21.490 | 7.000 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 3.534 | 0.306 | 11.548 | 0.042 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 2.00 | 0.000 | 0.09 | 0.785 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 8.039 | 23.929 | Owens | 5 |
| **Reach Travel Time (days)** | | | |
| 1.420 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.142 | 2.00 | 0.08 | 8.02 |
| 0.284 | 2.00 | 0.07 | 8.02 |
| 0.426 | 2.00 | 0.07 | 8.02 |
| 0.568 | 2.00 | 0.06 | 8.02 |
| 0.710 | 2.00 | 0.05 | 8.02 |
| 0.852 | 2.00 | 0.05 | 8.02 |
| 0.994 | 2.00 | 0.04 | 8.02 |
| 1.136 | 2.00 | 0.04 | 8.02 |
| 1.278 | 2.00 | 0.03 | 8.02 |
| 1.420 | 2.00 | 0.03 | 8.02 |

# WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 16G | 58648 | Trib 58648 to Sandy 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) |
|---|---|---|---|---|---|---|---|
| 0.970 | Greenville Auth | PA0032760 | 0.009 | CBOD5 | 2 | | |
| | | | | NH3-N | 0.31 | 0.62 | |
| | | | | Dissolved Oxygen | | | 7.56 |

All the above outputs are equal to the highlighted inputs found in the dry stream model, so the current permit limits are protective. Therefore, more stringent limits are not proposed in this renewal.

**Attachment 9**
**TRC Spreadsheet**

## TRC EVALUATION

| | | | |
|---|---|---|---|
| 0.0317 | = Q stream (cfs) | 0.5 | = CV Daily |
| 0.0087 | = Q discharge (MGD) | 0.5 | = CV Hourly |
| 30 | = no. samples | 1 | = AFC_Partial Mix Factor |
| 0.3 | = Chlorine Demand of Stream | 1 | = CFC_Partial Mix Factor |
| 0 | = Chlorine Demand of Discharge | 15 | = AFC_Criteria Compliance Time (min) |
| 0.5 | = BAT/BPJ Value | 720 | = CFC_Criteria Compliance Time (min) |
| | = %Factor of Safety (FOS) | | =Decay Coefficient (K) |

| Source | Reference | AFC Calculations | | Reference | CFC Calculations | |
|---|---|---|---|---|---|---|
| TRC | 1.3.2.iii | WLA afc = | 0.770 | 1.3.2.iii | WLA cfc = | 0.744 |
| PENTOXSD TRG | 5.1a | LTAMULT afc = | 0.373 | 5.1c | LTAMULT cfc = | 0.581 |
| PENTOXSD TRG | 5.1b | LTA_afc= | 0.287 | 5.1d | LTA_cfc = | 0.432 |

| Source | | Effluent Limit Calculations | | |
|---|---|---|---|---|
| PENTOXSD TRG | 5.1f | AML MULT = | 1.231 | |
| PENTOXSD TRG | 5.1g | AVG MON LIMIT (mg/l) = | 0.353 | AFC |
| | | INST MAX LIMIT (mg/l) = | 1.156 | |

| | |
|---|---|
| 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)** |

| Tools and References Used to Develop Permit | |
|---|---|
| | |
| ☒ | WQM for Windows Model (see Attachment 7 & 8) |
| ☒ | TRC Model Spreadsheet (see Attachment **9**) |
| ☒ | Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97. |
| ☒ | SOP: Establishing Effluent Limitations for Individual Sewage Permits |