pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

# NPDES PERMIT FACT SHEET
# INDIVIDUAL SEWAGE

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **NPDES: PA0082147 WQM:3686420 T3** |
| Facility Type | **Non-Municipal** | APS ID | **1030471** |
| Major / Minor | **Minor** | Authorization ID | **1339699** |

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Graystone Community LLC** | Facility Name | **Holtwood MHP** |
| Applicant Address | PO Box 358 1069 Iron Bridge Road | Facility Address | 1971 Holtwood Road |
| | Mount Joy, PA 17552-0358 | | Holtwood, PA 17532-9733 |
| Applicant Contact | Timothy Kreider | Facility Contact | Timothy Kreider |
| Applicant Phone | (717) 406-3925 | Facility Phone | (717) 406-3925 |
| Client ID | 360479 | Site ID | 238555 |
| Ch 94 Load Status | Not Overloaded | Municipality | Martic Township |
| Connection Status | No Limitations | County | Lancaster |
| Date Application Received | January 19, 2021 | EPA Waived? | Yes |
| Date Application Accepted | January 22, 2021 | If No, Reason | |

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

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| X | | Nicholas Hong, P.E. / Environmental Engineer<br><br>Nick Hong (via electronic signature) | January 22, 2021 |
| | | Daniel W. Martin, P.E. / Environmental Engineer Manager | |
| | | Maria Bebenek, P.E. / Environmental Program Manager | |

**Summary of Review**

The application submitted by the applicant requests a NPDES renewal permit for the Holtwood MHP located at 1971 Holtwood Road, Holtwood, PA in Lancaster County, municipality of Martic Township. The existing permit became effective on March 1, 2014 and expired on February 28, 2019. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on August 31, 2018. The corresponding WQM to this NPDES is 368420-T3.

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

The subject facility is a 0.015 MGD hydraulic design flow treatment facility. The applicant does not anticipate any proposed upgrades to the treatment facility in the next five years. The NPDES application has been processed as a Minor Sewage Facility (Level 1) due to the type of sewage and the design flow rate for the facility. The applicant disclosed the Act 14 requirement to Lancaster County Commissioners and Martic Township Supervisors and the notice was received by the parties on August 24, 2018 and August 28, 2018. A planning approval letter was not necessary as the facility is neither new or expanding.

Utilizing the DEP's web-based Emap-PA/StreamStats information system, the receiving waters has been determined to be an UNT to Susquehanna River. Since the receiving waters is a small stream, it does not appear on Emap. However, it does appear on StreamStats The Susquehanna River is approximately 0.5 miles from the facility. The receiving water information was based upon the Susquehanna River.

The sequence of receiving streams that the UNT to Susquehanna River discharges into are the Susquehanna River which eventually drains into the Chesapeake Bay. The subject site is subject to the Chesapeake Bay implementation requirements. The receiving water has protected water usage for warm water fishes (WWF) and migratory fishes (MF). No Class A Wild Trout fisheries are impacted by this discharge. The absence of high quality and/or exceptional value surface waters removes the need for an additional evaluation of anti-degradation requirements.

The Susquehanna River is a Category 2 and 5 stream listed in the 2020 Integrated List of All Waters (formerly 303d Listed Streams). The receiving stream is attaining and supports recreational purposes. This stream is also an impaired stream for fish consumption due to polychlorinated biphenyls from an unknown source. The receiving waters is not subject to a total maximum daily load (TMDL) plan to improve water quality in the subject facility's watershed.

The existing permit and proposed permit differ as follows:

- **There are no changes to the monitoring frequency or effluent limits.**

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

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

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

## 1.0 Applicant

### 1.1 General Information

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

| | |
|---|---|
| Facility Name: | Holtwood MHP |
| NPDES Permit # | PA0082147 |
| Physical Address: | 1971 Holtwood Road<br>Holtwood, PA |
| Mailing Address: | PO Box 506; 1069 Iron Bridge Road<br>Mount Joy, PA 17522-0358 |
| Contact: | Tim Kreider<br>Owner / Operator<br>Tim.kreider@waterqualitypa.com<br>717.406.3925<br>717.808.7021 Cell |
| Consultant: | Terrence Kline (tkline@klineengineeringpc.com)<br>Kline Engineering<br>449 Cameron Street<br>Marysville, PA 17020 |

### 1.2 Permit History

Description of Facility

The receiving stream originates from a farm pond and an adjacent spring house. Evidence of a high groundwater table and testimony from local residents indicated that the stream was perennial. The stream was observed to be a few inches deep and one to two feet wide. In 1985, before the discharge existed there were numerous planarians and about 50 feet downstream the aquatic community changed to numerous caddis larvae. No other specimens were noticed when turning rocks. The stream bed changed from a yellowish brown sediment deposit (resembling iron deposits) to (within 100 to 200 feet) a sandy, rocky typical mountain stream appearance. The stream's steep slope indicates fast recovery capabilities with a high reaeration rate. The geology in the area was of the schist formation type.

On April 7, 1993, the site was reinspected after the plant had been in operation for several years. The conditions were generally the same as those which existed pre-discharge except that 50 feet below the outfall only a few caddis larvae were found in addition to some midges and one stone fly. Upstream the stream still contained only planarians with midges and snails.

In August 1996, an aquatic survey was conducted on this stream to document months of inadequate treatment due to poor operation. The survey observed that about 200 feet of stream was covered with sewage sludge. Aquatic life was smothered. Enforcement actions and new operators brought the treatment plant back to acceptable operations by the summer of 1997.

In March 2003, an aquatic survey was conducted to follow-up on the findings of the 1996 survey. The survey showed that the stream was free of sludge and appeared to be normal but the aquatic life was lacking or non-existent. Possible causes were thought to be the extremely dry summer of 2002 or possible chlorine impacts.

(History abstracted from Fact Sheet dated for November 27, 2013)

## 2.0 Treatment Facility Summary

### 2.1.1 Site location

The physical address for the facility is 1971 Holtwood Road, Holtwood, PA.

A topographical and an aerial photograph of the facility are depicted as Figure 1 and Figure 2.

Figure 1: Topographical map of the subject facility

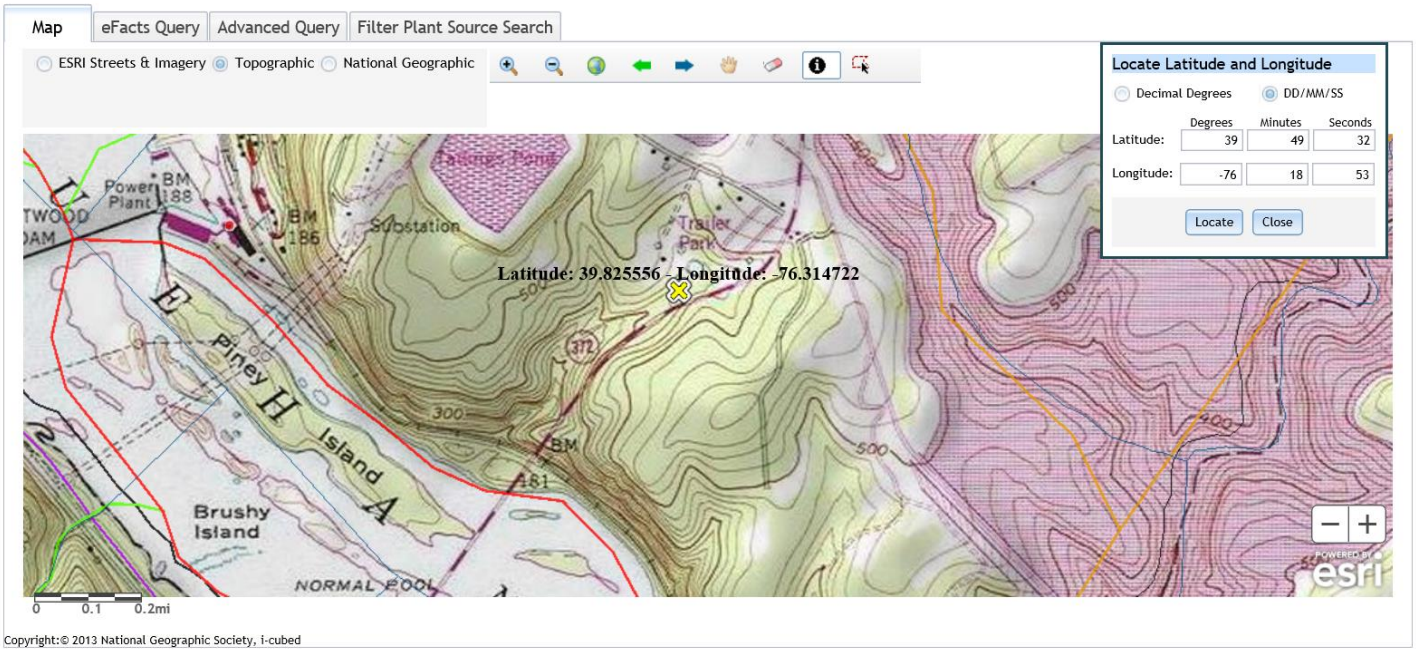
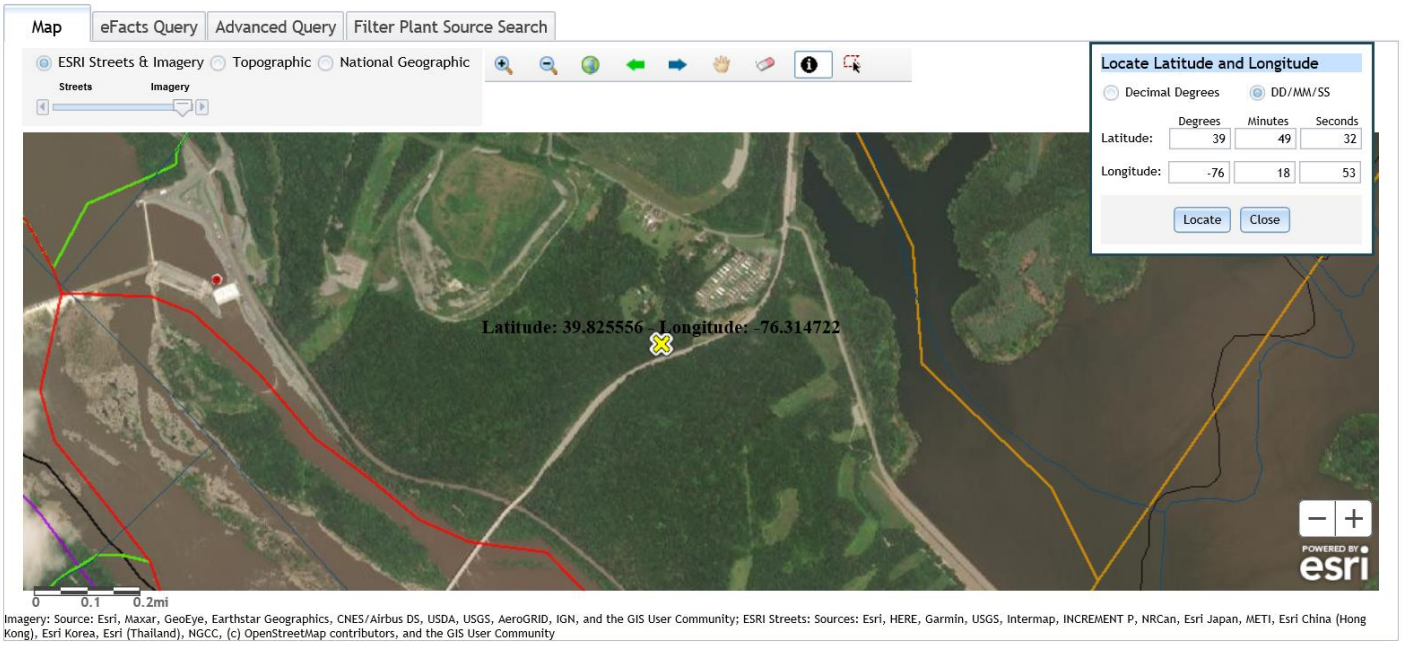



Figure 2: Aerial Photograph of the subject facility



### 2.1.2 Sources of Wastewater/Stormwater

Wastewater is generated from the mobile home park. No industrial/commercial contributions are suspected.

### 2.2 Description of Wastewater Treatment Process

The subject facility is a 0.015 MGD hydraulic design flow facility. The subject facility treats wastewater using a grease trap, a comminutor, an equalization tank, an aeration tank, a clarifier, a chlorine contact tank for disinfection prior to discharge through the outfall. The facility is being evaluated for flow, pH, dissolved oxygen, TRC, CBOD5, TSS, fecal coliform, nitrogen species, and phosphorus. The existing permits limits for the facility is summarized in Section 2.4.

The treatment process is summarized in the table.

| Treatment Facility Summary | | | | |
|---|---|---|---|---|
| **Treatment Facility Name:** Holtwood MHP | | | | |
| **Waste Type** | **Degree of Treatment** | **Process Type** | **Disinfection** | **Avg Annual Flow (MGD)** |
| Sewage | Secondary | Activated Sludge | Hypochlorite | 0.015 |
| | | | | |
| **Hydraulic Capacity (MGD)** | **Organic Capacity (lbs/day)** | **Load Status** | **Biosolids Treatment** | **Biosolids Use/Disposal** |
| 0.015 | | Not Overloaded | | |

### 2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

| | | | |
|---|---|---|---|
| **Outfall No.** | 001 | **Design Flow (MGD)** | .015 |
| **Latitude** | 39º 49' 32.00" | **Longitude** | -76º 18' 53.00" |
| **Wastewater Description:** | Sewage Effluent | | |

### 2.3.1 Operational Considerations- Chemical Additives

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

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

- Soda ash for pH control
- Aluminum sulfate for phosphorus reduction
- Chlorine for disinfection

## 2.4 Existing NPDES Permits Limits

The existing NPDES permit limits are summarized in the table.

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

**I. A. For Outfall** 001 , **Latitude** 39° 49' 32" , **Longitude** 76° 18' 53" , **River Mile Index** 0.79 , **Stream Code** NA (to 06685)
**Receiving Waters:** UNT Susquehanna River
**Type of Effluent:** Sewage

1. The permittee is authorized to discharge during the period from March 1, 2014 through February 28, 2019.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) [1] | | Concentrations (mg/L) | | | | Minimum [2] Measurement Frequency | Required Sample Type |
| | Average Monthly | Total Annual | Minimum | Average Monthly | | Instant. Maximum | | |
| Flow (MGD) | Report | Report Daily Max | XXX | XXX | XXX | XXX | Continuous | Measured |
| pH (S.U.) | XXX | XXX | 6.0 | XXX | XXX | 9.0 | 1/day | Grab |
| Dissolved Oxygen | XXX | XXX | 5.0 | XXX | XXX | XXX | 1/day | Grab |
| Total Residual Chlorine | XXX | XXX | XXX | 0.21 | XXX | 0.69 | 1/day | Grab |
| CBOD5 | XXX | XXX | XXX | 25 | XXX | 50 | 2/month | 8-Hr Composite |
| Total Suspended Solids | XXX | XXX | XXX | 30 | XXX | 60 | 2/month | 8-Hr Composite |
| Fecal Coliform (CFU/100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1,000 | 2/month | Grab |
| Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2,000 Geo Mean | XXX | 10,000 | 2/month | Grab |
| Ammonia-Nitrogen May 1 - Oct 31 | XXX | XXX | XXX | 3.5 | XXX | 7.0 | 2/month | 8-Hr Composite |
| Ammonia-Nitrogen Nov 1 - Apr 30 | XXX | XXX | XXX | 10.5 | XXX | 21 | 2/month | 8-Hr Composite |

**Outfall 001, Continued (from March 1, 2014 through February 28, 2019)**

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) [1] | | Concentrations (mg/L) | | | | Minimum [2] Measurement Frequency | Required Sample Type |
| | Average Monthly | Total Annual | Minimum | Average Monthly | | Instant. Maximum | | |
| Total Kjeldahl Nitrogen (lbs/year) | XXX | Report | XXX | Report Annl Avg | XXX | XXX | 1/year | 8-Hr Composite |
| Nitrate-Nitrite as N (lbs/year) | XXX | Report | XXX | Report Annl Avg | XXX | XXX | 1/year | 8-Hr Composite |
| Total Nitrogen (lbs/year) | XXX | Report | XXX | Report Annl Avg | XXX | XXX | 1/year | Calculation |
| Total Phosphorus | XXX | XXX | XXX | 2.0 | XXX | 4.0 | 2/month | 8-Hr Composite |
| Total Phosphorus | Report Total Mo | Report | XXX | XXX | XXX | XXX | 2/month | Calculation |

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

at discharge from facility

## 3.0 Facility NPDES Compliance History

### 3.1 Summary of Inspections

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

The DEP inspector noted the following during the inspection.

02/16/2017:

- There was nothing significant to report.

03/06/2018:

- There was nothing significant to report.

### 3.2 Summary of DMR Data

A review of approximately 1-year of DMR data shows that the monthly average flow data for the facility at the design capacity of the treatment system. The maximum average flow data for the DMR reviewed was 0.005 MGD. The design capacity of the treatment system is 0.015 MGD.

The off-site laboratory used for the analysis of the parameters was ALS Environmental located at 34 Dogwood Lane, Middlletown, PA 17057.

**DMR Data for Outfall 001 (from December 1, 2019 to November 30, 2020)**

| Parameter | NOV-20 | OCT-20 | SEP-20 | AUG-20 | JUL-20 | JUN-20 | MAY-20 | APR-20 | MAR-20 | FEB-20 | JAN-20 | DEC-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD) Average Monthly | 0.004 | 0.004 | 0.005 | 0.004 | 0.005 | 0.005 | 0.005 | 0.005 | 0.004 | 0.005 | 0.005 | 0.004 |
| Flow (MGD) Daily Maximum | 0.006 | 0.005 | 0.006 | 0.009 | 0.008 | 0.006 | 0.007 | 0.009 | 0.009 | 0.007 | 0.01 | 0.008 |
| pH (S.U.) Minimum | 7.0 | 7.2 | 7.7 | 7.6 | 7.5 | 7.4 | 7.3 | 7.0 | 7.1 | 7.2 | 6.9 | 6.9 |
| pH (S.U.) Maximum | 7.9 | 8.2 | 7.9 | 8.1 | 8.1 | 8.1 | 7.8 | 7.6 | 7.8 | 7.8 | 7.7 | 7.8 |
| DO (mg/L) Minimum | 9.4 | 8.1 | 8.0 | 7.6 | 7.4 | 8.1 | 8.7 | 9.1 | 10.4 | 10.2 | 9.7 | 9.4 |
| TRC (mg/L) Average Monthly | 0.15 | 0.14 | 0.16 | 0.15 | 0.17 | 0.17 | 0.13 | 0.16 | 0.16 | 0.16 | 0.15 | 0.17 |
| TRC (mg/L) Instantaneous Maximum | 0.29 | 0.26 | 0.25 | 0.21 | 0.40 | 0.25 | 0.20 | 0.26 | 0.21 | 0.24 | 0.20 | 0.24 |
| CBOD5 (mg/L) Average Monthly | < 2.0 | < 2.5 | < 2.5 | 3.4 | 2.5 | < 2.0 | 3.3 | 3.3 | 3.4 | < 2.5 | 4.5 | 3.1 |
| TSS (mg/L) Average Monthly | < 5.0 | < 5.0 | < 5.0 | < 5.5 | < 5 | < 5.0 | < 5.5 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.5 |
| Fecal Coliform (CFU/100 ml) Geometric Mean | < 1 | 5 | < 1 | < 1 | 4 | < 1 | < 1 | < 1 | < 1 | < 1 | 1 | < 2 |
| Fecal Coliform (CFU/100 ml) Instantaneous Maximum | 1 | 13 | < 1 | 2 | 4 | < 1 | 1 | 1 | < 1 | < 1 | 2 | 3 |
| Nitrate-Nitrite (lbs/year) Total Annual | | | | | | | | | | | | < 730 |
| Nitrate-Nitrite (mg/L) Annual Average | | | | | | | | | | | | < 53.1 |
| Total Nitrogen (lbs/year) Total Annual | | | | | | | | | | | | < 730 |
| Total Nitrogen (mg/L) Annual Average | | | | | | | | | | | | < 54.1 |
| Ammonia (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 |
| TKN (lbs/year) Total Annual | | | | | | | | | | | | < 15 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TKN (mg/L)<br>Annual Average | | | | | | | | | | | | < 1 |
| Total Phosphorus (lbs/mo)<br>Total Monthly | 0.4 | 0.5 | 0.9 | 0.7 | 0.9 | 1 | 0.7 | 0.7 | 0.6 | 0.6 | 0.5 | 0.7 |
| Total Phosphorus (mg/L)<br>Average Monthly | 0.4 | 0.6 | 0.8 | 0.8 | 0.9 | 1.0 | 0.7 | 0.7 | 0.5 | 0.5 | 0.5 | 0.7 |
| Total Phosphorus (lbs)<br>Total Annual | | | | | | | | | | | | 10 |

## 3.3 Non-Compliance

### 3.3.1 Non-Compliance- NPDES Effluent

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

From the DMR data beginning in March 1, 2014 to January 11, 2021, there were no observed effluent non-compliances.

### 3.3.2 Non-Compliance- Enforcement Actions

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

Beginning on March 1, 2014 to January 11, 2021, there were no observed enforcement actions.

## 3.4 Summary of Biosolids Disposal

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

| 2020 | | | |
|---|---|---|---|
| **Sewage Sludge / Biosolids Production Information** | | | |
| | | | |
| Hauled Off-Site | | | |
| Date (YEAR) | Gallons | % Solids | Dry Tons |
| January | 0 | 0 | 0 |
| February | 0 | 0 | 0 |
| March | 6000 | 1.4 | 0.35 |
| April | 0 | 0 | 0 |
| May | 0 | 0 | 0 |
| June | 3500 | 1.4 | 0.204 |
| July | 0 | 0 | 0 |
| August | 3500 | 1.4 | 0.204 |
| September | 0 | 0 | 0 |
| October | 0 | 0 | 0 |
| November | 6000 | 1.4 | 0.35 |
| | | | |
| Notes: | | | |
| Sewage sludge/biosolids disposed at Manheim Township WWTP, Lancaster, PA (PA20893) and at LASA, Lancaster, PA (PA42269) | | | |

## 3.5 Open Violations

No open violations existed as of January 2021.

## 4.0 Receiving Waters and Water Supply Information Detail Summary

### 4.1 Receiving Waters

The sequence of receiving streams that the UNT to Susquehanna River discharges into are the Susquehanna River which eventually drains into the Chesapeake Bay.

**4.2 Public Water Supply (PWS) Intake**

The closest PWS to the subject facility is Peach Bottom Power Station (PWS ID #7670905) located approximately 7 miles downstream of the subject facility on the Susquehanna River. Based upon the distance and the flow rate of the facility, the PWS should not be impacted.

**4.3 Class A Wild Trout Streams**

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

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

**4.4 2020 Integrated List of All Waters (303d Listed Streams):**

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

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

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

**The receiving waters is listed in the 2020 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 and 5 and waterbody. The receiving stream is attaining and supports recreational purposes. This stream is also an impaired stream for fish consumption due to polychlorinated biphenyls from an unknown source. The designated use has been classified as protected waters for warm water fishes (WWF) and migratory fishes (MF).**

**4.5 Low Flow Stream Conditions**

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

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

The closest WQN station to the subject facility is the Susquehanna River station at Marietta, PA (WQN201). This WQN station is located approximately 19 miles upstream of the subject facility.

The closest gauge station to the subject facility is the Susquehanna River station at Marietta, PA (USGS station number 1576000). This gauge station is located approximately 21 miles upstream of the subject facility.

For WQM modeling, default values for pH and stream water temperature data were used.

The low flow yield and the Q710 for the subject facility was researched extensively in the November 27, 2013 Fact Sheet. StreamStats was run on the entire watershed of UNT Susquehanna Rive with a resulting low flow yield of 0.20 $ft^3/s/mi^2$.

The drainage area for the facility obtained from StreamStats in January 2021 was 0.14 $mi^2$. This drainage area was very similar to the drainage area of 0.16 $mi^2$ used for the November 27, 2013 Fact Sheet. The previous drainage area of 0.16 $mi^2$ was used for modeling for consistency purposes. This give a Q710 of 0.032 $ft^3/s$.

The Q110 of 0.64 $ft^3/s$ and Q3010 of 1.36 $ft^3/s$ were abstracted from the November 2013 Fact Sheet.

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

| | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | .015 |
| Latitude | 39Âº 49' 49.56" | Longitude | -76Âº 18' 25.32" |
| Quad Name | | Quad Code | |
| Wastewater Description: | Sewage Effluent | | |

| | | | |
|---|---|---|---|
| Receiving Waters | Muddy Run (TSF) | Stream Code | Not available (to 06685) |
| NHD Com ID | 57470643 | RMI | 0.52 |
| Drainage Area | 0.16 (prior Fact Sheet) | Yield (cfs/mi$^2$) | 0.20 |
| $Q_{7-10}$ Flow (cfs) | 0.032 | $Q_{7-10}$ Basis | StreamStats |
| Elevation (ft) | 417 | Slope (ft/ft) | |
| Watershed No. | 7-K | Chapter 93 Class. | WWF/ MF |
| Existing Use | Same as Chapter 93 class. | Existing Use Qualifier | |
| Exceptions to Use | | Exceptions to Criteria | |
| Assessment Status | Not Assessed | | |
| Cause(s) of Impairment | Not applicable | | |
| Source(s) of Impairment | Not applicable | | |
| TMDL Status | Not applicable | Name | |

| Background/Ambient Data | | Data Source |
|---|---|---|
| pH (SU) | 7.0 | Default value |
| Temperature (°C) | 25 | Default value |
| Hardness (mg/L) | | |
| Other: | | |

| | | | |
|---|---|---|---|
| Nearest Downstream Public Water Supply Intake | | Peach Bottom Power Station | |
| PWS Waters | Susquehanna River | Flow at Intake (cfs) | |
| PWS RMI | 18.4 | Distance from Outfall (mi) | 7 |

## 5.0: Overview of Presiding Water Quality Standards

### 5.1 General

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

### 5.2.1 Technology-Based Limitations

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

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

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

### 5.3 Water Quality-Based Limitations

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

Determination of WQBEL is calculated by spreadsheet analysis or by a computer modeling program developed by DEP. DEP permit engineers utilize the following computing programs for WQBEL permit limitations: (1) MS Excel worksheet for Total Residual Chorine (TRC); (2) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen Version 1.0 (WQM Model) and (3) PENTOXSD using DEP Toxics Management Spreadsheet for Toxics pollutants.

#### 5.3.1 Water Quality Modeling 7.0

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

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

Four types of limits may be recommended. The limits are

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

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

The input values utilized for the modeling are summarized in the table which can be found in Attachment B.

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

### 5.3.2 PENTOXSD Modeling

The facility is not subject to PENTOXSD.

### 5.3.3 Whole Effluent Toxicity (WET)

The facility is not subject to WET.

## 5.4 Total Maximum Daily Loading (TMDL)

#### 5.4.1 TMDL

The goal of the Clean Water Act (CWA), which governs water pollution, is to ensure that all of the Nation's waters are clean and healthy enough to support aquatic life and recreation. To achieve this goal, the CWA created programs designed to regulate and reduce the amount of pollution entering United States waters. Section 303(d) of the CWA requires states to assess their waterbodies to identify those not meeting water quality standards. If a waterbody is not meeting standards, it is listed as impaired and reported to the U.S. Environmental Protection Agency. The state then develops a plan to clean up

the impaired waterbody. This plan includes the development of a Total Maximum Daily Load (TMDL) for the pollutant(s) that were found to be the cause of the water quality violations. A Total Maximum Daily Load (TMDL) calculates the maximum amount of a specific pollutant that a waterbody can receive and still meet water quality standards.

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

## 5.4.1.1 Local TMDL

The subject facility does not discharge into a local TMDL.

### 5.4.1.2 Chesapeake Bay TMDL Requirement

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

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

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

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

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

Phase 3 WIP provides an update on Chesapeake Bay TMDL implementation activities for point sources and DEP's current implementation strategy for wastewater. The latest revision of the supplement was December 17, 2019.

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

- Sector A- significant sewage dischargers;
- Sector B- significant industrial waste (IW) dischargers;
- Sector C- non-significant dischargers (both sewage and IW facilities); and
- Sector D- combined sewer overflows (CSOs).

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

Based upon the supplement the subject facility has been categorized as a Sector C discharger. The supplement defines Sector C non-significant discharger that includes sewage facilities (Phase 4 facilities: ≥ 0.2 MGD and < 0.4 MGD and Phase 5 facilities: > 0.002 MGD and < 0.2 MGD), small flow/single residence sewage treatment facilities (≤ 0.002 MGD), and non-significant IW facilities, all of which may be covered by statewide General Permits or may have individual NPDES permits.

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

For Phase 5 sewage facilities with individual permits (average annual design flow on August 29, 2005 > 0.002 MGD and < 0.2 MGD), DEP will issue individual permits with monitoring and reporting for TN and TP throughout the permit term at a frequency no less than annually, unless 1) the facility has already conducted at least two years of nutrient monitoring and 2) a summary of the monitoring results are included in the next permit's fact sheet. If, however, Phase 5 facilities choose to expand, the renewed or amended permits will contain Cap Loads based on the lesser of a) existing TN/TP concentrations at current design average annual flow or b) 7,306 lbs/yr TN and 974 lbs/yr TP.

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

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

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

For the Chesapeake Bay wasteload implementation plan, this facility is subject to Sector C monitoring requirements. Monitoring for nitrogen shall be at least 1x/yr. Phosphorus monitoring was required in prior permits and shall continue due to anti-backsliding. With the required 2x/mo sampling, phosphorus will satisfy monitoring requirements for Chesapeake Bay.

## 5.5 Anti-Degradation Requirement

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

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

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

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

## 5.6 Anti-Backsliding

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

## 6.0 NPDES Parameter Details

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

The reader will find in this section:

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

## 6.1 Recommended Monitoring Requirements and Effluent Limitations

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

### 6.1.1 Conventional Pollutants and Disinfection

| Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection<br>Holtwood MHP, PA0082147 | | | |
|---|---|---|---|
| **Parameter** | **Permit Limitation Required by[1]:** | **Recommendation** | |
| **pH (S.U.)** | TBEL | Monitoring: | The monitoring frequency shall be daily as a grab sample (Table 6-3). |
| | | Effluent Limit: | Effluent limits may range from pH = 6.0 to 9.0 |
| | | Rationale: | The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 95.2(1). |
| **Dissolved Oxygen** | BPJ | Monitoring: | The monitoring frequency shall be daily as a grab sample (Table 6-3). |
| | | Effluent Limit: | Effluent limits shall be greater than 5.0 mg/l. |
| | | Rationale: | The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by best professional judgement. |
| **CBOD** | TBEL | Monitoring: | The monitoring frequency shall be 2x/month as an 8-hr composite sample (Table 6-3). |
| | | Effluent Limit: | Effluent limits shall not exceed 25 mg/l as an average monthly. |
| | | Rationale: | The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(1). WQM modeling indicates that the TBEL is more stringent than the WQBEL. Thus, the permit limit is confined to TBEL. |
| **TSS** | TBEL | Monitoring: | The monitoring frequency shall be 2x/mo as an 8-hr composite sample (Table 6-3). |
| | | Effluent Limit: | Effluent limits shall not exceed 30 mg/l as an average monthly. |
| | | Rationale: | The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(1). While there is no WQM modeling for this parameter, the permit limit for TSS is generally assigned similar effluent limits as CBOD or BOD. Since the TBEL is more stringent than TBEL, TBEL will apply. |
| **TRC** | WQBEL | Monitoring: | The monitoring frequency shall be on a daily basis as a grab sample (Table 6-3). |
| | | Effluent Limit: | The average monthly limit should not exceed 0.21 mg/l and/or 0.69 mg/l as an instantaneous maximum. |
| | | Rationale: Chlorine in both combined (chloramine) and free form is extremely toxic to freshwater fish and other forms of aquatic life (Implementation Guidance Total Residual Chlorine 1). The TRC effluent limitations to be imposed on a discharger shall be the more stringent of either the WQBEL or TBEL requirements and shall be expressed in the NPDES permit as an average monthly and instantaneous maximum effluent concentration (Implementation Guidance Total Residual Chlorine 4).<br>Based on the stream flow rate (lowest 7-day flow rate in 10 years) and the design flow rate of the subject facility calculated by the TRC Evaluation worksheet, the WQBEL is more stringent than the TBEL.<br>The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by TRC Evaluation worksheet | |
| **Fecal Coliform** | TBEL | Monitoring: | The monitoring frequency shall be 2x/month as a grab sample (Table 6-3). |
| | | Effluent Limit: | Summer effluent limits shall not exceed 200 No./100 mL as a geometric mean. Winter effluent limits shall not exceed 2000 No./100 mL as a geometric mean. |
| | | Rationale: | The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(4) and 92a.47(a)(5). |
| **Notes:** | | | |
| 1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other | | | |
| 2 Monitoring frequency based on flow rate of 0.015 MGD. | | | |
| 3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97 | | | |
| 4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002) | | | |
| 5 Phase 2 Watershed Implementation Plan Wastewater Supplement, Revised September 6, 2017 | | | |

### 6.1.2 Nitrogen Species and Phosphorus

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

**Holtwood MHP, PA0082147**

| Parameter | Permit Limitation Required by[1]: | Recommendation | |
|---|---|---|---|
| **Ammonia-Nitrogen** | WQBEL | Monitoring: | The monitoring frequency shall be 2x/mo as an 8-hr composite sample |
| | | Effluent Limit: | During the months of May 1 to October 31, effluent limits shall not exceed 3.5 mg/l as an average monthly. During the months of November 1 to April 30, effluent limits shall not exceed 10.5 mg/l as an average monthly. |
| | | Rationale: | Water quality modeling recommends effluents limits |
| **Nitrate-Nitrite as N** | Chesapeake Bay TMDL | Monitoring: | The monitoring frequency shall be 1x/yr as an 8-hr composite sample |
| | | Effluent Limit: | No effluent requirements. |
| | | Rationale: | Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/yr. |
| **Total Nitrogen** | Chesapeake Bay TMDL | Monitoring: | The monitoring frequency shall be 1x/yr as an 8-hr composite sample |
| | | Effluent Limit: | No effluent requirements. |
| | | Rationale: | Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/yr. |
| **TKN** | Chesapeake Bay TMDL | Monitoring: | The monitoring frequency shall be 1x/yr as an 8-hr composite sample |
| | | Effluent Limit: | No effluent requirements. |
| | | Rationale: | Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/yr. |
| **Total Phosphorus** | Anti-Backsliding | Monitoring: | The monitoring frequency shall be 2x/mo as an 8-hr composite sample |
| | | Effluent Limit: | Effluent limits shall not exceed 2.0 mg/l as an average monthly. |
| | | Rationale: | Due to antibacksliding regulations, the current phosphorus limit shall continue to the proposed permit |
| **Notes:** | | | |

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

2 Monitoring frequency based on flow rate of 0.015 MGD.

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

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

5 Phase 2 Watershed Implementation Plan Wastewater Supplement, Revised September 6, 2017

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

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

- There are no changes to the monitoring frequency or effluent limits.

### 6.3.1 Summary of Proposed NPDES Effluent Limits

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

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

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

**I. A. For Outfall** 001 , **Latitude** 39º 49' 32.00" , **Longitude** 76º 18' 53.00" , **River Mile Index** 0.52 , **Stream Code** NA (to 06685)

**Receiving Waters:** Muddy Run (TSF)

**Type of Effluent:** Sewage Effluent

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

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) [1] | | Concentrations (mg/L) | | | | Minimum [2] Measurement Frequency | Required Sample Type |
| | Average Monthly | Average Weekly | Minimum | Average Monthly | Maximum | Instant. Maximum | | |
| Flow (MGD) | Report | Report Daily Max | XXX | XXX | XXX | XXX | Continuous | Measured |
| pH (S.U.) | XXX | XXX | 6.0 Inst Min | XXX | XXX | 9.0 | 1/day | Grab |
| Dissolved Oxygen | XXX | XXX | 5.0 Inst Min | XXX | XXX | XXX | 1/day | Grab |
| Total Residual Chlorine (TRC) | XXX | XXX | XXX | 0.21 | XXX | 0.69 | 1/day | Grab |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) | XXX | XXX | XXX | 25 | XXX | 50 | 2/month | 8-Hr Composite |
| Total Suspended Solids | XXX | XXX | XXX | 30 | XXX | 60 | 2/month | 8-Hr Composite |
| Fecal Coliform (No./100 ml) Oct 1 - Apr 30 | XXX | XXX | XXX | 2000 Geo Mean | XXX | 10000 | 2/month | Grab |
| Fecal Coliform (No./100 ml) May 1 - Sep 30 | XXX | XXX | XXX | 200 Geo Mean | XXX | 1000 | 2/month | Grab |
| Nitrate-Nitrite as N (lbs/year) | XXX | Report Total Annual | XXX | Report Annl Avg | XXX | XXX | 1/year | 8-Hr Composite |
| Total Nitrogen (lbs/year) | XXX | Report Total Annual | XXX | Report Annl Avg | XXX | XXX | 1/year | Calculation |

**Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date )**

| Parameter | Effluent Limitations | | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) [1] | | Concentrations (mg/L) | | | | Minimum [2] Measurement Frequency | Required Sample Type |
| | Average Monthly | Average Weekly | Minimum | Average Monthly | Maximum | Instant. Maximum | | |
| Ammonia-Nitrogen Nov 1 - Apr 30 | XXX | XXX | XXX | 10.5 | XXX | 21 | 2/month | 8-Hr Composite |
| Ammonia-Nitrogen May 1 - Oct 31 | XXX | XXX | XXX | 3.5 | XXX | 7 | 2/month | 8-Hr Composite |
| Total Kjeldahl Nitrogen (lbs/year) | XXX | Report Total Annual | XXX | Report Annl Avg | XXX | XXX | 1/year | 8-Hr Composite |
| Total Phosphorus (lbs/mo) | Report Total Mo | XXX | XXX | 2.0 | XXX | 4 | 2/month | 8-Hr Composite |
| Total Phosphorus (Total Load, lbs) (lbs) | XXX | Report Total Annual | XXX | XXX | XXX | XXX | 1/year | Calculation |

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

at Outfall 001

### 6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- Chlorine Minimization
- Chesapeake Bay Nutrient Definitions
- Solids Management for Non-Lagoon Treatment Systems

| Tools and References Used to Develop Permit | |
|---|---|
| | |
| ☒ | WQM for Windows Model (see Attachment ) |
| ☐ | PENTOXSD for Windows Model (see Attachment ) |
| ☐ | TRC Model Spreadsheet (see Attachment ) |
| ☐ | Temperature Model Spreadsheet (see Attachment ) |
| ☐ | Toxics Screening Analysis Spreadsheet (see Attachment ) |
| ☐ | Water Quality Toxics Management Strategy, 361-0100-003, 4/06. |
| ☐ | Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97. |
| ☐ | Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98. |
| ☐ | Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96. |
| ☐ | Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97. |
| ☐ | Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97. |
| ☐ | Pennsylvania CSO Policy, 385-2000-011, 9/08. |
| ☐ | Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03. |
| ☐ | Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97. |
| ☐ | Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97. |
| ☐ | Implementation Guidance Design Conditions, 391-2000-006, 9/97. |
| ☐ | Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004. |
| ☐ | Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997. |
| ☐ | Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99. |
| ☐ | Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004. |
| ☐ | Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97. |
| ☐ | Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008. |
| ☐ | Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994. |
| ☐ | Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09. |
| ☐ | Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97. |
| ☐ | Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97. |
| ☐ | Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99. |
| ☐ | Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999. |
| ☐ | Design Stream Flows, 391-2000-023, 9/98. |
| ☐ | Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98. |
| ☐ | Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97. |
| ☐ | Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07. |
| ☒ | SOP: *New and Reissuance Sewage Individual NPDES Permit Applications, rev January 6, 2020* |
| ☐ | Other: |

# Attachment A

# Stream Stats/Gauge Data

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

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

| Streamgage number | Streamgage name | Latitude | Longitude | Drainage area (mi²) | Regulated[1] |
|---|---|---|---|---|---|
| 01561000 | Brush Creek at Gapsville, Pa. | 39.956 | -78.254 | 36.8 | N |
| 01562000 | Raystown Branch Juniata River at Saxton, Pa. | 40.216 | -78.265 | 756 | N |
| 01562500 | Great Trough Creek near Marklesburg, Pa. | 40.350 | -78.130 | 84.6 | N |
| 01563200 | Raystown Branch Juniata River below Rays Dam nr Huntingdon, Pa. | 40.429 | -77.991 | 960 | Y |
| 01563500 | Juniata River at Mapleton Depot, Pa. | 40.392 | -77.935 | 2,030 | Y |
| 01564500 | Aughwick Creek near Three Springs, Pa. | 40.213 | -77.925 | 205 | N |
| 01565000 | Kishacoquillas Creek at Reedsville, Pa. | 40.655 | -77.583 | 164 | N |
| 01565700 | Little Lost Creek at Oakland Mills, Pa. | 40.605 | -77.311 | 6.52 | N |
| 01566000 | Tuscarora Creek near Port Royal, Pa. | 40.515 | -77.419 | 214 | N |
| 01566500 | Cocolamus Creek near Millerstown, Pa. | 40.566 | -77.118 | 57.2 | N |
| 01567000 | Juniata River at Newport, Pa. | 40.478 | -77.129 | 3,354 | Y |
| 01567500 | Bixler Run near Loysville, Pa. | 40.371 | -77.402 | 15.0 | N |
| 01568000 | Sherman Creek at Shermans Dale, Pa. | 40.323 | -77.169 | 207 | N |
| 01568500 | Clark Creek near Carsonville, Pa. | 40.460 | -76.751 | 22.5 | LF |
| 01569000 | Stony Creek nr Dauphin, Pa. | 40.380 | -76.907 | 33.2 | N |
| 01569800 | Letort Spring Run near Carlisle, Pa. | 40.235 | -77.139 | 21.6 | N |
| 01570000 | Conodoguinet Creek near Hogestown, Pa. | 40.252 | -77.021 | 470 | LF |
| 01570500 | Susquehanna River at Harrisburg, Pa. | 40.255 | -76.886 | 24,100 | Y |
| 01571000 | Paxton Creek near Penbrook, Pa. | 40.308 | -76.850 | 11.2 | N |
| 01571500 | Yellow Breeches Creek near Camp Hill, Pa. | 40.225 | -76.898 | 213 | N |
| 01572000 | Lower Little Swatara Creek at Pine Grove, Pa. | 40.538 | -76.377 | 34.3 | N |
| 01572025 | Swatara Creek near Pine Grove, Pa. | 40.533 | -76.402 | 116 | N |
| 01572190 | Swatara Creek near Inwood, Pa. | 40.479 | -76.531 | 167 | N |
| 01573000 | Swatara Creek at Harper Tavern, Pa. | 40.403 | -76.577 | 337 | N |
| 01573086 | Beck Creek near Cleona, Pa. | 40.323 | -76.483 | 7.87 | N |
| 01573160 | Quittapahilla Creek near Bellegrove, Pa. | 40.343 | -76.562 | 74.2 | N |
| 01573500 | Manada Creek at Manada Gap, Pa. | 40.397 | -76.709 | 13.5 | N |
| 01573560 | Swatara Creek near Hershey, Pa. | 40.298 | -76.668 | 483 | N |
| 01574000 | West Conewago Creek near Manchester, Pa. | 40.082 | -76.720 | 510 | N |
| 01574500 | Codorus Creek at Spring Grove, Pa. | 39.879 | -76.853 | 75.5 | Y |
| 01575000 | South Branch Codorus Creek near York, Pa. | 39.921 | -76.749 | 117 | Y |
| 01575500 | Codorus Creek near York, Pa. | 39.946 | -76.755 | 222 | Y |
| 01576000 | Susquehanna River at Marietta, Pa. | 40.055 | -76.531 | 25,990 | Y |
| 01576085 | Little Conestoga Creek near Churchtown, Pa. | 40.145 | -75.989 | 5.82 | N |
| 01576500 | Conestoga River at Lancaster, Pa. | 40.050 | -76.277 | 324 | N |
| 01576754 | Conestoga River at Conestoga, Pa. | 39.946 | -76.368 | 470 | N |
| 01578310 | Susquehanna River at Conowingo, Md. | 39.658 | -76.174 | 27,100 | Y |
| 01578400 | Bowery Run near Quarryville, Pa. | 39.895 | -76.114 | 5.98 | N |
| 01580000 | Deer Creek at Rocks, Md. | 39.630 | -76.403 | 94.4 | N |
| 01581500 | Bynum Run at Bel Air, Md. | 39.541 | -76.330 | 8.52 | N |
| 01581700 | Winters Run near Benson, Md. | 39.520 | -76.373 | 34.8 | N |
| 01582000 | Little Falls at Blue Mount, Md. | 39.604 | -76.620 | 52.9 | N |
| 01582500 | Gunpowder Falls at Glencoe, Md. | 39.550 | -76.636 | 160 | Y |
| 01583000 | Slade Run near Glyndon, Md. | 39.495 | -76.795 | 2.09 | N |
| 01583100 | Piney Run at Dover, Md. | 39.521 | -76.767 | 12.3 | N |

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

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

| Streamgage number | Period of record used in analysis[1] | Number of years used in analysis | 1-day, 10-year (ft³/s) | 7-day, 10-year (ft³/s) | 7-day, 2-year (ft³/s) | 30-day, 10-year (ft³/s) | 30-day, 2-year (ft³/s) | 90-day, 10-year (ft³/s) |
|---|---|---|---|---|---|---|---|---|
| 01565000 | 1941–2008 | 37 | 17.6 | 18.6 | 28.6 | 20.3 | 32.4 | 24.4 |
| 01565700 | 1965–1981 | 17 | .4 | .4 | .9 | .5 | 1.1 | .8 |
| 01566000 | 1913–2008 | 52 | 4.3 | 7.9 | 18.8 | 12.4 | 25.6 | 19.2 |
| 01566500 | 1932–1958 | 27 | 1.7 | 2.4 | 4.0 | 3.2 | 5.7 | 4.9 |
| 01567000 | [2]1974–2008 | 35 | 504 | 534 | 725 | 589 | 857 | 727 |
| 01567000 | [3]1901–1972 | 72 | 311 | 367 | 571 | 439 | 704 | 547 |
| 01567500 | 1955–2008 | 54 | 2.0 | 2.2 | 3.3 | 2.6 | 3.8 | 3.1 |
| 01568000 | 1931–2008 | 78 | 12.7 | 15.5 | 25.5 | 19.2 | 32.0 | 26.0 |
| 01568500 | [2]1943–1997 | 55 | 1.8 | 2.3 | 4.3 | 2.7 | 5.0 | 3.1 |
| 01569000 | 1939–1974 | 14 | 2.6 | 4.0 | 7.4 | 5.1 | 9.4 | 7.8 |
| 01569800 | 1978–2008 | 31 | 15.9 | 17.0 | 24.4 | 18.4 | 26.1 | 20.3 |
| 01570000 | [3]1913–1969 | 35 | — | 63.1 | 110 | 76.1 | 124 | 95.3 |
| 01570000 | [2]1971–2008 | 38 | 63.1 | 69.3 | 109 | 78.3 | 125 | 97.8 |
| 01570500 | [3]1901–1972 | 72 | 2,310 | 2,440 | 4,000 | 2,830 | 4,950 | 3,850 |
| 01570500 | [2]1974–2008 | 35 | 3,020 | 3,200 | 5,180 | 3,690 | 6,490 | 4,960 |
| 01571000 | 1941–1995 | 16 | .1 | .2 | .6 | .3 | 1.2 | .8 |
| 01571500 | 1911–2008 | 62 | 81.6 | 86.8 | 115 | 94.0 | 124 | 105 |
| 01572000 | 1921–1984 | 14 | 2.1 | 2.3 | 4.8 | 3.0 | 6.5 | 4.5 |
| 01572025 | 1990–2008 | 17 | 15.2 | 16.4 | 26.7 | 18.5 | 34.6 | 27.7 |
| 01572190 | 1990–2008 | 17 | 19.1 | 20.5 | 36.2 | 23.9 | 45.8 | 35.3 |
| 01573000 | 1920–2008 | 89 | 18.0 | 22.0 | 52.0 | 30.8 | 69.2 | 50.9 |
| 01573086 | 1965–1981 | 17 | .5 | .6 | 2.6 | .8 | 3.3 | 1.1 |
| 01573160 | 1977–1994 | 18 | 26.9 | 29.6 | 46.4 | 33.6 | 51.9 | 39.5 |
| 01573500 | 1939–1958 | 20 | 1.3 | 1.4 | 2.5 | 1.8 | 3.2 | 2.6 |
| 01573560 | 1977–2008 | 30 | 50.3 | 62.0 | 104 | 76.9 | 131 | 108 |
| 01574000 | 1930–2008 | 79 | 8.0 | 11.1 | 32.0 | 17.7 | 47.0 | 33.9 |
| 01574500 | [2]1968–2008 | 41 | 14.2 | 24.0 | 35.9 | 29.4 | 42.0 | 33.3 |
| 01574500 | [3]1930–1966 | 34 | 2.3 | 7.1 | 11.5 | 9.3 | 14.8 | 12.7 |
| 01575000 | [2]1973–1995 | 23 | .7 | 1.4 | 6.7 | 3.2 | 12.0 | 9.3 |
| 01575000 | [3]1929–1971 | 43 | .1 | .6 | 10.3 | 2.3 | 15.0 | 6.1 |
| 01575500 | [2]1948–1996 | 49 | 12.1 | 18.7 | 41.3 | 23.9 | 50.0 | 33.8 |
| 01576000 | [3]1933–1972 | 40 | 2,100 | 2,420 | 4,160 | 2,960 | 5,130 | 4,100 |
| 01576000 | [2]1974–2008 | 35 | 2,990 | 3,270 | 5,680 | 3,980 | 7,180 | 5,540 |
| 01576085 | 1984–1995 | 12 | .4 | .5 | .8 | .7 | 1.2 | 1.2 |
| 01576500 | 1931–2008 | 78 | 27.2 | 38.6 | 79.4 | 49.1 | 97.3 | 66.1 |
| 01576754 | 1986–2008 | 23 | 74.2 | 84.9 | 151 | 106 | 189 | 147 |
| [4]01578310 | 1969–2008 | 40 | 549 | 2,820 | 5,650 | 4,190 | 7,380 | 6,140 |
| 01578400 | 1964–1981 | 18 | 1.4 | 1.5 | 2.7 | 1.9 | 3.2 | 2.5 |
| [4]01580000 | 1928–2008 | 81 | 19.7 | 22.8 | 48.1 | 28.1 | 51.8 | 35.4 |
| [4]01581500 | 1946–2008 | 28 | .2 | .3 | 1.2 | .8 | 1.7 | 1.5 |
| [4]01581700 | 1969–2008 | 40 | 4.7 | 5.5 | 17.5 | 8.1 | 18.3 | 12.0 |
| [4]01582000 | 1946–2008 | 63 | 11.3 | 12.5 | 25.0 | 15.5 | 28.0 | 20.3 |
| [4]01582500 | 1979–2008 | 27 | 41.2 | 43.9 | 78.8 | 53.8 | 90.6 | 74.1 |
| [4]01583000 | 1949–1981 | 33 | .3 | .3 | .7 | .3 | 1.0 | .6 |
| [4]01583100 | 1984–2008 | 15 | 2.1 | 2.4 | 5.5 | 3.2 | 6.0 | 4.2 |

# Attachment B

# WQM 7.0 Modeling Output Values

# Attachment C

# TRC Evaluation

Holtwood MHP
PA0082147

January 2021

## TRC EVALUATION

Input appropriate values in B4:B8 and E4:E7

| | | | | | |
|---|---|---|---|---|---|
| 4 | 0.032 | = Q stream (cfs) | 0.5 | = CV Daily | |
| 5 | 0.015 | = 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) | 0 | =Decay Coefficient (K) | |

| 10 | Source | Reference | AFC Calculations | Reference | CFC Calculations |
|---|---|---|---|---|---|
| 11 | TRC | 1.3.2.iii | WLA afc = 0.459 | 1.3.2.iii | WLA cfc = 0.440 |
| 12 | PENTOXSD TRG | 5.1a | LTAMULT afc = 0.373 | 5.1c | LTAMULT cfc = 0.581 |
| 13 | PENTOXSD TRG | 5.1b | LTA_afc= 0.171 | 5.1d | LTA_cfc = 0.256 |
| 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) = 0.210 | AFC |
| 18 | | | INST MAX LIMIT (mg/l) = 0.688 | |

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