pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

**Northwest Regional Office**
**CLEAN WATER PROGRAM**

# NPDES PERMIT FACT SHEET
# INDIVIDUAL SEWAGE

| | | | |
|---|---|---|---|
| Application Type | **Amendment, Major** | Application No. | **PA0221961 A-2** |
| Facility Type | **Non-Municipal** | APS ID | **1012642** |
| Major / Minor | **Minor** | Authorization ID | **1382821** |

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Timberlee Valley Sanitary Company, Inc.** | Facility Name | **Timberlee Valley STP** |
| Applicant Address | 800 South Washington Street | Facility Address | Smalstig Road |
| | Evans City, PA 16033 | | Evans City, PA 16033 |
| Applicant Contact | Robert Brennan | Facility Contact | Robert Brennan |
| Applicant Phone | (742) 287-6278 | Facility Phone | (412) 287-6728 |
| Client ID | 142306 | Site ID | 483556 |
| Ch 94 Load Status | Not Overloaded | Municipality | Connoquenessing Township |
| Connection Status | No Limitations | County | Butler County |
| Date Application Received | January 20, 2022 | EPA Waived? | Yes |
| Date Application Accepted | January 27, 2022 | If No, Reason | |

Purpose of Application: Major Amendment of an NPDES Permit for an existing discharge of treated sanitary wastewater from a non-municipal sewer system to increase the discharge flow from 0.030 MGD to 0.068 MGD.

## Summary of Review

Act 14 - Proof of Notification was submitted and received.

A Part II Water Quality Management permit will be required prior to upgrades made to the STP.

The applicant should be able to meet the limits of this permit, which will continue to protect the uses of the receiving stream.

I. OTHER REQUIREMENTS:
- A. Stormwater into sewers
- B. Right of way
- C. Solids handling
- D. Ultraviolet (UV) Light Disinfection Reporting

SPECIAL CONDITIONS:
- II. Solids Management

There are no open violations in efacts associated with the subject Client ID (142306) as of 7/28/2022.

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| X | | Stephen A. McCauley | 7/28/2022 |
| | | Stephen A. McCauley, E.I.T. / Environmental Engineering Specialist | AJP 8/2/2022 |
| X | | | Okay to Draft |
| | | Vacant / Environmental Engineer Manager | JCD 8/8/2022 |

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

| | | | |
|---|---|---|---|
| Outfall No. | 001 | | 0.068 (previously 0.030) |
| Latitude | 40º 51' 09" | Longitude | -80º 03' 53" |
| Quad Name | - | Quad Code | - |
| Wastewater Description: | Sewage Effluent | | |

| | | | |
|---|---|---|---|
| Receiving Waters | Crab Run (CWF) | Stream Code | 34957 |
| NHD Com ID | 126218424 | RMI | 2.562 mi |
| Drainage Area | 7.8 $mi^2$ | Yield ($cfs/mi^2$) | 0.047 |
| $Q_{7-10}$ Flow (cfs) | 0.367 | $Q_{7-10}$ Basis | Buffalo Creek near Freeport |
| Elevation (ft) | 1007 | Slope (ft/ft) | 0.0057 |
| Watershed No. | 20-C | Chapter 93 Class. | CWF |
| 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 | Final | Name | Little Connoquenessing Creek Watershed |

| Background/Ambient Data | | Data Source |
|---|---|---|
| pH (SU) | 7.4 | Stream survey on Crab Run |
| Temperature (°F) | - | - |
| Hardness (mg/L) | - | - |
| Other: | - | - |

| | | | |
|---|---|---|---|
| Nearest Downstream Public Water Supply Intake | | Harmony Borough Water Company | |
| PWS Waters | Little Connoquenessing Creek | Flow at Intake (cfs) | 2.0 |
| PWS RMI | 1.1 | Distance from Outfall (mi) | 6.0 |

* - The TMDL for the Little Connoquenessing Creek Watershed is due to low pH and metals caused by Abandoned Mine Drainage (AMD). This discharge is not expected to add Aluminum, Iron, or Manganese in any quantities that would add to the impairment of the Little Connoquenessing Creek, which is at least 2 miles downstream from the discharge.

Sludge use and disposal description and location(s): Sludge is disposed of at an approved landfill.

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.

Narrative: This Fact Sheet details the determination of draft NPDES permit limits for a major amendment to increase the discharge flow from 0.030 MGD to 0.068 MGD. The discharge consists of treated sewage from a non-municipal sewage treatment plant in Connoquenessing Township, Butler County.

Permitted treatment consists of: (WQM Permits no. 1096404 and 1001406)

An existing 18,000 gpd STP with a 3,079 gallon trash trap, a manual bar screen with bypass, two 10,000 gallon flow equalization tanks in series, an 8,984 gallon aeration tank and a 12,542 gallon aeration tank in series, a 3,072 clarification tank, and Ultraviolet (UV) light disinfection. Sludge is handled via a 6,000 gallon aerobic sludge digestion tank. Alum is approved for use to control phosphorus. Soda Ash is approved for use in controlling alkalinity.

Flow from the equalization tanks will be split between the existing 18,000 STP and a new 50,000 gpd extended aeration STP with 52,554 gallons of aeration, 3,905 gallons of clarification, a 10,511 gallon aerated sludge holding tank, and an emergency backup generator. UV disinfection will be performed at the existing units.

**1. Streamflow:**

Crab Run @ Outfall 001 (from the previous WQPR):

| | | | |
|---|---|---|---|
| Drainage Area: | 7.8 | sq. mi. | (previous WQPR) |
| Yieldrate: | 0.047 | cfsm | (previous WQPR) |
| $Q_{7-10}$: | 0.367 | cfs | (calculated) |
| % of stream allocated: | 100% | Basis: | no nearby discharges |

**2. Wasteflow:**

Proposed discharge: 0.068 MGD = 0.105 cfs

Runoff flow period: 24 hours Basis: Runoff flow with flow equalization

There is greater than 3 parts stream flow (Q7-10) to 1 part effluent (design flow). In accordance with the SOP, since this is an existing discharge, the treatment requirements in document number 391-2000-014, titled, "Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers", dated April 12, 2008, are not necessary.

Flow will be required to be monitored as authorized under Chapter 92a.61, and as recommended in the SOP.

**3. Parameters:**

The following parameters were evaluated: pH, Total Suspended Solids, Fecal Coliform, E. Coli, Phosphorus, $NH_3$-N, $CBOD_5$, Dissolved Oxygen, and Total Residual Chlorine.

a. pH

Between 6.0 and 9.0 at all times

Basis: Application of Chapter 93.7 technology-based limits.

The measurement frequency was previously set to 3/day and will be retained for the interim limits. The final limits will be set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001).

b. Total Suspended Solids

Limits are 30.0 mg/l as a monthly average and 60 as an instantaneous maximum.

Basis: Application of Chapter 92a47 technology-based limits.

c. Fecal Coliform

05/01 - 09/30: 200/100ml (monthly average geometric mean)
1,000/100ml (instantaneous maximum)

10/01 - 04/30: 2,000/100ml (monthly average geometric mean)
10,000/100ml (instantaneous maximum)

Basis: Application of Chapter 92a47 technology-based limits

d. E. Coli

Monitoring was added for E. Coli at a frequency of 1/quarter for the final limits.

Basis: Application of Chapter 92a.61 as recommended by the SOP for flows greater than 0.05 MGD.

e. Total Phosphorus

☒ Limit necessary due to:

☐ Discharge to lake, pond, or impoundment
☒ Discharge to stream

Basis: The technology-based limits for Total Phosphorus under Chapter 96.5 that were set for the Conneaut Creek Basin will be retained with this amendment.

☐ Limit not necessary

Basis: N/A

f. Total Nitrogen

Monitoring for Total Nitrogen will be retained with this amendment in accordance with the SOP, based on Chapter 92a.61.

g. Ammonia-Nitrogen ($NH_3$-N)

Median discharge pH to be used: 7.3 Standard Units (S.U.)

Basis: Average pH value from DMR summary

Discharge temperature: 25°C (default value used in the absence of data)

Median stream pH to be used: 7.4 Standard Units (S.U.)

Basis: Crab Run stream survey

Stream Temperature: 20˚C (default value used for CWF modeling)

Background $NH_3$-N concentration: 0.1 mg/l

Basis: Default value.

Calculated $NH_3$-N Summer limits: 8.3 mg/l (monthly average)
16.6 mg/l (instantaneous maximum)

Calculated $NH_3$-N Winter limits: 24.9 mg/l (monthly average)
49.8 mg/l (instantaneous maximum)

Result: WQ modeling resulted in the calculated summer limits above (see Attachment 1). The winter limits are calculated as 3 times the summer limits per the SOP. These limits will be set as the final limits.

h. $CBOD_5$

Median discharge pH to be used: 7.3 Standard Units (S.U.)

Basis: Average pH value from DMR summary

Discharge temperature: 25°C (default value used in the absence of data)

Median stream pH to be used: 7.4 Standard Units (S.U.)

Basis: Crab Run stream survey

Stream Temperature: 20˚C (default value used for CWF modeling)

Background $CBOD_5$ concentration: 2.0 mg/l

Basis: Default value

Calculated $CBOD_5$ limits: 25.0 mg/l (monthly average)
50.0 mg/l (instantaneous maximum)

Result: WQ modeling resulted in the calculated CBOD5 limits above (see Attachment 1), which are the same as the previous NPDES Permit and will be retained.

i. Dissolved Oxygen (DO)

☒ 4.0 mg/l - minimum desired in effluent to protect all aquatic life.
☐ 5.0 mg/l - required in effluent for CWF, WWF, or TSF based on WQ Model.
☐ 6.0 mg/l - minimum required due to discharge going to a drainage swale or ditch.
☐ 8.0 mg/l - required due to discharge going to a naturally reproducing salmonid stream

Discussion: A Dissolved Oxygen technology-based minimum of 4.0 mg/l is recommended by the WQ Model (see Attachment 1), and the SOP, based on Chapter 93.7, under the authority of Chapter 92a.61.

The measurement frequency was previously set to 3/day and will be retained for the interim limits. The final limits will be set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001).

j. Total Residual Chlorine (TRC)

☒ No limit necessary

Since Ultraviolet (UV) light is used for disinfection, limits for TRC are not necessary. UV Intensity reporting will be retained with this amendment.

The measurement frequency was previously set to 3/day and will be retained for the interim limits. The final limits will be set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001).

☐ TRC limits: _____ mg/l (monthly average)
_____ mg/l (instantaneous maximum)

Basis: N/A

**4. Reasonable Potential Analysis for Receiving Stream:**

A Reasonable Potential Analysis was not performed in accordance with State practices using the Department's Toxics Management Spreadsheet since no sampling other than sewage-related parameters was performed for this facility with the renewal application.

**5. Reasonable Potential for Downstream Public Water Supply (PWS):**

The Department's Toxics Management Spreadsheet does not calculate limits for parameters that are based on PWS criteria (TDS, Chloride, Bromide, and Sulfate). However, since no sample data was provided, mass-balance calculations were not performed.

Nearest Downstream potable water supply (PWS): Harmony Borough Water Company
Distance downstream from the point of discharge: 6.0 miles (approximate)

☒ No limits necessary
☐ Limits needed

Basis: Significant dilution available.

**6. Anti-Backsliding:**

Since all the permit limits in this renewal are the same or more restrictive than the previous NPDES Permit, anti-backsliding is not applicable.

**7. Attachment List:**

Attachment 1 - WQ Modeling Printouts

(The Attachment above can be found at the end of this document)

## Compliance History

**DMR Data for Outfall 001 (from June 1, 2021 to May 31, 2022)**

| Parameter | MAY-22 | APR-22 | MAR-22 | FEB-22 | JAN-22 | DEC-21 | NOV-21 | OCT-21 | SEP-21 | AUG-21 | JUL-21 | JUN-21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD)<br>Average Monthly | 0.013 | 0.013 | 0.011 | 0.012 | 0.010 | 0.011 | 0.011 | 0.012 | 0.012 | 0.014 | 0.012 | 0.011 |
| pH (S.U.)<br>Daily Minimum | 7.0 | 6.8 | 7.4 | 7.4 | 7.4 | 7.2 | 7.0 | 7.0 | 6.6 | 6.8 | 7.2 | 7.23 |
| pH (S.U.)<br>Daily Maximum | 7.8 | 7.6 | 7.7 | 7.9 | 7.7 | 7.7 | 7.6 | 7.6 | 7.8 | 7.3 | 7.6 | 7.9 |
| DO (mg/L)<br>Daily Minimum | 4.4 | 4.3 | 4.5 | 4.3 | 4.3 | 4.3 | 4.4 | 4.6 | 4.2 | 4.5 | 4.4 | 4.5 |
| CBOD5 (mg/L)<br>Average Monthly | 5.4 | 9.9 | 3.0 | 5.6 | 7.5 | 3.0 | 4.5 | 3.0 | 3.0 | 3.0 | 5.0 | 3.7 |
| TSS (mg/L)<br>Average Monthly | 4.0 | 6.5 | 3.0 | 6.5 | 7.0 | 3.0 | 11.0 | 3.0 | 4.5 | 3.0 | 7.5 | 3.0 |
| Fecal Coliform (No./100 ml)<br>Geometric Mean | 1 | 1062 | 372 | 336 | 755 | 89 | 172 | 164 | 18 | 27 | 50 | 6 |
| Fecal Coliform (No./100 ml)<br>Instantaneous Maximum | 1 | 2420 | 432 | 1414 | 2420 | 147 | 262 | 326 | 308 | 462 | 99 | 11 |
| UV Intensity (µw/cm²)<br>Average Monthly | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 |
| Total Nitrogen (mg/L)<br>Average Monthly | 39.3 | 37.1 | 37.9 | 31.8 | 35.9 | 13.0 | 17.8 | 23.5 | 16.1 | 12.1 | 27.7 | 21.4 |
| Ammonia (mg/L)<br>Average Monthly | 32.1 | 22.1 | 17.6 | 19.2 | 24.8 | 4.9 | 2.6 | 20.1 | 9.2 | 7.2 | 21.1 | 13.8 |
| Total Phosphorus (mg/L)<br>Average Monthly | 1.0 | 2.0 | 1.4 | 1.7 | 2.7 | 0.5 | 2.2 | 0.6 | 1.9 | 0.3 | 1.7 | 0.4 |

## 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" (362-0400-001), SOPs and/or BPJ.

**Outfall 001, Effective Period: Permit Effective Date through Startup of New or Upgraded Facilities**.

| 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 | XXX | XXX | XXX | XXX | XXX | 1/week | Measured |
| pH (S.U.) | XXX | XXX | 6.0 Daily Min | XXX | 9.0 Daily Max | XXX | 3/week | Grab |
| DO | XXX | XXX | 4.0 Daily Min | XXX | XXX | XXX | 3/week | Grab |
| CBOD5 | XXX | XXX | XXX | 25.0 | XXX | 50 | 2/month | 8-Hr Composite |
| TSS | XXX | XXX | XXX | 30.0 | 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 |
| E. Coli (No./100 ml) | XXX | XXX | XXX | XXX | XXX | Report | 1/year | Grab |
| UV Intensity (µw/cm²) | XXX | XXX | XXX | Report | XXX | XXX | 3/week | Measured |
| Total Nitrogen | XXX | XXX | XXX | Report | XXX | XXX | 2/month | 8-Hr Composite |
| Ammonia-Nitrogen Nov 1 - Apr 30 | XXX | XXX | XXX | 25.0 | XXX | 50 | 2/month | 8-Hr Composite |
| Ammonia-Nitrogen May 1 - Oct 31 | XXX | XXX | XXX | 17.5 | XXX | 35 | 2/month | 8-Hr Composite |
| Total Phosphorus | XXX | XXX | XXX | 2.0 | XXX | 4 | 2/month | 8-Hr Composite |

Compliance Sampling Location: at Outfall 001, after ultraviolet (UV) light disinfection.

Flow is monitor only based on Chapter 92a.61. The limits for pH and Dissolved Oxygen are technology-based on Chapter 93.7. The limits for $CBOD_5$ and Total Suspended Solids are technology-based on Chapter 92a.47. The limits for Fecal Coliforms are technology-based on Chapter 92a.47. Monitoring for E. Coli, UV Intensity, and Total Nitrogen is based on Chapter 92a.61. The limits for Ammonia-Nitrogen are water quality-based on Chapter 93.7. The limits for Total Phosphorus are technology-based on Chapter 96.5.

## 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" (362-0400-001), SOPs and/or BPJ.

**Outfall 001, Effective Period: Startup of New or Upgraded Facilities 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 | XXX | XXX | XXX | XXX | XXX | 1/week | Measured |
| pH (S.U.) | XXX | XXX | 6.0 Daily Min | XXX | 9.0 Daily Max | XXX | 1/day | Grab |
| DO | XXX | XXX | 4.0 Daily Min | XXX | XXX | XXX | 1/day | Grab |
| CBOD5 | XXX | XXX | XXX | 25.0 | XXX | 50 | 2/month | 8-Hr Composite |
| TSS | XXX | XXX | XXX | 30.0 | 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 |
| E. Coli (No./100 ml) | XXX | XXX | XXX | XXX | XXX | Report | 1/quarter | Grab |
| UV Intensity (µw/cm²) | XXX | XXX | XXX | Report | XXX | XXX | 1/day | Measured |
| Total Nitrogen | XXX | XXX | XXX | Report | XXX | XXX | 2/month | 8-Hr Composite |
| Ammonia-Nitrogen Nov 1 - Apr 30 | XXX | XXX | XXX | 24.9 | XXX | 49.8 | 2/month | 8-Hr Composite |
| Ammonia-Nitrogen May 1 - Oct 31 | XXX | XXX | XXX | 8.3 | XXX | 16.6 | 2/month | 8-Hr Composite |
| Total Phosphorus | XXX | XXX | XXX | 2.0 | XXX | 4 | 2/month | 8-Hr Composite |

Compliance Sampling Location: at Outfall 001, after ultraviolet (UV) light disinfection.

Flow is monitor only based on Chapter 92a.61. The limits for pH and Dissolved Oxygen are technology-based on Chapter 93.7. The limits for $CBOD_5$ and Total Suspended Solids are technology-based on Chapter 92a.47. The limits for Fecal Coliforms are technology-based on Chapter 92a.47. Monitoring for E. Coli, UV Intensity, and Total Nitrogen is based on Chapter 92a.61. The limits for Ammonia-Nitrogen are water quality-based on Chapter 93.7. The limits for Total Phosphorus are technology-based on Chapter 96.5.

Attachment 1

# WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 20C | 34957 | CRAB RUN |

| RMI | Name | Permit Number | Disc Flow (mgd) | Parameter | Effl. Limit 30-day Ave. (mg/L) | Effl. Limit Maximum (mg/L) | Effl. Limit Minimum (mg/L) |
|---|---|---|---|---|---|---|---|
| 2.562 | Timberlee STP | PA0221961 | 0.068 | CBOD5 | 25 | | |
| | | | | NH3-N | 8.32 | 16.64 | |
| | | | | Dissolved Oxygen | | | 4 |

# WQM 7.0 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 20C | 34957 | CRAB RUN |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 2.562 | 0.068 | 21.115 | 7.376 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 12.009 | 0.464 | 25.895 | 0.085 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 7.13 | 0.653 | 1.86 | 0.763 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 7.297 | 17.662 | Owens | 6 |
| **Reach Travel Time (days)** | | | |
| 1.848 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.185 | 6.28 | 1.61 | 8.07 |
| 0.370 | 5.53 | 1.40 | 8.07 |
| 0.554 | 4.87 | 1.22 | 8.07 |
| 0.739 | 4.29 | 1.06 | 8.07 |
| 0.924 | 3.78 | 0.92 | 8.07 |
| 1.109 | 3.33 | 0.80 | 8.07 |
| 1.294 | 2.93 | 0.69 | 8.07 |
| 1.479 | 2.58 | 0.60 | 8.07 |
| 1.663 | 2.27 | 0.52 | 8.07 |
| 1.848 | 2.00 | 0.45 | 8.07 |

## 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 | 6 | | |

## 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 |
|---|---|---|---|---|---|---|---|---|
| 20C | 34957 | CRAB RUN | **2.562** | 1007.00 | 7.80 | 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** | 0.047 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 20.00 | 7.40 | 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 |
|---|---|---|---|---|---|---|---|
| Timberlee STP | PA0221961 | 0.0680 | 0.0000 | 0.0000 | 0.000 | 25.00 | 7.30 |

### 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 |
|---|---|---|---|---|---|---|---|---|
| 20C | 34957 | CRAB RUN | **0.000** | 963.00 | 10.00 | 0.00000 | 0.00 | ☑ |

### Stream Data

| Design Cond. | LFY (cfsm) | Trib Flow (cfs) | Stream Flow (cfs) | Rch Trav Time (days) | Rch Velocity (fps) | WD Ratio | Rch Width (ft) | Rch Depth (ft) | Tributary Temp (°C) | Tributary pH | Stream Temp (°C) | Stream pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q7-10** | 0.047 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 20.00 | 7.40 | 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 |
|---|---|---|
| 20C | 34957 | CRAB RUN |

| RMI | Stream Flow (cfs) | PWS With (cfs) | Net Stream Flow (cfs) | Disc Analysis Flow (cfs) | Reach Slope (ft/ft) | Depth (ft) | Width (ft) | W/D Ratio | Velocity (fps) | Reach Trav Time (days) | Analysis Temp (°C) | Analysis pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q7-10 Flow** | | | | | | | | | | | | |
| 2.562 | 0.37 | 0.00 | 0.37 | .1052 | 0.00325 | .464 | 12.01 | 25.9 | 0.08 | 1.848 | 21.11 | 7.38 |
| **Q1-10 Flow** | | | | | | | | | | | | |
| 2.562 | 0.23 | 0.00 | 0.23 | .1052 | 0.00325 | NA | NA | NA | 0.07 | 2.221 | 21.55 | 7.37 |
| **Q30-10 Flow** | | | | | | | | | | | | |
| 2.562 | 0.50 | 0.00 | 0.50 | .1052 | 0.00325 | NA | NA | NA | 0.10 | 1.610 | 20.87 | 7.38 |

# WQM 7.0 Wasteload Allocations

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 20C | 34957 | CRAB RUN |

## NH3-N Acute Allocations

| RMI | Discharge Name | Baseline Criterion (mg/L) | Baseline WLA (mg/L) | Multiple Criterion (mg/L) | Multiple WLA (mg/L) | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|
| 2.562 | Timberlee STP | 9.82 | 31.72 | 9.82 | 31.72 | 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 |
|---|---|---|---|---|---|---|---|
| 2.562 | Timberlee STP | 1.45 | 8.32 | 1.45 | 8.32 | 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) | | |
| 2.56 | Timberlee STP | 25 | 25 | 8.32 | 8.32 | 4 | 4 | 0 | 0 |