pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

# NPDES PERMIT FACT SHEET
# INDIVIDUAL SEWAGE

| | | | |
|---|---|---|---|
| Application Type | **Renewal** | Application No. | **PA0029866** |
| Facility Type | **Non-Municipal** | APS ID | **276037** |
| Major / Minor | **Minor** | Authorization ID | **1451756** |

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Cumberland Valley School District** | Facility Name | **Green Ridge Elementary School** |
| Applicant Address | 6746 Carlisle Pike | Facility Address | 1 Green Ridge Road |
| | Mechanicsburg, PA 17050-1711 | | Mechanicsburg, PA 17050-1507 |
| Applicant Contact | James Koontz | Facility Contact | Vincent Dirito |
| Applicant Phone | (717) 506-3374 | Facility Phone | (717) 506-3324 |
| Client ID | 28228 | Site ID | 252089 |
| Ch 94 Load Status | Not Overloaded | Municipality | Silver Spring Township |
| Connection Status | No Limitations | County | Cumberland |
| Date Application Received | August 22, 2023 | EPA Waived? | Yes |
| Date Application Accepted | September 8, 2023 | If No, Reason | |
| Purpose of Application | NPDES Renewal. | | |

## Summary of Review

Cumberland Valley School District (CVSD) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on February 22, 2019 and became effective on March 1, 2019. The permit was amended on July 25, 2019 to modify the UV output monitoring requirement. The permit expired on February 29, 2024. During the permit term, CVSD submitted an NPDES permit major amendment and WQM permit amendment applications on February 29, 2024 to upgrade the existing treatment plant and increase the flow from 0.0065 MGD to 0.01 MGD. The renewal, NPDES major amendment, and WQM amendment applications will be reviewed simultaneously.

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

Public Participation

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

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| X | | *Jinsu Kim*<br>Jinsu Kim / Environmental Engineering Specialist | June 7, 2024 |
| X | | *Maria D. Bebenek for*<br>Daniel W. Martin, P.E. / Environmental Engineer Manager | June 20, 2024 |
| X | | *Maria D. Bebenek*<br>Maria D. Bebenek, P.E. / Program Manager | June 20, 2024 |

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

| | | | |
|---|---|---|---|
| Outfall No. | 001 | Design Flow (MGD) | .0065 (interim) 0.01 (final) |
| Latitude | 40º 15' 57.71" | Longitude | -77º 3' 12.39" |
| Quad Name | Wertzville | Quad Code | 1629 |
| Wastewater Description: | Sewage Effluent | | |
| Receiving Waters | Unnamed Tributary to Conodoguinet Creek (WWF, MF) | Stream Code | 10236 |
| NHD Com ID | 56403869 | RMI | 0.76 |
| Drainage Area | 0.43 sq.mi. | Yield (cfs/mi$^2$) | 0.147 |
| $Q_{7-10}$ Flow (cfs) | 0.06 | $Q_{7-10}$ Basis | USGS gage no. 01570000 |
| Elevation (ft) | | Slope (ft/ft) | |
| Watershed No. | 7-B | Chapter 93 Class. | WWF, MF |
| Existing Use | None | Existing Use Qualifier | None |
| Exceptions to Use | None | Exceptions to Criteria | None |
| Assessment Status | Attaining Use(s) | | |
| Cause(s) of Impairment | N/A | | |
| Source(s) of Impairment | N/A | | |
| TMDL Status | N/A | Name | |
| Nearest Downstream Public Water Supply Intake | PA American | | |
| PWS Waters | Conodoguinet Creek | Flow at Intake (cfs) | 72.82 |
| PWS RMI | 18.38 | Distance from Outfall (mi) | 4.8 |

Drainage Area
The discharge is to Unnamed Tributary to Conodoguinet Creek at RMI 0.76 mi. A drainage area upstream of the point of discharge is estimated to be 0.43 sq.mi according to USGS StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow
USGS StreamStats produced a Q7-10 flow of 0.00886 cfs at the point of discharge. However, because the estimated drainage area is below the minimum value required to be used in regression equations to calculate the Q7-10, the produced Q7-10 flow may not be entirely accurate. Because of this, flow data collected from the nearest downstream USGS gage station (i.e., USGS gage station no. 01570000 on Conodoguinet Creek near Hogestown, PA) has been correlated as follows:

$$\text{Low Flow Yield} = Q7\text{-}10_{gage} / \text{Drainage Area}_{gage} = 69.3 \text{ cfs} / 470 \text{ sq.mi.} = 0.147 \text{ cfs/sq.mi.}$$
$$Q7\text{-}10_{site} = \text{Low Flow Yield} * \text{Drainage Area}_{site} = 0.147 \text{ cfs/sq.mi.} * 0.43 \text{ sq.mi.} = 0.06 \text{ cfs}$$

Unnamed Tributary 10236 of Conodoguinet Creek
Under Pa Code §93.9o, all unnamed tributaries of Conodoguinet Creek from PA 997 at Roxbury to Mouth of the Conodoguinet Creek are designated as warm water and migratory fishes and Conodoguinet Creek is a tributary of Susquehanna River. Consequently, no special protection water(s) is impacted by this discharge. No Class A Wild Trout Fishery is also impacted by this discharge. DEP's latest integrated water quality report finalized in 2024 indicates that the discharge is located in a stream segment listed as attaining use(s).

Public Water Supply Intake
The fact sheet prepared for the last permit renewal indicates that the nearest downstream water supply intake is PA American Water located on Conodoguinet Creek, approximately 4.8 miles from the discharge. Considering the quantity discharge from this facility and dilution available in Conodoguinet Creek, the discharge is not expected to significantly impact the water supply despite the relatively short-distance from the discharge point to the intake.

| Treatment Facility Summary | | | | |
|---|---|---|---|---|
| **Treatment Facility Name:** Green Ridge Elementary | | | | |
| **WQM Permit No.** | **Issuance Date** | | | |
| 2107401 | 04/16/2007 | | | |
| **Waste Type** | **Degree of Treatment** | **Process Type** | **Disinfection** | **Avg Annual Flow (MGD)** |
| Sewage | Tertiary | Extended Aeration With Solids Removal | Ultraviolet | 0.0065 (interim)<br>0.01 (final) |
| **Hydraulic Capacity (MGD)** | **Organic Capacity (lbs/day)** | **Load Status** | **Biosolids Treatment** | **Biosolids Use/Disposal** |
| 0.0065 (interim)<br>0.01 (final) | 13.5 (interim)<br>18.3 (final) | Not Overloaded | Aerobic Digestion | Other WWTP |

CVSD owns and operates an on-site 0.0065 MGD wastewater treatment facility serving sanitary wastewater generated from Green Ridge Elementary School located at 1 Green Ridge Road, Mechanicsburg PA 17050. The facility utilizes an extended aeration activated sludge treatment process consisting of a comminutor, equalization basin, aeration tank, clarifier, dosing tank, sand filters (2), post aeration, UV disinfection and outfall structure.

The proposed upgrade to 0.01 MGD treatment plant will remove the equalization tank and install a new equalization tank, one additional aeration tank, and one additional UV disinfection system. The more details on this proposed upgrade will be discussed in the Internal Review and Recommendation for the WQM permit amendment.

A sludge holding tank is used for sludge handling. Any solids generated from this facility will be hauled off site via a local septage hauler to another WWTP for ultimate disposal.

| Compliance History | |
|---|---|
| **Summary of DMRs:** | A summary of past 12-month DMR data is presented on the next page. |
| **Summary of Inspections:** | 06/06/23: DEP conducted a routine inspection and noted that there was no significant issue identified at the time of inspection.<br>12/09/20: DEP conducted an administrative inspection in response to a data irregularity on the flow recording from 2019. No significant issues were found at the time of inspection. |
| **Other Comments:** | Since the last permit reissuance, the facility had a number of permit violations including effluent violations. These violations are listed on page 5 of this fact sheet.<br><br>DEP's database shows that there is no open violation associated with this facility or permittee. |

## Effluent Data

**DMR Data for Outfall 001 (from May 1, 2023 to April 30, 2024)**

| Parameter | APR-24 | MAR-24 | FEB-24 | JAN-24 | DEC-23 | NOV-23 | OCT-23 | SEP-23 | AUG-23 | JUL-23 | JUN-23 | MAY-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow (MGD) Average Monthly | 0.003653 | 0.002063 | 0.001814 | 0.014244 | 0.001592 | 0.001486 | 0.002239 | 0.002848 | 0.001471 | 0.001025 | 0.001214 | 0.002581 |
| Flow (MGD) Daily Maximum | 0.03566 | 0.005334 | 0.003952 | 0.341825 | 0.007487 | 0.004343 | 0.005272 | 0.00642 | 0.004535 | 0.002249 | 0.003351 | 0.006095 |
| pH (S.U.) Daily Minimum | 6.58 | 6.80 | 6.86 | 6.46 | 6.25 | 6.53 | 7.13 | 7.04 | 7.16 | 6.85 | 6.14 | 6.51 |
| pH (S.U.) Daily Maximum | 8.31 | 8.50 | 8.13 | 8.21 | 8.0 | 8.09 | 8.52 | 8.32 | 8.17 | 7.76 | 7.49 | 7.79 |
| DO (mg/L) Daily Minimum | 9.22 | 7.73 | 7.44 | 5.49 | 6.74 | 5.07 | 5.06 | 5.09 | 5.45 | 6.17 | 5.94 | 5.18 |
| CBOD5 (mg/L) Average Monthly | 2.9 | < 2.4 | 2.5 | < 3.4 | 3.3 | < 2.5 | < 2.5 | < 2.4 | < 2.4 | < 2.4 | < 2.4 | < 3.1 |
| TSS (mg/L) Average Monthly | 3.0 | 2.0 | 3.0 | 2.0 | 6.0 | 2.0 | 2.0 | 4.0 | 8.0 | 5.0 | 3.0 | 5.0 |
| Fecal Coliform (No./100 ml) Geometric Mean | < 1 | < 1 | < 1 | < 2.0 | < 1 | < 1 | < 1 | < 1 | < 1 | < 2 | < 13 | < 5 |
| Fecal Coliform (No./100 ml) Instantaneous Maximum | < 1 | 1 | < 1 | 4.0 | 1 | 1 | < 1 | < 1 | < 1 | 4 | 172 | 23 |
| Nitrate-Nitrite (lbs/day) Daily Maximum | | | | | < 57 | | | | | | | |
| Nitrate-Nitrite (mg/L) Daily Maximum | | | | | < 55.4 | | | | | | | |
| Total Nitrogen (lbs/day) Daily Maximum | | | | | 57 | | | | | | | |
| Total Nitrogen (mg/L) Daily Maximum | | | | | 55 | | | | | | | |
| Ammonia (mg/L) Average Monthly | 0.74 | 0.87 | < 0.1 | < 0.15 | 3.7 | < 4.5 | 0.21 | 1.1 | < 0.1 | < 0.1 | < 1.9 | 4.48 |
| TKN (lbs/day) Daily Maximum | | | | | < 0.5 | | | | | | | |
| TKN (mg/L) Daily Maximum | | | | | < 0.5 | | | | | | | |
| Total Phosphorus (lbs/day) Daily Maximum | | | | | 5.0 | | | | | | | |
| Total Phosphorus (mg/L) Daily Maximum | | | | | 7.0 | | | | | | | |

## Permit Violations

Permit Violations since last permit reissuance:

| Date | Description | Parameters | Results | Limits | Units | SBC |
|---|---|---|---|---|---|---|
| 2/25/2019 | Violation of permit condition | Carbonaceous Biochemical Oxygen Demand (CBOD5) | < 14 | 10 | mg/L | Average Monthly |
| 2/25/2019 | Violation of permit condition | Fecal Coliform | 17800 | 10000 | CFU/100 ml | Instantaneous Maximum |
| 2/25/2019 | Violation of permit condition | Total Suspended Solids | 16 | 10 | mg/L | Average Monthly |
| 3/25/2019 | Violation of permit condition | Total Suspended Solids | < 41.5 | 10 | mg/L | Average Monthly |
| 6/24/2019 | Violation of permit condition | Carbonaceous Biochemical Oxygen Demand (CBOD5) | 14 | 10 | mg/L | Average Monthly |
| 7/24/2019 | Violation of permit condition | Carbonaceous Biochemical Oxygen Demand (CBOD5) | 20.1 | 10 | mg/L | Average Monthly |
| 7/24/2019 | Violation of permit condition | Fecal Coliform | 2300 | 1000 | CFU/100 ml | Instantaneous Maximum |
| 7/24/2019 | Violation of permit condition | Fecal Coliform | 757 | 200 | CFU/100 ml | Geometric Mean |
| 4/25/2020 | Violation of permit condition | Carbonaceous Biochemical Oxygen Demand (CBOD5) | 16 | 10 | mg/L | Average Monthly |
| 4/25/2020 | Violation of permit condition | Total Suspended Solids | 20 | 10 | mg/L | Average Monthly |
| 10/20/2020 | Violation of permit condition | Carbonaceous Biochemical Oxygen Demand (CBOD5) | 14 | 10 | mg/L | Average Monthly |
| 10/20/2020 | Violation of permit condition | Fecal Coliform | 2420 | 1000 | No./100 ml | Instantaneous Maximum |
| 6/27/2021 | Violation of permit condition | Total Suspended Solids | 11 | 10 | mg/L | Average Monthly |
| 11/30/2021 | Late DMR Submission | | | | | |
| 3/28/2022 | Violation of permit condition | Total Suspended Solids | 11 | 10 | mg/L | Average Monthly |

## Existing Effluent Limits and Monitoring Requirements

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

| 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 Daily Min | XXX | 9.0 Daily Max | XXX | 1/day | Grab |
| Dissolved Oxygen | XXX | XXX | 5.0 Daily Min | XXX | XXX | XXX | 1/day | Grab |
| Carbonaceous Biochemical Oxygen Demand (CBOD5) | XXX | XXX | XXX | 10.0 | XXX | 20 | 2/month | 8-Hr Composite |
| Total Suspended Solids | XXX | XXX | XXX | 10.0 | XXX | 20 | 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 | XXX | Report Daily Max | XXX | XXX | Report Daily Max | XXX | 1/year | 8-Hr Composite |
| Total Nitrogen | XXX | Report Daily Max | XXX | XXX | Report Daily Max | XXX | 1/year | Calculation |
| Ammonia-Nitrogen Oct 1 - Apr 30 | XXX | XXX | XXX | Report | XXX | XXX | 2/month | 8-Hr Composite |
| Ammonia-Nitrogen May 1 - Sep 30 | XXX | XXX | XXX | 10.5 | XXX | 21 | 2/month | 8-Hr Composite |
| Total Kjeldahl Nitrogen | XXX | Report Daily Max | XXX | XXX | Report Daily Max | XXX | 1/year | 8-Hr Composite |
| Total Phosphorus | XXX | Report Daily Max | XXX | XXX | Report Daily Max | XXX | 1/year | 8-Hr Composite |

**Development of Effluent Limitations and Monitoring Requirements**

**Outfall No.** 001 **Design Flow (MGD)** 0.0065 (interim) .01 (final)
**Latitude** 40º 16' 0.00" **Longitude** -77º 3' 16.00"
**Wastewater Description:** Sewage Effluent

**Technology-Based Limitations**

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

| Pollutant | Limit (mg/l) | SBC | Federal Regulation | State Regulation |
|---|---|---|---|---|
| $CBOD_5$ | 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) |

Comments: Since the facility utilizes UV disinfection, TRC BAT effluent standard is not applicable.

**Water Quality-Based Limitations**

*CBOD5, NH3-N and Dissolved Oxygen (DO)*
WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD5, NH3-N and DO. DEP's guidance no. 391-2000-007 provides the technical methods contained in WQM 7.0 for conducting wasteload allocation and for determining recommended NPDES effluent limits for point source discharges. A multi-discharge analysis is necessary as Hodges MHP is located less than a mile upstream from this facility. Also, given the fact that there will be an upgrade from 0.0065 MGD to 0.01 MGD, the model was utilized for both interim (0.0065 MGD) and final (0.01 MGD) conditions as follows:

1. Interim (0.0065 MGD)
   The model output indicates that all existing effluent limits are still protective of water quality. No change is therefore recommended.

2. Final (0.01 MGD)
   The model output indicates that the existing effluent limit for CBOD5 is still protective of water quality; but more stringent limits are needed for NH3-N. This is consistent with a preliminary effluent limitation analysis based on 0.01 MGD sent to CVSD via email dated July 28, 2022 (see attachment).

Based on this, the upcoming renewal will contain interim and final effluent limits.

*Total Residual Chlorine*
Since the facility utilizes UV disinfection, the development of WQBELs for TRC is not necessary.

*Toxics*
DEP's NPDES permit application for minor sewages less than 0.1 MGD does not require sampling of toxics pollutants. As a result, no reasonable potential analysis for toxics pollutants has been performed for the upcoming permit renewal.

**Best Professional Judgement Limitations**

*CBOD5 & TSS*
The existing permit contains effluent limits of 10 mg/L (average monthly) and 20 mg/L (IMAX) for both CBOD5 and TSS. Based on the fact sheet developed during the last permit renewal, it appears these effluent limits were developed using DEP's best professional judgment (BPJ) to protect the receiving stream that was supposedly determined to be a dry/intermittent stream. While there has been a number of effluent violations associated with Total Suspended Solids previously, the facility should be able to meet the dry stream effluent limits if the existing tertiary treatment process is properly operated and maintained. In general, the tertiary treatment process which includes the additional filtration such as sand filters should be able to remove solids substantially. In the opinion of DEP, the existing effluent limits of 10 mg/L (average monthly) and 20 mg/L (IMAX) for both CBOD5 and TSS were appropriately developed and should remain unchanged for the upcoming permit renewal.

*Dissolved Oxygen*
A minimum of 5.0 mg/L for DO is an existing effluent limit and is a current state water quality criterion found in 25 Pa. Code § 93.7(a). This effluent limit will remain unchanged for the upcoming permit renewal to ensure the protection of water quality standards. This approach is also consistent with DEP's guidance specified in the SOP no. BPNPSM-PMT-033. This requirement has also been assigned to other facilities throughout the state.

**Additional Considerations**

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

*E. Coli Monitoring Requirement*
DEP's SOP no. BPNPSM-PMT-033 recommends an annual routine monitoring of E. Coli for all sewage facilities that have design flow less than 0.05 MGD but greater than 0.002 MGD. An annual monitoring for E. Coli will therefore be included in the permit.

*UV Monitoring Requirement*
Initially the facility is not capable of monitoring for UV output; as a result, Part C condition was included as part of the NPDES amendment in 2019 to allow the facility to monitor relative percent irradiance of the UV system. Based on the review of the proposed UV system, the facility will continue to inspect the system on a daily basis to ensure the system is properly functional. The existing Part C condition will replace with the following Part C condition:

*The permittee shall report operation of the ultraviolet (UV) disinfection system on a daily basis using the Daily Effluent Monitoring Form (3800-FM-BCW0435) and the parameter named "UV Functional" The permittee shall report values of "1" for Yes (i.e., the UV system is functional) and "< 1" for No (i.e., the UV system is not functional). The UV system shall be considered functional when all components that are necessary for disinfection to achieve effluent limitations in Part A of this permit are operating properly.*

This condition has become DEP's standard Part C condition for those facilities that are not capable of reporting the UV output.

*Chesapeake Bay TMDL*
DEP's Phase III Watershed Implementation Plan (WIP) categorizes this facility as a phase 5 non-significant sewage facility that has a design flow less than 0.2 MGD but greater than 0.002 MGD. The WIP recommends monitoring and reporting for Total Nitrogen and Total Phosphorus throughout the permit term at a frequency no less than annually. The requirement to monitor for these parameters is also recommended by DEP's SOP no. BPNPSM-PMT-033. The facility has therefore been monitoring for nutrients.

DEP's Phase III WIP has the following statements for those phase 5 facilities proposed to expand:

**If 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.**

DEP has summarized the DMR data previously reported as follows:

| | Annual Data (1/year) | | | |
|---|---|---|---|---|
| | TP (mg/L) | TP (lbs) | TN (mg/L) | TN (lbs) |
| 2019 | 0.06 | 10 | 58 | 0.3 |
| 2020 | 0.02 | 8.2 | 57.2 | 0.1 |
| 2021 | 0.01 | 2.5 | 31.3 | 0.1 |
| 2022 | 0.0001 | 4.8 | 50 | 0.001 |
| 2023 | 5 | 7 | 55 | 57 |
| | | | | |
| Min | 0.0001 | 2.5 | 31.3 | 0.001 |
| Med | 0.02 | 7 | 55 | 0.1 |
| Avg | 1.01802 | 6.5 | 50.3 | 11.5002 |
| Max | 5 | 10 | 58 | 57 |

Given the number of samples collected and largely inconsistent effluent values reported, DEP has determined not to use existing TN & TP effluent concentrations but to use default concentrations of 25 mg/L TN and 4.0 mg/L TP. The calculations are as follows:

**TP: 4.0 mg/L * 0.0065 MGD (current design average annual flow) * 8.34 (conversion factor) * 365 days/year = 79.15 lbs/yr = 79 lbs TP/yr**

**TN: 25 mg/L * 0.0065 MGD (current design average annual flow) * 8.34 (conversion factor) * 365 days/year = 494.67 lbs/yr = 495 lbs TN/yr**

These are Cap Loads (annual mass effluent limitations) that will be in effect upon completion of the proposed upgrade. With these Cap Loads (annual mass limits) to be applied, it is reasonable to increase the monitoring frequency for nutrients from 1/year to 2/month. DEP determines that it would be more effective to apply a monthly monitoring for these nutrients upon issuance of the renewal rather than upon completion of the proposed upgrade as this would provide more accurate data for the permittee to prepare to comply with the Cap Loads.

*Monitoring Frequency and Sample Type*
Unless otherwise specified throughout this fact sheet, existing monitoring frequencies and sample types will remain unchanged in the permit.

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

*Anti-Backsliding Requirements*
All permit requirements proposed for the upcoming permit renewal have been developed at least as stringent as the existing permit requirements in accordance with 40 CFR §122.44(l)(1).

## 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 Upon Completion of Construction**.

| 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 Daily Min | XXX | 9.0 Daily Max | XXX | 1/day | Grab |
| DO | XXX | XXX | 5.0 Daily Min | XXX | XXX | XXX | 1/day | Grab |
| CBOD5 | XXX | XXX | XXX | 10.0 | XXX | 20 | 2/month | 8-Hr Composite |
| TSS | XXX | XXX | XXX | 10.0 | XXX | 20 | 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 |
| Ammonia Nov 1 - Apr 30 | XXX | XXX | XXX | Report | XXX | XXX | 2/month | 8-Hr Composite |
| Ammonia May 1 - Oct 30 | XXX | XXX | XXX | 10.5 | XXX | 21 | 2/month | 8-Hr Composite |
| E. Coli (no. / 100 mL) | XXX | XXX | XXX | XXX | XXX | Report | 1/year | Grab |

## Proposed Effluent Limitations and Monitoring Requirements (continued)

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: Upon Completion of Construction 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 | Continuous | Measured |
| pH (S.U.) | XXX | XXX | 6.0 Daily Min | XXX | 9.0 Daily Max | XXX | 1/day | Grab |
| DO | XXX | XXX | 5.0 Daily Min | XXX | XXX | XXX | 1/day | Grab |
| CBOD5 | XXX | XXX | XXX | 10.0 | XXX | 20 | 2/month | 8-Hr Composite |
| TSS | XXX | XXX | XXX | 10.0 | XXX | 20 | 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 |
| Ammonia Nov 1 - Apr 30 | XXX | XXX | XXX | 22.5 | XXX | XXX | 2/month | 8-Hr Composite |
| Ammonia May 1 - Oct 30 | XXX | XXX | XXX | 7.5 | XXX | 15 | 2/month | 8-Hr Composite |
| E. Coli (no. / 100 mL) | XXX | XXX | XXX | XXX | XXX | Report | 1/year | Grab |

## Proposed Chesapeake Bay Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

**Outfall 001, Effective Period: Permit Effective Date through Upon Completion of Construction**

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

**Outfall 001, Effective Period: Upon Completion of Construction through Permit Expiration Date**

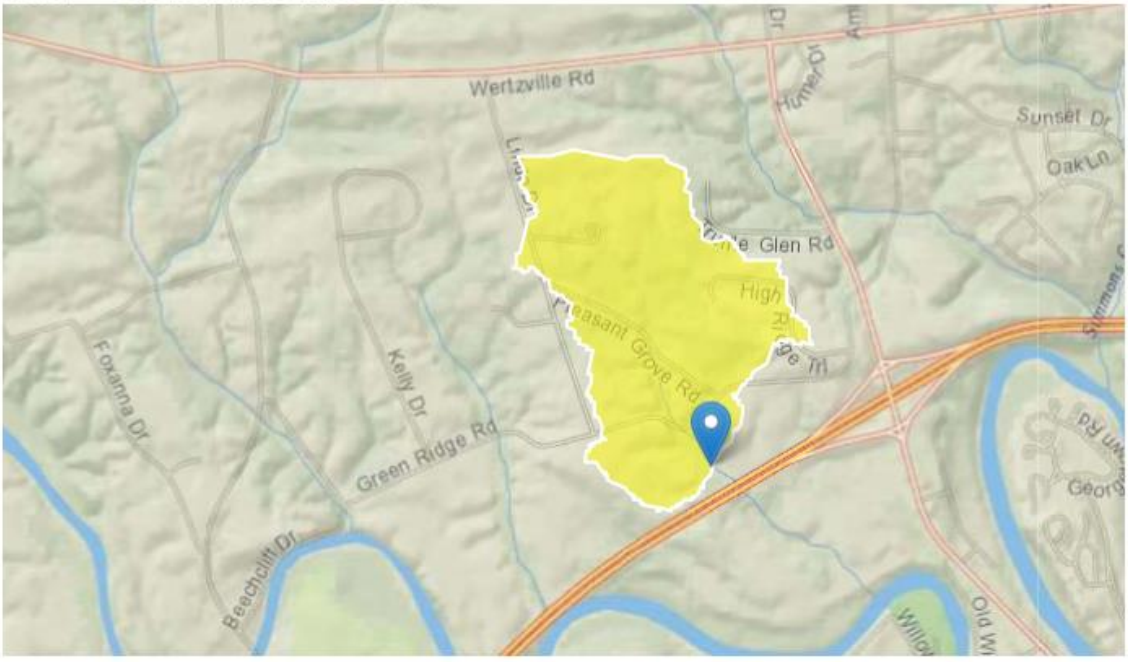
| Parameter | Effluent Limitations | | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|
| | Mass Units (lbs/day) | | Concentrations (mg/L) | | | Minimum Measurement Frequency | Required Sample Type |
| | Monthly | Annual | Minimum | Monthly Average | Maximum | | |
| Ammonia---N | Report | Report | XXX | Report | XXX | 2/month | 8-Hr Composite |
| Kjeldahl---N | Report | XXX | XXX | Report | XXX | 2/month | 8-Hr Composite |
| Nitrate-Nitrite as N | Report | XXX | XXX | Report | XXX | 2/month | 8-Hr Composite |
| Total Nitrogen | Report | Report | XXX | Report | XXX | 1/month | Calculation |
| Total Phosphorus | Report | Report | XXX | Report | XXX | 2/month | 8-Hr Composite |
| Net Total Nitrogen | XXX | 495 | XXX | XXX | XXX | 1/year | Calculation |
| Net Total Phosphorus | XXX | 79 | XXX | XXX | XXX | 1/year | Calculation |

| Tools and References Used to Develop Permit | |
|---|---|
| | |
| ☐ | WQM for Windows Model (see Attachment ) |
| ☐ | Toxics Management Spreadsheet (see Attachment ) |
| ☐ | TRC Model Spreadsheet (see Attachment ) |
| ☐ | Temperature Model Spreadsheet (see Attachment ) |
| ☐ | Water Quality Toxics Management Strategy, 361-0100-003, 4/06. |
| ☐ | Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97. |
| ☐ | Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98. |
| ☐ | Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96. |
| ☐ | Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97. |
| ☐ | Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97. |
| ☐ | Pennsylvania CSO Policy, 386-2000-002, 9/08. |
| ☐ | Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03. |
| ☐ | Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97. |
| ☐ | Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97. |
| ☐ | Implementation Guidance Design Conditions, 386-2000-007, 9/97. |
| ☐ | Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004. |
| ☐ | Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997. |
| ☐ | Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99. |
| ☐ | Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004. |
| ☐ | Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97. |
| ☐ | Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008. |
| ☐ | Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994. |
| ☐ | Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09. |
| ☐ | Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 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, 386-2000-020, 10/97. |
| ☐ | Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 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, 386-2000-010, 3/1999. |
| ☐ | Design Stream Flows, 386-2000-003, 9/98. |
| ☐ | Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98. |
| ☐ | Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97. |
| ☐ | Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07. |
| ☐ | SOP: |
| ☐ | Other: |

Attachments

## StreamStats Report

**Region ID:** PA
**Workspace ID:** PA20240607004706372000
**Clicked Point (Latitude, Longitude):** 40.26604, -77.05349
**Time:** 2024-06-06 20:47:25 -0400




Collapse All

### Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| CARBON | Percentage of area of carbonate rock | 11 | percent |
| DRNAREA | Area that drains to a point on a stream | 0.43 | square miles |
| PRECIP | Mean Annual Precipitation | 39 | inches |
| ROCKDEP | Depth to rock | 3.3 | feet |
| STRDEN | Stream Density -- total length of streams divided by drainage area | 0.91 | miles per square mile |

## General Disclaimers

Parameter values have been edited, computed flows may not apply.

## Low-Flow Statistics

### Low-Flow Statistics Parameters [Low Flow Region 2]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 0.43 | square miles | 4.93 | 1280 |
| PRECIP | Mean Annual Precipitation | 39 | inches | 35 | 50.4 |
| STRDEN | Stream Density | 0.91 | miles per square mile | 0.51 | 3.1 |
| ROCKDEP | Depth to Rock | 3.3 | feet | 3.32 | 5.65 |
| CARBON | Percent Carbonate | 11 | percent | 0 | 99 |

### Low-Flow Statistics Disclaimers [Low Flow Region 2]

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

### Low-Flow Statistics Flow Report [Low Flow Region 2]

| Statistic | Value | Unit |
|---|---|---|
| 7 Day 2 Year Low Flow | 0.0318 | ft^3/s |
| 30 Day 2 Year Low Flow | 0.0496 | ft^3/s |
| 7 Day 10 Year Low Flow | 0.00886 | ft^3/s |
| 30 Day 10 Year Low Flow | 0.015 | ft^3/s |
| 90 Day 10 Year Low Flow | 0.032 | 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. (http://pubs.usgs.gov/sir/2006/5130/)**



Application Version: 4.20.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

WQM 7.0 for Interim (0.0065 MGD) condition:

## 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 |
|---|---|---|---|---|---|---|---|---|
| 07B | 10236 | Trib 10236 to Conodoguinet Creek | 1.290 | 444.00 | 0.04 | 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 | 0.147 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 25.00 | 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 |
|---|---|---|---|---|---|---|---|
| Hodges MHP | PA0260967 | 0.0130 | 0.0130 | 0.0130 | 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 | 5.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 2.00 | 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 |
|---|---|---|---|---|---|---|---|---|
| 07B | 10236 | Trib 10236 to Conodoguinet Creek | **0.760** | 396.00 | 0.43 | 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** | 0.147 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 25.00 | 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 |
|---|---|---|---|---|---|---|---|
| Green Ridge | PA0029866 | 0.0065 | 0.0065 | 0.0065 | 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 | 10.00 | 2.00 | 0.00 | 1.50 |
| Dissolved Oxygen | 5.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 10.50 | 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 |
|---|---|---|---|---|---|---|---|---|
| 07B | 10236 | Trib 10236 to Conodoguinet Creek | **0.000** | 366.00 | 0.73 | 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** | 0.147 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 25.00 | 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 | 0.00 | 7.00 |

### Parameter Data

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

# WQM 7.0 Hydrodynamic Outputs

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07B | 10236 | Trib 10236 to Conodoguinet 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** | | | | | | | | | | | | |
| 1.290 | 0.01 | 0.00 | 0.01 | .0201 | 0.01715 | .325 | 1.31 | 4.02 | 0.06 | 0.529 | 25.00 | 7.00 |
| 0.760 | 0.06 | 0.00 | 0.06 | .0302 | 0.00748 | .353 | 3.82 | 10.83 | 0.07 | 0.670 | 25.00 | 7.00 |
| **Q1-10 Flow** | | | | | | | | | | | | |
| 1.290 | 0.01 | 0.00 | 0.01 | .0201 | 0.01715 | NA | NA | NA | 0.06 | 0.535 | 25.00 | 7.00 |
| 0.760 | 0.06 | 0.00 | 0.06 | .0302 | 0.00748 | NA | NA | NA | 0.07 | 0.694 | 25.00 | 7.00 |
| **Q30-10 Flow** | | | | | | | | | | | | |
| 1.290 | 0.01 | 0.00 | 0.01 | .0201 | 0.01715 | NA | NA | NA | 0.06 | 0.521 | 25.00 | 7.00 |
| 0.760 | 0.07 | 0.00 | 0.07 | .0302 | 0.00748 | NA | NA | NA | 0.07 | 0.639 | 25.00 | 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 | 0.91 | Use Inputted Reach Travel Times | ☐ |
| Q30-10/Q7-10 Ratio | 1.13 | Temperature Adjust Kr | ☑ |
| D.O. Saturation | 90.00% | Use Balanced Technology | ☑ |
| D.O. Goal | 5 | | |

# WQM 7.0 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07B | 10236 | Trib 10236 to Conodoguinet Creek |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 1.290 | 0.013 | 25.000 | 7.000 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 1.307 | 0.325 | 4.019 | 0.061 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 19.80 | 1.442 | 1.41 | 1.029 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 5.734 | 30.050 | Owens | 5 |
| **Reach Travel Time (days)** | | | |
| 0.529 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.053 | 17.98 | 1.33 | 6.32 |
| 0.106 | 16.34 | 1.26 | 6.58 |
| 0.159 | 14.84 | 1.20 | 6.75 |
| 0.212 | 13.48 | 1.13 | 6.89 |
| 0.265 | 12.25 | 1.07 | 7.02 |
| 0.318 | 11.13 | 1.02 | 7.14 |
| 0.371 | 10.11 | 0.96 | 7.25 |
| 0.423 | 9.18 | 0.91 | 7.34 |
| 0.476 | 8.34 | 0.86 | 7.43 |
| 0.529 | 7.58 | 0.82 | 7.51 |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 0.760 | 0.020 | 25.000 | 7.000 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 3.819 | 0.353 | 10.830 | 0.069 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 4.41 | 0.816 | 1.36 | 1.029 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 7.691 | 28.101 | Owens | 5 |
| **Reach Travel Time (days)** | | | |
| 0.670 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.067 | 4.12 | 1.27 | 7.54 |
| 0.134 | 3.85 | 1.18 | 7.54 |
| 0.201 | 3.59 | 1.10 | 7.54 |
| 0.268 | 3.35 | 1.03 | 7.54 |
| 0.335 | 3.13 | 0.96 | 7.54 |
| 0.402 | 2.92 | 0.90 | 7.54 |
| 0.469 | 2.73 | 0.84 | 7.54 |
| 0.536 | 2.55 | 0.78 | 7.54 |
| 0.603 | 2.38 | 0.73 | 7.54 |
| 0.670 | 2.22 | 0.68 | 7.54 |

# WQM 7.0 Wasteload Allocations

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07B | 10236 | Trib 10236 to Conodoguinet 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 |
|---|---|---|---|---|---|---|---|
| 1.290 | Hodges MHP | 11.07 | 4 | 11.07 | 4 | 0 | 0 |
| 0.760 | Green Ridge | 11.07 | 21 | 11.07 | 21 | 0 | 0 |

## NH3-N Chronic Allocations

| RMI | Discharge Name | Baseline Criterion (mg/L) | Baseline WLA (mg/L) | Multiple Criterion (mg/L) | Multiple WLA (mg/L) | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|
| 1.290 | Hodges MHP | 1.37 | 1.82 | 1.37 | 1.82 | 0 | 0 |
| 0.760 | Green Ridge | 1.37 | 10.5 | 1.37 | 10.5 | 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) | | |
| 1.29 | Hodges MHP | 25 | 25 | 1.82 | 1.82 | 5 | 5 | 0 | 0 |
| 0.76 | Green Ridge | 10 | 10 | 10.5 | 10.5 | 5 | 5 | 0 | 0 |

# WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07B | 10236 | Trib 10236 to Conodoguinet 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) |
|---|---|---|---|---|---|---|---|
| 1.290 | Hodges MHP | PA0260967 | 0.013 | CBOD5 | 25 | | |
| | | | | NH3-N | 1.82 | 3.64 | |
| | | | | Dissolved Oxygen | | | 5 |

| 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) |
|---|---|---|---|---|---|---|---|
| 0.760 | Green Ridge | PA0029866 | 0.007 | CBOD5 | 10 | | |
| | | | | NH3-N | 10.5 | 21 | |
| | | | | Dissolved Oxygen | | | 5 |

WQM 7.0 for Final (0.01 MGD) condition:

## 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 |
|---|---|---|---|---|---|---|---|---|
| 07B | 10236 | Trib 10236 to Conodoguinet Creek | 1.290 | 444.00 | 0.04 | 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 | 0.147 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 25.00 | 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 |
|---|---|---|---|---|---|---|---|
| Hodges MHP | PA0260967 | 0.0130 | 0.0130 | 0.0130 | 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 | 5.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 2.00 | 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 |
|---|---|---|---|---|---|---|---|---|
| 07B | 10236 | Trib 10236 to Conodoguinet Creek | **0.760** | 396.00 | 0.43 | 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** | 0.147 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 25.00 | 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 |
|---|---|---|---|---|---|---|---|
| Green Ridge | PA0029866 | 0.0100 | 0.0100 | 0.0100 | 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 | 10.00 | 2.00 | 0.00 | 1.50 |
| Dissolved Oxygen | 5.00 | 8.24 | 0.00 | 0.00 |
| NH3-N | 10.50 | 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 |
|---|---|---|---|---|---|---|---|---|
| 07B | 10236 | Trib 10236 to Conodoguinet Creek | **0.000** | 366.00 | 0.73 | 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** | 0.147 | 0.00 | 0.00 | 0.000 | 0.000 | 0.0 | 0.00 | 0.00 | 25.00 | 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 | 0.00 | 7.00 |

**Parameter Data**

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

# WQM 7.0 Hydrodynamic Outputs

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07B | 10236 | Trib 10236 to Conodoguinet 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** | | | | | | | | | | | | |
| 1.290 | 0.01 | 0.00 | 0.01 | .0201 | 0.01715 | .325 | 1.31 | 4.02 | 0.06 | 0.529 | 25.00 | 7.00 |
| 0.760 | 0.06 | 0.00 | 0.06 | .0356 | 0.00748 | .356 | 3.88 | 10.89 | 0.07 | 0.649 | 25.00 | 7.00 |
| **Q1-10 Flow** | | | | | | | | | | | | |
| 1.290 | 0.01 | 0.00 | 0.01 | .0201 | 0.01715 | NA | NA | NA | 0.06 | 0.535 | 25.00 | 7.00 |
| 0.760 | 0.06 | 0.00 | 0.06 | .0356 | 0.00748 | NA | NA | NA | 0.07 | 0.671 | 25.00 | 7.00 |
| **Q30-10 Flow** | | | | | | | | | | | | |
| 1.290 | 0.01 | 0.00 | 0.01 | .0201 | 0.01715 | NA | NA | NA | 0.06 | 0.521 | 25.00 | 7.00 |
| 0.760 | 0.07 | 0.00 | 0.07 | .0356 | 0.00748 | NA | NA | NA | 0.07 | 0.621 | 25.00 | 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 | 0.91 | Use Inputted Reach Travel Times | ☐ |
| Q30-10/Q7-10 Ratio | 1.13 | Temperature Adjust Kr | ☑ |
| D.O. Saturation | 90.00% | Use Balanced Technology | ☑ |
| D.O. Goal | 5 | | |

# WQM 7.0 D.O.Simulation

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07B | 10236 | Trib 10236 to Conodoguinet Creek |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 1.290 | 0.013 | 25.000 | 7.000 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 1.307 | 0.325 | 4.019 | 0.061 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 19.80 | 1.442 | 1.41 | 1.029 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 5.734 | 30.050 | Owens | 5 |
| **Reach Travel Time (days)** | | | |
| 0.529 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.053 | 17.98 | 1.33 | 6.32 |
| 0.106 | 16.34 | 1.26 | 6.58 |
| 0.159 | 14.84 | 1.20 | 6.75 |
| 0.212 | 13.48 | 1.13 | 6.89 |
| 0.265 | 12.25 | 1.07 | 7.02 |
| 0.318 | 11.13 | 1.02 | 7.14 |
| 0.371 | 10.11 | 0.96 | 7.25 |
| 0.423 | 9.18 | 0.91 | 7.34 |
| 0.476 | 8.34 | 0.86 | 7.43 |
| 0.529 | 7.58 | 0.82 | 7.51 |

| RMI | Total Discharge Flow (mgd) | Analysis Temperature (°C) | Analysis pH |
|---|---|---|---|
| 0.760 | 0.023 | 25.000 | 7.000 |
| **Reach Width (ft)** | **Reach Depth (ft)** | **Reach WDRatio** | **Reach Velocity (fps)** |
| 3.878 | 0.356 | 10.890 | 0.072 |
| **Reach CBOD5 (mg/L)** | **Reach Kc (1/days)** | **Reach NH3-N (mg/L)** | **Reach Kn (1/days)** |
| 4.72 | 0.885 | 1.42 | 1.029 |
| **Reach DO (mg/L)** | **Reach Kr (1/days)** | **Kr Equation** | **Reach DO Goal (mg/L)** |
| 7.543 | 28.195 | Owens | 5 |
| **Reach Travel Time (days)** | | | |
| 0.649 | | | |

**Subreach Results**

| TravTime (days) | CBOD5 (mg/L) | NH3-N (mg/L) | D.O. (mg/L) |
|---|---|---|---|
| 0.065 | 4.39 | 1.33 | 7.54 |
| 0.130 | 4.08 | 1.24 | 7.54 |
| 0.195 | 3.80 | 1.16 | 7.54 |
| 0.260 | 3.53 | 1.09 | 7.54 |
| 0.325 | 3.29 | 1.01 | 7.54 |
| 0.389 | 3.06 | 0.95 | 7.54 |
| 0.454 | 2.85 | 0.89 | 7.54 |
| 0.519 | 2.65 | 0.83 | 7.54 |
| 0.584 | 2.46 | 0.78 | 7.54 |
| 0.649 | 2.29 | 0.73 | 7.54 |

# WQM 7.0 Wasteload Allocations

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07B | 10236 | Trib 10236 to Conodoguinet 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 |
|---|---|---|---|---|---|---|---|
| 1.290 | Hodges MHP | 11.07 | 4 | 11.07 | 4 | 0 | 0 |
| 0.760 | Green Ridge | 11.07 | 21 | 11.07 | 21 | 0 | 0 |

## NH3-N Chronic Allocations

| RMI | Discharge Name | Baseline Criterion (mg/L) | Baseline WLA (mg/L) | Multiple Criterion (mg/L) | Multiple WLA (mg/L) | Critical Reach | Percent Reduction |
|---|---|---|---|---|---|---|---|
| 1.290 | Hodges MHP | 1.37 | 1.82 | 1.37 | 1.82 | 0 | 0 |
| 0.760 | Green Ridge | 1.37 | 7.68 | 1.37 | 7.68 | 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) | | |
| 1.29 | Hodges MHP | 25 | 25 | 1.82 | 1.82 | 5 | 5 | 0 | 0 |
| 0.76 | Green Ridge | 10 | 10 | 7.68 | 7.68 | 5 | 5 | 0 | 0 |

# WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07B | 10236 | Trib 10236 to Conodoguinet 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) |
|---|---|---|---|---|---|---|---|
| 1.290 | Hodges MHP | PA0260967 | 0.013 | CBOD5 | 25 | | |
| | | | | NH3-N | 1.82 | 3.64 | |
| | | | | Dissolved Oxygen | | | 5 |

| 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) |
|---|---|---|---|---|---|---|---|
| 0.760 | Green Ridge | PA0029866 | 0.010 | CBOD5 | 10 | | |
| | | | | NH3-N | 7.68 | 15.36 | |
| | | | | Dissolved Oxygen | | | 5 |

**Kim, Jin Su**

| | |
|---|---|
| **From:** | Kim, Jin Su |
| **Sent:** | Thursday, July 28, 2022 8:41 AM |
| **To:** | Bridges,James |
| **Cc:** | Martin, Daniel |
| **Subject:** | Cumberland Valley School District - Green Ridge Elementary School Preliminary Effluent Limitations |
| **Attachments:** | PEL - Green Ridge Elementary School.pdf |

Good Morning Jim,

As requested, attached is a Preliminary Effluent Limitations Analysis (PEL) for the subject facility based on the increased flow of 0.01 MGD (from 0.0065 MGD). Most of the existing requirements are expected to remain the same, except for NH3-N and Chesapeake Bay Cap Loads. A further discussion would be needed for Cap Loads and please note that a review of the actual permit application package may result in different requirements or additional requirements based on the information provided in the application package.

Please let me know if you have any questions.
Thanks,
Jinsu

**Jinsu Kim** | Permits Section
Department of Environmental Protection | Clean Water Program
Southcentral Regional Office
909 Elmerton Avenue | Harrisburg, Pa 17110-8200
Phone: 717.705.4825 | Fax: 717.705.4760
www.dep.state.pa.us

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**Phase 3 WIP Wastewater Supplement**
**Revised, July 29, 2022**

Unless DEP has specifically authorized to do so in a permit or other agreement, Offsets may not be sold as Credits.

Once approval for Offsets is obtained, the permittee must report the Offsets on the Nitrogen Budget worksheet of DEP's Annual Chesapeake Bay Spreadsheet to apply the Offsets toward compliance with the Cap Loads.

**C. Connection of Facilities**

If Facility A has a permitted discharge and decides to eliminate the discharge through connection to Facility B, the lesser of the existing annual TN and TP loads or Cap Loads of Facility A may be transferred to Facility B's Cap Load. The transferred loads are not considered Offsets and can be used for nutrient trading purposes.

If Facility A is an indirect discharger to Facility B and decides to remove its flow, opting to obtain an NPDES permit for its own discharge, Facility A will receive zero (0) for Cap Loads and Facility B will retain its original Cap Loads.

**D. Non-Significant Facilities**

Non-Significant Sewage Facilities

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

1. Renewed or amended permits for facilities that do not increase design flow (compared to the date of the latest prior permit action) will contain monitoring and reporting for TN and TP throughout the permit term at a frequency no less than monthly.

2. Renewed or amended permits that include an increase in design flow will contain Cap Loads based on the lesser of a) existing TN and TP concentrations at current design average annual flow or b) 7,306 lbs/yr TN and 974 lbs/yr TP.

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.

Non-Significant IW Facilities

For non-significant IW facilities, monitoring and reporting of TN and TP will be required throughout the permit term in renewed or amended permits anytime the facility has the potential to introduce a net TN or TP increase to the load contained within the intake water used in processing. In general, facilities that discharge