

AGENCY OF NATURAL RESOURCES  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
WATERSHED MANAGEMENT DIVISION  
ONE NATIONAL LIFE DRIVE, DAVIS BUILDING, 3rd FLOOR  
MONTPELIER, VT 05620-3522

Permit Number: **3-1213**

PIN: **SJ96-0265**

NPDES Number: **VT0100072**

Facility Name: **Brighton WWTF**  
Facility Address: **365 Meadow St  
Brighton VT 05846**  
Facility Coordinates: Lat: **44.8129** Long: **-71.8901**  
Facility Classification: **1 Domestic Non-major**  
Expiration Date: **12/31/2028**  
Reapplication Date: **06/30/2028**

In compliance with the provisions of the Vermont Water Pollution Control Act as amended (10 V.S.A., Chapter 47), the Vermont Water Pollution Control Permit Regulations as amended (Environmental Protection Rules, Chapter 13), the federal Clean Water Act as amended (33 U.S.C. § 1251 *et seq.*), and implementing federal regulations, the Town of Brighton (hereinafter referred to as the "Permittee") is authorized by the Secretary of the Agency of Natural Resources (hereinafter referred to as the "Secretary") to discharge from the Brighton Wastewater Treatment Facility (hereinafter referred to as the "WWTF") to the Pherrins River in accordance with the following conditions.

This permit shall be effective on **2/1/2024**.

Julia S. Moore, Secretary  
Agency of Natural Resources

By:

Date

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Amy Polaczyk, Wastewater Program Manager  
Watershed Management Division

**I. PERMIT SPECIAL CONDITIONS**

**A. EFFLUENT LIMITS AND MONITORING REQUIREMENTS**

**1. From the effective date of this permit, until the facility upgrade is complete and fully operation, or otherwise specified:**

- a. Discharge Point S/N 001, Lat. 44.81201, Long. -71.88858:** During the term of this permit, the Permittee is authorized to discharge from outfall S/N 001 of the Brighton WWTF to the Pherrins River, an effluent for which the characteristics shall not exceed the values listed below:

| Discharge Monitoring                              |                               |                             |                           |                          |                    |                         |
|---|-------------------------------|-----------------------------|---------------------------|--------------------------|--------------------|-------------------------|
| Constituent; Sampling Point and Sample Type       | Season and Sampling Frequency | Limit 1                     | Limit 2                   | Limit 3                  | Limit 4            | Limit 5                 |
| Flow; Annual Average; Calculated                  | 12/01 - 12/31 Annual          | 0.150 mgd Annual Avg        |                           |                          |                    |                         |
| Flow; Effluent; Continuous                        | Year Round Daily              | Monitor mgd Monthly Avg     | Monitor mgd Daily Max     |                          |                    |                         |
| BOD, 5-Day; Effluent; 8 Hour Comp                 | Year Round Monthly            | 37.5 lbs/day Monthly Avg    | 56.3 lbs/day Weekly Avg   | 30 mg/l Monthly Avg      | 45 mg/l Weekly Avg | 50 mg/l Daily Max       |
| BOD, 5-Day; Influent; 8 Hour Comp                 | Year Round Monthly            | Monitor lbs/day Monthly Avg |                           | Monitor mg/l Monthly Avg |                    |                         |
| Chlorine, Total Residual; Effluent; Grab          | 04/01 - 10/31 Daily           |                             |                           |                          |                    | 0.1 mg/l Instant Max    |
| E. Coli; Effluent; Grab                           | 04/01 - 10/31 Weekly          |                             |                           |                          |                    | 77 #/100 ml Instant Max |
| Nitrite Plus Nitrate Total; Effluent; 8 Hour Comp | Year Round Quarterly          |                             | Monitor lbs/day Daily Max |                          |                    | Monitor mg/l Daily Max  |
| Nitrogen, Ammonia Total; Effluent; Grab           | Year Round Monthly            |                             | Monitor lbs/day Daily Max |                          |                    | Monitor mg/l Daily Max  |
| Nitrogen, Kjeldahl Total; Effluent; 8 Hour Comp   | Year Round Quarterly          |                             | Monitor lbs/day Daily Max |                          |                    | Monitor mg/l Daily Max  |
| Nitrogen, Total; Effluent; Calculated             | Year Round Quarterly          |                             | Monitor lbs/day Daily Max |                          |                    | Monitor mg/l Daily Max  |
| pH; Effluent; Grab                                | Year Round Daily              |                             |                           | 6.5 s.u. Min             |                    | 8.5 s.u. Max            |
| Phosphorus, Total; Effluent; 8 Hour Comp          | Year Round Monthly            |                             |                           | Monitor mg/l Monthly Avg |                    |                         |

|  |                      |                              |                           |                          |                    |                    |
|--|----------------------|------------------------------|---------------------------|--------------------------|--------------------|--------------------|
| Phosphorus, Total; Annual Average; Calculated            | 12/01 - 12/31 Annual | Monitor lbs/yr, Annual Total |                           |                          |                    |                    |
| Phosphorus, Total; Effluent; Calculated                  | Year Round Monthly   | Monitor lbs Annual Total     | Monitor lbs Monthly total | Monitor % Monthly Total  |                    |                    |
| Settleable Solids; Effluent; Grab                        | Year Round Daily     |                              |                           |                          |                    | 1 ml/l Instant Max |
| Suspended Solids, Total; Influent; 8 Hour Comp           | Year Round Monthly   | Monitor lbs/day Monthly Avg  |                           | Monitor mg/l Monthly Avg |                    |                    |
| Suspended Solids, Total; Effluent; 8 Hour Comp           | Year Round Monthly   | 56.3 lbs/day Monthly Avg     | 56.3 lbs/day Weekly Avg   | 45 mg/l Monthly Avg      | 45 mg/l Weekly Avg | 50 mg/l Daily Max  |
| Suspended Solids, Total(%R); Percent Removal; Calculated | Year Round Monthly   |                              |                           | 85% Monthly Min          |                    |                    |
| BOD, 5-Day (%R); Percent Removal; Calculated             | Year Round Monthly   |                              |                           | 85 % Monthly Min         |                    |                    |

**Additional Monitoring – WET Testing and Associated Parameters**

| Test; Sampling Point and Sample Type                       | Season and Sampling Frequency             | Parameter(s) to Report and Units                       |
|--|---|--|
| Whole Effluent Toxicity, P. promelas Effluent; 8 Hour Comp | 01/01-02/28 and 08/01-10/31 Semi - Annual | (1) NOAEL, (2) NOEC, (3) LC50, (4) IC25 #% Instant Max |
| Whole Effluent Toxicity, C. dubia Effluent; 8 Hour Comp    | 01/01-02/28 and 08/01-10/31 Semi - Annual | (1) NOAEL, (2) NOEC, (3) LC50, (4) IC25 #% Instant Max |
| Ammonia, Total Nitrogen Effluent; Grab                     | 01/01-02/28 and 08/01-10/31 Semi - Annual | Total Ammonia Nitrogen mg/L Daily Max                  |

**Additional Monitoring – Metals and Associated Parameters**

| Test; Sampling Point and Sample Type            | Season and Sampling Frequency             | Parameters to Report and Units   |
|---|---|--|
| Metals Scan Effluent; 8 Hour Comp               | 01/01-02/28 and 08/01-10/31 Semi - Annual | (1) Aluminum, (2) Antimony, (3) Arsenic, (4) Beryllium, (5) Cadmium, (6) Chromium, (7) Copper, (8) Lead, (9) Mercury, (10) Nickel, (11) Selenium, (12) Silver, (13) Thallium, (14) Zinc mg/L and lbs/day Daily Max |
| Hardness, Total Effluent; 8 Hour Comp           | 01/01-02/28 and 08/01-10/31 Semi - Annual | Total Hardness mg/L Daily Max  |
| Carbon, Dissolved Organic Effluent; 8 Hour Comp | 01/01-02/28 and 08/01-10/31 Semi - Annual | Dissolved Organic Carbon mg/L Daily Max, lbs/day Daily Max   |

2. From the Secretary's acknowledgement of completion of the facility upgrade or by 02/28/2027, whichever occurs first:

- a. The Permittee is authorized to discharge from outfall S/N 001 of the Brighton WWTF to the Pherrins River, an effluent for which the characteristics shall not exceed the values listed below:

| Constituent;<br>Sampling Point<br>and Sample Type          | Season and Sampling<br>Frequency | Limit 1                           | Limit 2                         | Limit 3                     | Limit 4               | Limit 5                    |
|--|----------------------------------|-----------------------------------|---------------------------------|-----------------------------|-----------------------|----------------------------|
| Flow;<br>Annual Average;<br>Calculated                     | 12/01 - 12/31<br>Annual          | 0.150 mgd<br>Annual Avg           |                                 |                             |                       |                            |
| Flow;<br>Effluent; Continuous                              | Year Round<br>Daily              | Monitor mgd<br>Monthly Avg        | Monitor mgd<br>Daily Max        |                             |                       |                            |
| BOD, 5-Day;<br>Effluent; 8 Hour<br>Comp                    | Year Round<br>Monthly            | 37.5 lbs/day<br>Monthly Avg       | 56.3 lbs/day<br>Weekly Avg      | 30 mg/l<br>Monthly Avg      | 45 mg/l<br>Weekly Avg | 50 mg/l<br>Daily Max       |
| BOD, 5-Day;<br>Influent; 8 Hour<br>Comp                    | Year Round<br>Monthly            | Monitor<br>lbs/day<br>Monthly Avg |                                 | Monitor mg/l<br>Monthly Avg |                       |                            |
| Chlorine, Total<br>Residual;<br>Effluent; Grab             | 04/01 - 10/31<br>Daily           |                                   |                                 |                             |                       | 0.1 mg/l<br>Instant Max    |
| E. Coli;<br>Effluent; Grab                                 | 04/01 - 10/31<br>Weekly          |                                   |                                 |                             |                       | 77 #/100 ml<br>Instant Max |
| Nitrite Plus Nitrate<br>Total;<br>Effluent; 8 Hour<br>Comp | Year Round<br>Quarterly          |                                   | Monitor<br>lbs/day<br>Daily Max |                             |                       | Monitor mg/l<br>Daily Max  |
| Nitrogen, Ammonia<br>Total;<br>Effluent; Grab              | Year Round<br>Monthly            |                                   | Monitor<br>lbs/day<br>Daily Max |                             |                       | Monitor mg/l<br>Daily Max  |
| Nitrogen, Kjeldahl<br>Total;<br>Effluent; 8 Hour<br>Comp   | Year Round<br>Quarterly          |                                   | Monitor<br>lbs/day<br>Daily Max |                             |                       | Monitor mg/l<br>Daily Max  |
| Nitrogen, Total;<br>Effluent; Calculated                   | Year Round<br>Quarterly          |                                   | Monitor<br>lbs/day<br>Daily Max |                             |                       | Monitor mg/l<br>Daily Max  |
| pH;<br>Effluent; Grab                                      | Year Round<br>Daily              |                                   |                                 | 6.5 s.u.<br>Min             |                       | 8.5 s.u.<br>Max            |
| Phosphorus, Total;<br>Effluent; 8 Hour<br>Comp             | Year Round<br>Monthly            |                                   |                                 | 1.7 mg/l<br>Monthly Avg     |                       |                            |
| Phosphorus, Total;<br>Annual Average;<br>Calculated        | 12/01 - 12/31 Annual             | 769 lbs/yr,<br>Annual Total       |                                 |                             |                       | 1                          |
| Phosphorus, Total;<br>Effluent; Calculated                 | Year Round<br>Monthly            | Monitor lbs<br>Annual Total       | Monitor lbs<br>Monthly total    | Monitor %<br>Monthly Total  |                       |                            |
| Settleable Solids;<br>Effluent; Grab                       | Year Round<br>Daily              |                                   |                                 |                             |                       | 1 ml/l<br>Instant Max      |
| Suspended Solids,<br>Total;<br>Influent; 8 Hour<br>Comp    | Year Round<br>Monthly            | Monitor<br>lbs/day<br>Monthly Avg |                                 | Monitor mg/l<br>Monthly Avg |                       |                            |

|   |                           |                                 |                                |                            |                           |                          |
|---|---------------------------|---------------------------------|--------------------------------|----------------------------|---------------------------|--------------------------|
| <b>Suspended Solids, Total; Effluent; 8 Hour Comp</b>           | <b>Year Round Monthly</b> | <b>56.3 lbs/day Monthly Avg</b> | <b>56.3 lbs/day Weekly Avg</b> | <b>45 mg/l Monthly Avg</b> | <b>45 mg/l Weekly Avg</b> | <b>50 mg/l Daily Max</b> |
| <b>Suspended Solids, Total(%R); Percent Removal; Calculated</b> | <b>Year Round Monthly</b> |                                 |                                | <b>85% Monthly Min</b>     |                           |                          |
| <b>BOD, 5-Day (%R); Percent Removal; Calculated</b>             | <b>Year Round Monthly</b> |                                 |                                | <b>85 % Monthly Min</b>    |                           |                          |

**Additional Monitoring – WET Testing and Associated Parameters**

| <b>Test; Sampling Point and Sample Type</b>                       | <b>Season and Sampling Frequency</b>             | <b>Parameter(s) to Report and Units</b>                       |
|---|--|---|
| <b>Whole Effluent Toxicity, P. promelas Effluent; 8 Hour Comp</b> | <b>01/01-02/28 and 08/01-10/31 Semi - Annual</b> | <b>(1) NOAEL, (2) NOEC, (3) LC50, (4) IC25 #% Instant Max</b> |
| <b>Whole Effluent Toxicity, C. dubia Effluent; 8 Hour Comp</b>    | <b>01/01-02/28 and 08/01-10/31 Semi - Annual</b> | <b>(1) NOAEL, (2) NOEC, (3) LC50, (4) IC25 #% Instant Max</b> |
| <b>Ammonia, Total Nitrogen Effluent; Grab</b>                     | <b>01/01-02/28 and 08/01-10/31 Semi - Annual</b> | <b>Total Ammonia Nitrogen mg/L Daily Max</b>                  |

**Additional Monitoring – Metals and Associated Parameters**

| <b>Test; Sampling Point and Sample Type</b>            | <b>Season and Sampling Frequency</b>             | <b>Parameters to Report and Units</b>   |
|--|--|---|
| <b>Metals Scan Effluent; 8 Hour Comp</b>               | <b>01/01-02/28 and 08/01-10/31 Semi - Annual</b> | <b>(1) Aluminum, (2) Antimony, (3) Arsenic, (4) Beryllium, (5) Cadmium, (6) Chromium, (7) Copper, (8) Lead, (9) Mercury, (10) Nickel, (11) Selenium, (12) Silver, (13) Thallium, (14) Zinc mg/L and lbs/day Daily Max</b> |
| <b>Hardness, Total Effluent; 8 Hour Comp</b>           | <b>01/01-02/28 and 08/01-10/31 Semi – Annual</b> | <b>Total Hardness mg/L Daily Max</b>  |
| <b>Carbon, Dissolved Organic Effluent; 8 Hour Comp</b> | <b>01/01-02/28 and 08/01-10/31 Semi - Annual</b> | <b>Dissolved Organic Carbon mg/L Daily Max</b>  |

**2. Discharge Sampling Points**

- a) Effluent sampling: The Permittee shall collect the effluent sample after the chlorination and dechlorination process.
- b) Influent sampling: The Permittee shall collect influent samples after the bar rack and grit removal process.

**3. Discharge Special Conditions**

- a) From November 1 through March 31, the E. coli and TRC effluent limits do not apply.
- b) The effluent shall not cause visible discoloration of the receiving waters.
- c) If the effluent discharged for a period of 90 consecutive days exceeds 80 percent of the permitted flow limitation, the Permittee shall submit to the Secretary projected loadings and a program for maintaining satisfactory treatment levels.
- d) The discharge shall be free from substances in kind or quantity that settle to form harmful benthic deposits; float as foam, debris, scum or other visible substances; produce odor, color, taste or turbidity that is not naturally occurring and would render the surface water unsuitable for its designated uses; result in the dominance of nuisance species; or interfere with recreational activities; or which would cause a violation of the Vermont Water Quality Standards.

- e) The Permittee shall demonstrate the accuracy of the effluent flow measurement device weekly and report the results on the monthly report forms. The acceptable limit of error is  $\pm 10\%$ .
- f) The Permittee shall collect the daily Total Residual Chlorine sample at the same time and location as the E. coli sample. Samples shall be collected between 6:00 AM and 6:00 PM. Total Residual Chlorine shall be monitored both prior to and following dechlorination.
- g) The Permittee shall operate the facility to meet the concentration limitations or pounds limitation, whichever is more restrictive.
- h) Any action on the part of the Secretary in reviewing, commenting upon or approving plans and specifications for the construction of WWTFs shall not relieve the Permittee from the responsibility to achieve effluent limitations set forth in this permit and shall not constitute a waiver of, or act of estoppel against any remedy available to the Secretary, the State of Vermont or the federal government for failure to meet any requirement set forth in this permit or imposed by state or federal law.
- i) Composite samples shall be taken during the hours 6:00 AM to 6:00 PM unless otherwise specified. Eight hours is the minimum period for the composite. 24 hours is the maximum for the composite.
- j) Total Nitrogen (TN) shall be reported as the sum of Total Kjeldahl Nitrogen (TKN) and Nitrate/Nitrite Nitrogen (NO<sub>x</sub>). TKN and NO<sub>x</sub> samples shall be collected concurrently.

$$\text{TN (mg/L)} = \text{TKN (mg/L)} + \text{NO}_x \text{ (mg/L)}.$$

To calculate the monthly average using multiple samples, the TKN and NO<sub>x</sub> values should be averaged separately before summing them.

To calculate the average daily load:

$$\text{TN (lbs/month)} = \text{Monthly Average TN (mg/L)} \times \text{Total Daily Flow (MGD)} \times 8.34 \text{ (lbs/gallon)}$$

- k) IC25 is the % effluent in a sample that causes 25% (Chronic) Effect (i.e. reduced growth or reproduction) to the test population at a 7-day exposure interval of observation).
- l) NOAEL is the % effluent in a sample that causes no observed acute effect (i.e. mortality) to the test population at the 48-hour exposure interval of observation.
- m) NOEC is the % effluent in a sample that causes no observed chronic effect (i.e. reduced growth or reproduction) to the test population at a 7-day exposure interval of observation.
- n) The WET testing, Pollutant Scan (which includes metals), Total Hardness, Dissolved Organic Carbon (DOC), and Total Ammonia Nitrogen (TAN) sampling shall occur concurrently twice a year. Once in January or February and once in August, September or October. Results of WET, metals, Total Hardness, DOC, and TAN shall be submitted with the eDMR for the month the samples were collected, along with the other routine Discharge Monitoring data. In months when sampling does not occur, the Permittee shall enter the No Data Indicator (NODI) "Conditional Monitoring-Not Required This Period" and sample frequency "NA" in the eDMR. Pollutant scans shall be submitted in accordance with the schedule provided.
- o) Total Phosphorus shall be reported as Total Monthly Pounds, Running Total Annual Pounds, and Percentage of Running Total Annual Pounds to Annual Permit Limitation.
- p) NOAEL is the % effluent in a sample that causes no observed acute effect (i.e. mortality) to the test population at the 48-hour exposure interval of observation.
- q) LC50 is the % effluent in a sample that causes 50% (Acute) Effect (i.e. mortality) to the test population at the 48-hour exposure interval of observation.

## **B. WASTE MANAGEMENT ZONE**

In accordance with 10 V.S.A. § 1252, this permit hereby establishes a waste management zone that extends from the outfall of the WWTF in the Pherrins River downstream 3.20 mile(s).

**C. ANNUAL CONSTITUENT MONITORING**

1. Unless monitoring more frequently than annually, the Permittee shall monitor outfall serial number S/N 001 and submit the results, including units of measurement, as an attachment to the DMR form WR-43 for the month in which the samples were taken for the following parameters:

- Dissolved oxygen
- Oil and grease
- Total dissolved solids
- Temperature

2. Grab samples shall be used for Temperature, Dissolved Oxygen, and Oil & Grease; all other parameters shall be composite samples. Samples shall be representative of the seasonal variation in the discharge.

3. In the event this permit is administratively continued pursuant to 3 V.S.A. § 814, the Permittee shall continue annual monitoring of the above parameters on a schedule that assures samples are representative of the seasonal variation in the discharge and report by December 31 each year.

4. The Permittee shall sample and report according to the following table:

| Due Date   | Event Description  |
|------------|--|
| 12/31/2024 | Permittee shall submit results of Annual Constituent Monitoring. |
| 12/31/2025 | Permittee shall submit results of Annual Constituent Monitoring. |
| 12/31/2026 | Permittee shall submit results of Annual Constituent Monitoring. |
| 12/31/2027 | Permittee shall submit results of Annual Constituent Monitoring. |
| 12/31/2028 | Permittee shall submit results of Annual Constituent Monitoring. |

**D. EMERGENCY POWER FAILURE PLAN**

1. The Permittee shall indicate in writing to the Secretary that in the event the primary source of electric power to the WWTF (including pump stations) fails, the Permittee shall either provide an alternative source of power for the operation of its WWTF, or demonstrate that the treatment facility has the capacity to store the wastewater volume that would be generated over the duration of the longest power failure that would have affected the facility in the last five years, excluding catastrophic events.

The alternative power supply, whether from a generating unit located at the WWTF or purchased from an independent source of electricity, must be separate from the existing power source used to operate the WWTF. If a separate unit located at the WWTF is to be used, the Permittee shall certify in writing to the Secretary when the unit is completed and prepared to generate power.

2. The determination of treatment system storage capacity shall be submitted to the Secretary upon completion.

3. The Permittee shall report according to the following table:

| Due Date | Event Description  |
|----------|--|
| 5/1/2024 | Permittee shall submit the EPFP within 90 days of the permit effective date. |

**E. ENGINEERING EVALUATION AND REPORT/ASSET MANAGEMENT PLAN**

1. The Permittee shall conduct an in-depth engineering inspection/evaluation of the wastewater treatment facility and collection system not subject to the upgrade and shall submit a written report of the results to the Secretary. The evaluation can be combined with or part of an Asset Management Plan provided the Plan includes an inspection of the treatment facility and collection system not subject to the upgrade. The engineering inspection and report shall be conducted and prepared in accordance with the following conditions:

- a) A professional engineer with experience in the design of municipal wastewater treatment facilities shall be hired to perform an in-depth inspection of the wastewater treatment facility, pump stations, collection system, and manholes. At the treatment facility, all components which are critical to the treatment process or which could adversely affect effluent quality in the event of their failure shall be evaluated. In the pump stations, all components critical to the proper conveyance of sewage, the prevention of sewage bypass, and the supporting appurtenances shall be evaluated.
- b) The inspection is to be comprised of visual observation of equipment operability and condition as well as a review of maintenance records to determine recurring equipment problems and to estimate future life. Calibration checks shall be performed on all flow meters.
- c) The resulting written inspection report shall document the components inspected, their condition, and include recommendations for all currently needed repairs and replacements and the need for on-site spare parts. The projected date of replacement or major rehabilitation of each component and the anticipated cost shall be estimated. The Permittee shall determine how the future anticipated costs will be met and advise the Secretary in a letter transmitted with the written inspection report.
- d) Should the Secretary determine that certain critical components are in need of repair or replacement due to the results of the inspection report, this permit may be reopened and amended to include an implementation schedule for repair or replacement of those components.

2. The Permittee shall report according to the following table:

| Due Date  | Event Description  |
|-----------|--|
| 6/01/2028 | The Permittee shall submit an Engineer Evaluation and Report by this date. |

**F. OPERATIONS MANAGEMENT EMERGENCY RESPONSE PLAN (OMERP)**

1. The Permittee submitted the Operation, Management, and Emergency Response Plan for the treatment facility, sewage pumping stations, and collection system to the Secretary on January 12 and approved on January 30, 2009. Through issuance of this permit, the Secretary approves the inspection schedule in the plan. The Permittee shall implement the plan in accordance with the schedule.

2. The Permittee shall prepare and submit to the Secretary for review and approval, an updated Operation, Management, and Emergency Response Plan for the treatment facility, sewage pumping stations, and sewer line stream crossings and sewage collection system. The Plan shall be immediately implemented upon approval by the Secretary. The Permittee shall revise these plans upon the Secretary’s request or on its own motion to reflect equipment or operational changes. This plan shall comply with the provisions of 10 V.S.A. § 1278, which require:

- a) Identification of those elements of the facility, including collection systems that are determined to be prone to failure based on installation, age, design, or other relevant factors.
- b) Identification of those elements of the facility identified under subdivision (a) of this subsection which, if one or more failed, would result in a significant release of untreated or partially treated sewage to surface



waters of the State.

c) The elements identified in subdivision (b) of this subsection shall be inspected in accordance with a schedule approved by the Secretary.

d) An emergency contingency plan to reduce the volume of a detected spill and to mitigate the effect of such a spill on public health and the environment.

3. The Permittee shall sample and report according to the following table:

| Due Date  | Event Description  |
|-----------|--|
| 3/01/2027 | The Permittee shall submit the OMERP based on the upgraded facility. |

## G. TOTAL PHOSPHORUS

### 1. Wasteload Allocation for Phosphorus and Compliance Schedule

This permit includes a total phosphorus (TP) water quality-based effluent limitation that is below the waste load allocation (WLA) for TP, established by the U.S. Environmental Protection Agency (U.S. EPA) in the 2017 “Lake Memphremagog Phosphorus Total Maximum Daily Load” (LM TMDL). The Secretary reserves the right to reopen and amend this permit to include an alternate TP limitation or additional monitoring requirements based on the monitoring data, the results of phosphorus optimization activities, or a reallocation of phosphorus wasteload allocations between the Permittee and another WWTF pursuant to the requirements of the TMDL and Vermont’s “Wasteload Allocation Process” Rule (Environmental Protection Rule, Chapter 17).

The Permittee shall achieve compliance with the TP limit of 769 total pounds annual load, as specified in Condition I.A.2.a of this permit, in accordance with the following schedule:

Within 120 days from the permit effective date, the Permittee shall develop and submit a plan to the Secretary for review and approval to ensure the WWTF is brought into compliance with its WLA. The plan shall be developed by qualified professionals with experience in the operation and design of WWTFs in consultation with the Chief Operator of the WWTF. The plan shall include:

- (i) Plans and specifications necessary to implement needed facility modifications;
- (ii) An engineer approved design and construction schedule, that shall ensure the WWTF’s compliance with its WLA as soon as possible but no later than by February 28, 2027; and
- (iii) A financing plan that estimates the costs for implementing the plan and describes a strategy for financing the projects.

b) As soon as possible, but by no later than February 28, 2027, the Permittee shall achieve compliance with the TP limitations specified in Condition I.A.2.a. From the effective date of the permit until that time, the facility shall have interim TP limits from the previous discharge permit of 'Monitor Only'.

c) The Permittee shall notify the Secretary, in writing, within 30 days after completion of the facility modifications necessary to achieve compliance with the TP effluent limitations specified in Condition I.A.2.a. Otherwise, notice shall be provided to the Secretary no later than February 28, 2027, of the project progress.

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d) The upgrade of the Brighton WWTF shall be considered complete when the Permittee notifies the Secretary, by means of an engineer's certification, that the new facility is operational, and the Secretary issues a written acknowledgement of its operational status.

e) The Permittee shall submit project progress reports pertaining to facility modifications necessary to achieve compliance with the TP effluent limitations specified in Condition I.A.2.a, for review by the Secretary. Progress reports shall be submitted every six months following the permit effective date, every December 31st and June 30th, until the facility upgrade is complete and the facility is fully operational.

Progress reports shall include the following:

- (i) A description of the progress the Permittee has made toward making the facility modifications necessary to achieve compliance with the TP effluent limitations specified in Condition I.A.2.a;
- (ii) An assessment as to whether the Permittee is on schedule in its efforts to comply with the date specified in Condition I.G.1.b); and
- (iii) If the Permittee is not on-track with its original design and construction schedule, the progress reports shall detail the steps the Permittee will take to ensure compliance with the date specified in Condition I.G.1.b).

## 2. Total Phosphorus Calculations and Reporting

Total Phosphorus shall be reported monthly, via electronic Discharge Monitoring Report, in the following ways:

a) Monthly Average Phosphorus Concentration = The average concentration of phosphorus discharged this monitoring period. (Sum of all daily discharges (mg/l) measured during the month divided by the number of daily discharges measured during the month)

b) Total Monthly Pounds Phosphorus = The total pounds of phosphorus discharged this monitoring period. ((Monthly Average Phosphorus Concentration) x (Total Monthly Flows) x 8.34)

c) Running Total Annual Pounds = The 12-month running annual TP load. (Sum the Total Monthly Pounds results for the immediately preceding 12 months)

d) Comparison (%) of Running Total Annual Pounds to Annual Permit Limitation = The percentage of the Running Total Annual Pounds to the Annual TP Limitation. The comparison shall be calculated as:  
$$\% = \text{Running Total Annual Pounds} / \text{Annual TP Permit Limit} \times 100$$

## 3. Phosphorus Optimization Plan (POP)

a) Within 120 days of facility upgrade being fully operational, or June 30, 2027, whichever occurs first: The Permittee shall develop or update (as appropriate) and submit to the Secretary a Phosphorus Optimization Plan (POP) to increase the WWTF's phosphorus removal efficiency by implementing optimization techniques that achieve phosphorus reductions using primarily existing facilities and equipment. The POP shall:

Be developed by a qualified professional with experience in the operation and/or design of WWTFs in consultation with the WWTF;

- (i) Evaluate alternative methods of operating the existing WWTF, including operational, process, and equipment changes designed to enhance phosphorus removal. The techniques to be evaluated may include operational process changes to enhance biological and/or chemical phosphorous removal, incorporation of anoxic/anaerobic zones, septage receiving policies and procedures, and side stream management;
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- (ii) Determine which alternative methods of operating the existing WWTF, including operational, process, and equipment changes will be most effective at increasing phosphorus removal; and
- (iii) Include a proposed implementation schedule for those methods of operating the WWTF determined to be most effective at increasing phosphorus removal.

b) The Secretary shall review the POP. The Permittee shall commence implementation of the POP 60 days after submittal to the Secretary unless the Secretary rejects the POP prior to that date.

c) The Permittee shall annually (the calendar year proceeding completion of the facility upgrade) submit a report to the Secretary as an attachment to the monthly electronic Discharge Monitoring Reporting (DMR) form WR-43 that documents:

- (i) The optimization techniques implemented under the POP during the previous year.
- (ii) Whether the techniques are performing as expected.
- (iii) The phosphorus discharge trends relative to the previous year.

#### **4. Phosphorus Elimination and Reduction Plan (PERP)**

a) The WWTF shall have 12 months from the facility upgrade completion to optimize removal of TP, or until February 28, 2028, whichever occurs first.

b) If, after the optimization period, the WWTF's actual, TP loads reach or exceed 80% of the annual mass limit for the WWTF, based on the WWTF's 12-month running annual load calculated using the Running Total Annual Pounds Calculation, the Permittee shall, within 90 days of reaching or exceeding 80% of the annual mass limit for the WWTF, develop and submit to the Secretary a projection based on the WWTF's current operations and expected future loadings of whether it will exceed its annual mass limit during the permit term.

c) If the WWTF is not projected to exceed its annual mass limit within the permit term, the WWTF shall reassess when it is projected to reach its annual mass limit prior to permit renewal and submit that information with its next permit application.

d) If the WWTF is projected to exceed its annual mass limit during the permit term, the Permittee shall submit a Phosphorus Elimination/Reduction Plan (PERP) within 6 months from the date of submittal of the projection submitted under Part 2 of this Section. The PERP shall be submitted to the Secretary to ensure the WWTF continues to comply with its annual mass limit.

e) The PERP shall be treated as an application to amend the permit, and therefore, shall be subject to all public notice, hearing, and comment provisions, in place at the time the plan is submitted, that are applicable to permit amendments. The Permittee shall revise the PERP, if required by the Secretary.

f) The PERP shall be developed by qualified professionals in consultation with the WWTF operator. The PERP shall include:

- (i) An evaluation of alternatives to ensure the WWTF's compliance with its annual mass limit;
  - (ii) An identification of the chosen alternative or alternatives to ensure the WWTF's compliance with its annual mass limit;
  - (iii) A proposed schedule, including an engineer approved design and construction schedule and, if the chosen alternative or alternatives require a pilot study, a schedule for testing, that
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shall ensure the WWTF’s compliance with its annual mass limit as soon as possible; and

(iv) A financing plan that estimates the costs for implementing the PERP and describes a strategy for financing the project.

g) The Permittee shall report according to the following table:

| Due Date   | Event Description   |
|--|---|
| <b>Waste Load Allocation and Implementation Schedule</b> |   |
| 5/31/2024  | The Permittee shall develop and submit a plan to the Secretary for review to ensure the WWTF is brought into compliance with its WLA.   |
| 12/31/2024   | <p>The Permittee shall submit project progress reports pertaining to facility modifications necessary to achieve compliance with the TP effluent limitations specified in Condition I.A.2.a</p> <p>This report shall include confirmation that the construction schedule submitted 3/31/2024 is being followed and that the construction has commenced on or before June 1, 2024.</p> <p>The Permittee shall submit project progress reports pertaining to facility modifications necessary to achieve compliance with the TP effluent limitations specified in Condition I.A.2.a, for review by the Secretary.</p> <p>This report shall include an engineer approved design and construction schedule, that shall ensure the WWTF’s compliance with its WLA.</p> |
| 6/30/2025  | Permittee shall submit project progress reports pertaining to facility modifications necessary to achieve compliance with the TP effluent limitations specified in Condition I.A.2.a  |
| 12/31/2025   | Permittee shall submit project progress reports pertaining to facility modifications necessary to achieve compliance with the TP effluent limitations specified in Condition I.A.2.a  |
| 6/30/2026  | Permittee shall submit project progress reports pertaining to facility modifications necessary to achieve compliance with the TP effluent limitations specified in Condition I.A.2.a  |
| 12/31/2026   | Permittee shall submit project progress reports pertaining to facility modifications necessary to achieve compliance with the TP effluent limitations specified in Condition I.A.2.a  |
| 02/28/2027   | The Permittee shall notify the Secretary, in writing, within 30 days after completion of the facility modifications necessary to achieve compliance with the TP effluent limitations specified in Condition I.A.2.a. Otherwise, notice shall be provided no later than February 28, 2027, of the project progress.  |
| <b>Phosphorus Optimization Plan</b>                      |   |
| 06/30/2027   | The Permittee shall submit a POP and implement optimization techniques to achieve reductions in TP.   |
| 08/31/2027   | The Permittee shall commence implementation of the POP 60 days after submitting it to the Secretary.  |
| 09/30/2028   | The Permittee shall submit an annual report that documents TP trends and optimization techniques employed in 2027.  |

**H. QUALITY ASSURANCE REPORT / PROFICIENCY TESTING**

1. In accordance with 10 V.S.A. § 1263.d.2, the Secretary may require a laboratory quality assurance sample program to ensure qualification of laboratory analysts. For purposes of demonstrating compliance with the requirements of this permit regarding adequate laboratory controls and appropriate quality assurance procedures, the Permittee shall conduct and pass an annual laboratory proficiency test, via an accredited laboratory, for the analysis of all pollutant parameters performed within their facility laboratory and reported as

required by this permit. For major facilities, this can be carried out as part of an EPA DMR-QA study.

2. In the event this permit is administratively continued pursuant to 3 V.S.A. § 814, the Permittee shall continue to complete annual proficiency tests and report by December 31 each year.

3. The Permittee shall report on quality assurance according to the following table:

| Due Date   | Event Description   |
|------------|---|
| 12/31/2024 | Permittee shall submit passing results for proficiency testing. |
| 12/31/2025 | Permittee shall submit passing results for proficiency testing. |
| 12/31/2026 | Permittee shall submit passing results for proficiency testing. |
| 12/31/2027 | Permittee shall submit passing results for proficiency testing. |
| 12/31/2028 | Permittee shall submit passing results for proficiency testing. |

**I. SLUDGE DEPTH MONITORING**

1. The Permittee shall measure the sludge depth throughout the treatment lagoons each fall. The results of the sludge measurements and a copy of a plan depicting the grid location of the measurements shall be submitted with the Discharge Monitoring Report (DMR) form WR-43.

2. In the event this permit is administratively continued pursuant to 3 V.S.A. § 814, the Permittee shall continue to monitor sludge depths as required above and report by December 31 each year.

3. The Permittee shall submit report to the schedule table below:

| Due Date   | Event Description   |
|------------|---|
| 12/31/2024 | The Permittee shall submit Sludge Depth Monitoring results. |
| 12/31/2025 | The Permittee shall submit Sludge Depth Monitoring results. |
| 12/31/2026 | The Permittee shall submit Sludge Depth Monitoring results. |
| 12/31/2027 | The Permittee shall submit Sludge Depth Monitoring results. |
| 12/31/2028 | The Permittee shall submit Sludge Depth Monitoring results. |

## **J. WHOLE EFFLUENT TOXICITY (WET) TESTING (MAJORS AND IWC>2.5%)**

1. Twice per year, in winter (January or February) and late summer/early fall (August, September or October), the Permittee shall conduct two-species (*Pimephales promelas* and *Ceriodaphnia dubia*) modified acute/chronic WET tests (48-hour static renewal acute endpoints within a 7-day sub-lethal chronic test) on 24-hour composite effluent samples collected from outfall serial number S/N 001. This sampling shall be done concurrently with the required Pollutant Scan, Hardness, and DOC sampling.
  2. Total Ammonia shall be measured in the highest concentration of test solution at the beginning of the test. If chlorine is used in treatment of waste at the WWTF's, Total Residual Chlorine shall be measured in the highest concentration of test solution at the beginning of the test.
  3. A dilution reflecting the Instream Waste Concentration (IWC) at 7Q10 flow shall be included in the WET test dilution series. This facility's 7Q10 IWC for summer is 3.63% and 2.32% for winter.
  4. The WET tests shall be conducted according to the procedures and guidelines specified in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" and "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" (both documents are productions of the U.S. EPA from October 2002). If a newer edition of either U.S. EPA Methods document is available, the most recent edition shall be followed.
  5. Permittees may request the use of lab water for controls and dilution if:
    - a) acquiring receiving water is hazardous due to weather or topography
    - b) previous WET tests have shown that receiving water has had poor performance in the lab controls or dilution, and/or
    - c) requested by permittee and approved by the Secretary.
  6. Based upon the results of these tests or any other toxicity tests conducted, the Secretary reserves the right to reopen and amend this permit to change the WET testing frequency, or require a Toxicity Identification Evaluation, and/or a Toxicity Reduction Evaluation.
  7. In the event this permit is administratively continued pursuant to 3 V.S.A. § 814, the Permittee shall maintain the WET testing frequencies established in subsection I.J.1 during such continuance.
  8. Results shall be submitted with the eDMR for the month the samples were collected. For the months not sampled, the permittee shall enter NODI "Conditional Monitoring-Not Required This Period" and Sampling Frequency "NA" in the eDMR.
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**K. POLLUTANT SCAN (MAJORS OR IWC >2.5%)**

1. Twice per year, in winter (January or February) and late summer/early fall (August, September or October), the Permittee shall conduct an effluent analysis of outfall serial number S/N 001 for the pollutants included in 40 CFR § 122 Appendix J Table 2 and Aluminum (see Attachment A) and submit the results to the Secretary.
2. Sampling and analysis for Hardness shall be conducted concurrently with the Pollutant Scan.
3. Sampling and analysis for Dissolved Organic Carbon shall be conducted concurrently with the Pollutant Scan.
4. Metals results from the Pollutant Scan, Hardness results and DOC results shall be submitted with the eDMR for the month the samples were collected. For the months not sampled, the permittee shall enter NODI “Conditional Monitoring-Not Required This Period” and Sampling Frequency “NA” in the eDMR.
5. Based upon the results of these tests, the Secretary reserves the right to reopen and amend this permit to change the monitoring frequency.
6. In the event this permit is administratively continued pursuant to 3 V.S.A. § 814, the Permittee shall conduct and include the results of the Pollutant Scan, hardness, and DOC with each WET test conducted during continuance.
7. The Permittee shall sample and report according to the following table:

| Due Date   | Event Description  |
|------------|--|
| 12/31/2024 | The Permittee shall submit results of the August-October Pollutant Scan.   |
| 6/30/2025  | The Permittee shall submit results of the January-February Pollutant Scan. |
| 12/31/2025 | The Permittee shall submit results of the August-October Pollutant Scan.   |
| 6/30/2026  | The Permittee shall submit results of the January-February Pollutant Scan. |
| 12/30/2026 | The Permittee shall submit results of the August-October Pollutant Scan.   |
| 6/30/2027  | The Permittee shall submit results of the January-February Pollutant Scan. |
| 12/31/2027 | The Permittee shall submit results of the August-October Pollutant Scan.   |
| 6/30/2028  | The Permittee shall submit results of the January-February Pollutant Scan. |
| 12/31/2028 | The Permittee shall submit results of the August-October Pollutant Scan.   |

## II. GENERAL CONDITIONS

### A. GENERAL REQUIREMENTS

#### 1. Authority

This permit is issued under authority of 10 V.S.A. §§ 1258 and 1259 of the Vermont Water Pollution Control Act, the Vermont Water Pollution Control Permit Regulation (Environmental Protection Rule, Chapter 13), and § 402 of the Clean Water Act, as amended.

#### 2. Operating Fees

This discharge is subject to operating fees as required by 3 V.S.A. § 2822.

#### 3. Duty to Comply

The Permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. Except as provided in Bypass (Condition II.B.5) and “Emergency Pollution Permits” (Condition II.B.8), nothing in this permit shall be construed to relieve the Permittee from civil or criminal penalties for noncompliance.

#### 4. Civil and Criminal Liability

Civil and criminal penalties for non-compliance are provided for in 40 C.F.R. § 122.41(a)(2)-(3) and 10 V.S.A. Chapters 47, 201, and 211. As of the effective date of this permit, the Vermont statutory penalties, which are subject to change, are as follows:

a. Pursuant to 10 V.S.A. Chapter 47, a civil penalty not to exceed \$10,000.00 a day for each day of violation.

b. Pursuant to 10 V.S.A. Chapter 47, a fine not to exceed \$25,000.00 or imprisonment for not more than six months, or both.

c. Pursuant to 10 V.S.A. Chapter 47, any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained by this permit, or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained by this permit, shall upon conviction, be punished by a fine of not more than \$10,000.00 or by imprisonment for not more than six months, or by both.

d. Pursuant to 10 V.S.A. Chapter 201, a penalty of not more than \$42,500.00 for each determination of a separate violation. In addition, if the Secretary determines that a violation is continuing, the Secretary may assess a penalty of not more than \$17,000.00 for each day the violation continues. The maximum amount of penalty assessed under this provision shall not exceed \$170,000.00.

e. Pursuant to 10 V.S.A. Chapter 211, a civil penalty of not more than \$85,000.00 for each violation. In addition, in the case of a continuing violation, a penalty of not more than \$42,500.00 may be imposed for each day the violation continues.

#### 5. Reopener Clause

In accordance with 40 C.F.R. § 122.44(c), this permit may be reopened and modified during the life of the permit to incorporate any applicable standard for sewage sludge use or disposal promulgated under section 405(d) of the Clean Water Act. The Secretary may promptly modify or revoke and reissue this permit if the



standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or controls a pollutant or practice not limited in the permit.

## **6. Permit Modification, Suspension, and Revocation**

Pursuant to 40 C.F.R. § 124.5, the Secretary may modify, revoke and reissue, or terminate for cause, in whole or in part, the authorization to discharge under this permit. These actions may be taken for the reasons specified in 40 C.F.R. § 122.62 (modification or revocation and reissuance) and § 122.64 (termination), including:

- a. There are material and substantial alterations or additions to the permitted facility or activity;
- b. New information is received that was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and would have justified the application of different permit conditions at the time of issuance;
- c. To correct technical mistakes, such as errors in calculation, or mistaken interpretations of law made in determining permit conditions;
- d. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- e. Reallocation of the WLA under the LC TMDL;
- f. Development of an integrated WWTF and stormwater runoff NPDES permit;
- g. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge; or
- h. Correction of any permit violation, including violations of Vermont Water Quality Standards.

The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance shall not stay any permit condition.

## **7. Toxic Effluent Standards**

If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under § 307(a) of the Clean Water Act for a toxic pollutant which is present in the Permittee's discharge and such standard or prohibition is more stringent than any limitation upon such pollutant in this permit, then this permit shall be modified or revoked and reissued, pursuant to Condition II.A.6 of this permit, in accordance with the toxic effluent standard or prohibition and the Permittee so notified.

## **8. Other Materials**

Other materials ordinarily produced or used in the operation of this facility, which have been specifically identified in the application, may be discharged at the maximum frequency and maximum level identified in the application, provided:

- a. They are not:
  - (i) Designated as toxic or hazardous under provisions of Sections 307 and 311, respectively, of the Clean Water Act, or
  - (ii) Known to be hazardous or toxic by the Permittee, except that such materials indicated in (i) and (ii) above may be discharged in certain limited amounts with the written approval of, and under special conditions

established by, the Secretary or their designated representative, if the substances will not pose any imminent hazard to the public health or safety;

**b.** The discharge of such materials will not violate the Vermont Water Quality Standards; and

**c.** The Permittee is not notified by the Secretary to eliminate or reduce the quantity of such materials entering the water.

## **9. Removed Substances**

Collected screenings, sludges, and other solids removed in the course of treatment and control of wastewaters shall be stored, treated, and disposed of in accordance with 10 V.S.A. Chapter 159 and with the terms and conditions of any certification, interim or final, transitional operation authorization, or order issued pursuant to 10 V.S.A. Chapter 159 that is in effect on the effective date of this permit or is issued during the term of this permit.

## **10. Severability**

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

## **11. Duty to Provide Information**

The Permittee shall provide to the Secretary, within a reasonable time, any information which the Secretary may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee shall also furnish to the Secretary upon request, copies of records required to be kept by this permit.

## **12. Other Information**

If the Permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Secretary, it shall promptly submit such facts or information.

## **13. Oil and Hazardous Substance Liability**

Nothing in this permit shall be construed to preclude the institution of legal action or relieve the Permittee from any responsibilities, liabilities, or penalties to which the Permittee is or may be subject under 10 V.S.A. § 1281.

## **14. Confidentiality**

Pursuant to 10 V.S.A. § 1259(b):

Any records or information obtained under this permit program that constitutes trade secrets under 1 V.S.A. § 317(c)(9) shall be kept confidential, except that such records or information may be disclosed to authorized representatives of the State and the United States when relevant to any proceedings under 10 V.S.A. Chapter 47.

Claims for confidentiality for the following information will be denied:

**a.** The name and address of any permit applicant or Permittee.

**b.** Permit applications, permits, and effluent data.

c. Information required by application forms, including information submitted on the forms themselves and any attachments used to supply information required by the forms.

### **15. Navigable Waters**

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any navigable waters.

### **16. Property Rights**

Issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

### **17. Duty to Reapply**

If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must apply for and obtain a new permit. The Permittee shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Director. The Director shall not grant permission for applications to be submitted later than the expiration date of the existing permit.

### **18. Other State Laws**

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Clean Water Act.

## **B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS**

### **1. Proper Operation and Maintenance**

All waste collection, control, treatment, and disposal facilities shall be operated in a manner consistent with the following:

- a. The Permittee shall at all times properly operate and maintain in good working order all facilities and systems of treatment and control (and related appurtenances) installed or used by the Permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the Permittee only when the operation is necessary to achieve compliance with the conditions of this permit.
- b. The Permittee shall provide an adequate operating staff, consistent with the Operator Rule (Environmental Protection Rule, Chapter 4), which is duly qualified to carry out the operation, maintenance, and testing functions required to ensure compliance with the conditions of this permit; and
- c. The operation and maintenance of the WWTF shall be performed only by a person or persons holding a valid license to engage in the practice of pollution abatement facility operation.

### **2. Need to Halt or Reduce Activity not a Defense**

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the activity in order to maintain compliance with the conditions of this permit.

### 3. Duty to Mitigate

The Permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. The Permittee shall also take all reasonable steps to minimize or prevent any adverse impact to waters of the State, the environment, or human health resulting from non-compliance with any condition specified in this permit, including accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.

### 4. Dry Weather Flows

Dry weather flows of untreated municipal wastewater from any sanitary or combined sewers are not authorized by this permit and are specifically prohibited by state and federal laws and regulations. If for any reason there is a discharge to waters of the State of dry weather flows of untreated municipal wastewater from any sanitary or combined sewer, the operator of the WWTF or the operator's delegate shall comply with the notice requirements outlined in this permit.

### 5. Bypass

The bypass of facilities (including pump stations) is prohibited, except where authorized under the terms and conditions of an Emergency Pollution Permit issued pursuant to 10 V.S.A. § 1268.

In addition to § 1268 findings, such bypass must meet the following three conditions:

- a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
- c. The Permittee submitted notices as required under 40 C.F.R. § 122.41(m)(3):
  - (i) Anticipated bypass. If the Permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least ten days before the date of the bypass.
  - (ii) Unanticipated bypass. The Permittee shall submit notice of an unanticipated bypass as required in Condition II.D.3 (24-hour notice).

### 6. Upset

- a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Condition II.B.6.b of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
- b. Conditions necessary for a demonstration of upset. A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
  - (i) An upset occurred, and that the Permittee can identify the cause(s) of the upset;
  - (ii) The permitted facility was at the time being properly operated; and

(iii) The Permittee submitted notice of the upset as required in condition II.D.3 (24-hour notice).

(iv) The Permittee complied with any remedial measures required under Condition II.B.3.

**c. Burden of proof.** In any enforcement proceeding the Permittee seeking to establish the occurrence of an upset has the burden of proof.

## **7. Sewer Ordinance**

The Permittee shall have in effect a sewer use ordinance acceptable to the Secretary which, at a minimum, shall:

**a.** prohibit the introduction by any person into the Permittee's sewerage system or WWTF of any pollutant which:

(i) Is a toxic pollutant in toxic amounts as defined in standards issued from time to time under § 307(a) of the Clean Water Act;

(ii) Creates a fire or explosion hazard in the Permittee's treatment works;

(iii) Causes corrosive structural damage to the Permittee's treatment works, including all wastes with a pH lower than 5.0;

(iv) Contains solid or viscous substances in amounts which would cause obstruction to the flow in sewers or other interference with proper operation of the Permittee's treatment works; or

(v) In the case of a major contributing industry, as defined in this permit, contains an incompatible substance, as defined in this permit, in an amount or concentration in excess of that allowed under standards or guidelines issued from time to time pursuant to Sections 304, 306, and/or 307 of the Clean Water Act.

**b.** Require 45 days prior notification to the Permittee by any person or persons of a:

(i) Proposed substantial change in volume or character of pollutants over that being discharged into the Permittee's treatment works at the time of issuance of this permit;

(ii) Proposed new discharge into the Permittee's treatment works of pollutants from any source which would be a new source as defined in § 306 of the Clean Water Act if such source were discharging pollutants; or

(iii) Proposed new discharge into the Permittee's treatment works of pollutants from any source which would be subject to § 301 of the Clean Water Act if it were discharging such pollutants.

**c.** Require any industry discharging into the Permittee's treatment works to perform such monitoring of its discharge as the Permittee may reasonably require, including the installation, use, and maintenance of monitoring equipment and monitoring methods, keeping records of the results of such monitoring, and reporting the results of such monitoring to the Permittee. Such records shall be made available by the Permittee to the Secretary upon request.

**d.** Authorize the Permittee's authorized representatives to enter into, upon, or through the premises of any industry discharging into the Permittee's treatment works to have access to and copy any records, to inspect any monitoring equipment or method required by this permit, and to sample any discharge into the Permittee's treatment works.

## **8. Emergency Pollution Permits**

**a.** Maintenance activities, or emergencies resulting from equipment failure or malfunction, including power outages, which result in an effluent which exceeds the effluent limitations specified herein, shall be considered a violation of the conditions of this permit, unless the Permittee's discharge is covered under an emergency pollution permit under the provisions of 10 V.S.A. § 1268. The Permittee shall notify the Secretary of the emergency situation by the next working day, unless notice is required sooner under Condition II.D.2.

10 V.S.A. § 1268 reads as follows:

When a discharge permit holder finds that pollution abatement facilities require repairs, replacement, or other corrective action in order for them to continue to meet standards specified in the permit, the holder may apply in the manner specified by the Secretary for an emergency pollution permit for a term sufficient to effect repairs, replacements or other corrective action. The Secretary shall proceed in accordance with Chapter 170 of this title. No emergency pollution permit shall be issued unless the applicant certifies and the Secretary finds that:

- (i) there is no present, reasonable alternative means of disposing of the waste other than by discharging it into the waters of the State during the limited period of time of the emergency;
- (ii) the denial of an emergency pollution permit would work an extreme hardship upon the applicant;
- (iii) the granting of an emergency pollution permit will result in some public benefit;
- (iv) the discharge will not be unreasonably harmful to the quality of the receiving waters; and
- (v) the cause or reason for the emergency is not due to willful or intended acts or omissions of the applicant.

**b.** Application shall be made to the Secretary at the following address: Agency of Natural Resources, Department of Environmental Conservation, One National Life Drive, Davis 3, Montpelier VT 05620-3522.

## **C. MONITORING REQUIREMENTS**

### **1. Monitoring and Records**

**a.** Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

**b.** Except for records of monitoring information required by this permit related to the Permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least 5 years (or longer as required by 40 C.F.R. § 503), the Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period shall be extended during the course of unresolved litigation and may be extended by request of the Secretary at any time.

**c.** Records of monitoring information shall include:

- (i) The date, exact place, and time of sampling or measurements;
- (ii) The individual(s) who performed the sampling or measurements;
- (iii) The date(s) analyses were performed;
- (iv) The individual(s) who performed the analyses;

- (v) The analytical techniques or methods used; and
  - (vi) The results of such analyses.
  - (vii) The records of monitoring activities and results, including all instrumentation and calibration and maintenance records;
  - (viii) The original calculation and data bench sheets of the operator who performed analysis of the influent or effluent pursuant to requirements of this permit; and
  - (ix) For analyses performed by contract laboratories:
    - (a) The detection level reported by the laboratory for each sample; and
    - (b) The laboratory analytical report including documentation of the QA/QC and analytical procedures.
  - (x) When “non-detects” are recorded, the method detection limit shall be reported and used in calculating any time-period averaging for reporting on DMRs.
- d. In accordance with 40 CFR § 122.44(i)(1)(iv), the Permittee shall monitor according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O, for the analysis of pollutants or pollutant parameters (except WET). A method is “sufficiently sensitive” when:
- (i) The method minimum level (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or
  - (ii) The method has the lowest ML of the analytical methods approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O for the measured pollutant or pollutant parameter. The term “minimum level” refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in several ways: They may be published in a method; they may be based on the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor.

## **2. Quality Control**

- a.** The Permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at regular intervals to ensure accuracy of measurements, or shall ensure that both activities will be conducted.
- b.** The Permittee shall keep records of these activities and shall provide such records upon request of the Secretary.

## **3. Right of Entry**

The Permittee shall allow the Secretary, or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon presentation of credentials and other documents as may be required by law, to:

- a.** To enter upon the Permittee’s premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

- b.** To have access to and copy, at reasonable times, any records required to be kept under the terms and conditions of this permit;
- c.** To inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d.** To sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

## **D. REPORTING REQUIREMENTS**

### **1. Facility Modification / Change in Discharge**

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant more frequently than, or at a level in excess of, that identified and authorized by this permit shall constitute a violation of the terms and conditions of this permit. Such a violation may result in the imposition of civil and/or criminal penalties pursuant to 10 V.S.A. Chapters 47, 201, and/or 211. Any anticipated facility alterations or expansions or process modifications which will result in new, different, or increased discharges of any pollutants must be reported by submission of a new permit application or, if such changes will not violate the effluent limitations specified in this permit, by advance notice to the Secretary of such changes. This notification applies to pollutants which are subject neither to effluent limitations in this permit, nor to notification requirements for toxic pollutants under 40 C.F.R. § 122.42(a)(1). Following such notice, the permit may be modified, pursuant to Condition II.A.6 of this permit, to specify and limit any pollutants not previously limited.

### **2. Change in Introduction of Pollutants to WWTF**

**a.** The Permittee, within 30 days of the date on which the Permittee is notified of such discharge, shall provide notice to the Secretary of the following:

(i) Any new introduction of pollutants into the treatment works from a source which would be a new source as defined in § 306 of the Clean Water Act if such source were discharging pollutants;

(ii) Except for such categories and classes of point sources or discharges specified by the Secretary, any new introduction of pollutants into the treatment works from a source which would be subject to § 301 of the Clean Water Act if such source were discharging pollutants; and

(iii) Any substantial change in volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into such works at the time of issuance of the permit.

**b.** The notice shall include:

(i) The quality and quantity of the discharge to be introduced into the system, and

(ii) The anticipated impact of such change in the quality or quantity of the effluent to be discharged from the WWTF.

### **3. Noncompliance Notification**

**a.** The Permittee shall give advance notice to the Secretary of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

**b.** In the event the Permittee is unable to comply with any of the conditions of this permit due, among other reasons, to:



- (i) Breakdown or maintenance of waste treatment equipment (biological and physical-chemical systems including all pipes, transfer pumps, compressors, collection ponds or tanks for the segregation of treated or untreated wastes, ion exchange columns, or carbon absorption units);
- (ii) Accidents caused by human error or negligence;
- (iii) Any unanticipated bypass or upset which exceeds any effluent limitation in the permit;
- (iv) Violation of a maximum day discharge limitation for any of the pollutants listed by the Secretary in this permit; or
- (v) Other causes such as acts of nature,

the Permittee shall provide notice as specified in subdivisions c and d of this subsection.

**c.** Pursuant to 10 V.S.A. § 1295, notice for “untreated discharges,” as defined in section III.

(i) **Public notice.** For “untreated discharges” an operator of the WWTF or the operator’s delegate shall as soon as possible, but no longer than one hour from discovery of an untreated discharge from the WWTF, post on a publicly accessible electronic network, mobile application, or other electronic media designated by the Secretary an alert informing the public of the untreated discharge and its location, except that if the operator or his or her delegate does not have telephone or Internet service at the location where he or she is working to control or stop the untreated discharge, the operator or his or her delegate may delay posting the alert until the time that the untreated discharge is controlled or stopped, provided that the alert shall be posted no later than four hours from discovery of the untreated discharge.

(ii) **Secretary notification.** For “untreated discharges” an operator of the WWTF shall within 12 hours from discovery of an untreated discharge from the WWTF notify the Secretary and the local health officer of the municipality where the facility is located of the untreated discharge. The operator shall notify the Secretary through use of the Department of Environmental Conservation’s online event reporting system. If, for any reason, the online event reporting system is not operable, the operator shall notify the Secretary via telephone or e-mail. The notification shall include:

(a) The specific location of each untreated discharge, including the body of water affected. For combined sewer overflows, the specific location of each untreated discharge means each outfall that has discharges during the wet weather storm event.

(b) Except for discharges from the WWTF to a separate storm sewer system, the date and approximate time the untreated discharge began.

(c) The date and approximate time the untreated discharge ended. If the untreated discharge is still ongoing at the time of reporting, the entity reporting the untreated discharge shall amend the report with the date and approximate time the untreated discharge ended within three business days of the untreated discharge ending.

(d) Except for discharges from the WWTF to a separate storm sewer system, the approximate total volume of sewage and, if applicable, stormwater that was released. If the approximate total volume is unknown at the time of reporting, the entity reporting the untreated discharge shall amend the report with the approximate total volume within three business days.

(e) The cause of the untreated discharge and a brief description of the noncompliance, including the type of event and the type of sewer structure involved.

(f) The person reporting the untreated discharge.

(g) Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

**d.** For any non-compliance not covered under Condition II.D.3.c of this permit, an operator of the WWTF or the operator's delegate shall notify the Secretary within 24 hours of becoming aware of such condition and shall provide the Secretary with the following information, in writing, within five days of becoming aware of such condition:

(i) Cause of non-compliance;

(ii) A description of the non-complying discharge including its impact upon the receiving water;

(iii) Anticipated time the condition of non-compliance is expected to continue or, if such condition has been corrected, the duration of the period of non-compliance;

(iv) Steps taken by the Permittee to reduce and eliminate the non-complying discharge; and

(v) Steps to be taken by the Permittee to prevent recurrence of the condition of non-compliance.

(vi) The Secretary may waive the written report on a case-by-case basis for reports under this section if the oral report has been received within 24 hours.

**e.** For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (combined sewer overflows, sanitary sewer overflows, or bypass events), type of sewer overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volumes untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the sewer overflow event, and whether the noncompliance was related to wet weather.

#### **4. Planned Changes**

**a.** The Permittee shall give notice to the Secretary as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

(i) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 C.F.R. § 122.29(b); or

(ii) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements at 40 C.F.R. § 122.42(a)(1).

(iii) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

#### **5. Transfer of Ownership or Control**

This permit is not transferable without prior written approval of the Secretary. All application and operating fees must be paid in full prior to transfer of this permit. In the event of any change in control or ownership of facilities from which the authorized discharges emanate, the Permittee shall provide a copy of this permit to the succeeding owner or controller and shall send written notification of the change in ownership or control to the Secretary at least 30 days in advance of the proposed transfer date. The notice to the Secretary shall include a written agreement between the existing and new Permittees containing a specific date for transfer of permit

responsibility, coverage, and liability between them. The Permittee shall also inform the prospective owner or operator of their responsibility to make an application for transfer of this permit.

This request for transfer application must include as a minimum:

- a. A properly completed application form provided by the Secretary and the applicable processing fee.
- b. A written statement from the prospective owner or operator certifying:
  - (i) The conditions of the operation that contribute to, or affect, the discharge will not be materially different under the new ownership;
  - (ii) The prospective owner or operator has read and is familiar with the terms of the permit and agrees to comply with all terms and conditions of the permit; and
  - (iii) The prospective owner or operator has adequate funding to operate and maintain the treatment system and remain in compliance with the terms and conditions of the permit.
- c. The date of the sale or transfer.

The Secretary may require additional information dependent upon the current status of the facility operation, maintenance, and permit compliance.

## **6. Monthly Reporting**

- a. The Permittee is required to submit monthly reports of monitoring results and operational parameters on Discharge Monitoring Report (DMR) form WR-43 or through an electronic reporting system made available by the Secretary. Reports are due on the 15th day of each month, beginning with the month following the effective date of this permit.
- b. Unless waived by the Secretary, the Permittee shall electronically submit its DMRs via Vermont's on-line electronic reporting system. The Permittee shall electronically submit additional compliance monitoring data and reports specified by the Secretary. When the Permittee submits DMRs using an electronic system designated by the Secretary, which requires attachment of scanned DMRs in PDF format, it is not required to submit hard copies of DMRs. The electronic submittals are submitted through the State of Vermont Agency of Natural Resources' Online Services Portal, or its replacement.
- c. If, in any reporting period, there has been no discharge, the Permittee must submit that information by the report due date.

## **7. Signature Requirements**

- a. All reports shall be signed:
  - (i) For a corporation. By a responsible corporate officer or a duly authorized representative of that person. For the purpose of this section, a responsible corporate officer means: (1) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (2) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information

for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

(ii) For a partnership or sole proprietorship. By a general partner or the proprietor, respectively; or

(iii) For a municipality, state, or other public agency. By either a principal executive officer or ranking elected official, or a duly authorized representative of that person.

**b.** For the purposes of subdivision (d) of this subsection, a person is a duly authorized representative only if:

(i) The authorization is made in writing by a person described in subdivision (d) of this subsection;

(ii) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, or an individual or position having overall responsibility for environmental matters for the company; and

(iii) The written authorization is submitted to the Secretary.

**c.** Changes to authorization. If an authorization under subdivision (b) of this subsection is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of subdivision (b) of this subsection must be submitted to the Secretary prior to or together with any reports, information, or applications to be signed by an authorized representative.

**d.** Certification. Any person signing a document under subdivisions (a) or (b) of this subsection shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

## **8. Additional Monitoring**

If the Permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the DMR form WR-43. Such increased frequency shall also be indicated.

## **III. DEFINITIONS**

For purposes of this permit, the following definitions shall apply.

**Agency** – means the Vermont Agency of Natural Resources.

**Annual Average** – means the highest allowable average of daily discharges calculated as the sum of all daily discharges (mg/L, lbs or gallons) measured during a calendar year divided by the number of daily discharges measured during that year.

**Average** – means the arithmetic means of values taken at the frequency required for each parameter over the specified period.

**Bypass** – means the intentional diversion of waste streams from any portion of the treatment facility.

**The Clean Water Act** – means the federal Clean Water Act, as amended (33 U.S.C. § 1251, et seq.).

**Composite Sample** – A composite of at least twenty-four (24) grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportional to flow.

**Daily Discharge** – means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling.

For pollutants with limitations expressed in pounds the daily discharge is calculated as the total pounds of pollutants discharged over the day.

For pollutants with limitations expressed in mg/L the daily discharge is calculated as the average measurement of the pollutant over the day.

**Discharge** – means the placing, depositing, or emission of any wastes, directly or indirectly, into an injection well or into the waters of the State.

**Grab Sample** – means an individual sample collected in a period of less than 15 minutes.

**Incompatible Substance** – means any waste being discharged into the treatment works which interferes with, passes through without treatment, or is otherwise incompatible with said works or would have a substantial adverse effect on the works or on water quality. This includes all pollutants required to be regulated under the Clean Water Act.

**Instantaneous Maximum** – means a value not to be exceeded in any grab sample.

**IC25** - means the % effluent in a sample that causes 25% (Chronic) Effect (i.e. reduced growth or reproduction) to the test population at a 7-day exposure interval of observation).

**LC50** - means the % effluent in a sample that causes 50% (Acute) Effect (i.e. mortality) to the test population at the 48-hour exposure interval of observation.

**Major Contributing Industry** – means one that: (1) has a flow of 50,000 gallons or more per average work day; (2) has a flow greater than five percent of the flow carried by the municipal system receiving the waste; (3) has in its wastes a toxic pollutant in toxic amounts as defined in standards issued under § 307(a) of the Clean Water Act; or (4) has a significant impact, either singly or in combination with other contributing industries, on a treatment works or on the quality of effluent from that treatment works.

**Maximum Day or Maximum Daily Discharge Limitation** – means the highest allowable “daily discharge” (mg/L, lbs or gallons).

**Mean** – means the arithmetic mean.

**Method Detection Limit (MDL)** – The method detection limit (MDL) is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results. ([https://www.epa.gov/sites/default/files/2016-12/documents/mdl-procedure\\_rev2\\_12-13-2016.pdf](https://www.epa.gov/sites/default/files/2016-12/documents/mdl-procedure_rev2_12-13-2016.pdf))

**Minimum Level (ML)** – The term “minimum level” refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL). Minimum levels may be obtained in several ways: They may be published in a method; they may be sample concentrations

equivalent to the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a lab, by a factor.

(<https://www.govinfo.gov/content/pkg/FR-2014-08-19/pdf/2014-19265.pdf>, p. 3 footnote 5)

**Monthly Average or Average Monthly Discharge Limitation** – means the highest allowable average of daily discharges (mg/L, lbs or gallons) over a calendar month, calculated as the sum of all daily discharges (mg/L, lbs or gallons) measured during a calendar month divided by the number of daily discharges measured during that month.

**Monthly Average Flow** - Monthly average flow shall be calculated by summing the daily effluent flow for each day in the given month and dividing the sum by the number of days of discharge in that month. [MJ1]

**NPDES** – means the National Pollutant Discharge Elimination System.

**NOAEL** - means the % effluent in a sample that causes no observed acute effect (i.e. mortality) to the test population at the 48-hour exposure interval of observation.

**NOEC** - means the % effluent in a sample that causes no observed chronic effect (i.e. reduced growth or reproduction) to the test population at a 7-day exposure interval of observation.

**Pollutant** – means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

**Secretary** – means the Secretary of the Agency of Natural Resources or the Secretary's duly authorized representative.

**Septage** – means the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system, or a holding tank when the system is cleaned or maintained.

**Severe Property Damage** – means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

**Total Nitrogen** - Total Nitrogen (TN) shall be reported as pounds TN and calculated as:  $TN \text{ (mg/L)} \times \text{Total Daily Flow (MGD)} \times 8.34$ ; where  $TN \text{ (mg/L)} = TKN \text{ (mg/L)} + NOx \text{ (mg/L)}$  [MJ1].

**Ultimate Oxygen Demand (UOD)** - UOD shall be reported in pounds and calculated with the following formula:  $UOD \text{ (lbs/day)}_{[PK2]} = [(BOD5 \text{ (lbs/day)} \times 1.43) + (TKN \text{ (lbs/day)} \times 4.57)]$

**Untreated Discharge** – means (1) combined sewer overflows from a WWTF; (2) overflows from sanitary sewers and combined sewer systems that are part of a WWTF during dry weather flows, which result in a discharge to waters of the State; (3) upsets or bypasses around or within a WWTF during dry or wet weather conditions that are due to factors unrelated to a wet weather storm event and that result in a discharge of sewage that has not been fully treated to waters of the State; and (4) discharges from a WWTF to separate storm sewer systems.

**Upset** – means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

**Waste** – means effluent, sewage or any substance or material, liquid, gaseous, solid, or radioactive, including heated liquids, whether or not harmful or deleterious to waters.

**Waste Management Zone** – means a specific reach of Class B waters designated by a permit to accept the discharge of properly treated wastes that prior to treatment contained organisms pathogenic to human beings. Throughout the receiving waters, water quality criteria must be achieved but increased health risks exist in a waste management zone due to the authorized discharge.

**Waters** – means all rivers, streams, creeks, brooks, reservoirs, ponds, lakes, springs, and all bodies of surface waters, artificial or natural, which are contained within, flow through, or border upon the State or any portion of it.

**Weekly Average or Average Weekly Discharge Limitation** – means the highest allowable average of daily discharges (mg/L, lbs or gallons) over a calendar week, calculated as the sum of all daily discharges (mg/L, lbs or gallons) measured during a calendar week divided by the number of daily discharges measured during that week.

**Whole Effluent Toxicity (WET)** – means the aggregate toxic effect of an effluent measured directly by a toxicity test.

**Wastewater Treatment Facility (WWTF)** – means a treatment plant, collection system, pump station, and attendant facilities permitted by the Secretary for the purpose of treating domestic, commercial, or industrial wastewater.

| <b>IV. TABLE OF PERMITTED DISCHARGE POINTS</b> |                        |                  |                 |          |           |
|--|------------------------|------------------|-----------------|----------|-----------|
| Discharge ID                                   | Discharge Activity     | Discharge Status | Receiving Water | Latitude | Longitude |
| 001  | Sanitary Waste Outfall | A                | PHERRINS RIVER  | 44.81201 | -71.88858 |



## Attachment A –Pollutant Scan Parameters

|    |                            |    |                               |     |                              |
|----|----------------------------|----|-------------------------------|-----|------------------------------|
| 1  | Aluminum                   | 35 | Methyl bromide                | 69  | 4 -bromophenyl phenyl ether  |
| 2  | Antimony                   | 36 | Methyl chloride               | 70  | Butyl benzyl phthalate       |
| 3  | Arsenic                    | 37 | Methylene chloride            | 71  | 2-chloronaphthalene          |
| 4  | Beryllium                  | 38 | 1,1,2,2-tetrachloroethane     | 72  | 4 -chlorophenyl phenyl ether |
| 5  | Cadmium                    | 39 | Tetrachloroethylene           | 73  | Chrysene                     |
| 6  | Chromium                   | 40 | Toluene                       | 74  | Di-n-butyl phthalate         |
| 7  | Copper                     | 41 | 1,1,1-trichloroethane         | 75  | Di-n-octyl phthalate         |
| 8  | Lead                       | 42 | 1,1,2-trichloroethane         | 76  | Dibenzo(a,h)anthracene       |
| 9  | Mercury                    | 43 | Trichloroethylene             | 77  | 1,2-dichlorobenzene          |
| 10 | Nickel                     | 44 | Vinyl chloride                | 78  | 1,3-dichlorobenzene          |
| 11 | Selenium                   | 45 | P-chloro-m-creso              | 79  | 1,4-dichlorobenzene          |
| 12 | Silver                     | 46 | 2 -chlorophenol               | 80  | 3,3-dichlorobenzidine        |
| 13 | Thallium                   | 47 | 2,4-dichlorophenol            | 81  | Diethyl phthalate            |
| 14 | Zinc                       | 48 | 2,4-dimethylphenol            | 82  | Dimethyl phthalate           |
| 15 | Cyanide                    | 49 | 4,6-dinitro-o-cresol          | 83  | 2,4-dinitrotoluene           |
| 16 | Total phenolic compounds   | 50 | 2,4-dinitrophenol             | 84  | 2,6-dinitrotoluene           |
| 17 | Acrolein                   | 51 | 2 -nitrophenol                | 85  | 1,2-diphenylhydrazine        |
| 18 | Acrylonitrile              | 52 | 4-nitrophenol                 | 86  | Fluoranthene                 |
| 19 | Benzene                    | 53 | Pentachlorophenol             | 87  | Fluorene                     |
| 20 | Bromoform                  | 54 | Phenol                        | 88  | Hexachlorobenzene            |
| 21 | Carbon tetrachloride       | 55 | 2,4,6-trichlorophenol         | 89  | Hexachlorobutadiene          |
| 22 | Chlorobenzene              | 56 | Acenaphthene                  | 90  | Hexachlorocyclo-pentadiene   |
| 23 | Chlorodibromomethane       | 57 | Acenaphthylene                | 91  | Hexachloroethane             |
| 24 | Chloroethane               | 58 | Anthracene                    | 92  | Indeno(1,2,3-cd)pyrene       |
| 25 | 2 -chloroethylvinyl ether  | 59 | Benzdine                      | 93  | Isophorone                   |
| 26 | Chloroform                 | 60 | Benzo(a)anthracene            | 94  | Naphthalene                  |
| 27 | Dichlorobromomethane       | 61 | Benzo(a)pyrene                | 95  | Nitrobenzene                 |
| 28 | 1,1-dichloroethane         | 62 | 3,4 benzofluoranthene         | 96  | N-nitrosodi-n-propylamine    |
| 29 | 1,2-dichloroethane         | 63 | Benzo(ghi)perylene            | 97  | N-nitrosodimethylamine       |
| 30 | Trans-1,2-dichloroethylene | 64 | Benzo(k)fluoranthene          | 98  | N-nitrosodiphenylamine       |
| 31 | 1,1-dichloroethylene       | 65 | Bis (2-chloroethoxy) methane  | 99  | Phenanthrene                 |
| 32 | 1,2-dichloropropane        | 66 | Bis (2-chloroethyl) ether     | 100 | Pyrene                       |
| 33 | 1,3-dichloropropylene      | 67 | Bis (2-chloroisopropyl) ether | 101 | 1,2,4,-trichlorobenzene      |
| 34 | Ethylbenzene               | 68 | Bis (2-ethylhexyl) phthalate  |     |                              |

AGENCY OF NATURAL RESOURCES  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
WATERSHED MANAGEMENT DIVISION  
ONE NATIONAL LIFE DRIVE, DAVIS BUILDING, 3RD FLOOR  
MONTPELIER, VT 05620-3522

**FACT SHEET FOR DRAFT PERMIT  
(November 2023)**

Permit Number: **3-1213**

PIN: **SJ96-0265**

NPDES Number: **VT0100072**

Facility Name: **Brighton WWTF**  
Facility Address: **365 Meadow St  
Brighton, VT 05846**

Facility Coordinates: Lat: **44.8129** Long: **-71.8901**

Classification: **1 Domestic**

Discharge Point ID 001- PHERRINS RIVER  
and Receiving Water

**I. Facility and Proposed Action**

Applicant's wastewater treatment facility ("facility" or "WWTF") is engaged in the treatment of municipal wastewater in Brighton, Vermont. A map of the facility's location, outfalls, and receiving water is provided in Attachment A. This facility is classified as a Grade 1 Domestic Non-Major NPDES WWTF.

On 11/14/2011, the Secretary of the Vermont Agency of Natural Resources (the "Secretary") received Applicant's renewal application for the permit to discharge into the designated receiving water. The facility's previous permit was issued on 3/23/2007.

The previous permit (the "current permit") has been administratively continued, pursuant to 3 V.S.A. § 814, as the applicant filed a complete application for permit reissuance within the prescribed time period per the Vermont Water Pollution Control Permit Regulations (VWPCPR) § 13.5(b).

**II. Statutory and Regulatory Authority**

Congress enacted the Clean Water Act (CWA or Act), "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." CWA § 101(a). To achieve this objective, the CWA makes it unlawful for any person to discharge any pollutant into the waters of the United States from any point source, except as authorized by specified permitting sections of the Act, one of which is § 402. CWA §§ 301(a), 402(a). Section 402 establishes one of the CWA's principal permitting programs, the National Pollutant Discharge Elimination System (NPDES). Under this section of the Act, the U.S. Environmental Protection Agency (EPA) may "issue a permit for the discharge of any pollutant, or combination of pollutants" in

accordance with certain conditions. CWA § 402(a). The State of Vermont has been approved by the EPA to administer the NPDES Program in Vermont. NPDES permits generally contain discharge limitations and establish related monitoring and reporting requirements. CWA § 402(a)(1) - (2).

Section 301 of the CWA provides for two types of effluent limitations to be included in NPDES permits: “technology-based” limitations and “water quality-based” limitations. CWA §§ 301, 303, 304(b); 40 C.F.R. Parts 122, 125, 131. Technology-based limitations, generally developed on an industry-by-industry basis, reflect a specified level of pollutant-reducing technology available and economically achievable for the type of facility being permitted. CWA § 301(b). As a class, WWTFs must meet performance-based requirements based on available wastewater treatment technology. CWA § 301(b)(1)(B). The performance level for WWTFs is referred to as “secondary treatment.” Secondary treatment is comprised of technology-based requirements expressed in terms of BOD5, TSS, and pH; 40 C.F.R. Part 133.

Water quality-based effluent limits, on the other hand, are designed to ensure that state water quality standards are achieved, irrespective of the technological or economic considerations that inform technology-based limits. Under the CWA, states must develop water quality standards for all water bodies within the state. CWA § 303. These standards have three parts: (1) one or more “designated uses” for each water body or water body segment in the state; (2) water quality “criteria,” consisting of numerical concentration levels and/or narrative statements specifying the amounts of various pollutants that may be present in each water body without impairing the designated uses of that water body; and (3) an antidegradation provision, focused on protecting high quality waters and protecting and maintaining water quality necessary to protect existing uses. CWA § 303(c)(2)(A); 40 C.F.R. § 131.12.

A permit must include limits for any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) that is or may be discharged at a level that causes or has "reasonable potential" to cause or contribute to an excursion above any water quality standard, including narrative water quality criteria. See 40 C.F.R. § 122.44(d)(1). An excursion occurs if the projected or actual instream concentration exceeds the applicable criterion. A NPDES permit must contain effluent limitations and conditions in order to ensure that the discharge does not cause or contribute to water quality standard violations.

Receiving stream requirements are established according to numerical and narrative standards adopted under state law for each stream classification. When using chemical-specific numeric criteria from the State's water quality standards to develop permit limits, both the acute and chronic aquatic life criteria are used and expressed in terms of maximum allowable instream pollutant concentrations. Acute aquatic life criteria are generally implemented through maximum daily limits and chronic aquatic life criteria are generally implemented through average monthly limits.

Where a state has not established a numeric water quality criterion for a specific chemical pollutant that is present in the effluent in a concentration that causes or has a reasonable potential to cause a violation of narrative water quality standards, the permitting authority must establish effluent limits in one of three ways: based on a “calculated numeric criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and fully protect the designated use”; on a “case-by-case basis” using CWA § 304(a) recommended water quality criteria, supplemented as necessary by other relevant information; or, in certain circumstances, based on an “indicator parameter.” 40 C.F.R. § 122.44(d)(1)(vi)(A-C).

The state rules governing Vermont's NPDES permit program are found in the Vermont Water Pollution Control Permit Regulations (Environmental Protection Rule, Chapter 13).

### **III. Permit Limit and Condition Formulation**

#### **A. Reasonable Potential Determination**

In determining whether this permit has the reasonable potential to cause or contribute to an impairment, the Secretary has considered:

- 1) Existing controls on point and non-point sources of pollution as evidenced by the Vermont surface water assessment database;
- 2) Pollutant concentration and variability in the effluent as determined from the permit application materials, monthly discharge monitoring reports (DMRs), or other facility reports;
- 3) Receiving water quality based on targeted water quality and biological assessments of receiving waters, as applicable, or other State or Federal water quality reports;
- 4) Toxicity testing results based on the Vermont Toxic Discharge Control Strategy, and compelled as a condition of prior permits;
- 5) Available dilution of the effluent in the receiving water, expressed as the instream waste concentration. In accordance with the applicable Vermont Water Quality Standards (Environmental Protection Rule, Chapter 29A), available dilution for rivers and streams is based on a known or estimated value of the lowest average flow which occurs for seven (7) consecutive days with a recurrence interval of once in ten (10) years (7Q10) for aquatic life and human health criteria for non-carcinogens, or at all flows for human health (carcinogens only) in the receiving water. For nutrients, available dilution for stream and river discharges is assessed using the low median monthly flow computed as the median flow of the month containing the lowest annual flow. Available dilution for lakes is based on mixing zones of no more than 200 feet in diameter, in any direction, from the effluent discharge point, including as applicable the length of a diffuser apparatus; and
- 6) All effluent limitations, monitoring requirements, and other conditions of the draft permit.

The Reasonable Potential Determination for this facility is attached to this Fact Sheet as Attachment A.

#### **B. Anti-Backsliding**

Section 402(o) of the CWA provides that certain effluent limitations of a renewed, reissued, or modified permit must be at least as stringent as the comparable effluent limitations in the current permit. EPA has also promulgated anti-backsliding regulations which are found at 40 C.F.R. § 122.44(l). Unless applicable anti-backsliding exemptions are met, the limits and conditions in the reissued permit must be at least as stringent as those in the current permit.

### **IV. Facility Information**

#### **A. History**

The Town of Brighton owns and operates the Brighton Wastewater Treatment Facility which is an aerated lagoon facility constructed in 1977. The facility discharges secondary treated, chlorinated/dechlorinated wastewater to the Pherrins River. The #1 lagoon is 1.3 acres in size with a capacity of three million gallons and the #2 lagoon is 0.9 acres and holds 2.2 million gallons. Sludge was last removed from lagoon #1 in 1990. On November 17, 2017, a new stainless steel bar rack was installed to replace the temporary bar rack. The EDI reef aerators are 26-28 years old.

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The collection system consists of approximately 0.8 miles of force mains, six pump stations, and six miles of gravity sewers. The operators check pump stations daily. In 2017, a new centrifugal pump was installed in the dry well of the Meadow Street Pump Station. The Dale Street Pump Station was upgraded from an ejector station to a pump station equipped with two submersible pumps in 2012. The Town works with a third-party contractor, Hartigan Company, to clean rotating portions of the sewer collection system 2 days a year and conduct closed circuit TV (CCTV) inspections one day out of the year. In 2014 three gravity stream crossings were inspected via CCTV. The Pleasant Street pump station is in critical condition and requires refurbishment as of a July 2020 inspection. A field visit in March 2022 confirms the system's pump stations are in need of repair.

## **B. Receiving Water Description**

The Pherrins River downstream of the Brighton WWTF discharge is a Class B (2) water and is designated as Warm Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 19.7 square miles. The facility discharges to a segment of the Pherrins River, upstream from the Clyde River confluence, which is listed in the 2018 List of Priority Surface Waters Part F; for possible lack of minimum flow below water supply withdraw point and therefore a priority for management where aquatic habitat and/or other designated uses are not supported. The existing permitted waste management zone (WMZ) begins at the outfall of the WWTF and extends downstream 3.2 mile pursuant to 10 V.S.A., Section 1252.

Facility Design Flow: 0.150 MGD = 0.232 CFS

Estimated 7Q10 (CFS) = 6.16(June-Sept), 9.76(Oct-May).

CFS Estimated LMM = 15.6

CFS Instream Waste Concentration at 7Q10 Flow(IWC-7Q10) = .0363 (>1%, June- Sept), .0232(>1%, Oct-May)

Instream Waste Concentration at Low Median Monthly Flow (IWC-LMM) = 0.015 (>1%)

## **C. Receiving Water Classification**

All uses Class B with a waste management zone. Class B waters are suitable for swimming and other primary contact recreation; irrigation and agricultural uses; aquatic biota and aquatic habitat; good aesthetic value; boating, fishing, and other recreational uses; and suitable for public water source with filtration and disinfection or other required treatment. A waste management zone is a specific reach of Class B(1) or B(2) waters designated by a permit to accept the discharge of properly treated wastes that prior to treatment contained organisms pathogenic to human beings.

#### **D. Waste Management and Mixing Zones**

A Waste Management Zone (WMZ) is a specific reach of Class B waters designated by a permit to accept the discharge of properly treated wastes that contained organisms pathogenic to human beings prior to treatment. Throughout the receiving waters, water quality criteria must be achieved but increased health risks exist in a WMZ due to the authorized discharge.

The Secretary may establish a WMZ as part of the issuance of a discharge permit as described in 10 V.S.A. § 1252. The model used to determine the WMZ is based upon three precepts of domestic wastewater treatment facility discharges: 1) the use of coliform bacteria as an indicator of pathogenic organisms; 2) despite proper operation and maintenance disinfection failures may occur; and 3) a reasonably sized waste management segment provides a "buffer zone" downstream of the wastewater discharge in which contact recreation is not recommended. If a disinfection failure should occur at the WWTF, the time of travel through this zone will provide time during which some pathogen die-off will occur and may also allow time for public notification. A WMZ is not a Mixing Zone.

This facility currently has a 3.2-mile WMZ.

**Mixing Zone.** A Mixing Zone is a length or area within Class B waters required for the dispersion and dilution of waste discharges adequately treated to meet federal and state treatment requirements and within which it is recognized that specific water uses or water quality criteria associated with the assigned classification for such waters may not be realized. A mixing zone shall not extend more than 200 feet from the point of discharge and must meet the terms of 10 V.S.A. § 29A-204. For a mixing zone to be applicable to a discharge it must be authorized within the discharge permit. The Secretary has made the determination that conditions due to discharges of waste within any mixing zone shall:

- a. not result in a significant increase in public health risk when evaluated using reasonable assumptions about exposure pathways;
- b. not constitute a barrier to the passage or movement of fish or prevent the full support of aquatic biota, wildlife, and aquatic habitat uses in the receiving waters outside the mixing zone;
- c. not kill organisms passing through;
- d. protect and maintain the existing uses of the waters;
- e. be free from materials in concentrations that settle to form objectionable deposits;
- f. be free from floating debris, oil, scum, and other material in concentrations that form nuisances;

- g. be free from substances in concentrations that produce objectionable color, odor, taste, or turbidity; and
- h. be free from substances in concentrations that produce undesirable aquatic life or result in a dominance of nuisance species. (Vermont Water Quality Standards § 29A-204(a)).

This facility currently does not have a mixing zone.

#### **E. Pretreaters**

There are no pretreaters permitted under the NPDES program discharging to the collection system.

#### **V. Monitoring**

##### **A. Discharge Sampling Points**

Influent and Effluent sampling points are not proposed to change.

##### **B. Flow Monitoring at Discharge Point 001**

###### **Flow, In Conduit Or Thru Treatment Plant, Monitoring Notes - Annual Average, Calculated**

###### **Flow – Monitoring Notes: Effluent Gross Value, Continuous**

The draft permit maintains the annual average flow limitation. This facility maintains a constant discharge and continuous flow monitoring is required. Monthly average, daily maximum and annual average flow rates are required for use in assessing compliance with the permit limitation and the design capacity of the WWTF.

##### **C. Conventional Pollutants Monitoring at Discharge Point 001**

###### **1. Biochemical Oxygen Demand, 5-Day (BOD5) - Monitoring Notes: Percent Removal, Calculated**

This facility is eligible for equivalent to secondary treatment standards for BOD5 removal and must consistently achieve a 30-day average of at least 85 percent. This limit is a Technology-Based Effluent Limitation (TBEL) established by the Clean Water Act that requires WWTFs to achieve a minimum level of effluent quality. TBELs are based on available technologies to reduce discharges of pollutants into waters of the United States and are developed independently of the potential impact of a discharge on the receiving water.

###### **2. BOD, 5-Day - Monitoring Notes: Effluent Gross Value, 8 Hour Comp**

The effluent limitations for BOD5 remain unchanged from the current permit. The monthly and weekly averages reflect the minimum level of effluent quality specified for secondary treatment in 40 C.F.R. Part 133.102. In addition, the draft permit contains a maximum day, BOD5 limitation pursuant to Vermont Water Pollution Control Permit Regulations § 13.4.c. The Secretary implements the limitation to supplement the federal technology-based limitations. This is designed to prevent a gross one-day permit effluent violation from being offset by multiple weekly and monthly sampling events, which would enable a discharger to comply with the weekly average and monthly average permit limitations. Mass limits are calculated using the

concentration limits outlined above. Composite samples shall be taken during the hours 6:00 a.m. to 6:00 p.m. unless otherwise specified. Eight hours is the minimum period for the composite.

**3. BOD, 5-Day - Monitoring Notes: Influent, 8 Hour Comp, Calculated**

Influent monitoring for BOD5 shall remain once monthly as a “monitor only” condition in the permit renewal.

Values shall continue to be used to calculate percent removal of BOD5. Average monthly daily loading has been added as a reporting requirement to track loading compared to design standards.

**4. Chlorine, Total Residual - Monitoring Notes: Effluent Gross Value, Grab**

The effluent limitation for TRC remains unchanged from the current permit. The TRC instantaneous maximum limit is set in accordance with the Policy for the protection of aquatic biota and ensures compliance with the Vermont Water Quality Standards. The Permittee is not obliged to meet effluent limit for Total Residual Chlorine (TRC) from November 1 through March 31, unless chlorination is occurring. Total Residual Chlorine shall be monitored both prior to and following dechlorination. On the day that the E. coli grab sample is collected, the daily total residual chlorine grab sample for that day shall be collected at the same time and location as the E. coli sample and reported on the WR-43 form.

**5. E. Coli - Monitoring Notes: Effluent Gross Value, Grab**

The instantaneous maximum E. coli limitation remains unchanged and is based upon the limitation in the current permit and the anti-backsliding provisions of Section 402(o) of the CWA. Based on the previous permit the Permittee is not obliged to meet the effluent limit for E. coli from November 1 through March 31. Samples shall be collected between the hours of 6:00 A.M. to 6:00 P.M.

A weekly monitoring requirement for E. coli has been included in this permit. Additional monitoring is included with the goal of reducing the likelihood of illness associated with freshwater recreational activities during the contact recreation season and supports the ability of the Permittee to promptly notify the public of an exceedance of Water Quality Standards (WQS) for pathogens. The E. coli limitation remains at 77 cfu/100 ml, instantaneous maximum as specified in the current permit and the anti-backsliding provisions of Section 402(o) of the CWA.

**6. pH - Monitoring Notes: Effluent Gross Value, Grab**

The pH limitation remains at 6.5 - 8.5 Standard Units as specified by Vermont Water Quality Standards § 29A-303(6). Monitoring frequency remains daily.

**7. Settleable Solids - Monitoring Notes: Effluent Gross Value, Grab**

The settleable solids limitation of 1.0 mL/L instantaneous maximum and daily monitoring remain unchanged from the current permit. This numeric limit was established in support of the narrative standard in Vermont Water Quality Standards § 29A-303(2).



## **8. Solids, Suspended Percent Removal, Monitoring Notes: Percent Removal, Calculated**

As required in the current permit, the TSS monthly average percent removal shall not be less than 85 percent as specified by 40 C.F.R. §133.102(b)(3). This limit is a Technology-Based Effluent Limitation (TBEL) established by the Clean Water Act that requires WWTFs to achieve a minimum level of effluent quality. TBELs are based on available technologies to reduce discharges of pollutants into waters of the United States and are developed independently of the potential impact of a discharge on the receiving water.

## **9. Total Suspended Solids, Monitoring Notes: Effluent Gross Value, 8 Hour Comp**

The effluent limitations for Total Suspended Solids remain unchanged from the current permit. The monthly and weekly averages reflect the minimum level of effluent quality specified for secondary treatment in 40 C.F.R. Part 133.102. In addition, the draft permit contains a maximum day TSS limitation pursuant to Vermont Water Pollution Control Permit Regulations § 13.4 c. The maximum day limitation supplements the federal technology-based limitations to prevent a gross one-day permit effluent violation from being offset by multiple weekly and monthly sampling events to achieve the weekly and monthly averages. The mass limits are calculated using the concentration limits outlined above.

## **10. Total Suspended Solids - Monitoring Notes: Influent, 8 Hour Comp, Calculated**

Influent monitoring for TSS shall remain once monthly as a “monitor only” condition in the permit renewal.

Values shall continue to be used to calculate percent removal of TSS. Average monthly daily loading has been added as a reporting requirement to track loading compared to design standards.

## **D. Nutrients Monitoring at Discharge Point 001**

### **1. Total Nitrate & Total Nitrite (as N) - Monitoring Notes: Effluent Gross Value, 8 Hour Comp**

Nitrite Plus Nitrate as Nitrogen (NO<sub>x</sub>) – Nitrite (NO<sub>2</sub><sup>-</sup>) and Nitrate (NO<sub>3</sub><sup>-</sup>) are oxidized forms of Nitrogen. NO<sub>x</sub> is needed to calculate Total Nitrogen (TN).

To gather data on the amount of Total Nitrogen in this discharge, Nitrite (NO<sub>2</sub><sup>-</sup>) plus Nitrate (NO<sub>3</sub><sup>-</sup>) monitoring is proposed in the renewed permit. The sum of Nitrite (NO<sub>2</sub><sup>-</sup>) and Nitrate (NO<sub>3</sub><sup>-</sup>) is represented as NO<sub>x</sub> to simplify the notation in wastewater chemistry. The x represents the number of Oxygen atoms (2 or 3) and the negative charge notation (-) is dropped. This notation is also used in atmospheric chemistry where other oxidation states are possible. NO<sub>2</sub><sup>-</sup> + NO<sub>3</sub><sup>-</sup> = NO<sub>x</sub> Test results are reported in terms of Nitrogen (N) because water quality standards are generally expressed in terms of Nitrogen for simplicity and consistency. This constituent (NO<sub>x</sub>) is sometimes also shown as (NO<sub>2</sub>/NO<sub>3</sub>), No<sub>x</sub>, NO<sub>x</sub>, Nitrate/Nitrite Nitrogen, and Nitrite Plus Nitrate Total 1 Det. (As N). To gather data on the amount of NO<sub>x</sub> in this discharge and its potential impact on the receiving water, a “monitor only” quarterly sampling requirement is included in the draft permit.

### **2. Nitrogen, Ammonia Total - Monitoring Notes: Effluent Gross Value, Grab**

To gather data on the amount of TAN in this discharge and its potential impact on the receiving water, a monthly “monitor only” sampling requirement has been added.

The TAN sample for January-February and August-October can be the same one used for the WET test if the samples are collected on the same day.

### **3. Nitrogen, Kjeldahl Total - Monitoring Notes: Effluent Gross Value, 8 Hour Comp**

TKN is the sum of nitrogen in the forms of ammonia (un-ionized (NH<sub>3</sub>) and ionized (NH<sub>4</sub><sup>+</sup>)), soluble organic nitrogen, and particulate organic nitrogen. To gather data on the amount of TKN in this discharge and its potential impact on the receiving water, a quarterly “monitor only” sampling requirement is included in the draft permit.

### **4. Nitrogen, Total - Monitoring Notes: Effluent Gross Value, Calculated**

TN is the sum of nitrate, nitrite, ammonia, soluble organic nitrogen, and particulate organic nitrogen. To gather data on the amount of Total Nitrogen (TN) in this discharge and its potential impact on the receiving water, a “monitor only” requirement for TN has been included in this permit. TN is a calculated value based on the sum of NO<sub>x</sub> and TKN, and, shall be reported as pounds, calculated as:

$$\text{Average TN (mg/L)} \times \text{Total Daily Flow (MGD)} \times 8.34$$
$$\text{where TN (mg/L)} = \text{TKN (mg/L)} + \text{NO}_x \text{ (mg/L)}$$

Per EPA excess nitrogen (N) and phosphorus (P) are the leading cause of water quality degradation in the United States. Historically, nutrient management focused on limiting a single nutrient—phosphorus or nitrogen—based on assumptions that production is usually phosphorus limited in freshwater and nitrogen limited in marine waters. Scientific research demonstrates this is an overly simplistic model. The evidence clearly indicates management of both phosphorus and nitrogen is necessary to protect water quality. The literature shows that aquatic flora and fauna have differing nutrient needs: some are P dependent, others N dependent and others are co-dependent on these two nutrients. Like P, N promotes noxious aquatic plants and algal growth. High concentrations of P and N together cause greater growth of algae than P alone. The relative abundance of these nutrients also influences the type of species within the community. Furthermore, a high N-to-P ratio may exacerbate the growth of cyanobacteria, while elevated levels of nitrogen increase toxicity in some cyanobacteria species.

Given the dynamic nature of all aquatic ecosystems, for the State to fully understand the degradation to water quality it is necessary to limit P and monitor bioavailable N (including nitrate, ammonium, and certain dissolved organic nitrogen compounds).

Facilities with design flow greater than 1 MGD will complete monthly monitoring unless more frequent sampling is required by the current permit. Facilities with design flows less than 1 MGD will complete quarterly monitoring unless more frequent sampling is required by the current permit.

To calculate the effluent results for Total Nitrogen (TN), quarterly monitoring is proposed for Total Kjeldahl Nitrogen (TKN), Nitrate (NO<sub>3</sub><sup>-</sup>), and Nitrite (NO<sub>2</sub><sup>-</sup>). Each nitrogenous constituent should be reported using an appropriate combination of CWA approved methods and arithmetic (i.e., TN = TKN + NO<sub>3</sub><sup>-</sup> + NO<sub>2</sub><sup>-</sup>).

## 5. Phosphorus, Total, Monitoring Notes: Annual Average, Calculated & Comp

### Lake Memphremagog Total Maximum Daily Load

#### Background:

Excess phosphorus entering Lake Memphremagog from a variety of sources has impaired the water quality of the lake. The Lake Memphremagog Phosphorus Total Maximum Daily Load (LM TMDL) places a cap on the maximum amount of phosphorus from point and non-point sources that is allowed to flow into the lake while still meeting Vermont's water quality standards. The EPA approved phosphorus TMDLs for the Vermont Lake segment of Lake Memphremagog developed in collaboration with the Vermont Agency of Natural Resources, Department of Environmental Conservation and the Vermont Agency of Agriculture, Food, and Markets, and released the document titled "Lake Memphremagog Phosphorus Total Maximum Daily Load" (September 2017). The 2017 LM TMDL specifies allowable phosphorus loads, or waste load allocations (WLA), expressed as pounds per year (lbs./yr.), for each of the four WWTFs that discharge to the Lake's watershed.

The LM TMDL establishes new annual WLAs for all four WWTFs that discharge to the Vermont Lake segment's watershed. These new WLAs were calculated by implementing a 33.2% reduction from current permitted loading levels. In the LM TMDL, the Secretary employed flexible approaches to implementing the WWTF WLAs including "providing a period of time for optimization to be pursued and the corresponding load reduction results to be realized, and then commencement of the process to upgrade phosphorus treatment facilities will be required when actual phosphorus loads reach 80% of the LM TMDL limits." The Wastewater Management Program maintains a tracking system for phosphorus loading from Vermont WWTFs so facilities approaching or over the 80% threshold can be identified. The 80% phosphorus load threshold is calculated by comparing the individual WWTF phosphorus WLA established in the LM TMDL to the actual phosphorus discharge load from the WWTF over last 12 months:

$$\text{WWTF Annual TP Load} / \text{LM TMDL WLA} \times 100$$

To ensure facilities are operating as efficiently as possible, all reissued wastewater discharge (NPDES) permits under the LM TMDL will specify a period of 12-months for optimization to be pursued and the corresponding load reduction results to be realized, prior to evaluating where a facility ranks relative to the 80% trigger. Discharge permits will specify that after the optimization period, when an existing facility reaches 80% of its WLA for phosphorus (evaluated as a rolling, 12-month load), the Permittee will have to develop and submit a projection of whether the facility will exceed its WLA during the permit term and if it is projected to do so, then the Permittee will be required to develop a Phosphorus Elimination/Reduction Plan (PERP) that will ensure the facility continues to comply with its WLA.

Effluent TP limits in permits are expressed as total annual mass, and for facilities that currently have an existing monthly effluent concentration limit for TP in their NPDES permit, as monthly average concentration limits.

#### Phosphorus Limit in Draft Permit:

This proposed draft permit contains a phosphorous effluent concentration limit of 1.7 mg/l, monthly average, and a mass effluent limit of 769 total pounds, annual limitation that goes into effect upon completion of the facility upgrade or by 02/28/2027, whichever occurs first. This limit is a calculated WQBEL and supersedes but does not eliminate the LM TMDL for Brighton. The annual load allocated to Brighton from the LM

TMDL results in a violation of water quality standards. Details on this process can be found in the Reasonable Potential Determination Memo.

The LM TMDL includes WLAs for WWTFs expressed as total annual mass loads. Compliance with the annual limit will be calculated each month using the Running Total Annual Pounds Calculation (Condition I.B.4. of the permit), rather than once at the end of the calendar year. The LM TMDL does not include monthly average concentration effluent limits for WWTFs. State law (10 V.S.A. 1266a) requires that, “No person directly discharging into the drainage basins of Lake Champlain or Lake Memphremagog shall discharge any waste that contains a phosphorus concentration in excess of 0.80 milligrams per liter on a monthly average basis. Discharges of less than 200,000 gallons per day, permitted on or before July 1, 1991, shall not be subject to the requirements of this subsection. Discharges from a municipally owned aerated lagoon type secondary sewage treatment plant in the Lake Memphremagog drainage basin, permitted on or before July 1, 1991, shall not be subject to the requirements of this subsection unless the plant is modified to use a technology other than aerated lagoons”.

The Permittee must comply with both limitations and as required by the permit, must operate the facility to meet the more restrictive limitation, which may vary depending upon discharge flows at the facility. If the facility is operating at design flows, the annual mass load limitation will be the more restrictive limitation. However, if the facility is operating at low flows, the monthly average concentration limit may be the more restrictive limitation. Monthly sampling for total phosphorus is required.

Condition I.B.2.c. of this draft permit requires the submission of monitoring reports to the Secretary specific to tracking TP in the discharge. A report that documents the annual TP discharged from the facility, summarizes phosphorus removal optimization and efficiencies, and tracks trends relative to the previous year shall be attached to the December WR-43 form. The annual and monthly TP loads discharged from the facility shall also be reported electronically with other required parameters.

### **Phosphorus Limit Compliance Schedule:**

Under Section 13.4(d) of the VWPCPR, the Secretary may set schedules in permits to achieve compliance, within the shortest reasonable period of time, with applicable effluent standards and limitations, water quality standards, and other legally applicable requirements. When compliance will require more than nine months, the schedule of compliance shall include interim requirements, spaced no more than nine months apart, such as submission of reports of progress towards completion of the tasks necessary to achieve compliance.

The Secretary is including a compliance schedule in this permit because the Secretary has determined that the Permittee is unable to immediately comply with the TP limit upon the effective date of the permit given its current facility and treatment processes. There is a need for modification of the WWTF and its operations in order to meet the new TP limit.

The Secretary/Agency is aware the Permittee remains unable to comply with the TP permit limits proposed because the existing facility remains unequipped with the technology to treat the effluent to a quality that meets the VWQS. A compliance schedule is proposed for the WWTF to comply with the new limits effective upon completion of the facility upgrade; pursuant to draft permit Condition I.A.2.a. (769 lbs, annually; 1.7 mg/L, monthly average, year-round).

In the interim, from the permit effective date, the Permittee shall comply with the increased monitoring frequency included in draft permit Condition I.A.1.a (monitor lbs, annually; monitor mg/L, monthly average, year-round).

### **Phosphorus Optimization and Elimination/Reduction Plans:**

To ensure the facility is operating as efficiently as possible for purposes of phosphorus removal, Condition I.G.3. of the permit requires that within 120 days of the facility upgrade being fully operational, or June 30, 2027, whichever occurs first: The Permittee shall develop or update (as appropriate), and submit to the Secretary, a Phosphorus Optimization Plan (POP) to increase the WWTF's phosphorus removal efficiency by implementing optimization techniques that achieve phosphorus reductions using primarily existing facilities and equipment. The techniques to be evaluated may include operational process changes to enhance biological and/or chemical phosphorous removal, incorporation of anaerobic/anoxic zones, septage receiving policies and procedures, and side stream management.

The facility shall have 12 months from the facility upgrade completion to optimize removal of total phosphorus, or until February 28, 2028, whichever occurs first. If, after the 12-month optimization period, the WWTF's actual TP loads reach or exceed 80% of the LM TMDL WLA for the WWTF, based on the WWTF's 12-month running annual load calculated using the Phosphorus Load Calculation (Condition I.G.4. of the permit) the Permittee shall, within 90 days of reaching or exceeding 80% of the LM TMDL WLA for the WWTF, develop and submit to the Secretary a projection based on the WWTF's current operations and expected future loadings of whether it will exceed its WLA during the permit term.

If the facility is not projected to exceed its WLA within the permit term, the WWTF shall reassess when it is projected to reach its WLA prior to permit renewal and submit that information with its next permit application. If the facility is projected to exceed its WLA during the permit term, the Permittee shall submit a Phosphorus Elimination/Reduction Plan (PERP) within 6 months to the Secretary to ensure the WWTF continues to comply with its WLA.

The PERP shall be treated as an application to amend the permit, and therefore, shall be subject to all public notice, hearing, and comment provisions, in place at the time the plan is submitted, that are applicable to permit amendments. The WWTF shall revise the PERP, if required by the Secretary.

## **VI. Permit Schedule Items**

### **A. Annual Constituent Monitoring**

For all facilities with a design flow greater than 0.1 MGD, 40 CFR § 122.21(j) requires the submittal of effluent monitoring data for those parameters identified in the draft permit. Samples must be collected once annually such that by the end of the term of the permit, all quarters have been sampled at least once, and the results will be submitted by December 31 of each year.

### **B. Emergency Power Failure Plan**

To ensure the facility can continue operations during the event of a power failure, within 90 days of the effective date of the permit, the Permittee must submit to the Secretary updated documentation addressing how the discharge will be handled in the event of an electric power outage.

### **C. Engineering Evaluation and Report/Asset Management Plan**

An engineering evaluation condition is included in this permit. This condition requires the Permittee to conduct an in-depth inspection and report of the treatment facility to identify and repair equipment, processes, and other possible deficiencies which may adversely affect effluent quality or proper operation. This type of evaluation is required once every 20 years.

While it is known the Brighton WWTF is beginning a treatment facility upgrade, the collection system and any equipment not subject to the upgrade must be evaluated.

### **D. Operations Management Emergency Response Plan (OMERP)**

As required by the revisions to 10 V.S.A. Section 1278 the Permittee shall prepare and submit to the Agency for review and approval an updated Operation, Management, and Emergency Response Plan for the WWTF, sewage pump/ejector stations, stream crossings, and sewage collection system.

### **E. Pollutant Scan (Majors or IWC >2.5%)**

Municipal facilities greater than 1 MGD or with a 7Q10 instream waste concentration greater than 2.5% pose a higher risk of discharging an effluent that may lead to toxicity in the receiving water. Therefore, these facilities are required to conduct an effluent analysis of S/N 001 for the pollutants included in 40 CFR § 122 Appendix J Table 2 and Aluminum, included as Attachment A of the permit, and submit the results to the Secretary.

In addition, this draft permit adds Aluminum to the Pollutant Scan as Vermont Water Quality Standards will be incorporating the EPA's 2018 National Recommended Water Quality Criteria for Aluminum. Aluminum is not part of a standard Pollutant Scan; therefore it is advised that the Permittee specifically request the laboratory include Aluminum in the Pollutant Scan analysis. EPA's 2018 National Recommended Water Quality Criteria for Aluminum are calculated based on water chemistry parameters that include Dissolved Organic Carbon (DOC) and Total Hardness, which have been included as concurrent sampling and analysis in this the permit with the Pollutant Scan and the results shall be submitted electronically through the ANR Online eDMR for the month the samples were collected. Total Hardness is typically included in the WET test report and is acceptable data to report on the ANR Online eDMR if taken from a concurrent sample with the Metals Scan.

In order to meet federal minimum data requirements at permit renewal, collect data to evaluate effluent toxicity, and support the calculation of reasonable potential and permit limits, concurrent testing of parameters included in the Pollutant Scan are included with the increased WET testing frequency. These results provide the benefit of additional context for the WET test results, as well as more data to assess compliance with the VWQS at permit renewal.

To provide data for future assessment of metals toxicity reasonable potential in the receiving water, the metals data from the Pollutant Scan shall be taken from the laboratory report and submitted electronically through ANR Online eDMR submission for the month the samples were collected. For the months not sampled, the Permittee shall enter No Data Indicator (NODI) "Conditional Monitoring-Not Required This Period" and sample frequency "NA" in the ANR Online eDMR. The full Pollutant Scan laboratory report shall be submitted to the Secretary according to the schedule provided in the draft permit.

Based upon the results of these tests, the Secretary reserves the right to reopen and amend this permit to change the monitoring frequency.

The first required Pollutant Scan shall be during August-October 2024.

#### **F. Quality Assurance Report / Proficiency Testing**

To ensure there are adequate laboratory controls and appropriate quality assurance procedures, the Permittee shall conduct an annual laboratory proficiency test for the analysis of all pollutant parameters performed within their facility laboratory and reported as required by their NPDES permit. Proficiency Test samples must be obtained from an accredited laboratory or as part of an EPA DMR-QA study. Results shall be submitted to the Secretary by December 31, annually. The first proficiency test is due 12/31/2024.

#### **G. Sludge Depth Monitoring**

Annually, in the fall, the Permittee shall measure the sludge depth throughout the treatment lagoons. The results of the sludge measurements and a copy of a plan depicting the grid location of the measurements shall be submitted with the corresponding Discharge Monitoring Report (DMR) form WR-43.

#### **H. Whole Effluent Toxicity (WET) Testing (Majors or IWC>2.5%)**

40 C.F.R. Part 122.44(d)(1) requires the Secretary to assess whether the discharge causes or has the reasonable potential to cause or contribute to an excursion above any narrative or numeric water quality criteria. Under the Vermont Water Quality Standards § 29A-303(7)(A)(iii) waters shall be managed to prevent the discharge of toxic substances in concentrations, quantities, or combinations that exceed acute or chronic toxicity to aquatic biota or wildlife. Per these Federal and State requirements, the Permittee shall conduct Whole Effluent Toxicity (WET) testing and toxic pollutant analyses (i.e. Pollutant Scan and Total Ammonia Nitrogen) according to the frequency outlined in the draft permit. The WET test replicates the effect various concentrations of effluent have in the receiving water on a representative species of vertebrate and invertebrate.

Major municipal facilities and those with 7Q10 instream waste concentrations (IWC) greater than 2.5% pose a higher risk of discharging an effluent that may lead to toxicity in the receiving water and shall be required to conduct modified acute/chronic WET tests (48-hour static renewal acute endpoints within a 7-day sub-lethal chronic test) on 24-hour composite effluent samples and pollutant scans twice a year in the winter (January-February) and late summer/early fall (August-October).

This draft permit includes a requirement that a dilution reflecting the IWC at 7Q10 flow be added to the WET test dilution series in order to optimize the precision of calculated effect concentrations and assist in establishing concentration-response relationships. This facility's 7Q10 IWC is 3.63% in the summer and 2.32% in the winter.

Results for the NOEC, NOAEL, IC25 and LC50 shall be reported in the ANR Online eDMR for the month the samples were collected. Laboratories may report C-NOEC or Chronic NOEC, which are equivalent to NOEC, and A-NOEC or Acute NOEC, which are equivalent to NOAEL. For the months not sampled, the Permittee shall enter the No data Indicator (NODI) "Conditional Monitoring-Not Required This Period" and sample frequency "NA" in the ANR Online eDMR.

Based upon the results of these tests or any other toxicity tests conducted, the Secretary reserves the right to reopen and amend this permit to change the WET testing frequency, or require a Toxicity Identification Evaluation, and/or a Toxicity Reduction Evaluation.

The first required WET test shall be during August-October 2024.

## **VI. General Conditions**

### **A. Electronic Reporting**

The National Pollution Discharge Elimination System (NPDES) Electronic Reporting Rule (eRule) modernized Clean Water Act reporting for municipalities, industries, and other facilities by converting to an electronic data reporting system. The eRule requires the inclusion of electronic reporting requirements in NPDES permits that become effective after December 21, 2015. The rule requires that NPDES regulated entities that are required to submit discharge monitoring reports (DMRs), including majors and nonmajors, individually permitted or covered by a general permit, must do so electronically after December 21, 2016. The Secretary has created an electronic reporting system for DMRs and has trained facilities in its use. As of December 21, 2020, these NPDES facilities must also submit additional information electronically as specified in Appendix A in 40 C.F.R. Part 127.

### **B. Noncompliance Notification -**

As required by 10 V.S.A. § 1295, a Noncompliance Notification has been included in the draft permit. Section 1295 requires the Permittee to provide public notification of untreated discharges from wastewater facilities. The Permittee is required to post a public alert within one hour of discovery and submit to the Secretary specified information regarding the discharge within 12 hours of discovery.

**C. Reopener -** The draft permit includes a reopener clause whereby the Secretary reserves the right to reopen and amend the permit to implement an integrated plan to address multiple Clean Water Act obligations.

## **VII. Final Determinations**



The public comment period for receiving comments on this draft permit is from **December 12, 2023 through January 11, 2024**, during which time interested persons may submit their written views on the draft permit. The Secretary will consider and respond to written comments received by 4:30 PM on **January 11, 2023**, will be retained by the Secretary and considered in the formulation of the final determination to issue, deny or modify the draft permit. The period of comment may be extended at the discretion of the Secretary.

Public comments concerning draft permits may be submitted electronically via the Environmental Notice Bulletin (ENB) or by paper copy to the Agency's mailing address: Agency of Natural Resources, Department of Environmental Conservation, Watershed Management Division, One National Life Drive, Davis Building, 3rd Floor, Montpelier, VT 05620-3522. In addition to providing a portal for submitting public comments, the ENB website presents the permit processing history and draft permit documents and can be used to request public meetings. The ENB public site is <http://enb.vermont.gov> and the ENB information page is <http://dec.vermont.gov/permits/enb>.

The complete application, draft permit, and other information are on file and may be inspected by appointment on the 3rd floor of the Davis Building at One National Life Drive, Montpelier, Vermont. Copies may be obtained by calling 802-828-1115 from 7:45 AM to 4:30 PM Monday through Friday and will be made at a cost based upon the current Secretary of State Official Fee Schedule for Copying Public Records. The draft permit and fact sheet may also be viewed on the Watershed Management Division's website at <https://anrweb.vt.gov/DEC/IWIS/ReportViewer2.aspx?Report=WWPublicNotices&ViewParms=False>.

For additional information contact Aaron Krymkowski, [aaron.krymkowski@vermont.gov](mailto:aaron.krymkowski@vermont.gov).

### **Public Meetings**

Any interested person or groups of persons may file a written request for a public meeting with respect to this draft permit. Any such request for a public meeting shall be filed within the public comment period described above and shall state the nature of the issues proposed to be raised. Any public meeting in response to such a request will be held in the geographical area of the proposed discharge or other appropriate area, at the discretion of the Agency and may, as appropriate, consider a group of related draft permits.

Any person may submit oral or written statements and data concerning the draft permit at the public meeting. The Agency may establish reasonable limits on the time allowed for oral statements and may require the submission of statements in writing. All statements, comments, and data presented at the public meeting will be retained by the Agency and considered in the formulation of the final determination on the draft permit.

### **Final Action/Right to Appeal to the Environmental Division of the Superior Court**

Pursuant to 10 V.S.A. § 8504 (amended effective January 1, 2018), an aggrieved person shall not appeal the final determination on the draft permit unless the person submitted to ANR a written comment during the applicable public comment period or an oral comment at the public hearing conducted by ANR. Absent a determination of the Environmental judge to the contrary, an aggrieved person may only appeal issues related to the person's comments to ANR as prescribed by 10 V.S.A. § 8504(d)(2).

Pursuant to 10 V.S.A. Chapter 220 and the Vermont Rules for Environmental Court Proceedings, any appeal of this permit or an authorization made pursuant to this permit, except for an appeal of a permit for a renewable energy plant, must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the decision. The address for the Vermont Environmental Court is: Vermont Superior Court, Environmental Division, 32 Cherry Street, 2nd Floor, Suite 303, Burlington VT 05401 (Tel. (802) 951-1740). For further information, see the Vermont Rules for Environmental Court Proceedings, available online at [www.vermontjudiciary.org](http://www.vermontjudiciary.org).

The notice of appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or the appellant's attorney. In addition, the appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the notice of appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings.

If the determination relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. § 248, any appeal of such determination must be file

d with the Vermont Public Utility Commission pursuant to 10 V.S.A. § 8506. Section 8506 does not apply to a facility that is subject to 10 V.S.A. § 1004 (dams before the Federal Energy Regulatory Commission), 10 V.S.A. § 1006 (certification of hydroelectric projects), or 10 V.S.A. Chapter 43 (dams). Any appeal under Section 8506 must be filed with the clerk of the Public Utility Commission within 30 days of the date of this decision; the appellant must file with the clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. § 8504(c)(2) and shall also serve a copy of the notice of appeal on the Vermont Public Service Department. For further information, see the Rules and General Orders of the Public Utility Commission.

**Vermont Agency of Natural Resources  
Department of Environmental Conservation  
Watershed Management Division  
1 National Life Drive, Davis 3  
802-828-1115**

**MEMORANDUM**

Prepared by: Aaron Krymkowski, Wastewater Program (WWP)



Cc: Amy Polaczyk, Manager, WWP  
Anna Gallagher, TMDL Assessment, Standards and Compliance (TASC)  
Pete LaFlamme, Director, WSMD  
Bethany Sargent, Deputy Director, WSMD

Date: November 21, 2023

Subject: Brighton Wastewater Treatment Facility Reasonable Potential Determination (RPD) and Water Quality Based Effluent Limit (WQBEL) Calculation for NPDES Direct Discharge Permit 3-1213.

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**I. Facility Information**

Brighton Wastewater Treatment Facility (WWTF) located in Brighton, VT

Permit No. 3-1213

NPDES No. VT0100072

Facility Type and Grade: Lagoon Grade 1 Domestic

Receiving Water: Pherrins River

Facility Address: Brighton

Facility Location: 44.81295, -71.8901 (NAD 83)

Approximate Outfall Location: 44.8120, -71.8885 (NAD 83)

The Town of Brighton owns and operates the Brighton Wastewater Treatment Facility (WWTF). The treatment process consists of secondary treatment utilizing aerated lagoons with chlorination and dechlorination.

## II. Receiving Water Information

The Pherrins River downstream of the Brighton WWTF discharge is a Class B(2) Slow, Low-Gradient water and is designated as both Warm and Cold Water - Seasonal Fish Habitat. At the point of discharge, the river has a contributing drainage area of 19.7 square miles. The existing permitted waste management zone (WMZ) begins at the outfall of the WWTF and extends downstream 3.20 mile (Figure 1) pursuant to 10 V.S.A., Section 1252.

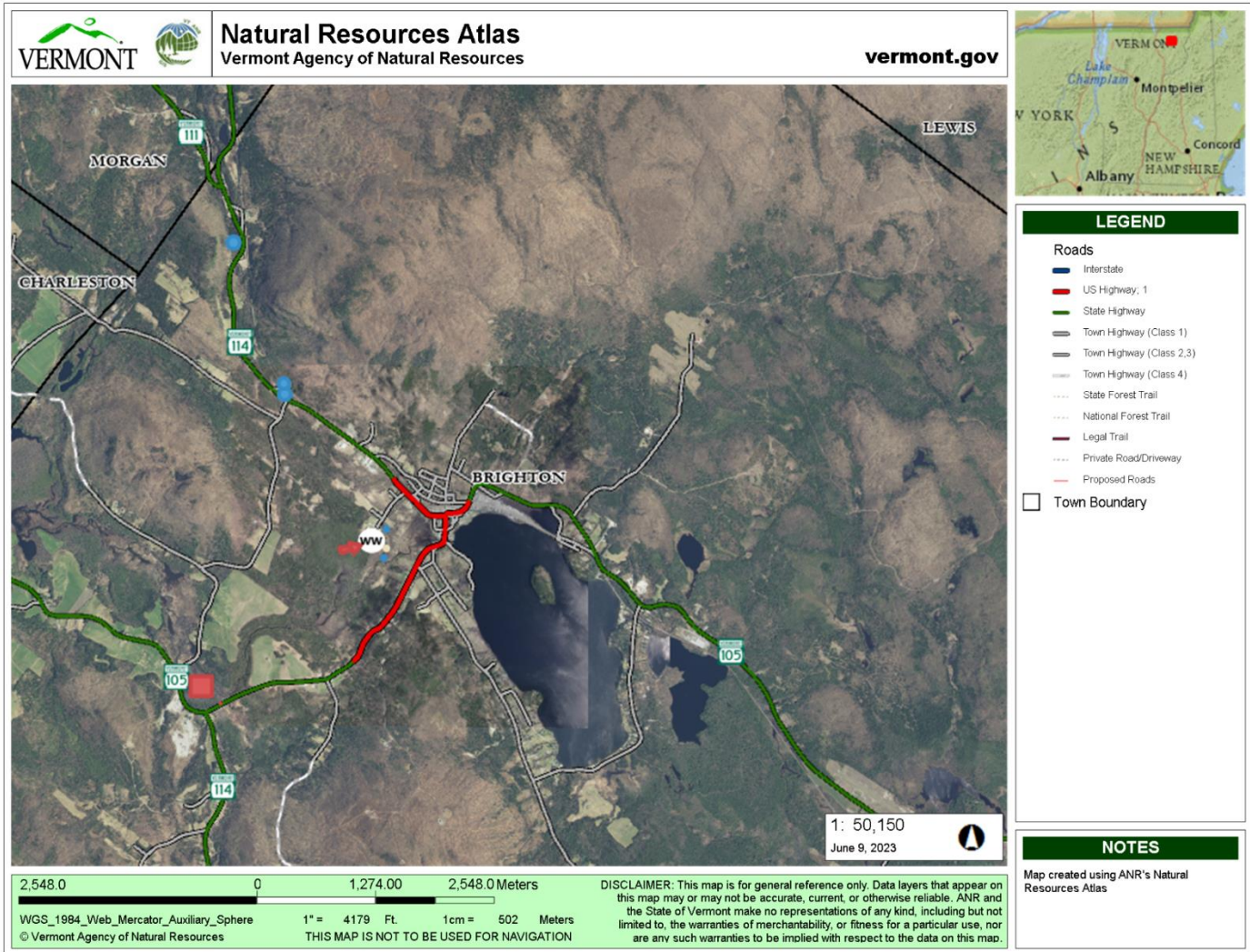


Figure 1. Pherrins River near the Brighton WWTF. The facility is represented by a white dot labeled “WW” and a red arrow, the outfall location is indicated by a yellow dot, upstream sampling locations at RM 0.6, 1.9, 2.0, 3.1 and downstream monitoring locations at RM 0.4 shown by blue dots, and the end of the 3.2 long WMZ is represented by the red square. Figure produced with the Vermont Integrated Watershed Assessment System on the VT Agency of Natural Resources Atlas (<https://anrweb.vt.gov/DEC/IWIS/>).

### III. Hydrology for Brighton WWTF used in the Reasonable Potential Determination and Water Quality Based Limit Calculations

Table 1. Effluent Flow – Permitted Annual Average

| Permitted Design Flow |       |
|-----------------------|-------|
| MGD                   | CFS   |
| 0.150                 | 0.232 |

Table 2. Pherrins River Hydrology and Instream Waste Concentrations (IWC)

|                                 | Annual (CFS) | Annual IWC | June – Sept (CFS) | June – Sept IWC | Oct – May (CFS) | Oct – May IWC |
|---------------------------------|--------------|------------|-------------------|-----------------|-----------------|---------------|
| <b>7Q10</b>                     | 6.34         | 3.53%      | 6.16              | 3.63%           | 9.76            | 2.32%         |
| <b>30Q10</b>                    | 8.31         | 2.72%      | 8.34              | 2.71%           | 12.98           | 1.76%         |
| <b>Low Median Monthly (LMM)</b> | 15.56        | 1.47%      |                   |                 |                 |               |
| <b>Annual Median Flow</b>       | 25.45        | 0.90%      |                   |                 |                 |               |

**7Q10:** Using daily mean streamflow, the flow of the receiving water equal to the minimum mean flow for seven consecutive days that has a 10% probability of occurring in any given year.

**LMM or “Low Median Monthly Flow”:** Using daily mean streamflow, the median monthly flow of the receiving water for that month having the lowest median monthly flow.

**30Q10:** Using daily mean streamflow, the flow of the receiving water equal to the minimum mean flow for thirty consecutive days, that has a 10% probability of occurring in any given year.

**Annual Median Flow:** Using the mean daily flow that is equaled or exceeded 50 percent of the time for the analysis period. Where statistically significant trends in annual median stream flows exist for long-term records, the analysis period is limited to the most recent 30-years.

### IV. Receiving Water Quality – Pherrins River

Table 3. Concentrations of surface water chemistry upstream and downstream of the Brighton Wastewater Treatment Facility (River Miles 0.4 Downstream & 0.6, 1.9, 2.0, 3.1 Upstream, respectively) from 8/20/03 to 9/5/19.

| Parameter                   | Unit      | Upstream     |       |        |       | Downstream   |     |        |       |
|-----------------------------|-----------|--------------|-------|--------|-------|--------------|-----|--------|-------|
|                             |           | # of Samples | Min   | Median | Max   | # of Samples | Min | Median | Max   |
| Alkalinity                  | mg/L      | 19           | 7.8   | 37     | 48.7  | 1            | --  | --     | 38.9  |
| Antimony, Total             | µg/L      | 1            | --    | --     | <10   | 0            | --  | --     | --    |
| Arsenic, Total              | µg/L      | 2            | --    | <1     | <1    | 1            | --  | --     | <1    |
| Cadmium, Total              | µg/L      | 2            | --    | <1     | <1    | 1            | --  | --     | <1    |
| Chromium, Total             | µg/L      | 2            | --    | <5     | <5    | 1            | --  | --     | <5    |
| Color                       | PCU       | 5            | 12.5  | 15     | 25    | 1            | --  | --     | 15    |
| Copper, Total               | µg/L      | 2            | --    | <10    | <10   | 1            | --  | --     | <10   |
| Dissolved Oxygen            | mg/L      | 11           | 8.24  | 9.32   | 11.2  | 1            | --  | --     | 9.3   |
| Dissolved Oxygen Saturation | %         | 5            | 72    | 87.3   | 97.5  | 1            | --  | --     | 89    |
| Hardness, Total             | mg/L      | 5            | 41.2  | 42.5   | 43.9  | 1            | --  | --     | 42.4  |
| Iron, Total                 | µg/L      | 4            | 126.7 | 149.5  | 239   | 1            | --  | --     | 212   |
| Lead, Total                 | µg/L      | 2            | --    | <1     | <1    | 1            | --  | --     | <1    |
| Manganese, Total            | µg/L      | 4            | 13.08 | 20.04  | 21.29 | 1            | --  | --     | 19.6  |
| Nickel, Total               | µg/L      | 2            | --    | <5     | <5    | 1            | --  | --     | <5    |
| Nitrate/Nitrite             | mg/L as N | 4            | 0.134 | 0.1375 | 0.150 | 1            | --  | --     | 0.14  |
| pH                          | S.U.      | 11           | 7.07  | 7.47   | 7.75  | 1            | --  | --     | 7.49  |
| Phosphorus, Total           | µg/L      | 19           | 6     | 9.7    | 17.6  | 1            | --  | --     | 21    |
| Selenium, Total             | µg/L      | 2            | --    | <5     | <5    | 1            | --  | --     | <5    |
| Silver, Total               | µg/L      | 1            | --    | --     | <1    | 0            | --  | --     | --    |
| Temperature                 | °C        | 13           | 4.9   | 13.37  | 19.4  | 1            | --  | --     | 12.02 |
| Thallium, Total             | µg/L      | 1            | --    | --     | <1    | 0            | --  | --     | --    |
| Turbidity                   | NTU       | 6            | 0.41  | 0.61   | 0.87  | 1            | --  | --     | 0.89  |
| Zinc, Total                 | µg/L      | 2            | --    | <50    | <50   | 1            | --  | --     | <50   |

Table 4. Results of the Biological Monitoring for Macroinvertebrates on the Pherrins River, (RM 1.9, RM 2.0, & RM 3.1) above the Brighton WWTF outfall.

| Macroinvertebrate Summary - Pherrins River |     |          |         |          |              |       |        |        |                 |        |                      |
|--|-----|----------|---------|----------|--------------|-------|--------|--------|-----------------|--------|----------------------|
| Date                                       | RM  | Location | Density | Richness | EPT Richness | PMA-O | B.I.   | Oligo. | EPT/EPT + Chiro | PPCS-F | Community Assessment |
| 9/23/2003                                  | 1.9 | Above    |         |          |              |       |        |        |                 |        | Meets VWQS           |
| 9/5/2019                                   | 2.0 | Above    |         |          |              |       |        |        |                 |        | Meets VWQS           |
| 9/15/2014                                  | 3.1 | Above    |         |          |              |       |        |        |                 |        | Meets VWQS           |
|  |     |          | ≥ 300   | ≥ 30     | ≥ 18         | ≥ 45  | ≤ 5    | ≤ 12   | ≥ 0.45          | ≥ 0.4  |                      |
|  |     |          | ≥ 250   | ≥ 28     | ≥ 16         | ≥ 40  | ≤ 5.15 | ≤ 14.5 | ≥ 0.43          | ≥ 0.35 |                      |
|  |     |          | < 250   | < 28     | < 16         | < 40  | > 5.15 | > 14.5 | < 0.43          | < 0.35 |                      |

Scoring Guidelines for Stream Type MHG and WQ Class B(2)

Macroinvertebrate data collected at sites >1.5 miles upstream of WWTF only. Data from RM 1.9 is nearly 20 years old. These upstream sites are MHG, but sites closer to the WWTF (RM 0.6 and 0.4) appear to be low gradient.

A description of the indicators used to determine macroinvertebrate community assessments is provided in *Nutrient Criteria for Vermont's Inland Lakes and Wadeable Streams* (2014) beginning on page 40.

#### V. Effluent Data for the Brighton WWTF

Table 5. Effluent Data for the Brighton WWTF from 4/30/2018 to 12/31/2022. Data are collected from routine effluent monitoring permitted under the current permit or permit-required Annual Constituent Monitoring). MO = Monitor Only

| Parameter Name & Measurement Type                              | Limit     | Min   | Average | Max   | Count |
|--|-----------|-------|---------|-------|-------|
| <b>BOD, 5-DAY (20 DEG. C)</b>                                  |           |       |         |       |       |
| Concentration Measurement - Monthly Average, mg/L              | 30        | 2.00  | 11.20   | 51.00 | 59    |
| Concentration Measurement - Weekly Average, mg/L               | 45        | 2.00  | 11.20   | 51.00 | 59    |
| Concentration Measurement - Daily Maximum, mg/L                | 50        | 2.00  | 11.20   | 51.00 | 59    |
| Quantity Measurement - Monthly Average, lbs/d                  | 37.5      | 0.30  | 4.53    | 18.10 | 59    |
| Quantity Measurement - Weekly Average, lbs/d                   | 56.3      | 0.30  | 4.53    | 18.10 | 59    |
| <b>BOD, 5-DAY PERCENT REMOVAL</b>                              |           |       |         |       |       |
| Concentration Minimum Measurement -Monthly Min., %             | 85        | 76.00 | 94.82   | 99.00 | 59    |
| <b>CHLORINE, TOTAL RESIDUAL</b>                                |           |       |         |       |       |
| Concentration Measurement - Instantaneous Maximum, mg/L        | 0.10      | 0.00  | 0.05    | 0.84  | 59    |
| <b>E. COLI, THERMOTOL, MF, M-TEC</b>                           |           |       |         |       |       |
| Concentration Measurement - Instantaneous Maximum, CFU/100 mL  | 77        | 0.00  | 3.58    | 54.00 | 58    |
| <b>FLOW, IN CONDUIT OR THRU TREATMENT PLANT</b>                |           |       |         |       |       |
| Quantity Measurement - Annual Average, MGD                     | 0.150     | .02   | 0.05    | 0.16  | 57    |
| <b>PHOSPHORUS, TOTAL (AS P)</b>                                |           |       |         |       |       |
| Concentration Measurement -Daily Max mg/L                      | MO, ACM   | 2.6   | 3.44    | 5.2   | 14    |
| <b>pH</b>  |           |       |         |       |       |
| Concentration Measurement -Daily Minimum & Daily Maximum, s.u. | 6.5 - 8.5 | 6.40  | 7.40    | 8.00  | 59    |
| <b>TOTAL SUSPENDED SOLIDS (TSS)</b>                            |           |       |         |       |       |
| Concentration Measurement -Monthly Average, mg/L               | 45        | 0.20  | 12.84   | 57.00 | 59    |
| Concentration Measurement - Weekly Average, mg/L               | 45        | 0.20  | 12.92   | 62.00 | 59    |
| Concentration Measurement - Daily Maximum, mg/L                | 50        | 0.20  | 12.92   | 62.00 | 59    |
| Quantity Measurement - Monthly Average, lbs                    | 56.3      | 0.10  | 5.37    | 30.20 | 59    |
| Quantity Measurement - Weekly Average, lbs                     | 56.3      | 0.04  | 5.37    | 30.20 | 59    |
| <b>SOLIDS, SUSPENDED PERCENT REMOVAL</b>                       |           |       |         |       |       |
| Concentration Minimum Measurement -Monthly Min., %             | 85        | 70.0  | 91.71   | 100.0 | 59    |
| <b>SETTLABLE SOLIDS</b>  |           |       |         |       |       |

|   |         |      |        |       |    |
|---|---------|------|--------|-------|----|
| Concentration Maximum Measurement – Instant. Max., mL/L                     | 1       | 0.00 | 0.01   | 0.1   | 59 |
| <b>TOTAL AMMONIA NITROGEN</b>   |         |      |        |       |    |
| Concentration Measurement - Daily Maximum from June through September, mg/L | MO, ACM | 0.05 | 8.12   | 18.00 | 6  |
| Concentration Measurement - Daily Maximum from October through May, mg/L    | MO, ACM | 2.50 | 16.77  | 29.00 | 10 |
| <b>TOTAL KJELDAHL NITROGEN</b>  |         |      |        |       |    |
| Quantity Measurement - Daily Maximum, mg/l                                  | MO,AC M | 0    | 15.53  | 33    | 16 |
| <b>TOTAL NITROGEN</b>   |         |      |        |       |    |
| Concentration Measurement - Daily Maximum, mg/L                             | MO, ACM | 0.26 | 18.37  | 33    | 16 |
| <b>NITRATE/NITRITE (AS NITROGEN)</b>  |         |      |        |       |    |
| Concentration Measurement – Daily Maximum, mg/L                             | MO, ACM | 0    | 3.034  | 10.2  | 16 |
| <b>OIL AND GREASE mg/L</b>  | MO, ACM | 2.2  | 8.1    | 14    | 16 |
| <b>DISSOLVED OXYGEN mg/L</b>  | MO, ACM | 0    | 6.84   | 13.61 | 16 |
| <b>TEMPERATURE deg C</b>  | MO, ACM | 0    | 9.97   | 22    | 16 |
| <b>TOTAL DISSOLVED SOLIDS mg/L</b>  | MO, ACM | 148  | 224.63 | 365   | 16 |

## VI. Reasonable Potential Determination, Permit Limits and Monitoring Frequency

The Reasonable Potential Determinations and Water-Quality Based Effluent Limitations (WQBELs) for pollutants of concern were assessed via the mass balance steady state model method outlined in EPA’s Technical Support Document for Water Quality-Based Toxics Control (TSD) and described in detail in Appendix B, unless described otherwise in the sections below.

### A. Non-Metals

#### 1. Biochemical Oxygen Demand, Total Suspended Solids, Settleable Solids, and pH

The following constituents are subject to meeting federally required Technology Based Effluent Limitations (TBELs): five-day Biochemical Oxygen Demand, Total Suspended Solids, Settleable Solids, and pH.

Technology-based limitations, generally developed on an industry-by-industry basis, reflect a specified level of pollutant reducing technology available and economically achievable for the type of facility being permitted. See CWA § 301(b). As a class, publicly owned treatment works (POTWs) must meet performance-based requirements based on available wastewater treatment technology. See CWA § 301(b)(1)(B). The performance level for POTWs is referred to as “secondary treatment.” Secondary treatment is comprised of technology-based requirements expressed in terms of biological oxygen demand (BOD<sub>5</sub>), total suspended solids (TSS) and pH. See 40 CFR Part 133.

#### 2. Total Residual Chlorine (TRC):

This facility possesses reasonable potential to violate VWQS for TRC due to the storage of



chlorine on site for disinfection.

The existing effluent limit from the previous permit was determined to be sufficiently protective of water quality and has been retained:

- Maximum day limit of 0.1 mg/L
- Monthly average limit of 0.1 mg/L

Monitoring frequency should remain daily. The facility does not violate VWQS when in compliance with its effluent limit for TRC.

## B. Metals

No effluent metals data was collected during the current or previous permit term. Effluent metals data will be collected concurrently with twice-yearly Whole Effluent Toxicity testing going forward.

The minimum data requirements set by WSMD for developing WQBELs is 3 samples which is not met here. More frequent monitoring in the next permit term will ensure that discharges from the facility do not exceed water quality criteria in the Pherrins River and will enable WSMD to develop appropriate effluent limits, if necessary.

To provide additional data for future effluent assessments of reasonable potential for metals, the pollutants included in Appendix J, Table 2 of 40 CFR Part 122, along with Aluminum, Dissolved Organic Carbon, and Total Hardness, should be analyzed concurrently with semi-annual WET tests in the draft permit. The condition proposed:

- Twice per year, in winter (January or February) and late summer/early fall (August, September or October), the Permittee should conduct an effluent analysis of outfall serial number S/N 001 for the pollutants included in 40 CFR § 122 Appendix J Table 2 and Aluminum (see Attachment A to the draft permit) and submit the results to the Secretary through ANR Online.
- Sampling and analysis for Total Hardness and Dissolved Organic Carbon should be conducted concurrently with the Pollutant Scan.

## C. Nutrients: Nitrate, Total Ammonia Nitrogen (TAN), and Total Phosphorus (TP)

### 1. Nitrate

The conditions and result of the mass balance calculation are presented in the table below.

Table 6. Nitrate Reasonable Potential Calculation Conditions and Determinations

| Maximum Permitted Effluent Flow (MGD) | Flow Scenario | Median Observed Upstream Nitrate Conc. (mg/L) | TSD Adjusted Max Observed Effluent Conc. (mg/L) | CV   | Projected Max Receiving Water Conc. (mg/L) | Vermont Water Quality Standard (mg/L) | Reasonable Potential Determination |
|---------------------------------------|---------------|---|---|------|--|---------------------------------------|------------------------------------|
| 0.150                                 | 7Q10          | 0.138   | 20.40   | 2.00 | 0.721                                      | 5                                     | No                                 |

This facility does not have reasonable potential to violate VWQS for nitrate. Quarterly nitrate effluent monitoring is proposed to provide additional data for future assessments of Nitrate reasonable potential.

## 2. Total Ammonia Nitrogen (TAN)

VWQS Section 29A-303(7) specifies criteria and applicable flow conditions in all waters for toxic substances, including ammonia. The numeric ammonia criteria are based on U.S. EPA's *Aquatic Life Ambient Criteria for Ammonia – Freshwater 2013*. Because ammonia's toxicity to aquatic life is dependent on pH and temperature, the EPA guidance recommends using site-specific values for these parameters to calculate appropriate criteria. EPA also adjusts its acute criteria in waters where salmonids in the Genus *Oncorhynchus* are present, as they are more sensitive to ammonia within certain temperature and pH ranges.

For this analysis, WSMD utilized field data of 7.49 for pH and 22 °C for temperature, and the assumption of zero contribution from upstream TAN.

The conditions and result of the mass balance calculation are presented in the table below.

Table 7. TAN Reasonable Potential Calculation Conditions and Determinations

| Maximum Permitted Effluent Flow (MGD) | Water Quality Criteria | Flow Scenario | Median Observed Upstream TAN Conc. (mg/L) | Max Observed Effluent Conc (mg/L) | TSD Adjusted Max Observed Effluent Conc. (mg/L) | Projected Max Receiving Water Conc. (mg/L) | TSD Adjusted Projected Max Receiving Water Conc | Vermont Water Quality Standard (mg/L) | Reasonable Potential Determination |
|---------------------------------------|------------------------|---------------|---|-----------------------------------|---|--|---|---------------------------------------|------------------------------------|
| 0.150                                 | Chronic (June-Sept)    | 30Q10         | 0   | 18                                | 36.0  | 0.284                                      | 0.567   | 1.24                                  | No                                 |
| 0.150                                 | Chronic (Oct-May)      | 30Q10         | 0   | 29                                | 46.40   | 0.293                                      | 0.469   | 3.25                                  | No                                 |
| 0.150                                 | Acute (June-Sept)      | 7Q10          | 0   | 18                                | 36.0  | 0.654                                      | 1.307   | 7.94                                  | No                                 |
| 0.150                                 | Acute (Oct-May)        | 7Q10          | 0   | 29                                | 46.40   | 0.674                                      | 1.078   | 21.06                                 | No                                 |

Based on the results of the above analysis, the facility does not have reasonable potential to violate VWQS for TAN in the summer nor winter months. Monthly TAN effluent monitoring is proposed to provide additional data for future assessments of TAN reasonable potential.

## 3. Total Phosphorus

VWQS section 29A-302 contains the following narrative total phosphorus criterion:

*In all waters, total phosphorous loadings shall be limited so that they will not contribute to the acceleration of eutrophication or the stimulation of the growth of aquatic biota in a manner that prevents the full support of uses.*

When assessing reasonable potential, WSMD generally translates the narrative phosphorus criterion in VWQS Section 29A-302 into a numeric value using guidance from EPA's 1986 Quality Criteria for Water ("Gold Book"). The Gold Book recommends a phosphorus concentration less than or equal to 100 µg/L in streams not discharging directly to lakes or impoundments, and 25 µg/L within a lake or reservoir, to prevent plant nuisances due to accelerated eutrophication. Waterbody-specific conditions can result in increased or decreased nutrient response, and WSMD may develop a site-specific criterion for the Facility in the future.

Based on the analysis below, the Facility has reasonable potential to exceed VWQS due to elevated phosphorus in its discharge, and a WQBEL during the June through October growing season is necessary.

*Table 8. Phosphorus Numeric Reasonable Potential Calculation Conditions and Determinations*

| Maximum Permitted Effluent Flow (MGD) | Flow Scenario | Median Observed Upstream Phosphorus Conc. (mg/L) | TSD Adjusted Max Observed Effluent Conc. (mg/L) | CV Based on Current Permit Effluent Data | Projected Max Receiving Water Conc. (mg/L) | EPA's Gold Book Standard (mg/L) | Reasonable Potential Determination |
|---------------------------------------|---------------|--|---|--|--|---------------------------------|------------------------------------|
| 0.150                                 | 7Q10          | 0.00970  | 5.20  | 1.20                                     | 6.24                                       | 0.1                             | Yes                                |

*Table 9. Proposed Phosphorus Limits and Frequency*

| Pollutant  | EPA's Gold Book Standard (mg/L) | CV Based on Current Permit Effluent Data | Proposed Monthly Average Conc. Limit (mg/L) | Proposed Monitoring Frequency |
|------------|---------------------------------|--|---|-------------------------------|
| Phosphorus | 0.1                             | 1.20                                     | 1.7   | Monthly                       |

Based on the analyses above, the Facility has reasonable potential to exceed VWQS due to elevated phosphorus in its discharge, and a WQBEL during the June through October growing season is necessary. Limits were calculated using the method described in Appendix B and are summarized in Table 10.

Limits were calculated assuming the flow and ambient conditions listed above for the facility. The draft permit should contain the following limits:

- Average Monthly limit of 1.7 mg/L
- Annual Mass limit of 769 lbs/year

This facility is also subject to the 2017 Lake Memphremagog Phosphorus Total Maximum Daily Load (TMDL). The TMDL includes an annual total Waste Load Allocation (WLA) of 1532 pounds of phosphorus per year for Brighton. Because the WQBEL analysis results in an annual load of 769 pounds per year, the more stringent WQBEL should be included in the renewed permit. Monthly sampling is proposed.

#### **D. Whole Effluent Toxicity**

Additional monitoring is proposed for the permit renewal to provide data for future assessments of WET reasonable potential, it is recommended that:

- Twice per year, in winter (January or February) and late summer/early fall (August, September or October), the Permittee should conduct two-species (*Pimephales promelas* and *Ceriodaphnia dubia*) modified acute/chronic WET tests (48-hour static renewal acute endpoints within a 7-day sub-lethal chronic test) on 24-hour composite effluent samples collected from outfall serial number S/N 001. This sampling should be done concurrently with the required Pollutant Scan, Total Hardness, and DOC sampling.

**VII. Summary of Changes to Proposed Limits and Sample Frequency***Table 10. Proposed Effluent Limits*

| Parameter Name & Measurement Type, Units          | Permitted Limit | Permitted Frequency | Proposed Limit at Permit Issuance | Proposed Frequency at Permit Issuance |
|---|-----------------|---------------------|-----------------------------------|---------------------------------------|
| <b>PHOSPHORUS, TOTAL (AS P)</b>                   |                 |                     |                                   |                                       |
| Concentration Measurement - Monthly Average, mg/L | NA              | NA                  | MO <sup>1</sup>                   | Monthly                               |
| Quantity Measurement - Annual Total, lbs/year     | NA              | NA                  | MO <sup>2</sup>                   | Yearly                                |
| <b>NITRATE</b>                                    |                 |                     |                                   |                                       |
| Concentration Measurement – Daily Maximum, mg/L   | ACM             | Yearly              | MO                                | Quarterly                             |
| Quantity Measurement – Daily Maximum, lbs/day     | NA              | NA                  | MO                                | Quarterly                             |
| <b>TOTAL NITROGEN</b>                             |                 |                     |                                   |                                       |
| Concentration Measurement – Daily Maximum, mg/L   | ACM             | Yearly              | MO                                | Quarterly                             |
| Quantity Measurement – Daily Maximum, lbs/day     | NA              | NA                  | MO                                | Quarterly                             |
| <b>TOTAL AMMONIA NITROGEN</b>                     |                 |                     |                                   |                                       |
| Concentration Measurement                         | ACM             | Yearly              | MO                                | Quarterly                             |
| Quantity Measurement – Daily Maximum, lbs/day     | NA              | NA                  | MO                                | Quarterly                             |
| <b>TOTAL KJEHLDAHL NITROGEN</b>                   |                 |                     |                                   |                                       |
| Concentration Measurement – Daily Maximum         | ACM             | Yearly              | MO                                | Quarterly                             |
| Quantity Measurement – Daily Maximum, lbs/day     | NA              | NA                  | MO                                | Quarterly                             |

<sup>1</sup> At completion of facility upgrade or by 2/28/27, whichever comes first, the Permittee should have a proposed limit of 1.7 mg/L. Monitoring frequency should remain the same.

<sup>2</sup> At completion of facility upgrade or by 2/28/27, whichever comes first, the Permittee should have a proposed limit of 769 lbs/yr. Monitoring frequency should remain the same.

- Twice per year, in winter (January or February) and late summer/early fall (August, September or October), the Permittee should conduct two-species (*Pimephales promelas* and *Ceriodaphnia dubia*) modified acute/chronic WET tests (48-hour static renewal acute endpoints within a 7-day sub-lethal chronic test) on 24-hour composite effluent samples collected from outfall serial number S/N 001. This sampling should be done concurrently with the required Pollutant Scan, Hardness, and DOC sampling.
  - i. Total Ammonia Nitrogen should be measured in the highest concentration of test solution at the beginning of the test. If chlorine is used in the WWTF's system, Total Residual Chlorine should be measured in the highest concentration of test solution at the beginning of the test.
- Concurrently with WET testing, the Permittee should conduct an effluent analysis of outfall S/N 001 for the pollutants included in 40 CFR § 122 Appendix J Table 2, Aluminum, DOC and Total Hardness and submit the results to the Secretary.
- A new effluent concentration limit for Phosphorus has been proposed for this permit with an Average Monthly Limit of 1.7 mg/l.
- In the time since the previous permit was issued, the State of Vermont issued a Total Maximum Daily Load of Phosphorus for the Lake Memphremagog watershed, into which the facility discharges. This TMDL included a yearly Waste Load Allocation of 1532 lbs for the facility. WQBEL Analysis resulted in a concentration limit of 1.7 mg/l monthly and a pounds per year limit of 769 lbs.
- Monitoring frequencies for TKN, NO<sub>x</sub>, TAN, & TKN have been increased to Quarterly from the previous Yearly frequency.

## VIII. Conclusion

The proposed limits and monitoring within this Reasonable Potential Determination and Water Quality Based Effluent Limit (WQBEL) Calculation for the Amendment and Renewal of NPDES Direct Discharge Permit 3-1213, should be included in the draft permit for the Brighton WWTF. Due to the inclusion of new WQBELs for TP, Compliance Schedules are included in the draft permit.

**APPENDIX B**

**METHODS FOR REASONABLE POTENTIAL DETERMINATION  
 &  
 WATER QUALITY-BASED EFFLUENT LIMITATION CALCULATION**

**1. REASONABLE POTENTIAL DETERMINATION (RPD)**

**A. Establishing Reasonable Potential**

If it is determined that a discharge causes, has the reasonable potential (RP) to cause, or contribute to such an excursion, the permit must contain WQBELs for the parameter. *See* 40 CFR § 122.44(d)(1)(iii). If data for the RP determination are limited, a finding of RP cannot be made reliably. In these cases results are deemed ‘inconclusive’ and increased monitoring is required in the permit to support future analyses. The minimum data requirement guidelines for establishing RP are below. However, Best Professional Judgement (BPJ) may be used if a limited dataset indicates RP.

| Constituent                          | Sufficient Effluent Data<br>for RP determination<br>(n) | Sufficient Instream Data<br>for RP determination<br>(n) |
|--------------------------------------|---|---|
| Total Phosphorus                     | 10/season   | 1   |
| Total Ammonia Nitrogen               | 10/season   | 1   |
| Priority Pollutant Metals & Aluminum | 3   | 1   |
| Whole Effluent Toxicity              | 4   | NA  |

**B. Calculating receiving water pollutant concentrations in rivers and streams**

A steady-state mass balance approach is used to assess reasonable potential for the pollutants of concern based on the methods described in the [Technical Support Document for Water Quality-based Toxics Control \(TSD; EPA/505/2-90-001\)](#). The expected receiving water concentrations (RWC;  $C_r$ ) of pollutants are calculated according to Equation 1 at critical conditions. If the expected receiving water concentration determined exceeds the applicable Vermont Water Quality Standard, limits must be included in the permit.

$$\text{Equation 1. } C_r = \frac{(Q_e)(C_e) + (Q_s)(C_s)}{Q_r}$$

Where:

$C_r$  = resultant expected receiving water pollutant concentration (mg/L or  $\mu\text{g/L}$ )

$Q_e$  = maximum permitted effluent flow (cfs).

$C_e$  = critical effluent pollutant concentration (mg/L or  $\mu\text{g/L}$ )

$Q_s$  = stream flow upstream of the point of discharge (cfs). Low Median Monthly flow for nutrients, 7Q10 for applying toxics criteria. 30Q10 flow is used for chronic Total Ammonia Nitrogen assessments.

$C_s$  = critical background in-stream pollutant concentration (units dependent on parameter, typically mg/L or  $\mu\text{g/L}$ ).

$Q_r = Q_s + Q_e$  = resultant in-stream flow, after discharge (cfs)

NPDES regulations at §122.44(d)(1)(ii) require that permit writers consider the variability of the pollutant in the effluent when determining the need for Water Quality-Based Effluent Limits (WQBELs). EPA guidance for permit writers on how to characterize effluent concentrations of certain types of pollutants using a limited data set and accounting for variability is detailed in the TSD. The analysis uses the TSD procedure to project a critical effluent concentration ( $C_{\text{etsd}}$ ) of the 95<sup>th</sup> percentile of a lognormal distribution of observed effluent concentrations over 5 years. The 95<sup>th</sup> percentile is calculated from the effluent data set using the number of available effluent data points ( $n$ ) for the measured concentration of the pollutant and the coefficient of variation (CV) of the data set to predict the critical pollutant concentration in the effluent. When less than 10 data points are available, the CV is set to 0.6. For less than 10 items of data, the uncertainty in the CV is too large to calculate a standard deviation or mean with sufficient confidence. The CV and  $n$  are used to determine the factor (TSD pg 54) that is multiplied by the maximum observed effluent concentration ( $C_e$ ) to determine  $C_{\text{etsd}}$ .

$$\text{Equation 2. } C_{\text{etsd}} = \text{TSD}_{\text{factor}} \times C_e$$

Where:

$C_{\text{etsd}}$  = Effluent concentration adjusted to 95<sup>th</sup> percentile value (mg/L or  $\mu\text{g/L}$ )

$\text{TSD}_{\text{factor}}$  = Factor based upon EPA TSD Table 3-2, pg 54

$C_e$  = critical (maximum observed) effluent pollutant concentration (mg/L or  $\mu\text{g/L}$ )

The Instream Waste Concentration (IWC) is a measure of the effluent dilution and may also be used as an estimate of the facility's potential to cause or contribute to an excursion of the VWQS. The IWC equation is the simplification of the flow portion of the mass balance equation (Equation 1) and is shown below in Equation 3:

$$\text{Equation 3. } IWC = \frac{(Q_e)}{(Q_r)}$$



The critical effluent pollutant concentration ( $C_e$ ) can be multiplied by the IWC to approximate the resultant receiving water concentrations ( $C_r$ ). This method assumes that  $C_s$  is 0.

### C. Calculating receiving water pollutant concentrations in lakes and ponds with dilution factors

Facilities discharging to a lake or pond that has a dilution study that provides a designated dilution factor, the dilution factor (DF) was used to estimate  $Q_s$  according to Equations 4 and 5 below. The IWC equation is the simplification of the flow portion of the modified mass balance equation (Equation 4) and is the same as Equation 3 above. The dilution factor is the inverse of the IWC (Equation 6). The approach assumes no decay or generation of the pollutant of concern within the mixing zone.

$$\text{Equation 4. } C_r = C_s + ((C_e - C_s)/DF)$$

$$\text{Equation 5. } Q_s = Q_e(DF) - Q_e$$

$$\text{Equation 6. } DF = \frac{(Q_r)}{(Q_e)}$$

Where:

$C_r$  = resultant expected receiving water pollutant concentration (mg/L or  $\mu\text{g/L}$ )

$Q_e$  = maximum permitted effluent flow (cfs).

$C_e$  = critical effluent pollutant concentration (mg/L or  $\mu\text{g/L}$ )

DF = the dilution factor is the dilution available within the designated mixing zone. This is calculated using Equation 6.

$Q_s$  = estimated flow available within the Mixing Zone from the point of discharge (cfs). This is calculated using Equation 5.

$C_s$  = critical background receiving water pollutant concentration (units dependent on parameter, typically mg/L or  $\mu\text{g/L}$ ).

$Q_r = (Q_s + Q_e)$  = resultant receiving water flow, after discharge (cfs)

The critical effluent pollutant concentration ( $C_e$ ) can be multiplied by the IWC to approximate the resultant receiving water concentrations ( $C_r$ ).

The critical receiving water concentration at the edge of the zone of initiation of dilution can be calculated using the following equation:

$$\text{Equation 4. } C_{ID} = \frac{C_{etsd}}{DF} + C_{lake} \left(1 - \frac{1}{DF}\right)$$

Where:

$C_{ID}$  = resultant expected receiving water pollutant concentration (mg/L or  $\mu\text{g/L}$ ) at the edge of the zone of initial dilution

$C_{etsd}$  = critical effluent pollutant concentration (mg/L or  $\mu\text{g/L}$ )

$C_{lake}$  = critical background in-stream pollutant concentration (units dependent on parameter, typically mg/L or  $\mu\text{g/L}$ ).

DF = Dilution Factor derived from a study or assumed.

#### **D. Analyses of reasonable potential use the following data and assumptions:**

##### **(1) For upstream pollutant concentrations, variable $C_s$ :**

- Values observed for upstream surface water chemical data were used for calculations. If sufficient upstream data was available, the single test result was used for  $C_s$ . If there were more than 1 test result available, the median of the data set was used for  $C_s$ .
- $C_s$  were set equal to  $\frac{1}{2}$  the Reporting Limit (RL) when data were censored at the RL.
- If no data was available for  $C_s$ , values were assumed to be 5% of the applicable VWQS for Total Ammonia Nitrogen (TAN) and 0 mg/L for all other constituents for analysis.

##### **(2) For effluent pollutant concentrations, variable $C_e$ :**

- Where sufficient data were available,  $C_{etsd}$  was calculated using Equation 2.
  - Priority pollutants, including metals and Total Aluminum, were set equal to  $\frac{1}{2}$  the RL when data were censored at the RL and sufficient data were available.
- Where an insufficient amount of data was available,
  - Total Ammonia Nitrogen (TAN), was assumed to be 25 mg/L. If there were sufficient seasonal data available for Total Kjeldahl Nitrogen (TKN), those values were assumed equal to TAN for calculations. Oncorhynchus are assumed present in all receiving waters

All other constituents were assumed to be the maximum observed  $C_e$  value when data were censored at the RL

##### **(3) For constituents without data and where assumptions were made, for both variables $C_e$ and $C_s$ , additional monitoring should be incorporated into the draft permit.**

**(4) For constituent criteria specific calculations using approved methods from the VWQS:**

- Summer (June 1- October 31) and winter (November 1 – May 31) TAN criteria were calculated using the highest observed downstream pH and temperature. If no temperature data was available downstream, then TAN analyses used defaults of 25°C for warmwater fish habitat streams for the summer season and 5°C water temperature assumed for the winter. If no pH data was available downstream, a worst-case scenario pH value of 8.5 s.u was used.
- Hardness for determining hardness-dependent metal criteria is based upon the lowest observed downstream concentration.

**E. Interpretation & application of the Combined Nutrient Criteria and Narrative Total Phosphorus Criterion**

VWQS Section 29A-302(2)(c) contains numeric phosphorus criteria for segments of Lake Champlain and Lake Memphremagog. Additionally, VWQS contains numeric combined nutrient criteria for certain classes of wadeable streams (Section 29A-306(a)), and for lakes, ponds, and reservoirs (Section 29A-306(c)). These criteria will be implemented as follows:

- For facilities discharging to a waterbody with a numeric phosphorus criterion (see VWQS Table 1), the applicable criterion will be used both for assessing reasonable potential and for developing total phosphorus WQBELs, if necessary.
- For facilities discharging to a waterbody with numeric combined nutrient criteria (see VWQS Tables 2 and 3), the applicable phosphorus screening criterion will be used for assessing reasonable potential, along with appropriate nutrient response criteria. However, the phosphorus screening criteria included in Tables 2 and 3 are not intended to serve as statewide nutrient targets and are therefore not appropriate for developing WQBELs. Facilities that have reasonable potential to exceed the combined nutrient criteria will generally receive WQBELs developed using the applicable total phosphorus criterion from EPA's [1986 Quality Criteria for Water](#) (the "Gold Book"), unless there are indications that a site-specific nutrient target is warranted.

For facilities discharging to waterbodies not covered under Sections 29A-302(2)(c), 29A-306(a), or 29A-306(c), the narrative phosphorus criterion (VWQS Section 29A-302(2)(a)) is translated to a numeric target based on the Gold Book criterion for both the reasonable potential analysis and WQBEL development. When the Gold Book criteria are applied, 7Q10 flow is used in RP and limit calculations in conformance with EPA Region 1's interpretation of the Gold Book target as a "not to exceed" value.

In certain cases, WSMD may develop a site-specific total phosphorus target if there are indications that the Gold Book criterion is not appropriately protective of the receiving water.

**F. Whole Effluent Toxicity (WET)**

WET results collected in the last 5 years or over the last permit term are reviewed, depending on data availability. Results (No-Observed Effect Concentration and Lowest Observed Effect Concentration) are compared to the facility's IWC to determine if the facility's effluent contained toxic substances in the receiving water at the time the samples were collected.

### **G. Existing Limits**

For any pollutant(s) with an existing WQBEL, the analysis described in 40 CFR §122.44(d)(1)(i) has already been conducted in a previous permitting action demonstrating that there is reasonable potential to cause or contribute to an excursion of VWQS. Given that the permit already contains a WQBEL based on the prior analysis and the pollutant(s), if the pollutant continues to be discharged from the facility, the Watershed Management Division has determined that there is still reasonable potential for the discharge of this pollutant(s) to cause or contribute to an excursion of WQS. Therefore, the WQBEL will be carried forward unless it is determined that a more stringent WQBEL is necessary to continue to protect WQS or that a less stringent WQBEL is allowable based on anti-backsliding regulations at CWA §§ 402(o) and 303(d)(4) and 40 CFR § 122.44(l). For these pollutant(s), if any, the mass balance calculation is not used to determine whether there is reasonable potential to cause or contribute to an excursion of WQS, but rather is used to determine whether the existing limit needs to be more stringent in order to continue to protect VWQS.

A WQBEL may be removed if RP no longer exists - i.e. when a UV system replaces a Cl system, or when other process changes could impact effluent quality.

## **2. WATER-QUALITY BASED EFFLUENT LIMITATION (WQBEL) CALCULATION**

Once reasonable potential for pollutants of concern are assessed via the mass balance steady state model described above, the recommended draft permit limit is selected by comparing applicable Technology-Based Effluent Limits (TBELs), current WQBELs, and WQBELs calculated based on 2022 VWQS acute and chronic criteria.

The steady-state mass balance method produces a Waste Load Allocation (WLA), the critical effluent pollutant concentration based on the VWQS acute and chronic critical thresholds for the constituent(s) of concern. The method assumes complete mixing of the pollutant within the receiving water. The resulting WLA for each acute and chronic VWQS criteria dilution is calculated.

Per the TSD method, WLA results are used to calculate the Long-Term Average (LTA) for each criteria type using methods provided in Table 5-1 (TSD page 102). WLA multipliers are picked from the 99th percentile column. The most conservative LTA is then used to determine the Maximum Daily Limit (MDL) or Average Monthly Limit (AML) using the calculation shown in Table 5-2 (TSD page 103). The 99th percentile column is used for the MDL calculation and the 95th percentile columns are used for the AML calculation.

In this process, the facility and receiving water data are used. When necessary, values for [VWQS are calculated based upon the methods described in their appendices and footnotes](#). Monitoring frequencies are taken from the existing permit or assigned for new pollutants based upon similar facilities. In WQBEL calculations a min. of 4 samples per month is used for calculation purposes even if monitoring is conducted less frequently. In the absence of ambient receiving water data, a value of 5% of the VWQS has been generally assumed for the upstream or instream or otherwise receiving water concentration. The individual calculation spreadsheet tabs for specific analyses can be consulted on request.

The resulting MDL and AML are compared with the existing permit limits, any applicable TBELs including TMDLs, and any statutory limits to determine the final effluent limits that are protective of water quality standards.

The TSD is for toxic substances and the multipliers are based upon a maximum 30-day exposure window. Alternative averaging periods may be applied for non-toxic pollutants of concern.

### **3. APPLICATION OF MIXING ZONES**

When authorized, mixing zones are calculated based on the physical characteristics of the receiving water and location of the outfall. In a river, a mixing zone may extend from the point of discharge to no more than 200ft downstream. In lakes, ponds, reservoirs and riverine impoundments, a column with a maximum radius of 200ft and a depth based on the location of the discharge point and water depth in the vicinity of the outfall is calculated. If the discharge is near the shore, the mixing is reduced by the appropriate amount given the shoreline. As this is a highly site-specific analysis, the body of the reasonable potential determination provides additional detail on the approach.

The spreadsheet used for these calculations is part of the permit record and is available upon request.

## APPENDIX C – Waste Management Zone Calculation Methods

### WMZ Procedure:

The process, as outlined in the [Waste Management Zone Designation Procedure \(1995\)](#), has two distinct parts:

- 1) technical evaluation of the WMZ requisite length, and
- 2) public participation process for evaluation of its acceptability relative to the public interest.

This section outlines the first of these two parts. While a WWTF discharge is properly disinfected and is permitted to comply with the Vermont Water Quality Standards (VWQS) for E. Coli, moderate numbers of viruses, cyst forming organisms and pathogenic bacteria can survive a disinfection process that meets coliform bacteria VWQS. Meaning the absence of high coliform counts in the immediate vicinity of a sanitary discharge does not necessarily indicate the absence of pathogenic organisms. When high counts (i.e., > 77 colonies of Escherichia coli/100 ml) are found in conjunction with a sanitary discharge, there is a high probability that pathogens are also present. Pathogens that do survive the disinfection process eventually succumb to the relatively harsh aquatic environment and die. The 1995 WMZ Procedure considers partial failure of the disinfection system, the volume of the discharge, 7Q10 flow and time of travel in the receiving water, and the decay rate of E. Coli. The WMZ is calculated using Equations 1-5. Assumptions for variables are listed in specificity to the Hinesburg WWTF discharge to the LaPlatte River.

*Equation 1.*

$$C_f = C_i e^{-\left(\frac{KX}{u}\right)}$$

Where:

$C_f$  = Final coliform concentration, cfu/100 mL.

$C_i$  = Initial coliform concentration, cfu/100 mL. Calculated using Equation 3.

$K$  = Coliform decay rate, 1/day.

- Assumed to be 1.5/day based on the 1995 WMZ Procedure.

$X$  = Waste management zone distance, miles. Calculated using Equation 2.

$u$  = Stream velocity, miles/day. Calculated using Equation 4.

*Equation 2.*

$$X = \frac{-u \ln\left(\frac{C_f}{C_i}\right)}{K}$$

Where:

$C_f$  = Final coliform concentration, cfu/100 mL.

$C_i$  = Initial coliform concentration, cfu/100 mL. Calculated using Equation 3.

$K$  = Coliform decay rate, 1/day.

- Assumed to be 1.5/day based on the 1995 WMZ Procedure.

$X$  = Waste management zone distance, miles.

$u$  = Stream velocity, miles/day. Calculated using Equation 4 and converted from feet/second to miles/day.

*Equation 3.*

$$C_i = \frac{Q_s C_s + Q_w C_w}{Q_s + Q_w}$$

Where:

$C_i$  = Initial coliform concentration, cfu/100 mL.

$Q_s$  = Stream flow, cfs.

$C_s$  = Upstream coliform concentration, cfu/100 mL.

$Q_w$  = Wastewater Treatment Facility design flow, or permitted flow, cfs.

$C_w$  = Effluent coliform concentration, cfu/100 mL.

*Equation 4.*

$$u = V_2 \left( \frac{Q_s}{Q_2} \right)^m$$

Where:

$u$  = Stream velocity, fps.

$V_2$  = Measured velocity at second measured stream flow,  $Q_2$ , fps.

$Q_s$  = Incremental stream flow, cfs.

$Q_2$  = Second measured stream flow, cfs.

$m$  = Calculated Slope from Equation 5.

*Equation 5.*

$$m = \frac{\ln \left( \frac{V_1}{V_2} \right)}{\ln \left( \frac{Q_1}{Q_2} \right)}$$

Where:

$m$  = Calculated Slope.

$V_1$  = Measured velocity at initial or first measured stream flow,  $Q_1$ , fps.

- Documented in the 1990 Time of Travel Studies on Selected Rivers in Vermont, Second Edition.

$V_2$  = Measured velocity at second measured stream flow,  $Q_2$ , fps.

$Q_1$  = Initial or first measured stream flow, cfs.

- Measured in time of travel monitoring and documented in the 1990 Time of Travel Studies on Selected Rivers in Vermont, Second Edition.

$Q_2$  = Second measured stream flow, cfs.

DRAFT



AGENCY OF NATURAL RESOURCES  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
WATERSHED MANAGEMENT DIVISION  
1 NATIONAL LIFE DRIVE – DAVIS 3  
MONTPELIER, VERMONT 05620-3522

**NOTICE of DRAFT DISCHARGE PERMIT**

PERMITTEE NAME: Town of Brighton

PERMITTEE ADDRESS: PO Box 402  
Brighton, VT 05846

FACILITY NAME: Brighton Wastewater Treatment Facility

FACILITY ADDRESS: 365 Meadow Street  
Brighton VT, 05846

PUBLIC NOTICE NUMBER:

PUBLIC COMMENT PERIOD: December 12, **2023 through January 11, 2024**

PERMIT NUMBER: 3-1213

PROJECT ID NUMBER: SJ96-0265

EXPIRATION DATE: 12/31/2028

**DISCHARGE INFORMATION**

NATURE: Treated Domestic Wastewater

DESIGN FLOW: .150 MGD

RECEIVING WATER: Pherrins River

| <b>IV. TABLE OF PERMITTED DISCHARGE POINTS</b> |                        |                  |                 |          |           |
|--|------------------------|------------------|-----------------|----------|-----------|
| Discharge ID                                   | Discharge Activity     | Discharge Status | Receiving Water | Latitude | Longitude |
| 001  | Sanitary Waste Outfall | A                | PHERRINS RIVER  | 44.81201 | -71.88858 |

DESCRIPTION: This is a draft renewal NPDES direct discharge permit proposed for issuance to the town of Brighton for the discharge of treated domestic wastewater from the Brighton WWTF located at 365 Meadow Street, Brighton VT to the Pherrins River.

**SLUDGE USE/DISPOSAL PRACTICES:** Sludge will be removed as part of the upgrade currently in process and is expected to be landfilled. Sludge was land-applied after the single past sludge removal.

### **TENTATIVE DETERMINATIONS**

Vermont Agency of Natural Resources (ANR) has made tentative determinations regarding effluent limitations and other conditions to be imposed on the pending Vermont permit. The limitations imposed will assure that the Vermont Water Quality Standards and applicable provisions of the Federal Clean Water Act, PL 92-500, as amended, will be met.

### **FURTHER INFORMATION**

The complete application, proposed permit, and other information are on file and may be inspected by appointment on the 2<sup>nd</sup> floor of the Main Building at 1 National Life Drive, Montpelier, Vermont. Copies, obtained by calling 802-828-1535 from 7:45 AM to 4:30 PM Monday through Friday, will be made at a cost based upon the current Secretary of State Official Fee Schedule for Copying Public Records. The draft permit and fact sheet may also be viewed on the Division's website at

<https://anrweb.vt.gov/DEC/IWIS/ReportViewer2.aspx?Report=WWPublicNotices&ViewParms=False>.

Questions may be directed to Aaron Krymkowski at [aaron.krymkowski@vermont.gov](mailto:aaron.krymkowski@vermont.gov) or 802-490-6184

### **PUBLIC COMMENTS/PUBLIC HEARINGS**

Written public comments on the proposed permit are invited and must be received on or before the close of the business day (4:30 pm) on January 11, **2024**, to the Agency of Natural Resources, Department of Environmental Conservation, Watershed Management Division, 1 National Life Drive – Davis 3, Vermont 05620-3522.

Comments may also be submitted by e-mail to [ANR.wsmdwastewater@vermont.gov](mailto:ANR.wsmdwastewater@vermont.gov). All comments received by the above date will be considered in formulation of the final determinations.

During the notice period, any person may submit a written request to this office for a public hearing to consider the proposed permit. If such a request is received, a hearing will be held.

### **FINAL ACTION/RIGHTS TO APPEAL TO THE ENVIRONMENTAL COURT**

At the conclusion of the public notice period and after consideration of additional information received during the public notice period, ANR will make a final determination to issue or to deny the permit.

Pursuant to 10 V.S.A. Chapter 220, an aggrieved person shall not appeal the final determination unless the person submitted to ANR a written comment during the applicable public comment period or an oral comment at the public hearing conducted by ANR. Absent a determination of the Environmental judge to the contrary, an aggrieved person may only appeal issues related to the person's comments to ANR as prescribed by 10 V.S.A. § 8504(d)(2). Pursuant to 10 V.S.A. Chapter 220 and the Vermont Rules for Environmental Court Proceedings, any appeal of this permit or an authorization made pursuant to this permit, except for an appeal of a renewable energy plant, must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the decision. The address for the Vermont Environmental Court is: Vermont Superior Court, Environmental Division, 32 Cherry Street, 2<sup>nd</sup> Floor, Suite 303, Burlington VT 05401 (Tel. (802) 951-1740). For further information, see the Vermont Rules for Environmental Court Proceedings, available online at [www.vermontjudiciary.org](http://www.vermontjudiciary.org).

The notice of appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or the appellant's attorney. In addition, the appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the notice of appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings.

If the determination relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. § 248, any appeal of such determination must be filed with the Vermont Public Utility Commission pursuant to 10 V.S.A. § 8506. Section 8506 does not apply to a facility that is subject to 10 V.S.A. § 1004 (dams before the Federal Energy Regulatory Commission), 10 V.S.A. § 1006 (certification of hydroelectric projects), or 10 V.S.A. Chapter 43 (dams). Any appeal under Section 8506 must be filed with the clerk of the Public Utility Commission within 30 days of the date of this decision; the appellant must file with the clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. § 8504(c)(2) and shall also serve a copy of the notice of appeal on the Vermont Public Service Department. For further information, see the Rules and General Orders of the Public Utility Commission.

Julia S. Moore, Secretary  
Agency of Natural Resources