

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: 3-1298

PIN: RU98-0196

NPDES Number: VT0100528

Facility Name: Proctor WWTF

Facility Address: 29 Patch Street
Proctor, VT 05765

Facility Coordinates: Lat: 43.6644 Long: -73.0300

Facility Classification: II Domestic Non-major

Expiration Date: December 31, 2027

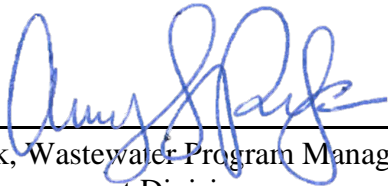
Reapplication Date: June 30, 2027

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 Proctor (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 Proctor Wastewater Treatment Facility (hereinafter referred to as the "WWTF") to Otter Creek in accordance with the following conditions.

This permit shall be effective on January 1, 2023.

Julia S. Moore, Secretary
Agency of Natural Resources

By:



Date:

12/22/2022

Amy Polaczyk, Wastewater Program Manager
Watershed Management Division

I. PERMIT SPECIAL CONDITIONS

A. EFFLUENT LIMITS AND MONITORING REQUIREMENTS

1. Discharge Point S/N 001, Lat. 43.66495, Long. -73.03413: During the term of this permit, the Permittee is authorized to discharge from outfall S/N 001 of the Proctor WWTF to Otter Creek, 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	0.325 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	81.3 lbs/day Monthly Avg	122 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 mg/l Monthly Avg		
BOD, 5-Day (%R); Percent Removal; Calculated	Year Round Monthly			85 % Monthly Min		
E. Coli; Effluent; Grab	05/01 – 09/30 Weekly					77 #/100 ml Instant Max
E. Coli; Effluent; Grab	10/1 – 04/30 Monthly					77 #/100 ml Instant Max
pH; Effluent; Grab	Year Round Daily			6.5 s.u. Min		8.5 s.u. Max
Settleable Solids; Effluent; Grab	Year Round Daily					1 ml/l Instant Max
Nitrite Plus Nitrate Total; Effluent; 8 Hour Comp	01/01 - 03/31 Quarterly					Monitor mg/l Daily Max
Nitrite Plus Nitrate Total; Effluent; 8 Hour Comp	04/01 - 06/30 Quarterly					Monitor mg/l Daily Max
Nitrite Plus Nitrate Total; Effluent; 8 Hour Comp	07/01 - 09/30 Quarterly					Monitor mg/l Daily Max
Nitrite Plus Nitrate Total; Effluent; 8 Hour Comp	10/01 - 12/31 Quarterly					Monitor mg/l Daily Max

Nitrogen, Kjeldahl Total; Effluent; 8 Hour Comp	01/01 - 03/31 Quarterly					Monitor mg/l Daily Max
Nitrogen, Kjeldahl Total; Effluent; 8 Hour Comp	04/01 - 06/30 Quarterly					Monitor mg/l Daily Max
Nitrogen, Kjeldahl Total; Effluent; 8 Hour Comp	07/01 - 09/30 Quarterly					Monitor mg/l Daily Max
Nitrogen, Kjeldahl Total; Effluent; 8 Hour Comp	10/01 - 12/31 Quarterly					Monitor mg/l Daily Max
Nitrogen, Total; Effluent; Calculated	01/01 - 03/31 Quarterly		Monitor lbs/day Daily Max			Monitor mg/l Daily Max
Nitrogen, Total; Effluent; Calculated	04/01 - 06/30 Quarterly		Monitor lbs/day Daily Max			Monitor mg/l Daily Max
Nitrogen, Total; Effluent; Calculated	07/01 - 09/30 Quarterly		Monitor lbs/day Daily Max			Monitor mg/l Daily Max
Nitrogen, Total; Effluent; Calculated	10/01 - 12/31 Quarterly		Monitor lbs/day Daily Max			Monitor mg/l Daily Max
Phosphorus, Total; Annual Average; Calculated	12/01 - 12/31 Annual	791 lbs/yr Annual Total				
Phosphorus, Total; Effluent; 8 Hour Comp	Year Round Monthly			0.8 mg/l Monthly Avg		
Phosphorus, Total; Effluent; Calculated	Year Round Monthly	Monitor lbs Annual Total	Monitor lbs Monthly Total	Monitor % Monthly Total		
Suspended Solids, Total; Effluent; 8 Hour Comp	Year Round Monthly	122 lbs/day Monthly Avg	122 lbs/day Weekly Avg	45 mg/l Monthly Avg	45 mg/l Weekly Avg	50 mg/l Daily Max
Suspended Solids, Total; Influent; 8 Hour Comp	Year Round Monthly			Monitor mg/l Monthly Avg		
Suspended Solids, Total (%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	Parameters to Report and Units
Whole Effluent Toxicity, Acute, P. promelas Effluent; 8 hour Comp	01/01-02/28 or 08/01-10/31 Annual	(1) NOAEL, (2) LC50 #%
Whole Effluent Toxicity, Acute, C. dubia Effluent; 8 hour Comp	01/01-02/28 or 08/01-10/31 Annual	(1) NOAEL, (2) LC50 #%
Ammonia, Total Nitrogen Effluent; Grab	01/01-02/28 or 08/01-10/31 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 or 08/01-10/31 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 or 08/01-10/31 Annual	Total Hardness mg/L, Daily Max
Carbon, Dissolved Organic Effluent; 8 Hour Comp	01/01-02/28 or 08/01-10/31 Annual	Dissolved Organic Carbon mg/L, Daily Max

2. Discharge Sampling Points

- a. Influent sampling: The Permittee shall collect samples from the influent channel downstream of the comminutor.
- b. Effluent sampling: The Permittee shall collect samples at the v-notch weir post UV disinfection.

3. Discharge Special Conditions

- a. The effluent shall not cause visible discoloration of the receiving waters.
- b. 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 $\pm 10\%$.

- c.** 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.
- d.** The Permittee shall operate the facility to meet the concentration limitations or pounds limitation, whichever is more restrictive.
- e.** 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.
- f.** 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.
- g.** Settleable solids samples shall be collected between 10:00 AM and 2:00 PM or during the period of peak flow.
- h.** E. coli samples shall be collected between 6:00 AM and 6:00 PM.
- i.** Composite samples shall be taken during the hours of 6:00 AM and 6:00 PM, unless otherwise specified. Eight hours is the minimum period for the composite.
- j.** Total Phosphorus shall be reported as Total Monthly Pounds, Running Total Annual Pounds, and Percentage of Running Total Annual Pounds to Annual Permit Limitation.
- k.** Total nitrogen (TN) shall be reported as pounds TN and calculated as: $TN (mg/L) \times Total Daily Flow (MGD) \times 8.34$; where $TN (mg/L) = TKN (mg/L) + NO_x (mg/L)$.
- l.** The monthly average concentrations of BOD₅ and TSS in the effluent shall not exceed 15 percent of the monthly average concentrations of BOD₅ and TSS in the influent into the WWTF.
- m.** The WET testing, Metals Scan, Hardness, Total Ammonia Nitrogen, and Dissolved Organic Carbon (DOC) sampling shall occur once per year, alternating between winter (January or February) and late summer/early fall (August, September, or October) each year. Results shall be submitted with the eDMR for the month the samples were collected. For the months not sampled, the Permittee shall enter the No Data Indicator (NODI) "Conditional Monitoring-Not Required This Period" in the eDMR.
- n.** 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.
- o.** 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 Otter Creek downstream one mile.

C. ANNUAL CONSTITUENT MONITORING

1. 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:

- Ammonia (as N)
- Dissolved Oxygen
- Oil & Grease
- Total Dissolved Solids
- Temperature

2. Grab samples shall be used for Temperature, Ammonia, Dissolved Oxygen, and Oil & Grease. Composite samples shall be used for Total Dissolved Solids. Samples shall be representative of the seasonal variation in the discharge.

3. Facilities that do not use chlorine for disinfection, do not use chlorine elsewhere in the treatment process, and have no reasonable potential to discharge chlorine in their effluent are not required to sample for chlorine during Annual Constituent Monitoring.

4. 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.

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

Due Date	Event Description
12/31/2023	The Permittee shall submit annual constituent monitoring results.
12/31/2024	The Permittee shall submit annual constituent monitoring results.
12/31/2025	The Permittee shall submit annual constituent monitoring results.
12/31/2026	The Permittee shall submit annual constituent monitoring results.
12/31/2027	The Permittee shall submit annual constituent monitoring results.

D. EMERGENCY POWER FAILURE PLAN

The current Emergency Power Failure Plan for the facility was submitted on January 20, 2011.

1. The Permittee shall revise the Emergency Power Failure Plan and 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
3/31/2023	The Permittee shall submit a revised Emergency Action Power Failure Plan within 90 days of the permit effective date.

E. OPERATION MANAGEMENT EMERGENCY RESPONSE PLAN (OMERP)

1. The Permittee submitted the Operation, Management, and Emergency Response Plan for the sewage collection system to the Secretary on July 2, 2010 and for the treatment facility, sewage pumping stations, and sewer line stream crossings on April 1, 2008. Through issuance of this permit the Secretary approves the inspection schedules in those plans. The Permittee shall implement the plans in accordance with those schedules.

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 report according to the following table:

Due Date	Event Description
6/30/2023	The Permittee shall submit a revised OMERP within 180 days of the effective date of the permit.

F. PHOSPHORUS OPTIMIZATION PLAN

1. Wasteload Allocation for Phosphorus

This permit includes a total phosphorus (TP) water quality based effluent limitation consistent with the waste load allocation (WLA) for TP, established by the U.S. Environmental Protection Agency (U.S. EPA) in the 2016 “Phosphorus TMDLs for Vermont Segments of Lake Champlain” (LC 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).

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. $(\text{Monthly Average Phosphorus Concentration}) \times (\text{Total Monthly Flows}) \times 8.34$
- 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. 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:

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

(ii) 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;

(iii) Determine which alternative methods of operating the existing WWTF, including operational, process,

and equipment changes will be most effective at increasing phosphorus removal; and

(iv) 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 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 permit effective date to optimize removal of TP.

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 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
5/1/2023	The Permittee shall submit a Phosphorus Optimization Plan (POP).
6/30/2023	The Permittee shall commence implementation of the POP 60 days after submittal.
7/31/2024	The Permittee shall submit an annual report that documents TP trends and optimization techniques.
7/31/2025	The Permittee shall submit an annual report that documents TP trends and optimization techniques.
7/31/2026	The Permittee shall submit an annual report that documents TP trends and optimization techniques.
7/31/2027	The Permittee shall submit an annual report that documents TP trends and optimization techniques.

G. 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. 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
12/31/2023	The Permittee shall submit passing proficiency test results.
12/31/2024	The Permittee shall submit passing proficiency test results.
12/31/2025	The Permittee shall submit passing proficiency test results.
12/31/2026	The Permittee shall submit passing proficiency test results.
12/31/2027	The Permittee shall submit passing proficiency test results.

H. METALS SCAN

1. Once per year, alternating between winter (January or February) and late summer/early fall (August, September, or October) each year, the Permittee shall conduct an effluent analysis of outfall serial number S/N 001 for the metals included in 40 CFR § 122 Appendix J Table 2 and Aluminum (see Attachment A) and submit the results to the Secretary. 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” in the eDMR.
2. Sampling and analysis for Hardness shall be conducted concurrently with the Metals Scan.
3. Sampling and analysis for Dissolved Organic Carbon shall be conducted concurrently with the Metals Scan.
4. Based upon the results of these tests, the Secretary reserves the right to reopen and amend this permit to change the monitoring frequency.
5. 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 Metals Scan, Hardness, and DOC with each WET test conducted during continuance.

I. WHOLE EFFLUENT TOXICITY TESTING (WET) ACUTE

1. Once per year, alternating between winter (January or February) and late summer/early fall (August, September, or October), the Permittee shall conduct two-species (*Pimephales promelas* and *Ceriodaphnia dubia*) 48-hour static acute WET tests on a composite effluent sample collected from outfall serial number S/N 001. Composite samples shall be taken during the hours of 6 a.m. to 6 p.m. and 8-hours is the minimum for the composite sample. This sampling shall be done concurrently with the required Metals 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 the WWTF’s system, 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 at 7Q10 flow shall be included in the WET test dilution series. This facility’s 7Q10 IWC is 0.6%.
4. 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” (document is a production 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. The Permittee 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 the receiving water has had poor performance in the lab controls or dilution, and/or
 - c) requested by the 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.A.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” in the eDMR.

J. ANNUAL SLUDGE DEPTH MONITORING

1. 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.

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 report according to the following table:

Due Date	Event Description
12/31/2023	The Permittee shall submit annual sludge depth results.
12/31/2024	The Permittee shall submit annual sludge depth results.
12/31/2025	The Permittee shall submit annual sludge depth results.
12/31/2026	The Permittee shall submit annual sludge depth results.
12/31/2027	The Permittee shall submit annual sludge depth results.

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 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 Secretary. The Secretary 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 noncompliance 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.3.

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:

- 1) 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
- 2) 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 the 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 email. 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.

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.

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 online 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.

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)

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.

NPDES –means the National Pollutant Discharge Elimination System.

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.

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 $TN \text{ (mg/L)} = TKN \text{ (mg/L)} + NO_x \text{ (mg/L)}$.

Ultimate Oxygen Demand (UOD) – UOD shall be reported in pounds and calculated with the following formula: $UOD \text{ (lbs/day)} = [(BOD_5 \text{ (lbs/day)} \times 1.43) + (TKN \text{ (lbs/day)} \times 4.57)]$

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.

IV. TABLE OF PERMITTED DISCHARGE POINTS					
Discharge ID	Discharge Activity	Discharge Status	Receiving Water	Latitude	Longitude
001	Sanitary Waste Outfall	A	OTTER CREEK	43.66495	-73.03413

Attachment A.
Metals Scan Parameters

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

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 PERMIT
December 2022**

Permit Number: 3-1298

PIN: RU98-0196

NPDES Number: VT0100528

Facility Name: Proctor WWTF
Facility Address: 29 Patch Street
Proctor, VT 05765

Facility Coordinates: Lat: 43.6644 Long: -73.0300

Facility Classification: Domestic II
Non Major

Receiving Water: Otter Creek

I. Facility and Proposed Action

Applicant's wastewater treatment facility ("facility" or "WWTF") is engaged in the treatment of municipal wastewater in Proctor, Vermont and is classified as a Domestic II Non-Major NPDES Wastewater Treatment Facility. A map showing the location of the facility, outfalls, and the receiving water is provided in the Reasonable Potential Determination (Attachment A).

On July 7, 2011, the Secretary of the Vermont Agency of Natural Resources ("the Secretary") received a renewal application for the permit to discharge into the designated receiving water. The facility's previous permit was issued on October 26, 2006 with an effective date of January 1, 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 Section 13.5(b).

At this time, the Secretary has made a tentative decision to reissue the discharge permit.

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. Facility History

The Town of Proctor owns and operates the wastewater treatment facility. The original facility was constructed in the early 1960's. In 1988 the WWTF was expanded to provide increased flow.

Influent flow enters the headworks structure by gravity which contains a comminutor and bypass channel with a coarse bar rack. Flow continues to two aerated lagoons operated in series. Aeration and mixing are provided by a floating diffuser aeration system served by three positive displacement aeration blowers. Disinfection is provided by a closed ultraviolet disinfection system.

The Town owns and operates six pump stations (Field Street, Library, Park, Styles Meadow, Willow Street, and Columbian Avenue). All of the pump stations and force mains were constructed in 1961. On October 26, 2006, a 1272 Order was issued to the Town requiring abatement of the overflow of untreated sanitary sewage from the Park pump station to Otter Creek. Upgrades to the Park pump station and force main were completed in the fall of 2008 and included the following: replacement of two pumps, replacement of interior piping and valves, installation of a new control panel, installation of an 8' diameter precast concrete wet well, replacement of the 4" diameter force main with 6" diameter force main and updated electrical and ventilation.

In 2009, a chemical feed building, chemical feed injection manhole, and new access road was installed at the WWTF in order to comply with the discharge permit total phosphorus effluent limitations of 791 lbs./year and 0.8 mg/L monthly average.

In 2018, a 1272 Order was issued to the Town of Proctor to repair the alum injection pipe between the injection pit and the connection between the lagoons. During excavation activities in July 2018, a hole was observed downstream of the dosing manhole in the 12" ductile iron transfer pipe at the pipe joint between the pipe and gate valve. In August 2018, the ductile iron pipe was replaced with PVC C900 pipe, and the size of the pipe was reduced to provide better mixing at the chemical injection point. Upstream of the dosing manhole, a reducer was installed, and PVC pipe was installed through the dosing manhole. Approximately 6' downstream of the manhole, the original gate valve was relocated, a reducer was installed to increase the pipe size back to 12", and all of the 12" ductile iron pipe was replaced with 12" PVC C900 pipe. Approximately 3.5' feet of 16" ductile iron transfer line pipe between the lagoons was observed to be in poor condition and was replaced with PVC pipe.

B. Pretreaters

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

C. Receiving Water Classification

Discharge Point 001 discharges to Otter Creek

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. Receiving Water Description

The receiving water for this discharge is Otter Creek, a designated Warm-Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 363 square miles. The summer 7Q10 flow of the river is estimated to be 81.1 cubic feet per second (CFS), and the summer Low Median Monthly flow is estimated to be 197.5 CFS. The instream waste concentration at the summer 7Q10 flow is 0.006 (0.6%) and the instream waste concentration at the summer Low Median Monthly flow is 0.003 (0.3%).

In addition, Otter Creek drains into Lake Champlain, which is impaired for phosphorus and is subject to a Total Maximum Daily Load (TMDL) for phosphorus. This is discussed further in Section V.C.4. of this Fact Sheet.

E. 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 one mile WMZ in Otter Creek.

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.

V. Monitoring

A. Flow Monitoring at Discharge Point 001

1. Flow – Monitoring Notes: Annual Average, Calculated

The draft permit maintains the annual average flow limitation of 0.325 MGD. This facility maintains a constant discharge. Continuous flow monitoring is required.

2. 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.

B. Conventional Pollutants Monitoring at Discharge Point S/N 001

1. Biochemical Oxygen Demand, 5-Day (BOD₅)– Monitoring Notes: Effluent Gross Value, 8 Hour Comp

The effluent limitations for BOD₅ remain unchanged from the current permit. The monthly average (30 mg/L) and weekly average (45 mg/L) 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 50 mg/L, maximum day, BOD₅ limitation. This is applied to all such discharges pursuant to 13.4 c. of the Vermont Water Pollution Control Permit Regulations. The Secretary implements the limit to supplement the federal technology-based limitations to prevent a gross one-day permit effluent violation to be 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 (81.3 lbs/day, monthly average and 122 lbs/day, weekly average) are calculated using the average permit limitations. Mass limits are calculated using the concentration limits outlined above and the permitted flow. The BOD₅ monthly monitoring requirement is unchanged from the current permit.

2. BOD, 5-Day – Monitoring Notes: Influent, 8 Hour Comp

The Permittee shall monitor, a minimum of an 8-hour composite, for BOD₅ within the influent once a month.

3. BOD, 5-Day % Removal – Monitoring Notes: Percent Removal, Calculated

The BOD₅ monthly average percent removal shall not be less than 85 percent as specified in 40 C.F.R. §133.102(a)(iii). 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. The limit and monitoring requirements are unchanged from the current permit.

4. E. Coli – Monitoring Notes: Effluent Gross Value, Grab

The E. coli limitation is 77 cfu/100ml, instantaneous maximum, based upon the limitation in the current permit and the anti-backsliding provisions of Section 402(o) of the CWA. As in the current permit, monitoring is required monthly from October-April.

A weekly monitoring requirement for E. coli from May-September 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.

5. pH – Monitoring Notes: Effluent Gross Value, Grab

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

6. 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).

7. Suspended Solids, Total: Monitoring Notes: Effluent Gross Value, 8 Hour Comp

The effluent limitations for TSS remain unchanged from the current permit. The monthly average (45 mg/L) and weekly average (45 mg/L) reflect a level of effluent quality attainable by facilities eligible for treatment equivalent to secondary treatment. In addition, the draft permit contains a 50 mg/L, maximum day, TSS limitation. This is applied to all such discharges pursuant to 13.4 c. of the Vermont Water Pollution Control Permit Regulations. The Secretary implements the limit to supplement the federal technology-based limitations to prevent a gross one-day permit effluent violation to be offset by multiple weekly and monthly average permit limitations. Mass limits (122 lbs/day, monthly average and 122 lbs/day, weekly average) are calculated using the concentration limits outlined above and the permitted flow. The TSS monthly monitoring requirement is unchanged from the current permit.

8. Suspended Solids, Total (% 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. Suspended Solids, Total – Monitoring Notes: Influent, 8 Hour Comp

The Permittee shall monitor, a minimum of an 8-hour composite, for TSS within the influent once a month.

C. Nutrients Monitoring at Discharge Point S/N 001**1. Nitrate/Nitrite (NO_x) – Monitoring Notes: Effluent Gross Value, 8 Hour Comp**

Nitrite Plus Nitrate as Nitrogen (NO_x) – Nitrite (NO₂⁻) and Nitrate (NO₃⁻) are oxidized forms of Nitrogen. NO_x is needed to calculate Total Nitrogen (TN). To gather data on the amount of Total Nitrogen in this discharge, Nitrite (NO₂⁻) plus Nitrate (NO₃⁻) monitoring is proposed in the renewed permit. The sum of Nitrite (NO₂⁻) and Nitrate (NO₃⁻) is represented as NO_x 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.



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_x) is sometimes also shown as (NO₂/NO₃), NO_x, Nitrate/Nitrite Nitrogen, and Nitrite Plus Nitrate Total 1 Det. (As N). To gather data on the amount of NO_x in this discharge and its potential impact on the receiving water, a quarterly “monitor only” sampling requirement is included in the draft permit.

2. Nitrogen, Kjeldahl Total – Monitoring Notes: Effluent Gross Value, 8 Hour Comp

TKN is the sum of nitrogen in the forms of ammonia (un-ionized (NH₃) and ionized (NH₄⁺)), 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” requirement has been included in the draft permit.

3. Nitrogen, Total – Monitoring Notes: Effluent Gross Value, Calculated

A quarterly “monitor only” requirement for TN has been included in this permit. TN is a calculated value based on the sum of NO_x and TKN, and, shall be reported as pounds, calculated as:

$$\text{TN (mg/L)} \times \text{Total Daily Flow (MGD)} \times 8.34$$

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

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 plant 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 already required by the permit. Facilities with design flows less than 1 MGD will complete quarterly unless more frequent sampling is already required by the permit.

For more information, see:

<https://www.epa.gov/sites/production/files/documents/nandpfactsheet.pdf>

4. Phosphorus, Total – Monitoring Notes: Annual Average, Calculated

Background:

Excess phosphorus entering Lake Champlain from a variety of sources has impaired the lake's water quality. The Lake Champlain Total Maximum Daily Load (LC TMDL), issued June 17, 2016, 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 developed phosphorus TMDLs for the twelve Vermont segments of Lake Champlain 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 "Phosphorus TMDLs for Vermont Segments of Lake Champlain" (June 2016). The 2016 LC TMDL specifies allowable phosphorus loads, or waste load allocations (WLA), expressed as metric tons per year (mt/yr), for each of the 59 WWTFs that discharge to the Lake Champlain watershed. The Secretary will issue discharge (NPDES) permits in accordance with the permit issuance schedule in the Lake Champlain TMDL Phase 1 Implementation Plan (Chapter 3, page 46). The Secretary will follow this schedule unless special circumstances are raised by the facility that warrant the issuance of the permit sooner (e.g., planned facility upgrades), and the Wastewater Management Program has sufficient staff capacity to handle the request.

Reductions in WLAs are targeted only to WWTFs in those lake segment watersheds where the currently permitted wastewater load represents a 10% or greater portion of the total phosphorus load to that segment from all sources (Main Lake, Shelburne Bay, Burlington Bay, St. Albans Bay) or where wastewater upgrades would meaningfully reduce the phosphorus reduction burden placed on non-wastewater (non-point) sources (Missisquoi Bay). Therefore, WWTFs discharging to the Port Henry, Otter Creek, Mallets Bay, Northeast Arm, Isle

LaMotte, and the South Lake A/B lake segments were not assigned a new waste load allocation. The EPA also determined that wastewater facilities with a design flow of < 0.1 million gallons per day (MGD) would be given the same allocations as in the 2002 TMDLs due their minor contribution of phosphorus loading.

The LC TMDL establishes new annual WLAs for WWTFs with a design flow capacity of above 0.1 MGD that discharge to the Main Lake, Shelburne Bay, Burlington Bay, St. Albans Bay, and Missisquoi Bay lake segments. Specifically, WWTFs with a design flow capacity of 0.1 to 0.2 MGD were assigned WLAs based on a 0.8 mg/L effluent phosphorus concentration at permitted flow while WWTFs with design capacity of > 0.2 MGD were assigned WLAs based on a 0.2 mg/L effluent phosphorus concentration at permitted flow.

In the LC TMDL, EPA acknowledged and supported the Secretary's commitment to employ 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 LC 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 LC TMDL to the actual phosphorus discharge load from the WWTF over last 12 months:

WWTF Annual TP Load / LC TMDL WLA x 100

There are currently WWTFs in the Lake Champlain watershed with existing discharged loads of phosphorus already at, or above, 80% of allowable loads. To ensure facilities are operating as efficiently as possible, all reissued wastewater discharge (NPDES) permits under the LC 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 facility 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:

- (1) total annual mass loads, and
- (2) for facilities that currently have an existing monthly effluent concentration limit for TP in their NPDES permit, as monthly effluent concentration limits.

Phosphorus Limit in Draft Permit:

The current discharge permit for this facility includes a mass-based, effluent limit of 791 pounds of TP per year. This annual mass limitation was based on an allocation of 0.359 metric tons established in the 2002 Lake Champlain Phosphorus TMDL. The current permit also contains an effluent TP concentration limit of 0.8 mg/L, monthly average, consistent with the annual load limit.

This proposed draft permit contains a phosphorous concentration effluent limit of 0.8 mg/L, monthly average, and a mass effluent limit of 791 total pounds, annual limitation. The mass annual effluent limitation is based on the LC TMDLs.

$$(0.359 \text{ mt/yr}) (2204.62\text{lbs/mt}) = 791 \text{ lbs/yr}$$

The LC 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.F.2.c. of the permit), rather than once at the end of the calendar year. The LC 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.” Therefore, in addition to the annual mass load effluent limitation required by the TMDL, the permit must also include a monthly average concentration limit for phosphorus. While the WLA in the TMDL was calculated based on a TP effluent concentration of 0.20 mg/L, the permit does not include 0.20 mg/L as the concentration effluent limitation because a Permittee may not need to achieve 0.20 mg/L to ensure compliance with the WLA established in the TMDL. Rather the permit includes a monthly average concentration limit for phosphorus of 0.8 mg/L to ensure compliance with state law and to recognize seasonal variations in the facility’s discharge. It is important to note that because the annual mass load and average monthly concentration limits are not mathematically consistent in the permit, meeting a 0.8 mg/L concentration limit at design flows will not result in meeting the annual mass limit.

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.F.3.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 applicable WR-43 form.

The annual and monthly TP loads discharged from the facility shall also be reported electronically with other required parameters.

Analysis in Support of Phosphorus Limit:

The Secretary is using the WLA from the LC TMDL (available at <https://www.epa.gov/tmdl/lake-champlain-phosphorus-tmdl-commitment-clean-water>) as the water quality-based effluent limitation (WQBEL) for phosphorus for this permit because this is the first permit issued to this facility under the new LC TMDL and the TMDL and Vermont is meeting the required milestones of the LC TMDL Accountability Framework. *In re Multiple WWTF Permit Appeals*, Docket Nos. 138-10-17 Vtec, 139-10-17 Vtec, 140-10-17 Vtec, 141-10-17 Vtec, 145-10-17 Vtec, 146-10-17 Vtec, 4-1-18 Vtec, 5-1-18 Vtec, and 17-2-18 Vtec, slip op. at 32 (Vt. Super. Ct. Envtl Div. Feb. 1, 2019) (Durkin, J.) (“ANR could have looked to [the report card on implementation milestones]— all of which were completed—to confirm that TMDL implementation was proceeding as planned, and that the assumptions underlying the TMDL therefore held true”).

In 2016, the EPA gave Vermont an “excellent” report card for meeting milestones by December 30, 2016. By 2017, the State had completed a majority of the milestones in the LC TMDL Accountability Framework (pages 54-59 of the LC TMDL) due by December 30, 2017 and was actively working to complete those that were outstanding, as outlined in the 2018 Vermont Lake Champlain Phosphorus Total Maximum Daily Loads Accountability Framework Report (Submitted by the State to EPA on March 7, 2018; available at: <https://www.epa.gov/sites/default/files/2019-05/documents/vt-march-2018-tmdl-progress-report-to-epa.pdf>). With the issuance of the “Developed Lands General Permit” (Stormwater General Permit 3-9050) in late 2020, EPA acknowledged that Vermont has successfully completed all Phase 1 Accountability Framework milestones in its September 3, 2020 Lake Champlain TMDL Implementation Final Report Card for Phase 1 Milestones (Available at: <https://www.epa.gov/sites/production/files/2020-09/documents/lake-champlain-report-card-ltr-09-3-20.pdf>).

With the State having completed the Phase 1 Accountability Framework milestones and EPA’s affirmative reports thus far, there is no reason to believe that the assumptions upon which the WLA was developed – including that discharges in other sectors will be reduced in the future – are no longer valid. Therefore, it is appropriate to establish the phosphorus WQBEL for this facility based upon its WLA in the LC TMDL. In addition, a full assessment of Reasonable Potential was conducted as required to satisfy 40 C.F.R. § 122.44(d)(1)(vii)(B) and it was determined this facility does not have a reasonable potential to cause or contribute to a violation of the VWQS for phosphorus in the receiving water.

Phosphorus Optimization Plan (POP)

To ensure the facility is operating as efficiently as possible for purposes of phosphorus removal, Condition I.F.3. of the permit requires that within 120 days of the permit effective date, 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 permit effective date to optimize removal of total phosphorus. If, after the 12-month optimization period, the WWTF's actual TP loads reach or exceed 80% of the LC TMDL WLA for the WWTF, based on the WWTF's 12-month running annual load calculated using the Phosphorus Load Calculation (Condition I.F.2.d. of the permit) the Permittee shall, within 90 days of reaching or exceeding 80% of the LC 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. Discharge Special Conditions

A. Annual Constituent Monitoring

For all facilities with a design flow of greater than 0.1 MGD, 40 CFR § 122.21(j) requires the submittal of effluent monitoring data for those parameters identified in Condition I.C. of 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, permittees are required to have Emergency Power Failure Plans on file. Within 90 days of the effective date of the permit, the Permittee must ensure this plan is up to date by submitting 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 was completed in 2009 and is therefore not required for submission during the period of the proposed permit.

D. Operation Management and Emergency Response Plan (OMERP)

As required by the revisions to 10 V.S.A. Section 1278 the Permittee shall implement the Operation, Management, and Emergency Response Plan on file. To ensure this plan remains up to date, 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. Phosphorus Optimization Plan

A Phosphorus Optimization Plan (POP) is included in the permit to assist in compliance with the Lake Champlain Total Phosphorus TMDL.

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, beginning in **2023**.

G. Metals Scan

To assess compliance with the Vermont Water Quality Standards, municipal facilities less than 1 MGD and with a 7Q10 instream waste concentration less than 2.5% are required to conduct an effluent analysis of S/N 001 for the metals 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. For the months not sampled, the permittee shall enter NODI “Conditional Monitoring-Not Required This Period” in the eDMR.

In addition, this draft permit adds Aluminum to the Metals Scan as Vermont Water Quality Standards will be incorporating the EPA’s 2018 National Recommended Water Quality Criteria for Aluminum. EPA’s 2018 National Recommended Water Quality Criteria for Aluminum are calculated based on water chemistry parameters that include Dissolved Organic Carbon (DOC) and Hardness, which have been included as concurrent sampling and analysis in this the permit with the Metals Scan and the results shall be submitted electronically through the eDMR for the month the samples were collected. Hardness is typically included in the - test report and is acceptable data to report on the eDMR if taken from a concurrent sample with the Metals Scan.

In order to meet federal minimum data requirements at the next permit renewal and provide data for future assessment of metals toxicity reasonable potential, concurrent testing of metals included in 40 CFR § 122 Appendix J Table 2 and Aluminum 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.

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

The first required metals scan will be during **August-October 2023**.

H. Whole Effluent Toxicity (WET) Testing

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.

Municipal facilities less than 1 MGD and with a 7Q10 instream waste concentrations (IWC) less than 2.5% shall be required to conduct 48-hour static acute WET tests on a composite effluent sample once per year, alternating between winter (January or February) and late summer/early fall (August, September, or October) each year. Composite samples shall be taken during the hours of 6 a.m. to 6 p.m. and 8-hours is the minimum for the composite sample.

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 0.6%.

Results for the NOAEL and LC50 shall be reported in the eDMR for the month the samples were collected. Laboratories may report A-NOEC or Acute NOEC, which are equivalent to NOAEL. For the months not sampled, the Permittee shall enter NODI "Conditional Monitoring-Not Required This Period" in the 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 will be during **August-October 2023**.

I. Annual Sludge Depth Monitoring

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

VII. 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.

D. Reasonable Potential Analysis

The Secretary has conducted a reasonable potential analysis, which is attached to this Fact Sheet as Attachment A. Based on this analysis, the Secretary has determined the available data indicate that this discharge does not cause, have a reasonable potential to cause, or contribute to an instream toxic impact or instream excursion above the water quality criteria. As such, the development of water quality based effluent limitations (WQBELs) will not be necessary.

VIII. Procedures for Formulation of Final Decision

The public comment period for receiving comments on this draft permit was from October 7, 2022 to November 7, 2022. Comments were received and considered in the final formulation to issue, deny, or modify the draft permit. Those comments and the replies are included as Attachment B.

ATTACHMENT A.
REASONABLE POTENTIAL DETERMINATION

**Vermont Agency of Natural Resources
Department of Environmental Conservation
Watershed Management Division
1 National Life Drive, Davis 3
Montpelier, VT 05620-3522
802-828-1115**

MEMORANDUM

Prepared by: John Merrifield, Wastewater Program (WWP)
Cc: Pete LaFlamme, Director, WSMD
Amy Polaczyk, Manager, WWP
Bethany Sargent, Manager, MAP

Date: **August 3, 2022**

Subject: Reasonable Potential Determination for the Proctor Wastewater Treatment Facility

I. Facility Information:

Proctor Wastewater Treatment Facility (WWTF)
Proctor, VT
Permit No. 3-1298
NPDES No. VT0100528
Facility Location: 43.66448, -73.0300 (NAD 83)
Approximate Outfall Location: 43.6649, -73.0341 (NAD 83)

II. Hydrology:

Receiving water: Otter Creek
Facility Design Flow: 0.325 MGD = 0.503 CFS
Estimated 7Q10¹ = 81.1 CFS
Estimated LMM² = 197.5 CFS
Instream Waste Concentration at 7Q10 Flow (IWC-7Q10) = 0.006 (<1%)
Instream Waste Concentration at Low Median Monthly Flow (IWC-LMM) = 0.003 (<1%)

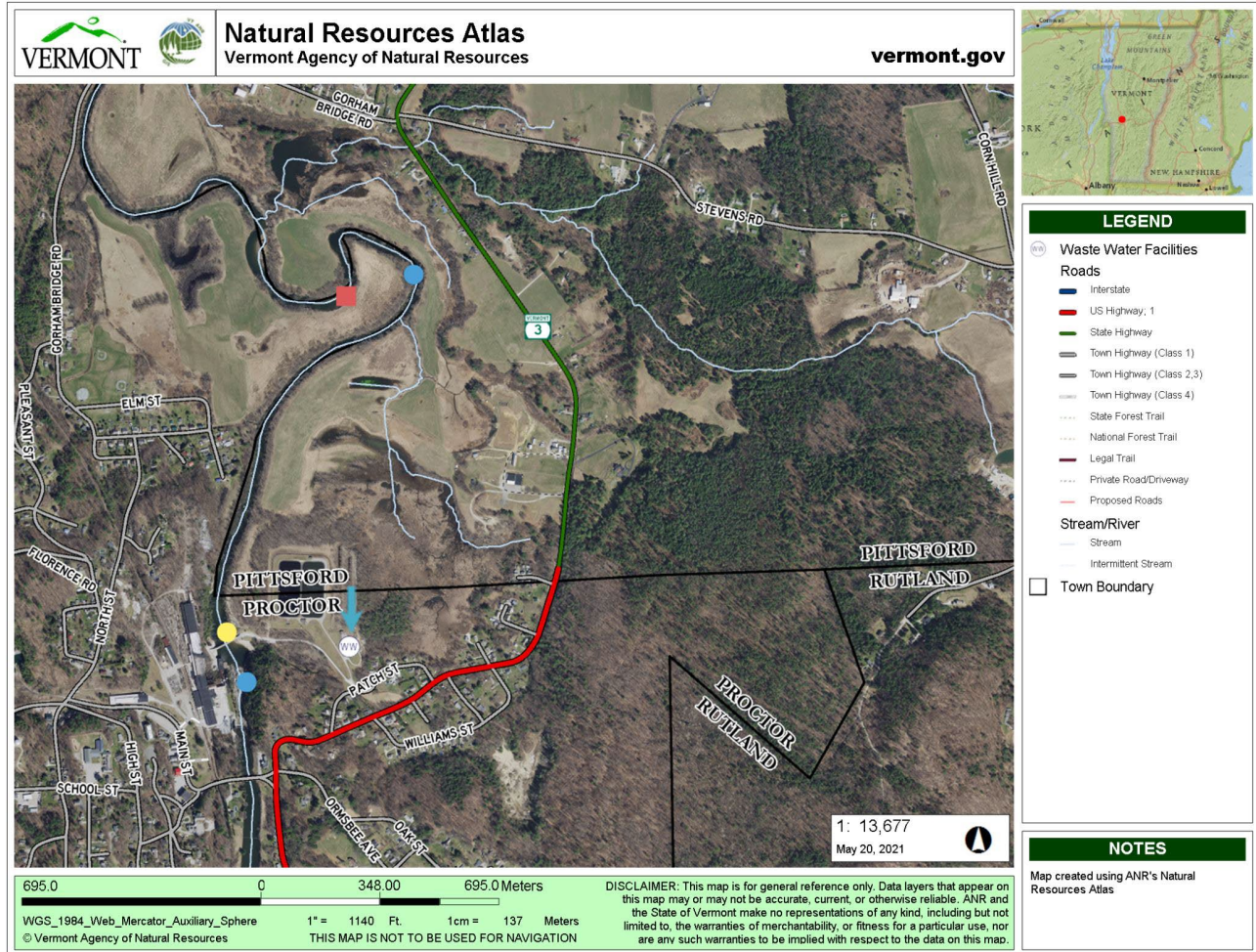
The Town of Proctor owns and operates the Proctor Wastewater Treatment Facility (WWTF) which is 2012 Update: two secondary aerated lagoons, ultraviolet disinfection. This facility is an aerated lagoon which means that it may qualify for a higher TSS TBEL if it is unable to meet secondary treatment standards for TSS but is able to provide significant biological treatment. That calculation has been performed and this facility was found to be eligible for TSS limits of 45 mg/l monthly and daily averages.

¹ Using daily mean streamflows, 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.

² “Low Median Monthly Flow”. Using daily mean streamflows, the median monthly flow of the receiving water for that month having the lowest median monthly flow.

The Otter Creek downstream of the Proctor 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 363.0 square miles. The existing permitted waste management zone (WMZ) begins at the outfall of the WWTF and extends downstream 1.00 mile (Figure 1) pursuant to 10 V.S.A., Section 1252.

Figure 1. Otter Creek near the Proctor WWTF. The facility location is represented by a white dot containing “WW “and a blue arrow, the outfall location is indicated by a yellow dot, upstream sampling location at RM 63.8 and downstream monitoring locations at RM 62.9 shown by blue dots, and the end of the 1.0 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/>).



This memo is organized into the following sections:

- Summary of Effluent Data for the Proctor WWTF
- Summary of Instream Ambient Chemistry Data for the Otter Creek
- Biological Assessments upstream and downstream of the Proctor WWTF
- Assessment of Reasonable Potential of the Proctor WWTF discharge to exceed Vermont Water Quality Standards (VWQs)

III. Effluent Data for the Proctor WWTF

Table 1a. Effluent Data for the Proctor WWTF from 5/31/2016 to 3/31/2021.

Parameter Name	Limit	Units	Min	Average	Max	Count	Violations
BOD, 5-DAY (20 DEG. C) - Weekly Average	45	mg/l	3	10.4	40	57	0
BOD, 5-DAY (20 DEG. C) - Daily Maximum	50	mg/l	3	10.4	40	57	0
BOD, 5-DAY (20 DEG. C) - Monthly Average	30	mg/l	3	10.0	40	57	3
BOD, 5-DAY (20 DEG. C) - Monthly Average	81.3	lbs/day	1.5	23.5	115	57	2
BOD, 5-DAY (20 DEG. C) - Weekly Average	122	lbs/day	1.5	25.1	115	57	0
BOD, 5-DAY (20 DEG. C) - Influent Monthly Average	MO	mg/l	54	157.2	330	58	N/A
BOD, 5-DAY Percent Removal Monthly Minimum	85	%	64	92.7	100	58	5
SOLIDS, SUSPENDED Percent Removal Monthly Minimum	85	%	62	90.8	99	58	12
TOTAL SUSPENDED SOLIDS (TSS) - Weekly Average	45	mg/l	2	14.9	44	58	0
TOTAL SUSPENDED SOLIDS (TSS) - Daily Maximum	50	mg/l	2	14.9	44	58	0
TOTAL SUSPENDED SOLIDS (TSS) - Monthly Average	45	mg/l	2	14.4	38	58	0
TOTAL SUSPENDED SOLIDS (TSS) - Monthly Average	122	lbs/day	3.02	32.7	130.1	58	2
TOTAL SUSPENDED SOLIDS (TSS) - Weekly Average	122	lbs/day	3.02	34.7	179	58	2
TOTAL SUSPENDED SOLIDS (TSS) - Influent Monthly Average	MO	mg/l	69	182.3	390	58	N/A

Table 1b. Effluent Data for the Proctor WWTF from 5/31/2016 to 3/31/2021.

Parameter Name	Limit	Units	Min	Average	Max	Count	Violations
pH - Maximum	8.5	SU	7.68	8.2	8.52	58	1
pH - Minimum	6.5	SU	6.5	7.4	8.1	58	0
SETTLEABLE SOLIDS - Instant Maximum	1	ml/l	0	0.0	0.1	58	0
PHOSPHORUS, TOTAL (AS P) - Monthly Average	0.8	mg/l	0.14	0.5	1.005	58	4
PHOSPHORUS, TOTAL (AS P) - See Comments (annual total, prev #) Annual Average	791	lbs/day	218.14	318.8	411.83	5	0
E. COLI, THERMOTOL, MF, M-TEC - Monthly Maximum	77	cfu/100ml	0.01	4.0	20	23	0
FLOW, IN CONDUIT OR THRU TREATMENT PLANT - Annual Average	0.325	MGD	0.087	0.2	0.539	58	6
NITROGEN, AMMONIA TOTAL (AS N) -	MO - ACM only	mg/l	0.025	0.5	1.1	3	N/A

Note: The flow data is identified as an annual average in the Wastewater Inventory. However, values are reported monthly, and a more accurate label would be monthly average. The new permit should fix this discrepancy and include monthly and daily monitor only conditions in addition to an annual average.

Whole Effluent Toxicity Data Summary:

A. Whole Effluent Toxicity (WET) Data Summary:

No Whole Effluent Toxicity (WET) data is available for this facility. No WET limits were included in the previous permit.

This facility has a 7Q10 IWC of 0.006 (<1%). This value is less than the IWCs described in the RPD Decision Trees for facilities to have potential RP for Total Ammonia Nitrogen (TAN) toxicity and Priority Pollutant Metals toxicity.

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. Based on these Federal and State requirements, it is recommended that municipal facilities less than 1 MGD and with a 7Q10 instream waste concentrations less than 2.5% be required to conduct 48-hour static acute WET tests on a 24-hour composite effluent sample once per year, alternating between winter (January or February) and late summer/early fall (August, September, or October) each year.

B. Biological Assessments and Ambient Chemistry Data for the Otter Creek upstream and downstream of the Proctor WWTF

MAPP maintains the VTDEC assessment database, an EPA-required database which describes the conditions of Vermont's surface waters with respect to their attainment of VWQS. For the Otter Creek segment to which this facility discharges, the database indicates the receiving water does support all designated uses.

Biological Assessments:

The Otter Creek in the vicinity of the facility is non-wadeable and therefore no biological assessments were conducted.

C. Ambient Chemistry Data:

The most recent ambient chemistry data available from VTDEC sampling is from August 10, 2020 when surface waters were sampled upstream of the outfall at River Mile (RM) 63.8 and downstream of the outfall at RM 62.9. The upstream sampling location is 0.1 miles upstream and the downstream sampling location is 0.8 miles downstream from the WWTF outfall (Figure 1).

Data representativeness are assessed by evaluating the observed flow conditions from field sheets, whether measured or qualitatively described, at which samples were collected. Other contemporaneous streamflow data, such as the U.S. Geological Survey stream gage network, are also taken into consideration where proximal and representative of the hydrologic conditions at the time (e.g., unimpacted by artificial flow regulation). The downstream sampling location at this site is the most sensitive location, and the sampling results are determined to be representative of low flow based on a review of available streamflow observations. Thus, the data presented below are relevant for inclusion in this analysis.

Data used to evaluate in-stream chemistry is collected under low flow conditions (typically August or September) when turbidity is low and no precipitation has been observed for 3 days.

Water chemistry measures of relevant parameters for this assessment are summarized in Tables 2a and 2b.

Table 2a. Surface-water quality data upstream and downstream of the Proctor Wastewater Treatment Facility collected by VTDEC.

Visit Date	Location ID	RM	Location Name	Flow Level	Alkalinity (mg/l)	Conductivity (umho/cm)	Dissolved Inorganic Carbon (mg/l)	Dissolved Organic Carbon (mg/l)	Dissolved Oxygen (mg/l)	Dissolved Oxygen Saturation (%)	pH (None)	Temperature (deg C)	Total Ammonia Nitrogen (mg/l)	Total Chloride (mg/l)	Total Color measured using the visual method (PCU)	Total Hardness (mg/l)	Total Nitrate/Nitrite Nitrogen (mg/l)	Total Nitrogen (mg/l)	Total Phosphorus (ug/l)	Total Sulfate (mg/l)	Turbidity (NTU)
10/10/2006	502228	62.9	Otter Creek	Moderate	80.8	244			10.59	95.1	7.69	11.15				96.3	0.44	0.62	22.4	6.36	0.5
8/10/2020	502228	62.9	Otter Creek	Low	91.4	243.1	21.5	5.5	6.75	81.5	7.58	23.37	0.056	16.6	31	95.8	0.372	0.66	19.1	4.58	1.5
8/10/2020	523014	63.8	Otter Creek	Low	92.4	245.2	21.2	5.3	7.51	92.2	7.92	23.81	<0.05	17.7	31	95.8	0.394	0.67	18.3	4.76	0.7

Table 2b. Surface-water metals data upstream and downstream of the Proctor Wastewater Treatment Facility collected by VTDEC.

Visit Date	Location ID	RM	Location Name	Flow Level	Total Aluminum (ug/l)	Total Antimony (ug/l)	Total Arsenic (ug/l)	Total Barium (ug/l)	Total Beryllium (ug/l)	Total Cadmium (ug/l)	Total Calcium (mg/l)	Total Chromium (ug/l)	Total Cobalt (ug/l)	Total Copper (ug/l)	Total Iron (ug/l)	Total Lead (ug/l)	Total Magnesium (mg/l)	Total Manganese (ug/l)	Total Molybdenum (ug/l)	Total Nickel (ug/l)	Total Potassium (mg/l)	Total Selenium (ug/l)	Total Silver (ug/l)	Total Sodium (mg/l)	Total Strontium (ug/l)	Total Thallium (ug/l)	Total Uranium (ug/L)	Total Vanadium (ug/l)	Total Zinc (ug/l)
8/10/2020	523014	63.8	Otter Creek	Low	44	<5	<1	14.5	<1	<1	24.7	<1	<1	<5	174	<1	8.28	59.8	<5	<1	1.22	<1	<1	10.8	47.6	<1	<1	<1	<10
8/10/2020	502228	62.9	Otter Creek	Low	56	<5	<1	14.5	<1	<1	24.6	<1	<1	<5	203	<1	8.34	60.4	<5	<1	1.22	<1	<1	10.7	48	<1	<1	<1	12.2

IV. Assessment of Reasonable Potential of the Proctor WWTF discharge to exceed Vermont Water Quality Standards

A. Methodology:

A steady-state mass balance approach was used to assess reasonable potential for the potential 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 were 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. Tables 3, and 4 present this analysis for the Proctor WWTF.

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

Where:

C_r = resultant expected receiving water pollutant concentration (mg/L or ug/L)

Q_e = maximum permitted effluent flow (cfs).

C_e = critical effluent pollutant concentration (mg/L or ug/L)

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

C_s = critical background in-stream pollutant concentration (units dependent on parameter, typically mg/L or ug/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 current analysis uses the TSD procedure to project a critical effluent concentration (C_{etsd}) of the 95th percentile of a lognormal distribution of observed effluent concentrations over 5 years. The 95th 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 (TSD). 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_{etsd} .

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

Where:

C_{etsd} = Effluent concentration adjusted to 95th percentile value (mg/L or ug/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 ug/L)

The Instream Waste Concentration (IWC) is a measure of the effluent dilution and is also 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 analysis of reasonable potential used the following data and assumptions:

- Average values of observed upstream and downstream chemical data were used for most calculations; exceptions are described below.
- Upstream pollutant concentrations (C_s) and effluent concentrations (C_e) were set equal to one half the method detection limit when data were censored at the detection limit.
- Effluent pollutant concentrations (C_{etsd}) were set to the maximum observed effluent concentrations * TSD 95th percentile multiplier over the last 5 years of data collected.
- TAN analyses were divided into summer (June 1- October 31) and winter (November 1 – May 31). Summer TAN analyses used defaults of 20°C for coldwater fish habitat streams and 25 °C for warmwater fish habitat streams. Winter water temperature was assumed to be 5 °C. The highest observed downstream pH values were used for both winter and summer.
- Hardness for determining hardness-dependent metal criteria is based upon the lowest observed downstream concentration.

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

D. Total Residual Chlorine:

This facility utilizes UV for disinfection and therefore no TRC calculations were performed.

E. Metals

This facility does not have any available metals data.

This facility has a 7Q10 IWC of 0.006 (<1%). This value is less than the IWC described in the RPD Decision Trees for facilities to have potential RP for Metals toxicity.

40 CFR 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. In order to meet federal minimum data requirements at permit renewal and provide data for future assessment of metals toxicity reasonable potential, concurrent testing of metals included in 40 CFR § 122 Appendix J Table 2 and Aluminum should be included with the increased WET testing frequency.

F. Nutrients

The results of mass balance calculations for Total Nitrogen and Total Phosphorus were calculated using Equation 1 are presented in Table 3.

Table 3. Mass Balance of Nutrients of Concern around the Proctor WWTF.

	Total Phosphorus (ug/l)	Total Nitrogen (mg/l)	Notes
Qs (cfs)	197.46		<i>Estimated LMM flow</i>
Qe (cfs)	0.503		<i>permitted effluent discharge</i>
Qr = Qs + Qe (cfs)	197.97		<i>Qs+Qe</i>
LMM IWC	0.0025		<i>Qe/(Qs+Qe)</i>
Cs	18.30	0.67	<i>upstream pollutant concentration (average)</i>
Ce	2400	14.9	<i>maximum effluent pollutant concentration observed</i>
Cetsd	4800	26.8	<i>effluent pollutant concentration adjusted by TSD method.</i>
Cr = (CsQs+CeQe)/Qr	24.3	0.71	<i>calculated resultant downstream pollutant concentration without TSD factor of safety</i>
Cr = (CsQs+CetsdQe)/Qr	30.4	0.74	<i>calculated resultant downstream pollutant concentration with TSD factor of safety</i>
Stream Type	B2 Warm Water, Medium-Gradient		
Calculated Instream Contribution from Effluent without TSD method	6	0.04	<i>difference between observed upstream concentration and calculated resultant downstream concentration. Without TSD method</i>
Calculated Instream Contribution from Effluent with TSD method	12	0.07	<i>difference between observed upstream concentration and calculated resultant downstream concentration. With TSD Method</i>
VWQS Criteria (2017)	Narrative	None for Streams	
Threshold Criteria			
Threshold Exceeded without TSD method?			
Threshold Exceeded with TSD method?			<i>Response variables meet WQS, see Section H and Table 5</i>

G. Total Nitrogen:

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, quarterly “monitor only” requirements for Nitrate/Nitrite (NO_x), Total Nitrogen (TN) and Total Kjeldahl Nitrogen (TKN) are suggested for inclusion in this permit.

TN is a calculated value based on the sum of NO_x and TKN, and, shall be reported as pounds, calculated as:

Average TN (mg/L) x Total Daily Flow (MGD) x 8.34 = Pounds TN/day

where, TN (mg/L) = TKN (mg/L) + NO_x (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 plant 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).

Total Ammonia Nitrogen:

The results of mass balance calculations for TAN were calculated using Equation 1 and are presented below in Table 4.

Table 4. Mass Balance for Total Ammonia Nitrogen around the Proctor WWTF

	Total Ammonia Nitrogen - Summer (mg/L)	Total Ammonia Nitrogen - Winter (mg/L)	Notes
Qs (cfs)	81.08		Estimated 7Q10 flow
Qe (cfs)	0.503		permitted effluent discharge
Qr = Qs + Qe (cfs)	81.58		Qs+Qe
7Q10 IWC	0.006		Qe/(Qs+Qe)
Cs	0.06	0.06	upstream pollutant concentration
Max Observed Ce	0.25	1.10	effluent pollutant concentration without adjustment by TSD factor
Cetsd	0.95	6.82	effluent pollutant concentration adjusted by TSD factor
Number of Observations	2	1	
Min. No. of Observations for RP	10	10	
Cr = (CsQs+CeQe)/Qr	0.057	0.062	resultant pollutant concentration in receiving water without TSD adjustment
Cr = (CsQs+CetsdQe)/Qr	0.062	0.098	resultant pollutant concentration in receiving water with TSD method
VWQS Criteria (2017)			
Protection of Aquatic Biota - Acute	4.53	6.52	
Protection of Aquatic Biota - Chronic	2.17	5.03	
Exceedance Calculated?			
Protection of Aquatic Biota - Acute without TSD adjustment	NO	NO	
Protection of Aquatic Biota - Chronic without TSD adjustment	NO	NO	
Protection of Aquatic Biota - Acute with TSD adjustment	NO	NO	
Protection of Aquatic Biota - Chronic with TSD adjustment	NO	NO	
Sufficient Data to Determine RP?	NO	NO	

This facility has limited TAN data available and there is not a sufficient amount of data to determine reasonable potential.

This facility has a 7Q10 IWC of 0.006 (<1%). This value is less than the IWC described in the RPD Decision Trees for facilities to have potential RP for TAN toxicity.

40 CFR 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.

Due to the low IWC of this facility it is not necessary to include a permit limit for TAN, or to increase monitoring beyond that included in the annual constituent monitoring and WET testing.

H. Total Phosphorus:

The potential impacts of phosphorus discharges from this facility to the receiving water have been assessed in relation to the narrative criteria in §29A-302(2)(A) of the 2017 VWQS, which states:

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.

To interpret this standard, the Secretary relies on a framework which examines TP concentrations in relation to existing numeric phosphorus criteria and response criteria in §29A-306(a)(3)(c) of the VWQS, for streams that can be assessed using macroinvertebrate biocriteria. Under this framework, a positive finding of compliance with the narrative standard can be made when nutrient criteria are attained, or when specific nutrient response variables; pH, Turbidity, Dissolved Oxygen, and aquatic life use, all display compliance with their respective criteria in the Water Quality Standards. To assist in determining whether this facility's TP discharge is in compliance with VWQS the analysis is broken into an analysis of the TP numeric standard and an analysis of the Nutrient Response Conditions needed to determine compliance with the narrative standard.

Total Phosphorus Numeric Analysis:

The calculated TP concentration in the Otter Creek is greater than the 2017 nutrient criteria threshold of 27 ug/L Total Phosphorus in a Class B Warm Water, Medium-Gradient stream when the TSD method is used, and is less than the criteria when the TSD multiplier is not applied. The calculated change in the in-stream TP concentration attributable to the Proctor WWTF is 13 ug/L using the TSD method adjusted effluent data and is 6 ug/L without the adjustment. This calculation is presented above in Table 3.

Total Phosphorus Nutrient Response Conditions Analysis:

The Combined Nutrient Response Conditions for Aquatic Biota and Wildlife in Rivers and Streams at RM 62.9 on August 10, 2020 meets VWQS for pH, meets VWQS for Turbidity, and meets VWQS for Dissolved Oxygen as shown below in Table 5. Aquatic biota was not sampled. The available nutrient response criteria indicate that the water is not impaired for TP. Therefore, the narrative standard presented in §3-01.B.2 of the VWQS is supported and the receiving waters are in compliance with VQWS for Total Phosphorus but may still be subject to limits proscribed by VSA 1266a or a Phosphorus TMDL.

As monitoring results indicate the stream complies with VWQS for all identified response variables, with the exception of aquatic biota which are not available in this non-wadeable stream, and the narrative standard presented in §29A-302(2)(A) of the VWQS is supported (as shown in *Table 5*), it is not necessary to include biomonitoring in the draft permit.

Table 5. Assessment of Phosphorus Response Variables around the Proctor WWTF

Response variable (VWQS reference)	Target Value for Warm Water Fish Habitat	River-mile: 63.8 (Upstream)	River-mile: 62.9 (Downstream)
		8/10/2020	
pH (§3-01.B.9)	6.5-8.5 s.u.	7.92	7.58
Turbidity (§3-04.B.1)	< 25 NTU at low mean annual flow	1.6	1.5
Dissolved Oxygen (min) (§3-04.B.2)	>5 mg/L and 60% saturation	7.51 mg/l & 92.2%	6.75 mg/l & 81.5%
Aquatic biota, based on macroinvertebrates.	Attaining an assessment of good, or better.	n/a	n/a

Total Phosphorus Reasonable Potential Determination:

The conservative numeric criteria for TP are exceeded when calculated at this facility's full design flow using the TSD method, and with the receiving water at LMM conditions. However, the narrative criteria for TP are satisfied and therefore this facility does not have reasonable potential to violate VWQS.

This facility is subject to the 2016 Lake Champlain Phosphorus TMDL. That document maintains the facility's Annual Waste Load Allocation of 0.359 mt/year or 791 lbs/year.

This facility is subject to 10 V.S.A. 1266a, which reads "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." Therefore, the permit must include a Total Phosphorus limit of 0.8 mg/L.

The new permit should contain an annual TP Waste Load Allocation of 791 pounds/year and a monthly average concentration limit of 0.8 mg/l. Sampling should remain monthly.

V. Summary of Reasonable Potential Determinations

No Reasonable Potential was determined.

A. Recommended Biological and Water Quality Monitoring:

As monitoring results indicate the stream complies with VWQS for all identified response variables, with the exception of aquatic biota which are not available in this non-wadeable stream, and the narrative standard

presented in §29A-302(2)(A) of the VWQS is supported (as shown in *Table 5*), it is not necessary to include biomonitoring in the draft permit.

B. Recommended Effluent Monitoring:

In addition to the monitoring required in the current permit, the following monitoring is suggested for inclusion in the renewed permit to provide additional data to support future Reasonable Potential Determinations:

- To gather data on the amount of Total Nitrogen (TN) in this discharge and its potential impact on the receiving water, quarterly “monitor only” requirements for Nitrate/Nitrite (NO_x), Total Nitrogen (TN) and Total Kjeldahl Nitrogen (TKN) are suggested for inclusion in this permit.
- The new permit should contain an annual TP Waste Load Allocation of 791 pounds/year and a monthly average concentration limit of 0.8 mg/l. Sampling should remain monthly.
- This facility is an aerated lagoon which means that it may qualify for a higher TSS TBEL if it is unable to meet secondary treatment standards for TSS but is able to provide significant biological treatment. That calculation has been performed and this facility was found to be eligible for TSS limits of 45 mg/l monthly and daily averages.
- To gather data on the toxicity of the effluent, it is recommended that this facility be required to conduct 48-hour static acute WET tests on a 24-hour composite effluent sample once per year, alternating between winter (January or February) and late summer/early fall (August, September, or October) each year.
- In order to meet federal minimum data requirements at permit renewal and provide data for future assessment of metals toxicity reasonable potential, concurrent testing of metals included in 40 CFR § 122 Appendix J Table 2 and Aluminum are recommended for inclusion with the WET testing.

C. Conclusion:

After review of all available information, it has been determined that there is not a reasonable potential for the discharge to cause or contribute to a water quality violation. This discharge does not appear to cause, have a reasonable potential to cause, or contribute to an instream toxic impact or instream excursion above the water quality criteria. Additional monitoring should be included in the permit in order to provide sufficient data to determine reasonable potential.

ATTACHMENT B.
RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY
NPDES Discharge Permit No. 3-1298

Proctor WWTF

The Vermont Agency of Natural Resources (Agency) placed the above referenced permit on public notice initially from October 7, 2022 to November 7, 2022. No public meeting was held.

Comments on the draft permit were received during the public comment period. The following is a summary of the comments and the Agency's responses to those comments. A copy of any or all comments received can be obtained by contacting the Agency's Watershed Management Division at (802) 828-1115.

COMMENT #1

Why has the permit been administratively continued, when it missed the application deadline?

I cannot figure out what numbers you have used to warrant stating in the draft fact sheet that the permit has been administratively continued. As far as I can tell, the application to re-issue the permit was not submitted in time to warrant an administrative continuation. From the draft fact sheet:

"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 Section 13.5(b)."

Proctor was last issued a permit under the National Pollution Elimination Discharge System in 2006. The number of the permit is 3-1298. It was issued October 26, 2006 and became effective January 1, 2007. The permit required Proctor to re-apply "at least 180 days before this permit expires. Reapply for a Discharge Permit by: June 30, 2011". Proctor submitted an application for renewal July 7, 2011. The permit expired December 31, 2011. Based on the "re-apply by" date in the permit, the application was submitted seven days too late to qualify for an administrative continuation.

The referenced statute and regulation set out a different standard for determining when the application was to have been submitted.

The relevant portion of 3 V. S. A. §814 is (b): the application for renewal must be "timely and sufficient". "(b) When a licensee has made timely and sufficient application for the renewal of a license or a new license with reference to any activity of a continuing nature, the existing license does not expire until the application has been finally determined by the agency, and, in case the application is denied or the terms of the new license limited, until the last day for seeking review of the agency order or a later date fixed by order of the reviewing court."

The cited section of regulation clarifies what is meant by "timely". The relevant portion of the Vermont Water Pollution Control Permit Regulations Section 13.5(b) is (1): the application for reissuance must be filed at least 180 days prior to its expiration.

"b. Reissuance of Permits. (1) Any permittee who wishes to continue to discharge after the expiration date of his permit must file an application for reissuance of his permit at least 180 days prior to its expiration."

The last permit issued to Proctor became effective January 1, 2007 and expired December 31, 2011. One hundred eighty days before December 31, 2011 was July 4, 2011. July 4, 2011 was a Monday. So even if

the rule of postponing a due date because of a holiday or weekend applies in this case, the renewal application should have been submitted no later than July 5, 2011.

Thus, the application for renewal was not timely. It was a violation of the water pollution control regulations to administratively continue the permit.

Requested action Revise the fact sheet to state that the permit should not have been administratively continued, because the application was filed too late. Then explain how to correct this error. (Or, if my numbers are incorrect, use the response to explain the error in my analysis.)

RESPONSE #1

When the applicant submitted the renewal application in July 2011, it was a just several days short of being 180 days prior to expiration. The Agency deemed the application administratively complete for purpose of Title 3 administrative continuance and renewal permit processing. Requiring submission of applications 180 days prior to permit expiration supports the Agency's administration of NPDES permit renewals. The Agency has discretion, however, to allow a renewal application for a publicly owned treatment works (POTW) less than 180 days but no later than the permit expiration date. See 40 C.F.R. §§ 122.21(d)(1) & 123.25 (duty to reapply and permission to grant later date; applicable to State programs); Champlain Parkway SW Discharge Permit, No. 76-7-18 Vtec, slip op. at 5-11 (Aug. 21, 2018) (Durkin, J.) (discussing deference to Agency regarding acceptance of permit renewal application after deadline stated in Agency's stormwater rule). Despite the submission roughly 175 days prior—rather than 180 days prior—to expiration, the renewal application was “timely and sufficient” for the purpose of administrative continuance.

COMMENT #2

What actions are being taken to prevent additional violations of BOD 5 percent removals?

The reasonable potential determination shows violations of the minimum percent removal of BOD₅ in five of 58 months. There is no explanation of why the violations occurred or what will be done (or has been done) to eliminate the violations. Based on the data in Table 1a of the RPD, it is possible that the violations might be caused by high discharges into Otter Creek. Those high flow rates would be carrying a large BOD₅ weight load even though the concentrations are within limits. If the violations are due to high flows caused by rainfall onto the aeration lagoons, would it be possible to alter the outflow control, at either the lagoons or the disinfection units, to reduce peak outflows? (One inch of rain places about 120,000 gallons of rainwater into the lagoons.)

Requested action Revise the fact sheet (or RPD) to discuss the causes of the violations of the BOD₅ minimum percent removals and how to prevent them in the future. (Or if they have been corrected, what was done to eliminate violations.) And revise the permit if appropriate.

RESPONSE #2

The purpose of the Reasonable Potential Determination document is to examine the effluent from the WWTF and to evaluate whether or not there is a reasonable potential to violate the Vermont Water Quality Standards (VWQS) in the receiving water and assign water quality based effluent limits where needed. BOD₅ percent removal is a technology based effluent limit. Technology based effluent limits are based on available technologies and are developed independently of the potential impact of a discharge on the receiving water, therefore discussion regarding BOD₅ percent removal is not included in the Reasonable Potential Determination.

The five violations of the 85% removal occurred in May 2016 (64%), May 2017 (78%), May 2018 (74%), May 2019 (84%) and April 2020 (77%). The violations were attributed to inflow and infiltration of the collection system causing low influent BOD₅. The town contracted A+E for a study of the collection system and has a contract out to bid for sewer system improvements. No changes will be made to the RPD, fact sheet or the permit.

COMMENT #3

What actions are being taken to prevent additional violations of TSS percent removals?

The reasonable potential determination shows violations of the minimum percent removal of TSS in 12 of 58 months. There is no explanation of why the violations occurred or what will be done to eliminate the violations.

Requested action Revise the fact sheet (or RPD) to discuss the causes of the violations of the TSS percent removals and how to prevent them in the future. (Or if they have been corrected, what was done to eliminate violations.) And revise the permit if appropriate.

RESPONSE #3

The purpose of the Reasonable Potential Determination document is to examine the effluent from the WWTF and to evaluate whether or not there is a reasonable potential to violate the Vermont Water Quality Standards (VWQS) in the receiving water and assign water quality based effluent limits. TSS percent removal is a technology based effluent limit. Technology based effluent limits are based on available technologies and are developed independently of the potential impact of a discharge on the receiving water, therefore discussion regarding TSS percent removal is not included in the Reasonable Potential Determination.

The twelve violations of the 85% removal occurred in May 2016 (62%), February 2017 (84%), March 2017 (80%), May 2017 (78%), July 2017 (82%) , March 2018 (84%), April 2019 (77%), May 2019 (84%), January 2020 (82%), March 2020 (84%), April 2020 (63%), and March 2021 (83%). The violations were attributed to inflow and infiltration of the collection system causing low influent TSS. The town contracted A+E for a study of the collection system and has a contract out to bid for sewer system improvements. No changes will be made to the RPD, fact sheet or the permit.

COMMENT #4

Phosphorus

The RPD shows four violations of the concentration of effluent phosphorus and no violation of the weight limit on phosphorus. The fact sheet has an extensive section on phosphorus, including a few paragraphs on a phosphorus optimization plan. The discussion of phosphorus fails to mention that in four (out of 58) months, the phosphorus concentration limit was violated. The section fails to mention what actions DEC took and the operator took to try to eliminate these violations. Were these early in the 58 months and the problem has been corrected? Are these scattered throughout the 58 months indicating that the optimization plan needs to specifically cover this? Issuing the permit was delayed 11 years to get the phosphorus TMDL into the permit., Thus, failing to discuss the phosphorus violation in the fact sheet seems to be a serious omission.

Requested action Revise the fact sheet to discuss the causes of the violations of phosphorus concentrations and how to prevent them in the future. (Or if they have been corrected, what was done to eliminate violations.) And revise the permit if appropriate.

RESPONSE #4

The purpose of the Reasonable Potential Determination document is to examine the effluent from the WWTF and to evaluate whether or not there is a reasonable potential to violate the Vermont Water Quality Standards (VWQS) in the receiving water. The nutrient response criteria indicate that the water is not impaired for Total Phosphorus and analysis determined that the narrative criteria for Total Phosphorus are satisfied, therefore this facility does not have reasonable potential to violate VWQS.

The language in the fact sheet for Total Phosphorus has been prepared for use at all facilities subject to the Lake Champlain Total Phosphorus TMDL in Vermont. The four reported concentration exceedances are not considered to be significant to either the TMDL or the conditions in the receiving waters.

The four violations of the 0.8 mg/L monthly average phosphorus limit occurred in December 2017 (1.005 mg/L), February 2018 (0.83 mg/L), December 2019 (0.98 mg/L) and January 2020 (0.86 mg/L). The 2017, 2019 and 2020 violations were attributed to cold weather as phosphorus removal is temperature sensitive and biological phosphorus removal decreases in the winter and early spring. The facility increased alum treatment as a corrective action. The February 2018 violation was attributed to a broken alum injection pipe. A 1272 Order was sent to the facility on February 16, 2018 ordering the facility to submit a short-term plan for operation of the WWTF until completion of repairs, a plan to repair the pipe developed by a qualified engineer, and a report with the repair end date and post repair WWTF operations regarding phosphorus removal. The repairs occurred in July 2018. No changes will be made to the RPD, fact sheet or the permit.

COMMENT #5

Why the increase in turbidity between the upstream and downstream sampling locations?

Table 2b of the RPD shows that turbidity in Otter Creek doubled between the upstream and downstream sampling locations. (0.7 NTU upstream and 1.5 downstream) Neither the RPD nor the fact sheet discusses this increase. What is happening between the upstream and downstream sampling points to create such an increase in turbidity? Is it caused by the discharge from the WWTF?

Requested action Provide a discussion of this turbidity increase in the fact sheet or RPD. If the increase is caused by the discharge from the WWTF, how will this increase be prevented in the future? (Or if a correction has been made, what was done to correct it?) And revise the permit if appropriate.

RESPONSE #5

The purpose of the Reasonable Potential Determination document is to examine the effluent from the WWTF and to evaluate whether or not there is a reasonable potential to violate the Vermont Water Quality Standards (VWQS) in the receiving water and assign water quality based effluent limits. The Otter Creek is a Class B (2) water, for which the Vermont Water Quality Standards state turbidity levels shall not exceed 25 NTU as an annual average under dry weather base-flow conditions. As the instream concentrations of 0.7 NTU and 1.5 NTU are significantly lower than the Vermont Water Quality

Standards, the increase between the upstream and downstream locations was not analyzed. No changes will be made to the RPD, fact sheet or the permit.

COMMENT #6

Why the increase in the concentration of iron between the upstream and downstream sampling locations?

Table 2b of the RPD shows that the concentration of iron in Otter Creek increased between the upstream and downstream sampling locations. (174 µg/liter upstream and 203 downstream) Neither the RPD nor the fact sheet discusses this increase. What is happening between the upstream and downstream sampling points to create this increase in concentration of iron? Is it caused by the discharge from the WWTF?

Requested action Provide a discussion of increase in the concentration of iron in the fact sheet or RPD. If the increase is caused by the discharge from the WWTF, how will this increase be prevented in the future? (Or if a correction has been made, what was done to correct it?) And add iron to the metals scan, if appropriate.

RESPONSE #6

The purpose of the Reasonable Potential Determination document is to examine the effluent from the WWTF and to evaluate whether or not there is a reasonable potential to violate the Vermont Water Quality Standards (VWQS) in the receiving water and assign water quality based effluent limits. The Vermont Water Quality Standard for Consumption of Water and Organisms for Iron is 300 ug/L and the Average Allowable Concentration (Chronic Criteria) for Iron 1,000 ug/L. As the instream concentrations of 174 ug/L and 203 ug/L are significantly lower than the Vermont Water Quality Standards and Iron is naturally occurring, the increase between the upstream and downstream locations was not analyzed. No changes will be made to the RPD, fact sheet or the permit.

Agency of Natural Resources
 Department of Environmental Conservation
 Watershed Management Division
 1 National Life Drive, Davis 3
 Montpelier, VT 05620-3522

Permittee: _____
 NPDES Permit No. _____
 Preparer/Contact: _____
 Telephone: _____
 Email: _____
 Month/Year: _____

Total Phosphorus Waste Load Allocation from Lake Champlain Phosphorus TMDL:	metric tons/year lbs/year	Select your facility in the pulldown list next to Permittee above.
Monthly Average TP concentration	mg/L	Enter this value from WR-43.
Monthly Average Daily Flow Rate	MGD	Enter this value from WR-43.
Number of days with discharge	days	Enter the number of days with discharge.
Average TP Concentration * Average Flow Rate * Days of Discharge * 8.34	0.00 lbs	Pounds of Phosphorus discharged this month.
12 Month Running Total Pounds of Phosphorus	lbs/year	Enter the 12 Month Running Total Pounds of Phosphorus.
12 Month Running Total / Waste Load Allocation * 100	%	Percentage of Annual Phosphorus Load from TMDL

This form should be submitted monthly by facilities that have a Total Phosphorus Waste Load Allocation under the Lake Champlain Phosphorus TMDL. If you have a permit issued before 2017 DO NOT USE this form.

Notes:

Table 9. Vermont Individual WWTF Phosphorus Wasteload Allocations
(Facilities with allocations different from the 2002 TMDLs are shown in italics.)

Facility	Lake Segment	Design Flow (mgd)	Current Permit Load (mt/yr)	TMDL Wasteload Allocation (mt/yr)	Change in Permitted Load (mt/yr)
Alburgh	13 Isle LaMotte	0.130	0.108	0.108	0.000
Barre City	<i>05 Main Lake</i>	4.000	3.314	1.105	-2.209
Barton				0.246	
Benson	01 South Lake B	0.018	0.122	0.122	0.000
Brandon	04 Otter Creek	0.700	0.580	0.580	0.000
Brighton				0.695	
Burlington Electric McNeil Generating Station	05 Main Lake	0.365	0.017	0.017	0.000
Burlington Main	<i>07 Burlington Bay</i>	5.300	4.392	1.464	-2.928
Burlington North	<i>05 Main Lake</i>	2.000	1.657	0.552	-1.105
Burlington River (East)	<i>05 Main Lake</i>	1.200	0.994	0.331	-0.663
Cabot	05 Main Lake	0.050	0.041	0.041	0.000
Castleton	01 South Lake B	0.480	0.397	0.397	0.000
Enosburg Falls	<i>12 Missisquoi Bay</i>	0.450	0.373	0.124	-0.249
Essex Junction	<i>05 Main Lake</i>	3.300	2.569	0.911	-1.658
Fair Haven	01 South Lake B	0.500	0.414	0.414	0.000
Fairfax	09 Malletts Bay	0.078	0.539	0.539	0.000
Global Foundries (I B M Corp)	<i>05 Main Lake</i>	8.000	5.531	2.210	-3.321

Hardwick	09 Malletts Bay	0.371	0.410	0.410	0.000
Hinesburg	06 <i>Shelburne Bay</i>	0.250	0.276	0.069	-0.207
Jeffersonville	09 Malletts Bay	0.077	0.532	0.532	0.000
Johnson	09 Malletts Bay	0.270	0.224	0.224	0.000
Marshfield	05 Main Lake	0.045	0.311	0.311	0.000
Middlebury	04 Otter Creek	2.200	1.823	1.823	0.000
Milton	09 Malletts Bay	1.000	0.829	0.829	0.000
Montpelier	05 Main Lake	3.970	3.290	1.097	-2.193
Morrisville	09 Malletts Bay	0.550	0.352	0.352	0.000
Newport City				0.964	
Newport Town (Newport Center)	12 <i>Missisquo i Bay</i>	0.042	0.006	0.116	0.110
North Troy	12 <i>Missisquo i Bay</i>	0.110	0.760	0.122	-0.638
Northfield	05 Main Lake	1.000	0.829	0.276	-0.553
Orleans				0.176	
Orwell	02 South Lake A	0.033	0.228	0.228	0.000
Otter Valley Union High School	04 Otter Creek	0.025	0.173	0.173	0.000
P B M Nutritionals Inc	09 Malletts Bay	0.425	0.352	0.352	0.000
Pawlet (West Pawlet)	01 South Lake B	0.040	0.276	0.276	0.000
Pittsford	04 Otter Creek	0.085	0.483	0.483	0.000

Pittsford Fish Hatchery (US Dept of Interior- DEisenhower NFH)	04 Otter Creek	2.600	0.691	0.691	0.000
Plainfield	05 Main Lake	0.125	0.691	0.138	-0.553
Poultney	01 South Lake B	0.500	0.414	0.414	0.000
Proctor	04 Otter Creek	0.325	0.359	0.359	0.000
Richford	12 Missisquo i Bay	0.380	0.420	0.105	-0.315
Richmond	05 Main Lake	0.222	0.184	0.061	-0.123
Rutland City	04 Otter Creek	8.100	5.634	5.634	0.000
Shelburne #1 (Crown Road)	06 Shelburne Bay	0.440	0.348	0.122	-0.226
Shelburne #2 (Harbor Road)	06 Shelburne Bay	0.660	0.497	0.182	-0.315
Sheldon Springs	12 Missisquoi Bay	0.054	0.373	0.373	0.000
Shoreham	04 Otter Creek	0.035	0.242	0.242	0.000
South Burlington Airport Parkway	05 Main Lake	3.300	1.906	0.911	-0.995
South Burlington Bartlett Bay	06 Shelburne Bay	1.250	0.878	0.345	-0.533
St Albans Northwest Correctional	11 St. Albans Bay	0.040	0.028	0.028	0.000
St. Albans City	11 St. Albans Bay	4.000	2.762	1.105	-1.657
Stowe	05 Main Lake	1.000	0.282	0.276	-0.006
Swanton	12 Missisquo i Bay	0.900	0.746	0.249	-0.497
Troy/Jay	12 Missisquo i Bay	0.800	0.221	0.221	0.000

Vergennes	04 Otter Creek	0.750	0.621	0.621	0.000
VT Fish & Wildlife - Ed Weed Fish Culture Station	05 Main Lake	11.500	0.914	0.914	0.000
VT Fish & Wildlife - Salisbury Fish Hatchery	04 Otter Creek	1.310	0.181	0.181	0.000
Wallingford FD 1	04 Otter Creek	0.120	0.829	0.829	0.000
Waterbury	05 Main Lake	0.510	0.563	0.141	-0.422
West Rutland	04 Otter Creek	0.450	0.364	0.364	0.000
WestRock Converting (Rock Tenn)	12 Missisquo i Bay	2.500	1.260	0.691	-0.569
Williamstown	05 Main Lake	0.150	1.036	0.166	-0.870
Winooski	05 Main Lake	1.400	1.160	0.387	-0.773
Total			55.802	32.336	-23.465

The yellow column contains the P loads for each facility in mt/year (metric ton per year).

Alburgh	3-1180
Barre City	3-1272 3-1202
Benson	3-1166
Brandon	3-1196 3-1213
Burlington Electric McNeil Generating Station	3-1219
Burlington Main	3-1331
Burlington North	3-1245
Burlington River	3-1247
Cabot	3-1440
Castleton	3-1238
Enosburg Falls	3-1234
Essex Junction	3-1254
Fair Haven	3-1307
Fairfax	3-1194
I B M Corp	3-1295

Hardwick	3-1143
Hinesburg	3-1172
Jeffersonville	3-1323
Johnson	3-1149
Marshfield	3-1195
Middlebury	3-1210
Milton	3-1203
Montpelier	3-1207
Morrisville	3-1155 3-1241
Newport Town	3-1236
North Troy	3-1139
Northfield	3-1158 3-1201
Orwell	3-1214
Otter Valley Union High School	3-0293
P B M Nutritionals Inc	3-1209
Pawlet	3-1220
Pittsford	3-1189

US Dept of Interior-DEisenhower NFH	3-1188
Plainfield	3-0381
Poultney	3-1231
Proctor	3-1298
Richford	3-1147
Richmond	3-1173
Rutland	3-1285
Shelburne 1 (Crown Rd)	3-1289
Shelburne 2 (Harbor Rd)	3-1304
Sheldon Springs	3-1108
Shoreham	3-1459
South Burlington - Airport Parkway	3-1278
South Burlington - Bartlett Bay	3-1284
St Albans Northwest Correctional	3-1260
St Albans City	3-1279
Stowe	3-1232
Swanton	3-1292
Troy & Jay	3-1311

Vergennes	3-0368
VT Fish & Wildlife - Ed Weed Fish Culture Station	3-1312
VT Fish & Wildlife - Salisbury Fish Hatchery	3-0361
Wallingford FD 1	3-0365
Waterbury	3-1160
West Rutland	3-1237
WestRock Converting Company	3-1118
Williamstown	3-1176
Winooski	3-1248