AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
ONE NATIONAL LIFE DRIVE, MAIN BUILDING, 2nd FLOOR
MONTPELIER, VT 05620-3522

Permit No.: 3-1172
PIN: EJ95-0286
NPDES No.: VT0101028

Name of Applicant: Town of Hinesburg
PO Box 133
Hinesburg, VT 05461

Expiration Date: December 31, 2022

DISCHARGE PERMIT

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), and the federal Clean Water Act as amended (33 U.S.C. § 1251 *et seq*.) and implementing federal regulations, the Town of Hinesburg, Vermont (hereinafter referred to as the "Permittee") is authorized by the Secretary of the Agency of Natural Resources (Secretary) to discharge from the Hinesburg Wastewater Treatment Facility (WWTF) to the LaPlatte River in accordance with the following conditions.

This permit shall become effective on March 1, 2018

Emily Boedecker, Commissioner
Department of Environmental Conservation

By: Jessica Bulova Date: January 26, 2018

Jessica Bulova, Wastewater Section Supervisor
Watershed Management Division

I. SPECIAL CONDITIONS

A. EFFLUENT LIMITS

1. During the term of this permit, the Permittee is authorized to discharge from outfall serial number S/N 001 of the Hinesburg WWTF to the LaPlatte River, an effluent for which the characteristics shall not exceed the values listed below:

EFFLUENT CHARACTERISTICS	**DISCHARGE LIMITATIONS**							
	Annual Average	Monthly Average	Weekly Average	Maximum Day	Monthly Average	Weekly Average	Maximum Day	Instantaneous Maximum
		Mass (**lbs/day**)			Concentration (**mg/L**)			
Flow	0.250 MGD[1]	Monitor Only						
Ultimate Oxygen Demand[2]				400				
Biochemical Oxygen Demand (5-day, 20° C) (BOD_5)			94		30	45	50	
Total Suspended Solids (TSS)		94	94		45	45	50	
Total Phosphorus (TP)[3,4,5] **Total Annual Pounds**	152 lbs/yr				0.8			
Total Phosphorus (TP)[3,4,6] **Total Annual Pounds**	608 lbs/yr 63				0.8			
Total Kjeldahl Nitrogen							Monitor Only	
Nitrate/Nitrite Nitrogen (NO_x)							Monitor Only	
Total Nitrogen (TN)[7]				Monitor Only			Monitor Only	
Total Ammonia Nitrogen (June 1-September 30)[3,5,8]		7.3		34.6	3.5			16.6 mg/L
Total Ammonia Nitrogen (October 1 – May 31)[3,5,8]		42.1		175.0	20.2			84.0 mg/L
Total Ammonia Nitrogen[6,8]							Monitor Only	
Settleable Solids								1.0 ml/L
Escherichia coli								77 CFU/100 ml
Total Residual Chlorine (TRC)[9]								0.02 mg/L
pH					Between 6.5-8.5 Standard Units			

[1] Monthly average flow calculated by summing daily effluent flow for each day in the given month and dividing the sum by the number of days of discharge in that month.
[2] The Ultimate Oxygen Demand shall only apply from June 1 to September 30
[3] The permittee shall operate the facility to meet the concentration limitations or pounds limitation, whichever is more restrictive.
[4] Total Phosphorus shall be reported as Total Monthly Pounds, Running Total Annual Pounds, and Percentage of Running Total Annual Pounds to Annual Permit Limitation. See Condition I.B.5.
[5] These limits are effective once the facility upgrade is complete.
[6] These limits are effective from permit issuance to facility upgrade completion.
[7] Total Nitrogen (TN) shall be reported as pounds, calculated as: *Average TN (mg/L) x Total Daily Flow x 8.34*; where, *TN (mg/L) = TKN (mg/L) + NO_x (mg/L)*
[8] Total Ammonia Nitrogen (TAN) = $NH_3 + NH_4^+$
[9] For the purposes of this permit, TRC analysis must be completed using a test method in 40 C.F.R. § 136 that achieves a minimum level no greater than 0.05 mg/L. The compliance level for TRC is 0.05 mg/L.

2. The effluent shall not have concentrations or combinations of contaminants including oil, grease, scum, foam, or floating solids which would cause a violation of the Vermont Water Quality Standards.

3. The effluent shall not cause visible discoloration of the receiving waters.

4. The monthly average concentrations of Biochemical Oxygen Demand (BOD_5) and Total Suspended Solids (TSS) in the effluent shall not exceed 15 percent of the monthly average concentrations of BOD_5 and TSS in the influent into the Permittee's WWTF. For the purposes of determining whether the Permittee is in compliance with this condition, samples from the effluent and the influent shall be taken with appropriate allowance for detention times.

5. 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 consistent with approved water quality management plans.

6. For the purposes of this permit, TRC analysis must be completed using a test method in 40 C.F.R. § 136 that achieves a minimum level no greater than 0.05 mg/L. The compliance level for TRC is 0.05 mg/L. Samples with a TRC concentration of 0.05 mg/L and below will be considered in compliance.

7. **Annually, in September or October**, 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 October Discharge Monitoring Report (DMR) form WR-43.

8. 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.

9. The Permittee shall not bypass or lower any treatment lagoon below the normal operating level of 8 feet without first obtaining approval from the Secretary.

10. The Permittee shall not bypass or lower any treatment lagoon at a frequency of greater than once every five years for sludge removal unless all limitations of Part I.A.1 of this permit can be met.

B. TOTAL PHOSPHORUS

1. Wasteload Allocation and Implementation Schedule

This permit includes a formal total phosphorus (TP) waste load allocation (WLA) of 0.069 metric tons per year (152 lbs/yr), as established by the 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, pursuant to Condition II.B.4 of this permit, to include an alternate total phosphorus (TP) limitation and/or additional monitoring requirements based on the monitoring data and/or 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 LC TMDL and Vermont's "Wasteload Allocation Process" Rule (Environmental Protection Rule, Chapter 17).

The Permittee shall achieve compliance with the TP limit of 152 lbs (0.069 metric tons) annual load, as specified in Condition I.A.1 of this permit, in accordance with the following schedule:

a) **As soon as possible, but by no later than February 28, 2019**, the Permittee shall develop and submit a plan to the Secretary for review and approval to ensure the WWTF is brought into compliance with its WLA. The plan shall be developed by qualified professionals with experience in the operation and design of WWTFs in consultation with the Chief Operator of the WWTF. The plan shall include:

i. Plans and specifications necessary to implement needed facility modifications;

ii. An engineer approved design and construction schedule, that shall ensure the WWTF's compliance with its WLA as soon as possible but no later than by **December 31, 2022;** and

iii. A financing plan that estimates the costs for implementing the plan and describes a strategy for financing the projects.

b) **As soon as possible, but by no later than December 31, 2022**, the Permittee shall achieve compliance with the TP limitations specified in Condition I.A.1. From the effective date of the permit until that time, the facility shall have **interim TP limits** from the previous discharge permit (**608 lbs., annually; 0.8 mg/L, monthly average**).

c) The Permittee shall notify the Secretary, in writing, within 30 days after completion of the facility modifications necessary to achieve compliance with the TP effluent limitations specified in Condition I.A.1.

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

The Permittee shall submit project progress reports pertaining to facility modifications necessary to achieve compliance with the TP effluent limitations specified in Condition I.A.1, for review by the Secretary. Progress reports shall be submitted on the following dates: **November 30, 2019, August 31, 2020, May 31, 2021, February 28, 2022, and November 30, 2022**.

Progress reports shall include the following:

i. A description of the progress the Permittee has made toward making the facility modifications necessary to achieve compliance with the TP effluent limitations specified in Condition I.A.1;

ii. An assessment as to whether the Permittee is on schedule in its efforts to comply with the date specified in Condition I.B.1.b); and

iii. If the Permittee is not on-track with its original design and construction schedule, the progress reports shall detail the steps the Permittee will take to ensure compliance with the date specified in Condition I.B.1.b).

2. Phosphorus Optimization Plan

a) Within 6 months of facility upgrades, or December 31, 2022, whichever occurs first, the Permittee shall develop or update (as appropriate), and submit to the Secretary, a Phosphorus Optimization Plan (POP) to increase the WWTF 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 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 anaerobic/anoxic 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. If the POP fails to meet the requirements of subsection (a) of this section, the Secretary may reject the POP. The Permittee shall commence implementation of the POP immediately.

c) The Permittee shall annually submit a report to the Secretary as an attachment to the

monthly electronic Discharge Monitoring Report (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.

The first annual report shall include data collected during **the calendar year proceeding completion of the facility upgrade** and shall be attached to the appropriate year's December DMR form WR-43.

3. Phosphorus Elimination/Reduction Plan

a) The facility shall have until **18-months from facility upgrades, or until December 31, 2022, whichever occurs first,** to optimize removal of TP.

b) If, after the optimization period, the WWTF's actual TP loads reach or exceed 80% of the TMDL WLA for the WWTF, based on the WWTF's 12-month running annual load calculated using the Running Total Annual Pounds calculation (Condition I.B.4) the Permittee shall, within 90 days of reaching or exceeding 80% of the 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.

c) 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 seeking permit renewal and submit that information with its next permit application.

d) 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 from the date of submittal of the projection submitted under Part I.B.3.b. The PERP shall be submitted to the Secretary to ensure the WWTF continues to comply with its WLA.

e) The PERP shall be developed by qualified professionals in consultation with the WWTF.

The PERP shall include:

i. An evaluation of alternatives to ensure the WWTF's compliance with its WLA; If a pilot study is proposed as part of the evaluation of alternatives, a schedule for testing shall be included;

ii. An identification of the chosen alternative or alternatives to ensure the WWTF's

compliance with its WLA;

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 WLA 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

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.

4. Running Total Annual Pounds Calculation

Compliance with the annual TP limitation (as specified in Condition I.A.1.) will be evaluated each month, using the Running Total Annual Pounds Calculation. In order to calculate running annual TP loading relative to the TMDL WLA:

a) Calculate the average of results for all TP monitoring events conducted in a month (Monthly Average TP Concentration). Units = mg/L

b) For flow, use the average daily flow for the month as reported on the DMR. Units = MGD

c) Calculate Total Monthly Pounds = Monthly Average TP concentration × average daily flow from DMR × 8.34 × number of daily discharges in the month. Units = pounds.

d) Sum the results for the immediately preceding 12 months to derive the Running Total Annual Pounds.

5. Total Phosphorus Reporting

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

a. Monthly Average TP Concentration. See Condition I.B.4.a.

b. Total Monthly Pounds, meaning the total monthly pounds of TP discharged during the month. See Condition I.B.4.c.

c. Running Total Annual Pounds, meaning the 12-month running annual TP load, as specified by Condition I.B.4.d

d. Comparison (%) of Running Total Annual Pounds to Annual Permit Limitation, meaning the percentage of the Running Total Annual Pounds to the Annual Total Phosphorus Limitation.

The comparison shall be calculated as:

Percentage of Running Total Annual Pounds to Annual Permit Limitation, % = Running Total Annual Pounds / Annual TP Permit Limit × 100

C. TOTAL AMMONIA NITROGEN (TAN)

The Permittee shall achieve compliance with the TAN limits specified in Condition I.A.1 of this permit, in accordance with the following schedule:

1. **As soon as possible, but by no later than February 28, 2019**, the Permittee shall develop and submit a plan to the Secretary for review to ensure the WWTF is brought into compliance with its TAN limits. The plan shall be developed by qualified professionals with experience in the operation and design of WWTFs in consultation with the Chief Operator of the WWTF. The plan shall include:

    a. Plans and specifications necessary to implement needed facility modifications;

    b. An engineer approved design and construction schedule, that shall ensure the WWTF's compliance with its TAN limits as soon as possible but no later than by **December 31, 2022**; and

    c. A financing plan that estimates the costs for implementing the plan and describes a strategy for financing the projects.

2. **As soon as possible, but by no later than December 31, 2022**, the Permittee shall achieve compliance with the TAN limitations specified in Conditions I.A.1. From the issuance date of the permit until that time, the facility shall have interim 'monitor only' requirements for TAN. The facility shall monitor for TAN once weekly via grab sample as described in Condition I.I.2.

3. The Permittee shall notify the Secretary, in writing, within 30 days after completion of the facility modifications necessary to achieve compliance with the TAN effluent limitations specified in Condition I.A.1.

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

5. The Permittee shall submit project progress reports pertaining to facility modifications necessary to achieve compliance with the TAN effluent limitations specified in Condition I.A.1, for review by the Secretary. Progress reports shall be submitted on the following dates: **November 30, 2019, August 31, 2020, May 31, 2021, February 28, 2022, and November 30, 2022.**

    Progress reports shall include the following:

a. A description of the progress the Permittee has made toward making the facility modifications necessary to achieve compliance with the TAN effluent limitations specified in Condition I.A.1;

b. An assessment as to whether the Permittee is on schedule in its efforts to comply with the date specified in Condition I.C.1.b; and

c. If the Permittee is not on-track with its original design and construction schedule, the progress reports shall detail the steps the Permittee will take to ensure compliance with the date specified in Condition I.C.1.b.

D. 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 Hinesburg Wastewater Treatment in the LaPlatte River downstream 1.4 miles.

E. REAPPLICATION

If the Permittee desires to continue to discharge after the expiration of this permit, the Permittee shall reapply on the application forms then in use at least 180 days before this permit expires.

Reapply for a Discharge Permit by: **June 30, 2022**

F. INSTREAM MONITORING

The Permittee shall perform instream water quality monitoring for turbidity, TP, and pH in the LaPlatte River above and below the Hinesburg WWTF outfall S/N 001. The Permittee shall submit a study plan, outlining the specific locations of the collection, sampling methodology, and analysis of the data, to the Secretary for approval by **March 30, 2019**.

Instream water quality samples shall be collected for TP, pH, and turbidity once per month, during the months of **June through October of 2019, 2020, and 2021**. Samples shall be collected upstream and downstream of outfall S/N 001 at river mile 12.5 and river mile 12.0, respectively. Streamflow characteristics shall be documented for each sample collection, and sampling should be targeted to low flow conditions, as determined using the relevant U.S. Geological Survey streamflow gauge. The results of the sampling shall be submitted by December 31 of 2019, 2020, and 2021 as an attachment to the appropriate DMR form WR-43.

The Secretary reserves the right to reopen and amend this permit, pursuant to Condition II.B.4 of this permit, to include additional monitoring or effluent limitations.

G. OPERATING FEES

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

H. TOXICITY TESTING

1. Whole Effluent Toxicity (WET) Testing

a) During **August or September 2018 and 2020**, the Permittee shall conduct two-species (*Pimephales promelas* and *Ceriodaphnia dubia*) modified acute/chronic WET test (48-hour acute endpoints within a 7-day chronic test) on a composite effluent sample collected from S/N 001. The results shall be submitted to the Secretary by **December 31, 2018 and December 31, 2020**.

b) During **January or February 2019 and 2021**, the Permittee shall conduct two-species (*Pimephales promelas* and *Ceriodaphnia dubia*) modified acute/chronic WET test (48-hour acute endpoints within a 7-day chronic test) on a composite effluent sample collected from S/N 001. The results shall be submitted to the Secretary by **June 30, 2019 and June 30, 2021**.

The WET tests shall be conducted according to the procedures and guidelines specified in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" and "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" (both documents U.S. EPA October 2002 or, if a newer edition is available, the most recent edition).

Based upon the results of these tests or any other toxicity tests conducted, the Secretary reserves the right to reopen and amend this permit, pursuant to Condition II.B.4 of this permit, to require additional WET testing or a Toxicity Reduction Evaluation be conducted.

I. MONITORING AND REPORTING

1. Sampling and Analysis

The sampling, preservation, handling, and analytical methods used shall conform to the test procedures published in 40 C.F.R. Part 136.

The Permittee shall use sufficiently sensitive test procedures (i.e., methods) approved under 40 C.F.R. Part 136 for the analysis of the pollutants or pollutant parameters specified in Condition I.A. above.

Samples shall be representative of the volume and quality of effluent discharged over the sampling and reporting period. All samples are to be taken during normal operating hours. The Permittee shall identify the effluent sampling location used for each discharge. A description of the effluent sample location is included in Condition I.I.2.

2. Effluent Monitoring

During the term of this permit, the Permittee shall monitor and record the quality and quantity of discharge(s) at outfall serial number S/N 001 of the Hinesburg WWTF, according to the following schedule and other provisions:

PARAMETER	MINIMUM FREQUENCY OF ANALYSIS	SAMPLE TYPE
Flow	Continuous	Daily Total, Max., Min.
Ultimate Oxygen Demand (UOD)	2 x month	calculated[1-2]
Biochemical Oxygen Demand (BOD_5)	2 × month	composite[3]
Total Suspended Solids (TSS)	2 × month	composite[3]
Total Phosphorus (TP)	2 × month	composite[3]
Total Kjeldahl Nitrogen (TKN)	2 × month/1 × quarter[4]	composite[1,3,4]
Total Ammonia Nitrogen (TAN)	1 × week	grab
Total Nitrogen	1 x quarter	[calculated][5]
Nitrate/Nitrite Nitrogen (NO_x)	1 x quarter	composite[3]
Settleable Solids	1 × day	grab[6]
Escherichia coli	2 × month	grab[7]
Total Residual Chlorine (TRC)	1 × day	grab[7-8]
pH	1 × day	grab
Temperature	1 x year	grab
Dissolved Oxygen	1 x year	grab
Oil & Grease	1 x year	grab
Total Dissolved Solids (TDS)	1 x year	composite[3]

Samples collected in compliance with the monitoring requirements specified above shall be collected at the downstream chamber of the dechlorination manhole. When sampling in this location isn't possible due to river water intrusion, samples may be collected directly below the effluent v-notch weir.

[1] *UOD shall be calculated using the following equation:*
UOD (lbs/day) = ((1.43 x BOD (lbs/day)) + (4.57 x TKN (lbs/day))
The BOD and TKN analysis must be conducted on the same effluent sample and the BOD and TKN results from the same sample used to calculate UOD.

[2] UOD monitoring is only required from June 1 through September 30

[3] Composite samples for BOD_5, TSS, TP, TDS, NOx, and TKN shall be taken during the hours 6:00 AM to 6:00 PM, unless otherwise specified. Eight hours is the minimum period for the composite, 24 hours is the maximum for the composite.

[4] TKN Monitoring is required once per quarter from Oct 1 to May 31 and twice a month from June 1 through September 30

[5] TN = TKN + NOx

[6] Settleable Solids samples shall be collected between 6:00 AM and 6:00 PM or during the period of peak flow.

[7] The twice-monthly *E. coli* sample shall be collected at the same time and location as a daily TRC sample. Samples shall be collected between the hours of 6:00 AM and 6:00 PM.

[8] TRC shall be monitored and recorded both prior to and following dechlorination.

3. Annual Constituent Monitoring

Annually, by December 31, the Permittee shall monitor 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:

Temperature
Dissolved Oxygen
Oil & Grease
Total Dissolved Solids

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

The season in which samples are taken shall change chronologically from year to year. The sampling seasons are as follows: winter (January 1 – March 31), spring (April 1 – June 30), summer (July 1 – September 30), and fall (October 1 – December 31). The first samples under this permit should be taken during the **fall** season. The second samples should be taken during the summer, the third in fall, and so forth in chronological order. For easy reference regarding the season in which you should sample, please refer to the "The Secretary's Guidance for Annual Constituent Monitoring."

4. Influent Monitoring

During the term of this permit, the Permittee shall monitor the quality of the influent according to the following schedule and provisions:

PARAMETER	MINIMUM FREQUENCY OF ANALYSIS	SAMPLE TYPE
Biochemical Oxygen Demand (BOD_5)	1 × month	24-hour composite[1]
Total Suspended Solids (TSS)	1 × month	24-hour composite[1]

[1] Composite samples for BOD_5 & TSS shall be taken during the hours 6:00 AM to 6:00 PM, unless otherwise specified. Eight hours is the minimum period for the composite, 24 hours is the maximum for a composite.

5. Reporting

The Permittee is required to submit monthly reports of monitoring results on Discharge Monitoring Report (DMR) form WR-43 and WR-43-TP. Reports are due on the 15th day of each month, beginning with the month following the issuance date of this permit.

The Permittee shall electronically submit its DMRs via Vermont's on-line electronic reporting system. The Permittee shall electronically submit additional compliance monitoring data and reports specified by the Secretary. When the Permittee submits DMRs using an electronic system designated by the Secretary, which requires attachment of scanned DMRs in pdf format, it is not required to submit hard copies of DMRs. The link below shall be used for electronic submittals.

https://anronline.vermont.gov/

If, in any reporting period, there has been no discharge, the Permittee must submit that information by the report due date.

All reports shall be signed:

a) In the case of corporations, by a principal executive officer of at least the level of vice president, or his/her duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge described in the permit form originates and the authorization is made in writing and submitted to the Secretary;

b) In the case of a partnership, by a general partner;

c) In the case of a sole proprietorship, by the proprietor; or

d) In the case of a municipal, State, or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.

In addition to the monitoring and reporting requirements given above, daily monitoring of certain parameters for operational control shall be submitted to the Secretary on the DMR form WR-43. Operations reports shall be submitted monthly.

6. Recording of Results

The Permittee shall maintain records of all information resulting from any monitoring activities required, including:

a) The exact place, date, and time of sampling or measurement;

b) The individual(s) who performed the sampling or measurements;

c) The dates and times the analyses were performed;

d) The individual(s) who performed the analyses;

e) The analytical techniques and methods used including sample collection handling and preservation techniques;

f) The results of such analyses;

g) The records of monitoring activities and results, including all instrumentation and calibration and maintenance records; and

h) The original calculation and data bench sheets of the operator who performed analysis of the influent or effluent pursuant to requirements of Condition I.A of this permit.

i) 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.

The results of monitoring requirements shall be reported (in the units specified) on the DMR form WR-43 or other forms approved by the Secretary.

When "non-detects" are recorded, the method detection limit shall be reported and used in calculating any time-period averaging for reporting on DMRs.

7. 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.

J. 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 facility or the operator's delegate shall comply with the notice requirements outlined in Condition II.A.2 of this permit.

K. OPERATION, MANAGEMENT, AND EMERGENCY RESPONSE PLANS

1. The Permittee shall implement the Operation, Management, and Emergency Response Plan for the treatment facility, sewage pumping stations, and sewer line stream crossings as approved by the Secretary on June 30, 2008.

2. By no later than **July 31, 2018** the Permittee shall prepare and submit to the Secretary for review and approval, an Operation, Management, and Emergency Response Plan for the sewage collection system. The Permittee shall implement the plan upon submittal. 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.

The Permittee shall revise these plans upon the Secretary's request or on its own motion to reflect equipment or operational changes.

L. ENGINEERING EVALUATION AND REPORT

By **June 30, 2022** the Permittee shall conduct an in-depth engineering inspection/evaluation of the WWTF and shall submit a written report of the results to the Secretary. This evaluation shall assess all parts of the WWTF that will not be replaced or refurbished to comply with the TP and TAN requirements. The engineering inspection and report shall be conducted and prepared in accordance with the following conditions:

A professional engineer with experience in the design and operation of municipal wastewater treatment facilities shall be hired to perform an in-depth inspection of the WWTF, pump stations, collection system, and manholes. At the treatment facility, all components which are critical to the treatment process or which could adversely affect effluent quality in the event of their failure shall be inspected. Such components shall include: grit removal systems, comminutors, tank and partition integrity, biological systems, aeration systems, piping, clarifier drives and chlorination and dechlorination systems, flow metering systems, all critical and necessary valves, sludge handling equipment (digesters and appurtenances), etc. In the pump stations, all components critical to the proper conveyance of sewage, the prevention of sewage bypass, and the supporting appurtenances shall be inspected. This includes pumps, alarms, check valves, piping, motor controls, ventilators, dehumidifiers, and sumps pumps, if so equipped, and the station structure.

The inspection is to be comprised of visual observation of equipment operability and condition as well as a review of maintenance records to determine recurring equipment problems and to estimate future life. Calibration checks shall be performed on all flow meters.

The resulting written inspection report shall document the components inspected, their condition, and include recommendations for currently needed repairs or replacements and/or the need for on-site spare parts. The projected date of replacement or major rehabilitation of each component and the anticipated cost shall be estimated. The Permittee shall determine how the future anticipated costs will be met and advise the Secretary in a letter transmitted with the written inspection report. The Secretary recommends an annual set-aside to a sinking fund so that funds are immediately available for the necessary rehabilitations or replacements.

Should the Secretary determine that certain critical components are in need of repair or replacement due to the results of the inspection report, this permit may be reopened and amended, pursuant to Condition II.B.4 of this permit, to include an implementation schedule for repair or replacement of those components.

M. EMERGENCY ACTION - ELECTRIC POWER FAILURE

The Permittee shall indicate in writing to the Secretary **within 90 days after the issuance date of this permit** 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.

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

N. SEWER ORDINANCE

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

1. Prohibit the introduction by any person into the Permittee's sewerage system or WWTF of any pollutant which:

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

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

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

d) 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

e) In the case of a major contributing industry, as defined in this permit, contains an incompatible pollutant, 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.

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

a) 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;

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

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

3. 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.

4. 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 under subsection 3 above, and to sample any discharge into the Permittee's treatment works.

II. GENERAL CONDITIONS

A. MANAGEMENT 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 notice to the Secretary of such changes. Following such notice, the permit may be modified, pursuant to Condition II.B.4 of this permit, to specify and limit any pollutants not previously limited.

In addition, the Permittee, within 30 days of the of the date on which the Permittee is notified shall provide notice to the Secretary of the following:

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

b) 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 Section 301 of the Clean Water Act if such source were discharging pollutants; and

c) 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.

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.

2. 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.

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

(1) 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.

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

(3) 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.

(4) Except for discharges from a 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.

(5) 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.

(6) The person reporting the untreated discharge.

d) For any non-compliance not covered under Condition II.A.2.c. of this permit, an operator of a 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:

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.

3. 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, maintain in good working order and operate as efficiently as possible all treatment and control facilities and systems (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 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 this facility shall be performed only by qualified personnel who are licensed as required by the Secretary and the Director of the Vermont Office of Professional Regulation.

4. Quality Control

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.

The Permittee shall keep records of these activities and shall provide such records upon request of the Secretary.

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 ± 10%.

For purposes of demonstrating compliance with the requirements of Condition II.A.3.a of this permit regarding adequate laboratory controls and appropriate quality assurance procedures, the Permittee shall conduct 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 requirement can be completed as part of an EPA DMR-QA study. Results shall be submitted to the Secretary by **December 31, annually**.

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. 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.

6. Duty to Mitigate

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

7. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed, all calibration and maintenance of instrumentation records and all original 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 shall be retained for a minimum of three years, and shall be submitted to the Secretary upon request. This period shall be extended during the course of unresolved litigation regarding the discharge of pollutants or when requested by the Secretary.

8. Solids Management

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 issuance date of this permit or is issued during the term of this permit.

9. Emergency Pollution Permits

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 Section II.A.2.

10 V.S.A. § Section 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, he 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 permit may be issued without prior public notice if the nature of the emergency will not provide sufficient time to give notice; provided that the secretary shall give public notice as soon as possible but in any event no later than five days after the issuance date of the emergency pollution permit. No emergency pollution permit shall be issued unless the applicant certifies and the secretary finds that:
>
> (1) 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;
>
> (2) the denial of an emergency pollution permit would work an extreme hardship upon the applicant;
>
> (3) the granting of an emergency pollution permit will result in some public benefit;
>
> (4) the discharge will not be unreasonably harmful to the quality of the receiving waters;
>
> (5) the cause or reason for the emergency is not due to willful or intended acts or omissions of the applicant.

Application shall be made to the Secretary at the following address: Agency of Natural Resources, Department of Environmental Conservation, One National Life Drive, Main Building, 2nd Floor, Montpelier VT 05620-3522.

B. RESPONSIBILITIES

1. Right of Entry

The Permittee shall allow the Secretary or authorized representative, upon the presentation of proper credentials:

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.

2. 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.

3. 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 this chapter.

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.

4. Permit Modification, Suspension, and Revocation

After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including the following:

a) Violation of any terms or conditions of this permit;

b) Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;

c) Reallocation of WLA under the LC TMDL;

d) Development of an integrated WWTF and stormwater runoff NPDES permit; or

e) A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

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.

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.

5. 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 section 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.B.4 of this permit, in accordance with the toxic effluent standard or prohibition and the Permittee so notified.

6. 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.

7. 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 his/her 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.

8. 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.

9. Civil and Criminal Liability

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.A.5) and "Emergency Pollution Permits" (Condition II.A.9), nothing in this permit shall be construed to relieve the Permittee from civil or criminal penalties for noncompliance. Civil and criminal penalties for non-compliance are provided for in 10 V.S.A. Chapters 47, 201, and 211.

10. 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.

11. 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.

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. 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.

14. 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, and Section 402 of the Clean Water Act, as amended.

15. 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 **t**he 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 - means a sample consisting of a minimum of one grab sample per hour collected during a 24-hour period (or lesser period as specified in the section on Monitoring and Reporting) and combined proportionally to flow over that same time period.

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 Section 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 (maximum daily discharge limitation) – means the highest allowable "daily discharge" (mg/L, lbs or gallons).

Mean - is the arithmetic mean.

Monthly Average (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.

NPDES – means the National Pollutant Discharge Elimination System.

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.

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.

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, provided however, the term "sewage" as used in this permit shall not include the rinse or process water from a cheese manufacturing process.

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 includes 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 - (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.

WWTF or wastewater treatment facility shall have the same meaning as "pollution abatement facilities," as defined under 10 V.S.A. § 1251, which means municipal sewage treatment plants, pumping stations, interceptor and outfall sewers, and attendant facilities as prescribed by the Department to abate pollution of the waters of the State.

AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
ONE NATIONAL LIFE DRIVE, MAIN BUILDING, 2ND FLOOR
MONTPELIER, VT 05620-3522

FACT SHEET FOR DRAFT PERMIT
(December 2017)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE STATE

PERMIT NO: 3-1172
PIN: EJ95-0286
NPDES NO: VT0101028

NAME AND ADDRESS OF APPLICANT:

Town of Hinesburg
PO Box 133
Hinesburg, VT 05461

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Hinesburg Wastewater Treatment Facility
Lagoon Rd.
Hinesburg, Vermont

RECEIVING WATER: LaPlatte River

CLASSIFICATION OF USES OF RECEIVING WATER: All uses Class B(2) with a waste management zone. Class B(2) 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.

I. Proposed Action, Type of Facility, and Discharge Location

The Secretary of the Vermont Agency of Natural Resources (Secretary) received a renewal application for the permit to discharge into the LaPlatte River from the Town of Hinesburg on March 31, 2010. The Town's previous permit was issued on October 1, 2005. The previous permit (hereafter referred to as 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 as per the Vermont Water Pollution Control Permit Regulations

(VWPCPR) § 13.5(b). At this time, the Secretary has made a tentative decision to reissue the discharge permit.

The facility is engaged in the treatment of municipal wastewater including domestic, commercial, and industrial wastewaters. The wastewater treatment facility (WWTF) is an aerated lagoon. The design flow of the facility is 0.250 million gallons per day (MGD) and design BOD loading is 190 mg/L (434 lbs/day). The average flow out of the facility over the last 20 years is approximately 0.161 MGD.

A map showing the location of facility, outfall, and the receiving water is provided in the Reasonable Potential Determination (RPD) (see Attachment A).

II. Description of Discharge

The facility is engaged in the treatment of municipal wastewater including domestic commercial, and industrial wastewaters. There are no pretreaters permitted under the NPDES program discharging to the collection system. The WWTF maintains a constant discharge to the LaPlatte River.

III. Limitations and Monitoring Requirements

The draft permit contains limitations for effluent flow, biochemical oxygen demand, ultimate oxygen demand, total suspended solids, total phosphorus, total ammonia nitrogen, settleable solids, *Escherichia coli*, total residual chlorine, and pH. It also contains monitoring requirements for total nitrogen, total Kjeldahl nitrogen, and nitrate/nitrite. The effluent limitations and monitoring requirements of the draft permit may be found on the following pages of the draft permit:

Effluent Limitations:	Pages 2-3 of 29
Monitoring Requirements:	Pages 8-13 of 29

IV. Statutory and Regulatory Authority

A. Clean Water Act and NPDES Background

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 Section 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 delegated by 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 BOD_5, 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. The applicable water quality standards for this permit are the 2017 Vermont Water Quality Standards (Environmental Protection Rule, Chapter 29a).

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 in-stream 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 in stream 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 Section 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).

1. Reasonable Potential Determination

In determining whether this permit has the reasonable potential to cause or contribute to an impairment, Vermont 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, 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.

6) All effluent limitations, monitoring requirements, and other conditions of the proposed 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.

V. Description of Receiving Water

The receiving water for this discharge is the LaPlatte River below the confluence with Patrick Brook, a designated Warm Water Fish Habitat annually from the period June 1 through September 30 only (Cold Water Fish Habitat, October 1 through May 31). At the point of discharge, the river has a contributing drainage area of 17.8 square miles. The summer 7Q10 flow of the river is estimated to be 0.31 cubic feet per second (CFS) and the summer Low Median Monthly flow is estimated to be 2.0 CFS. The instream waste concentration at the summer 7Q10 flow is 0.554 (55.4%) and the instream waste concentration at the summer Low Median Monthly flow is 0.162 (16.2%). The winter 7Q10 flow of the river is estimated to be 1.16 CFS and the instream waste concentration at the winter 7Q10 flow is 0.25 (25%).

In addition, the LaPlatte River 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 VII.C.1. of this Fact Sheet.

VI. Facility History and Background

The WWTF receives residential, commercial, and industrial wastewater from the Town of Hinesburg. The system consists of three aerated lagoons with chemical phosphorus removal (Alum flocculation), chlorination, and dechlorination. As built, the lagoons have an approximate volume of 17.8 MG.

The facility was built in 1967. The aeration system piping was replaced in 1986. A major upgrade was undertaken in 1992 when chemical phosphorus removal and dechlorination equipment were installed. In 2009-2010 a refurbishment project was completed which included:

- Two new pumps at the Main Pump Station;
- Construction of an earthen berm to replace the floating baffle dividing lagoon #3, splitting this lagoon into two cells;
- New aeration system including new blowers, air manifolds, and distribution piping, and fine bubble diffusers;
- New blower and chemical storage and feed building;
- New feed system (aluminum sulfate) for phosphorus removal in lagoon #3B;
- New feed systems for chlorination and dechlorination; and
- Repairs to the chlorine contact chamber

VII. Permit Basis and Explanation of Effluent Limitation Derivation

A. Flow

The draft permit maintains the annual average flow limitation of 0.250 MGD. This facility maintains a constant discharge. Continuous flow monitoring is required under the permit.

B. Conventional Pollutants

1. Ultimate Oxygen Demand (UOD)

The UOD limit remains in place from the current permit. The UOD mass limitation is 400 lbs/day, maximum day, and is effective from June 1st through September 30th of each year. This limitation is based on the assimilative capacity of the LaPlatte River. A review of the monitoring data reported during the past five years indicates that the facility has reliably met this limitation.

UOD is dependent on the quantity of Biochemical Oxygen Demand (BOD_5) and Total Kjeldahl Nitrogen (TKN) in a discharge, as specified in the following equation:

UOD (lbs/day) = [(BOD_5 (lbs/day) x 1.43) + (TKN (lbs/day) x 4.57)]

Calculation of the UOD concentration in the discharge is required twice per month from the period of June 1st through September 30th. The sampling frequency is unchanged from the current permit. The BOD and TKN analyses used to calculate UOD must be conducted on the same effluent sample.

Since receiving waters are the most sensitive to oxygen depleting wastes during periods of high water temperature and low flow, the UOD limitation is in effect from June 1st - September 30th of each year. The UOD limitation ensures compliance with the dissolved oxygen criteria during this time period as specified in the Vermont Water Quality Standards. During the other months of the year, the Biological Oxygen Demand limitation is adequate to ensure compliance with the dissolved oxygen criteria.

2. Biochemical Oxygen Demand (BOD_5)

The effluent limitations for BOD_5 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 CFR § 133.102. In addition, the draft permit contains a 50 mg/L maximum day BOD_5 limitation, which is the Agency standard applied to all such discharges pursuant to Section 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 (63 lbs/day, monthly average and 94 lbs/day, weekly average) are calculated using the concentration limits outlined above and the permitted flow. The BOD_5 twice monthly monitoring requirement is unchanged from the current permit.

3. Total Suspended Solids (TSS)

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. Because the facility has

not consistently achieved the TSS effluent limitations set forth under 40 C.F.R. § 133.102(b), the facility meets the criteria under 40 C.F.R. § 133.101(g)[1] necessary for eligibility for application of the effluent limitations for treatment equivalent to secondary treatment. In addition, the draft permit contains a 50 mg/L, maximum day, TSS limitation. This is the Agency standard 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 (94 lbs/day, monthly average and 94 lbs/day, weekly average) are calculated using the concentration limits outlined above and the permitted flow. The twice monthly TSS monitoring requirement is unchanged from the current permit.

4. *Escherichia coli*

The *E. coli* limitation is 77 colonies/100 ml, 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, twice monthly monitoring is required.

5. pH

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.

C. <u>Non-Conventional and Toxics</u>

1. Total Phosphorus (TP)

Background:

Excess phosphorus entering Lake Champlain from a variety of sources has impaired the water quality of the Lake. The Lake Champlain Total Maximum Daily Load (LC TMDL), places a cap on the maximum amount of phosphorus from point and non- point sources that is allowed to flow into the Lake while still meeting Vermont's water quality standards. The EPA developed phosphorus TMDLs for the 12 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 "<u>Phosphorus TMDLs for Vermont Segments of Lake Champlain</u>" (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's watershed. Discharge NPDES permits will be issued by the Secretary in accordance with the permit issuance schedule in the <u>Lake Champlain TMDL Phase 1 Implementation Plan</u> (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

[1] Facilities may be eligible for the effluent limitations for treatment equivalent to secondary treatment if: (1) the TSS effluent concentrations consistently achievable through proper operation and maintenance of the treatment works exceed the minimum level of effluent quality set forth in 40 C.F.R. § 133.102(b); (2) a waste stabilization pond is used as the principal process; and (3) the treatment works provides significant biological treatment of municipal wastewater.

(e.g., planned facility upgrades), and the 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 significant (defined as being 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 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 million gallons per day (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 a WLA 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 total annual mass loads for facilities that currently have existing monthly effluent concentration limits for TP in their NPDES permit.

Phosphorus Limit in Draft Permit:

The current discharge permit for this facility includes a mass-based, effluent limit of 608 pounds of TP per year. This annual mass limitation was based on an allocation of 0.276 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 effluent concentration limit of 0.8 mg/L, monthly average, and a mass effluent limit of 152 total pounds, annual limitation. The concentration effluent limitation is based on the requirements of 10 V.S.A. § 1266a and is unchanged from the current permit. The mass annual effluent limitation is based on the 2016 LC TMDLs. The LC TMDL allocated 0.069 metric tons per year or 152 pounds per year to the Hinesburg WWTF. The Agency is adopting the WLA from the LC TMDL as the water quality-based effluent limitation for this permit without additional analysis because this WLA was set by the EPA less than a year ago as the limit necessary to ensure Lake Champlain is brought into compliance with the Vermont Water Quality Standards, and undertaking further analysis to determine if more stringent effluent limitations are needed would be meaningless at this time since the State has just started to implement the Vermont Lake Champlain Phosphorus TMDL Phase I Implementation Plan. *See In re Montpelier WWTF Discharge Permit, 2009 WL 4396740, 6* (Vt. Envtl. Ct. June 30, 2009).

This new, annual WLA represents a 75% reduction (-456 pounds) from the currently permitted load and is equivalent to setting the effluent TP limit at 0.2 mg/L at the design capacity of the WWTF (0.250 MGD). To convert units of the WLA from metric tons to pounds for the annual, mass-based TP permit limit, the following equation was used and the resulting WLA rounded down to the nearest pound:

(0.069 mt/yr) (2204.62lbs/mt) = 152 lbs/yr

The LC TMDL includes WLAs for WWTFs expressed as total annual mass loads; 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 0.80 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.

Twice monthly sampling for total phosphorus is required.

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

Phosphorus Limit Compliance Schedule:

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

The Secretary is including a compliance schedule in this permit because the Secretary has determined that the Permittee is unable to immediately comply with the TP limit upon the effective date of the permit given its current facility and treatment processes. There is a need for modification of the WWTF and its operations in order to meet the new TP limit. Given this needed facility upgrade the Secretary has written the compliance schedule (see Condition I.B.1) in the new permit to require compliance at the earliest time possible. The compliance schedule does not extend past the expiration date of the permit.

Under the schedule, the facility shall comply with interim TP limits (Condition I.B.1.b) from the previous discharge permit (608 lbs., annually; 0.8 mg/L, monthly average) until completion of the upgrade or by December 31, 2022, whichever occurs first, at which point, new TP annual mass limits (152 lbs., annually; 0.8 mg/L, monthly average) will be enforced. These limits are outlined in Condition I.A.1 of the proposed draft permit.

Phosphorus Optimization and Elimination/Reduction Plans:

To ensure the facility is operating as efficiently as possible for purposes of phosphorus removal, Condition I.B.2 of the permit requires that within 6 months of facility upgrades, or December 31, 2022, whichever occurs first , the permittee shall develop or update (as appropriate), and submit to the Secretary, a Phosphorus Optimization Plan (POP) to increase

the WWTF's phosphorus removal efficiency by implementing optimization techniques that achieve phosphorus reductions using primarily existing facilities and equipment. The techniques to be evaluated may include operational process changes to enhance biological and/or chemical phosphorous removal, incorporation of anaerobic/anoxic zones, septage receiving policies and procedures, and side stream management.

The facility shall have until 18-months from facility upgrades, or until December 31, 2022, whichever occurs first, to optimize removal of phosphorus. If, after the 18-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 Running Total Annual Pounds Calculation (Condition I.B.4 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, after the 18-month optimization period, 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, after the 18-month optimization period, 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.

2. Total Nitrogen (TN)

To gather data on the amount of Nitrate/Nitrite (NOx) and Total Nitrogen (TN) in this discharge and its potential impact on the receiving water, a quarterly "monitor only" requirement for NOx and TN has been included in this permit. TN is a calculated value based on the sum of Total Kjeldahl Nitrogen (TKN) and Nitrate/Nitrite (NOx) Nitrogen, and, shall be reported as pounds, calculated as:

Average TN (mg/L) x Total Daily Flow x 8.34

where, TN (mg/L) = TKN (mg/L) + NOx (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 monitoring, unless more frequent sampling is already required by the permit.

For more information, see
https://www.epa.gov/sites/production/files/documents/nandpfactsheet.pdf.

Quarterly monitoring via composite sample is required for this facility.

3. Total Kjeldahl Nitrogen (TKN)

TKN is used to calculate both Ultimate Oxygen demand and Total Nitrogen. TKN sampling is required twice per month during the period in which the UOD limit is in effect (June 1st through September 30th of each year). From October 1st through May 31st sampling is required once per quarter. Monitoring via composite sample is required.

4. Total Ammonia Nitrogen (TAN)

Because the facility's discharge has a reasonable potential to cause or contribute to an impairment in the LaPlatte River, based on the previous self-reporting data and Vermont Water Quality Standards, the draft permit contains new water quality-based effluent limitations for TAN. The chronic criterion for TAN is a 30-day average concentration not to be exceeded more than once every three years. Therefore, the Secretary has used the 30Q10 for the chronic TAN criterion instead of the 7Q10. However, the 7Q10 flow was used to determine the acute TAN criterion.

Limits are imposed on both mass and concentration and vary seasonally. Annually, from June 1 to September 30 the monthly mass limit of 7.3 lbs/day and maximum day mass limit of 34.6 lbs/day will apply. In addition, a monthly average concentration limit of 3.5 mg/L and an instantaneous maximum concentration limit of 16.6 mg/L will apply during the period of June 1 to September 30. Annually, from October 1 to May 31 the monthly mass limit of 42.1 lbs/day and maximum day mass limit of 175.0 lbs/day will apply. A monthly average concentration limit of 20.2 mg/L and an instantaneous maximum concentration limit of 84.0 mg/L will apply during the period of October 1 to May 31. Monthly average limits correspond to the 30-day chronic criteria. The instantaneous maximum is the concentration required to meet the acute water quality criteria. Compliance with the monthly average concentration ensures attainment of the chronic water quality criteria for TAN.

Compliance Schedule

As the TAN effluent limit may be challenging for the WWTF to meet upon issuance of this permit, a compliance schedule is included in Condition I.C. The Condition requires the permittee to develop a plan, that ensures the WWTF is brought into compliance with its TAN limits, which shall **be submitted by February 28, 2019**. The WWTF shall achieve compliance with its TAN limits as soon as possible but no later than by **December 31, 2022**, and during the time the facility is coming into compliance the facility shall have an interim "monitor only" limitation. As part of the anticipated facility modifications, progress reports on the progress of the upgrades shall be submitted on **November 30, 2019, August 31, 2020, May 31, 2021, February 28, 2022, and November 30, 2022**.

TAN grab sampling is required once per week.

5. Settleable Solids

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 Section 29A-303(2) of the Vermont Water Quality Standards.

6. Total Residual Chlorine

The Total Residual Chlorine (TRC) limitation is 0.02 mg/1, instantaneous maximum. This limitation is changed from the current permit. Based on the Agency's Chlorine Policy, a limit of 0.02 mg/L will ensure that the instream water quality criteria for chlorine of 0.019 mg/L, (acute) and 0.011 mg/L (chronic) of the Vermont Water Quality Standards is met. This permit limit is equal to the detection limit of the currently approved version of Standard Methods for the Examination of Water and Wastewater (Method 4500 CL-E and G).

The draft permit specifies a compliance level of 0.05 mg/L for TRC. A compliance level is specified because the limitations for TRC are below the minimum level (ML) for analysis of TRC using Method 4500-Cl G, N, N-diethyl-p-phenylenediamine (DPD) colorimetric, of 0.05 mg/L. This approach is consistent with EPA's Technical Support Document for Water Quality-based Toxics Control (EPA-505-2-90-001, March 1991), page 111, which recommends, "the compliance level be defined in the permit as the minimum level (ML)." See Standard Methods for the Examination of Water and Wastewater for the full text of these test methods.

TRC measurements of 0.05 mg/L and less will be considered in compliance. Monitoring via grab sample is required daily, which is unchanged from the current permit.

7. Toxicity Testing

40 C.F.R. §§ 122.44(d)(1) and 122.21(j) require 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. The Secretary's Reasonable Potential Determination found a very high instream waste concentration (7Q10 IWC = 55%) and elevated effluent ammonia concentrations reported in 2016, and therefore concluded that the

permittee shall conduct WET testing and toxic pollutant analyses according to the schedule outlined in Section I.H of the draft permit, which indicates yearly, 2-species, 48-hour acute and 7-day chronic WET tests. Tests are required in **August or September of 2018 and 2020** and **January or February 2019 and 2021**. If the results of these tests indicate a reasonable potential to cause an instream toxic impact, the Secretary may require additional WET testing, establish a WET limit, or require a Toxicity Reduction Evaluation.

8. Annual 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 Section I.I.3 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. Sampling in 2017 should be taken in fall. For subsequent sampling, the "Guidance for Annual Constituent Monitoring" document should be referred to determine the season in which samples should be taken each year.

D. Special Conditions

1. Waste Management Zone (WMZ)

As defined under 10 V.S.A. § 1251(16), a WMZ is "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 due to the authorized discharge."

The proposed permit retains the existing WMZ that extends downstream from the outfall for approximately 1.4 miles in the LaPlatte River.

2. Instream Monitoring

Based on the results of the Reasonable Potential Determination, it is required that the permittee conduct instream monitoring in the LaPlatte River for TP, pH, and turbidity once per month during the months of June through October of 2019, 2020, and 2022. A study plan outlining the specific locations of the collection, sampling methodology, and analysis of the data, is required by Condition I.F. of the draft permit and must be submitted to the Secretary for review by March 30, 2019.

3. Laboratory 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. This requirement may be completed as part of an EPA DMR-QA study. Proficiency test samples must be obtained from an accredited laboratory. Results shall be submitted to the Secretary by December 31, annually.

4. Operation, Management, and Emergency Response Plans

As required by the revisions to 10 V.S.A. § 1278, promulgated in the 2006 legislative session, Section I.K has been included in the draft permit. This condition requires that the permittee implement the Operation, Management, and Emergency Response Plans for the WWTF, sewage pump/ejector stations, and stream crossings as approved by the Secretary on June 30, 2008. Because it was not completed at the time of writing the draft permit, the permittee shall prepare and submit to the Secretary for review and approval, an Operation, Management, and Emergency Response Plan for the sewage collection system by **July 31, 2018**. The permittee shall implement the plan upon submittal.

5. Engineering Evaluation

An engineering evaluation is required once every 20 years and per DEC records was last completed for the Hinesburg WWTF in July/August 1999. Because the draft permit includes a compliance schedule that requires the facility to complete upgrades during this permit cycle, the Basis for Final Design or Preliminary Engineering Report may satisfy this requirement for equipment added to the facility. All parts of the WWTF that will not be replaced or refurbished to comply with the TAN requirements must be accounted for in the engineering evaluation due **June 30, 2022**.

6. Electric Power Failure Plan

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

7. Electronic Reporting

The EPA recently promulgated a final rule to modernize the Clean Water Act reporting for municipalities, industries, and other facilities by converting to an electronic data reporting system. The final rule 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 2016. The Secretary has created an electronic reporting system for DMRs and has recently trained facilities in its use. As of December 2020, these NPDES facilities will also be expected to submit additional information electronically as specified in Appendix A in 40 C.F.R. Part 127.

8. Noncompliance Notification

As required by the passage of 10 V.S.A. § 1295, promulgated in the 2016 legislative session, Section II.A.2 has been included in the proposed 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.

9. Reopener

This draft permit includes a reopener whereby the Secretary reserves the right to reopen and amend the permit to implement an integrated plan to address multiple Clean Water Act obligations.

E. Reasonable Potential Determination

The Secretary has conducted a Reasonable Potential Determination, which is attached to this Fact Sheet as Attachment A. Based on this analysis, the Secretary has determined the available data indicate that due to ammonia, this discharge has a reasonable potential to cause or contribute to an impairment in the LaPlatte River. In this case, federal requirements require the Secretary to impose appropriate effluent limitations. The Monitoring, Assessment, and Planning Program therefore recommended inclusion of the ammonia monitoring requirements noted above, and provided effluent limitations computed to maintain water quality standards. These facility efforts, in concert with the fact that allocations established by the 2016 Lake Champlain TMDL, and provisions of Vermont Act 64, will also address instream impacts to the immediate receiving stream by independent sources, provide assurances that the permit conditions will ensure that the facility effluent is protective of water quality in the LaPlatte River and Shelburne Bay.

VIII. Procedures for Formulation of Final Determinations

The initial public comment period for receiving comments on this draft permit extended from June 19 through July 28, 2017, with a public meeting held July 20th, 2017 at the Hinesburg Town Hall. The comments received are addressed in the Responsiveness Summary (Attachment B of this Fact Sheet). Due to the substantial revisions made to the draft permit through responding to the initial public comments, the revised draft was presented for a second round of public comment from December 18, 2017 through January 18, 2018. No comments were received during the second public comment period.

ATTACHMENT A

Agency of Natural Resources
Department of Environmental Conservation

Watershed Management Division
1 National Life Drive, 2 Main
802-828-1535

MEMORANDUM

To: Amy Polaczyk, Wastewater Program (WWP)

From: Rick Levey, Monitoring, Assessment and Planning Program (MAPP) Rick Levey 12/14/17

Cc: Pete LaFlamme, Director, (WSMD)
Jessica Bulova, Manager (WWP)
Ethan Swift, Manager, (MAPP)

Date: December 14, 2017

Subject: MAPP Reasonable Potential Determination for the Hinesburg Wastewater Treatment Facility (WWTF).

MAPP has evaluated the draft permit limits for the Hinesburg WWTF in Hinesburg, Vermont pursuant to the 2012 procedure outlining WWM-WSMD roles and responsibilities. This memo provides MAPP's concurrence with the permit limits set forth by the draft permit for Hinesburg WWTF prepared by the Wastewater Program (WWP).

Facility:
Hinesburg Wastewater Treatment Facility
Permit No.: 3-1172
NPDES No.: VT0101028

Hydrology for Hinesburg WWTF used in this evaluation:
Design Flow: 0.25 MGD = 0.387 CFS

Flow / Season	Flow (cfs)	IWC
7Q10 – Summer	0.31	0.554 (>10%)
7Q10 - Winter	1.16	0.250 (>10%)
30Q10- Summer	0.59	0.396 (>10%)
30Q10 -Winter	2.06	0.158 (>10%)

Receiving Water:
LaPlatte River, Hinesburg, VT
Facility Location: 44.33251, -73.12603 (WGS 84)

The LaPlatte River downstream of the Hinesburg WWTF is classified as Class B and is designated a warm-water fish habitat. At the point of discharge, the river has a contributing drainage area of 17.8 square miles. The proposed permit retains the existing waste management zone (WMZ) in the LaPlatte River beginning at the outfall of this WWTF and extending approximately 1.4 miles downstream (Figure 1). There are no discharges upstream of this facility.

General Assessment – VTDEC Assessment Database:
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 LaPlatte River segment to which this facility discharges, the database indicates the receiving water does fully support all designated uses. However, the LaPlatte River is listed as impaired from the mouth upstream to River Mile (RM)10.5, pollutant listed is E. Coli and agricultural runoff is the identified problem.

Ambient Chemistry Data for the LaPlatte River above and below the Hinesburg WWTF:
There is ambient chemistry data available above and below the WWTF discharge from VTDEC water quality sampling conducted in 2009, 2010, and 2016 at River Mile (RM) 12.5 and RM 12.0 respectively. Water chemistry measures for the following parameters are available: water temperature, pH, conductivity, hardness, dissolved oxygen, turbidity, total phosphorus, dissolved phosphorus, total nitrogen and total ammonia as summarized in Table 1. Priority metals were also analyzed and were all below detection limits (Table 3).

Data representativeness was assessed by evaluating the flow conditions at which samples were collected from field sheets and from the most proximally-located USGS gauge for which data were available (USGS 01135500 on the LaPlatte River) and in consideration of possible downstream sensitive reaches. The location of the upstream and downstream sampling locations, RM 12.5 and RM 12.0, bracket the WWTF outfall (Figure 1). The downstream sampling location is the most sensitive location, and the sampling results are representative of low flows based on the actual flows shown from the USGS gauge, and field notes collected by DEC technical staff. Thus, the data presented below are relevant for inclusion in this analysis.

Table 1: Concentrations of surface-water chemistry above and below the Hinesburg Wastewater Treatment Facility (river mile 12.5 and 12.0 refer to stations above and below the outfall respectively).

Sample Date	RM	pH	Conductivity (umho/cm)	Hardness	DO (%)	DO (mg/l)	Turbidity (NTU)	Total Phosphorus (ug/l)	Total Nitrogen (mg/l)	Total Ammonia Nitrogen (mg/l)
10/6/2009	12.5	7.38	378	143	73.7	7.79	4.17	39.1	0.31	-
	12.0	7.45	549	164	71.4	7.5	3.96	98.7	2.81	-
8/12/2010	12.5	7.6	319	120	75.7	6.77	4.93	46.3	0.29	<0.05
	12.0	7.59	375	129	64.9	5.87	5.56	45.3	1.14	0.82
9/20/2010	12.5	7.81	331	-	103.6	10.53	3.58	27.8	0.3	<0.05
	12.0	7.65	414	-	87.2	9.21	4.52	43.4	1.71	1.04
10/12/2010	12.5	7.53	235	-	84.4	9.11	2.36	24.1	0.26	<0.05
	12.0	7.4	262	-	85.4	9.24	2	27.2	0.59	0.29
8/8/2016	12.0	7.68	342	123	-	-	7.6	45.5	0.43	0.113
9/30/2016	12.5	7.60	325	122	-	-	6.8	31	0.3	<0.05
	12.0	7.39	736	182	-	-	5.55	48	1.29	<0.05

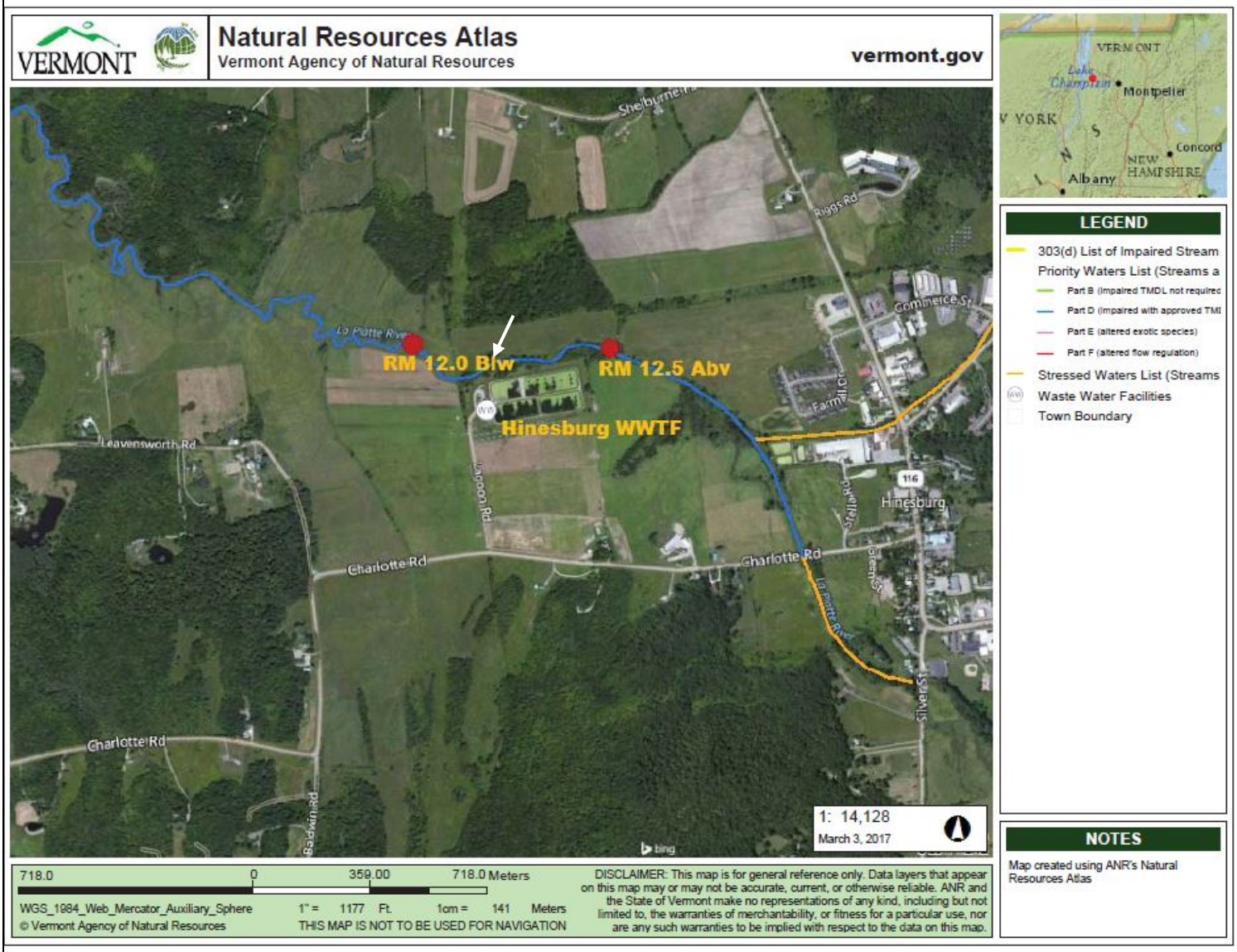

Figure 1. LaPlatte River near the Hinesburg WWTF, showing up and downstream sampling locations (RM 12.5 & 12.0). Discharge shown by arrow.

Total Phosphorus (TP) values below the outfall (RM 12.0) ranged from 27.2 – 98.7 µg/L, the highest concentration observed was on 10/6/2009. TP values above the outfall (RM 12.5) ranged from 24.1 – 46.3 µg/L. The greatest change in TP values observed from above to below was 59.6 µg/L-TP on 10/06/2009.

Total Nitrogen (TN) values below the outfall (RM 12.0) ranged from 0.59 – 2.81 mg/L, and above the outfall (RM 12.5) ranged from 0.26 - 0.3 mg/L. The greatest change in TN values from above to below was 2.5 mg/L-TN on 10/06/2009.

Turbidity, Dissolved Oxygen, pH:
Turbidity values below the outfall (RM 12.0) ranged from 2.0 – 5.56 Nephelometric Turbidity Units (NTU). Turbidity above the outfall (RM 12.5) ranged from 2.36 – 6.8 NTU. The dissolved oxygen and percent saturation below the outfall ranged from 5.87 mg/L – 9.24 mg/L, and 64.9 – 87.2 percent respectively. The dissolved oxygen and percent saturation above the outfall ranged from 10.5 mg/L – 7.79 mg/L and 103.6 – 73.7 percent respectively. All pH values were within the range of VWQS, below the outfall pH ranged from 7.39 – 7.65, above the outfall the pH range was 7.38 – 7.81.

Biological Assessments:
Biological assessments were conducted above and below the WWTF outfall most recently in 2009 and 2016 at RM 12.5 and RM 12.0. The bioassessment conducted below the WWTF scored "Good" in 2009 and "Fair," in 2016. The bioassessments conducted above the WWTF scored "Very Good," in 2009 and "Good," in 2016. This section of the LaPlatte River is a Slow Low Gradient (SLG) Stream Type, as such the SLG biological criteria was used to evaluate the assessments.

Macroinvertebrate Community Biocriteria is described in the Vermont Water Quality Standards (2017). The "Slow Low Gradient (SLG)," stream types are assessed using calculated Indices of Biotic Integrity (IBIs), in which individual metric values are summed to produce a single index value. For the 2016 bioassessments conducted above the WWTF at RM 12.5, the IBI score reflected a "Good," and the bioassessment conducted below the WWTF scored "Fair." The above site has scored better than the downstream site assessment for 2009 and 2016. The Vermont Surface Water Assessment and Listing Methodology stipulates the need for a minimum of two years of data at a level less than "good" to document impairment, and thus the downstream receiving water is not considered listable pursuant to Section 303(d) of the Clean Water Act until a second confirming year of data becomes available.

Total Phosphorus:
Instream phosphorus concentrations were calculated using the low monthly median flow (LMM) of 2.0 CFS at design flow of 0.387 CFS (0.25 MGD) and using the effluent phosphorus concentration of 0.8 mg/L which is the current permit limit. The calculated phosphorus concentration at these conditions attributable to discharge was 0.129 mg/L (129 µg/L), considerably higher than the average instream TP observed below the outfall which is 51 µg/L (Table 1); even without considering upstream TP concentrations. Review of the Hinesburg WWTF 2016 flow records and TP effluent values indicate that the average TP concentration was 0.24 mg/L; about 30% of the effluent limit (0.8 mg/L) and the average flow was 0.12 MGD; about ½ design flow (0.25 MGD). At these flow and TP effluent conditions the calculated phosphorus concentration attributable to the discharge would be 19.4 µg/L-TP, these concentrations are very much in alignment with instream monitoring results after adjusting for upstream concentrations. Therefore, the elevation in concentrations of phosphorus downstream of the facility are explained by the facility discharge.

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 for wadeable high and medium-gradient streams, MAPP typically relies on a framework which examines TP concentrations in relation to existing response criteria in the water quality standards, for streams that can be assessed using macroinvertebrate biocriteria. Under this framework,

MAPP can make a positive finding of compliance with the narrative standard 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 (Table 2). Monitoring data indicates that aquatic life use was not fully supported based the 2016 Bioassessment.

Table 2. Assessment of phosphorus response variables for Hinesburg WWTF. The relevant target values are referenced to the appropriate section of the VWQS.

Response variable (VWQS reference)	Target Value	River-mile 12.5 (Upstream) 9/30/2016	River-mile 12.0 (Downstream) 9/30/2016
pH (§3-01.B.9)	<8.5 s.u.	7.6	7.39
Turbidity (§3-04.B.1)	< 10 NTU at low mean annual flow	6.8	5.5
Dissolved Oxygen (min) (§3-04.B.2)	>6 mg/L and 70% saturation	9.11 (84.4%)	9.24 (85.4%)
Aquatic biota, based on low gradient stream macroinvertebrates.	Attaining an assessment of good, or better.	Good (Meets criteria)	Fair (Does not Meet criteria)
Stream condition notes from sampling event.	n/a	Field sampler noted cattails, large woody debris, and macrophytes present. Assigned a trophic rating of 3 on a scale of 1 to 5.	Field sampler noted cattails, large woody debris, and macrophytes present. Assigned a trophic rating of 3 on a scale of 1 to 5. Some beaver damming noted.

However, there are additional factors that should be considered. While the 2016 low gradient biological criteria present prospective evidence of impairment at the downstream site, the low gradient biological criteria have not been analyzed with specific respect to their sensitivity to total phosphorus. This is unlike the historically established high or medium gradient stream biological criteria contained in prior versions of the WQS, which were subject to a robust causal nutrient analysis presented by the Nutrient Criteria Technical Support Document (VTDEC, 2014 – see watershedmanagement.vt.gov), and published by Smeltzer et al., 2016 (http://dx.doi.org/10.1080/10402381.2016.1149257), which supported numeric phosphorus standards for high gradient stream types. Given this lack of analysis, it is not defensible to ascribe the additional diminishment in biological quality below the facility to the specific increase in total phosphorus discharged from the facility. Additional monitoring is needed that combines biological monitoring with ambient and effluent chemistry monitoring to clarify cause and effect in this instance. It is also noted that there is no difference in the qualitative habitat assessments of condition between these two sites during the 2016 sampling events.

There is an additional complication of agricultural land uses adjacent to the up and downstream sites that complicate interpretation of the facility's nutrient impacts to designated uses. The use of fields adjacent to the facility for livestock has increased in recent years; a factor brought to light specifically by the development of this Determination. It is therefore concluded that this facility does not presently have or exhibit reasonable potential to cause or contribute to an instream phosphorus impairment, pending additional data.

Whole Effluent Toxicity (WET) and Priority Pollutant Testing:
40 CFR Part 122.44(d)(1) requires the Agency 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. The goal of the Vermont Toxic Discharge Control Strategy is to assure that the state water quality standards and receiving water classification criteria are maintained. The 2005 permit did not require WET Testing.

The draft permit includes requirements for WET testing to include two-species 48-hour acute and 96-hour WET test be conducted during August or September 2018 and 2020 and during January or February 2019 and 2021. If the results of this test indicate a reasonable potential to cause an instream toxic impact, the Department may require additional WET testing, establish a WET limit, or require a Toxicity Reduction Evaluation.

Ammonia Monitoring:
Hinesburg WWTF has been conducting monthly effluent monitoring (June-Sept) for ammonia for several years. Effluent ammonia concentrations ranged from 1.1 to 19 mg/L total ammonia nitrogen (TAN) during the June to September 2016 monitoring period, the average was 10.9 mg TAN/L.

Under the WQS, two ammonia criteria apply – chronic and acute – which are temperature and pH dependent. The chronic criteria are applied at the 30Q10 flow and the acute criteria are applied at the 7Q10 flow. Using the maximum ammonia concentration of 19 mg/L (TAN) observed during this 2016 period, the receiving water concentration (RWC) at 7Q10 instream waste concentration (IWC) of 55.4% used for implementing the acute criteria would be 10.5 mg TAN/L (7Q10 IWC 0.554 X 19 mg TAN/L). The RWC at 30Q10 IWC of 37.6% used for implementing the chronic criteria would be 7.14 mg TAN/L (30Q10 IWC 0.376 X 19 mg TAN/L).

Monitoring data indicates the pH of LaPlatte River within this reach is 7.5, using the temperature and pH dependent values provided in Tables 5a, b and 6 within the 2013 EPA Ammonia Criteria we find that a value of 10.5 mg TAN/L exceeds the chronic and acute criteria of 1.4 mg/L and 9.2 mg/L respectively, when water temperature is 20°C. Chronic criteria is exceeded for all temperature conditions and the acute criteria is exceeded when the temperature is greater than 17°C.

The June to September ammonia monitoring period provided data for the warm weather periods, however in cold weather, effluent is expected to be significantly higher in ammonia, and monitoring will likely capture much higher levels. MAPP recommends that the ammonia monitoring period to be extended to include cold weather months to provide additional data for evaluation.

With respect to ammonia, there exists reasonable potential to cause or contribute to a violation of the toxic criteria contained within the VWQS. As such, effluent limitations are appropriate for insertion into the permit. The following effluent limitations presented in Table 3 have been calculated to reflect seasonal mass limitations that will ensure that ammonia criteria are not exceeded. These limitations have been computed based on mass loading that reflects the worst-case for current facility flows (0.20 MGD annual average), by computing the allowable mass for the lowest observed summer/winter flows, at the 30Q10 (chronic) and 7Q10 (acute) flows.

Table 3. Ammonia Effluent Limits for Hinesburg WWTF, using pH default of 7.5 and temperature defaults of 20°C and 5°C for summer and winter seasons respectively. Limits are expressed as mass (lbs./day) and as concentration (mg/L).

Season	Mass (lbs./day)		Concentration (mg/L)		
	Monthly Average	Maximum Day	Monthly Average	Weekly Average	Instantaneous Maximum
Total Ammonia Nitrogen (June 1 – September 30)	7.40	34.5	3.5	8.8	16.6
Total Ammonia Nitrogen (October 1 – May 31)	42.2	175	20.2	50.5	84

Sediment, Hardness, and Metals:
Instream total suspended solids were calculated using the 7Q10 of 0.31 CFS at design flow of .387 CFS (0.25 MGD), assuming the maximum permitted daily concentration of 50 mg/L. The calculated suspended sediment concentration at these conditions was 27.7 mg/l, indicating a moderate augmentation of instream ambient suspended sediment concentrations in receiving waters.

The hardness of the LaPlatte River below the Hinesburg WWTF (RM 12.0) was recorded to be 182 mg/l CaCO3 on 9/30/2016 (Table 1). Hardness data is utilized to determine compliance with Vermont's aquatic biota based metals criteria as specified in §29A-303(7) and Appendix C of the Vermont Water Quality Standards. Vermont DEC metal chemistry data above and below the outfall did not detect any exceedances and were below detection limit for all priority metals.

Table 3. LaPlatte River Total Metals, Water Chemistry – above and below the Hinesburg WWTF outfall.

Date	9/20/2010	
Site (River Mile)	Above (12.5)	Below (12.0)
Total Aluminum (ug/l)	72.8	63.6
Total Antimony (ug/l)	< 10	< 10
Total Arsenic (ug/l)	< 1	< 1
Total Beryllium (ug/l)	< 1	< 1
Total Cadmium (ug/l)	< 1	< 1
Total Calcium (mg/l)	34.4	36.3
Total Chromium (ug/l)	< 5	< 5
Total Copper (ug/l)	< 10	< 10
Total Iron (ug/l)	322	327
Total Lead (ug/l)	< 1	< 1
Total Magnesium (mg/l)	9.73	10.9
Total Manganese (ug/l)	81	87.6
Total Nickel (ug/l)	< 5	< 5
Total Potassium (mg/l)	1.23	2.27
Total Selenium (ug/l)	< 5	< 5
Total Silver (ug/l)	< 1	< 1
Total Sodium (mg/l)	17.9	27.7
Total Sulfate (mg/l)	9.55	16.4
Total Thallium (ug/l)	< 1	< 1
Total Zinc (ug/l)	< 50	< 50

Lake Champlain TMDL – Shelburne Bay Segment.
The ultimate receiving water for this facility is Shelburne Bay, a phosphorus-impaired segment of Lake Champlain subject to the 2016 Lake Champlain TMDLs promulgated by USEPA. That TMDL establishes a wasteload allocation for this facility not to exceed 0.069 MT/yr, a reduction of 0.207 MT from the prior limitation in the 2002 TMDL to which this facility was permitted previously. Although the new waste load allocation is based on a mass limit resulting in an effluent TP concentration of 0.2 mg/L, this permit maintains the previous TP effluent limit of 0.8 mg/L, monthly average, which allows for TP discharge concentrations to fluctuate above 0.20 mg/L while holding the annual limit at a mass (total pounds) based on 0.20 mg/L. The Lake Champlain TMDL also contains a reasonable assurance analysis and accountability framework demonstrating that the Shelburne Bay will achieve standards following implementation of the TMDL.

Recommended Biological and Water Quality Monitoring:
To ensure compliance with VWQS, MAPP recommends to the Wastewater Program consideration of water quality monitoring effort above and below the outfall, to include turbidity, TP, and pH, within the permit. We recommend that these requirements be expressed as a special condition in Section I.F of the permit.

Permit conditions for water quality assessment should include sampling for TP, pH, and turbidity should be collected monthly for the period of June through October during the years 2019, 2020, and 2021. MAPP is pleased to consult as needed with the Wastewater Program or facility operators. Facility operators should be made aware that these recommended ambient monitoring requirements may be fulfilled by engagement with qualified local citizen monitoring organizations supported by DEC's LaRosa Partnership Program. Locations should include:

a. a site located at RM 12.5, upstream of the WWTF outfall; and
b. a site located at RM 12.0, below the outfall.

The results of each year's sampling should be submitted by January 1 of the following year.

Streamflow characteristics should be documented for each sample collection, and sampling should be targeted to low flow conditions, as determined using the relevant US Geological Survey streamflow gauge.

Biological monitoring using the low gradient biological criteria is also warranted. However, in consideration of the factors described in the Biological Assessments and Total Phosphorus sections of this Determination, it is inappropriate to require this as a permit condition. Therefore, MAPP will undertake biological monitoring.

Conclusion:
The available data indicate that due to ammonia, this discharge does have a reasonable potential to cause or contribute to an impairment in the LaPlatte River. In this case, Federal requirements indicate that DEC impose appropriate effluent limitations. MAPP therefore recommends inclusion of the ammonia monitoring requirements noted above, and also provided effluent limitations computed to maintain WQS. These facility efforts, in concert with the fact that allocations established by the Lake Champlain TMDL, and provisions of Vermont Act 64, will also address instream impacts to the immediate receiving stream by independent sources, provide assurances that the permit conditions will ensure that the facility effluent is protective of water quality in the LaPlatte River and Shelburne Bay.

ATTACHMENT B

RESPONSIVENESS SUMMARY
for
NPDES Discharge Permit #3-1172
Town of Hinesburg Wastewater Treatment Facility

The above referenced permit was placed on public notice for comment from a period of **June 19, 2017** through **July 28, 2017**. This is a renewal permit.

Comments on the draft permit were received during the public notice period. The following is a summary of the comments and the Agency's responses to those comments. Similar comments were grouped together. A copy of any or all comments received can be obtained by contacting the Agency's Watershed Management Division at (802) 828-1535.

COMMENT:

See letter dated June 23, 2017 from Conservation Law Foundation (attached)

RESPONSE:

I. The law and the facts do not support CLF's comments that the phosphorus water quality-based effluent limitations (WQBELs) are not consistent with the assumptions and requirements of the Lake Champlain Total Maximum Daily Load (LCTMDL) waste load allocations (WLAs) and that to be consistent the Agency must translate the WLAs into more stringent WQBELs in the near term.

A. The phosphorus WQBELs are consistent with the assumptions and requirements of the LCTMDL WLAs and, consistent with applicable law, are more stringent than the WLAs in specific instances.

The phosphorus WQBELs in the permits are "consistent with the assumptions and requirements" of the LCTMDL WLAs. 40 C.F.R. § 122.44(d)(1)(vii)(B). The LCTMDL WLAs are reliant on implementation of nonpoint source load reductions over a period of years. *See* LCTMDL Chapter 7. Therefore, to ensure the State remains on-track to complete nonpoint source load reductions in a timely manner, the LCTMDL document includes an accountability framework with key milestones. *Id*. at p. 54-59. The WLAs in the LCTMDL are based upon the assumption that the State will implement nonpoint source load reductions in adherence with the accountability framework. *See* LCTMDL Chapter 7. If the United State Environmental Protection Agency (EPA) finds that the State has failed to make satisfactory progress under the accountability framework EPA may take various actions; for example, EPA may, "[r]evise the TMDLs to reallocate additional load reductions from nonpoint to point sources, such as wastewater treatment plants." *Id.* at p. 57.

Just over a year has passed since EPA adopted the LCTMDL on June 17, 2016. In the case *In re Montpelier WWTF Discharge Permit*, No. 22-2-08 Vtec, *slip op.* at 6 (Vt. Envtl. Ct. June 30, 2009), the Court noted that "a mere year and a half after the [2002] Champlain TMDL was issued … it probably would have been meaningless to engage in further analysis as to whether more stringent permit limitations were needed." Nonetheless, as of now, "EPA's overall assessment is that Vermont has made excellent progress in achieving the milestones in the [LCTMDL] Accountability Framework" through December 30, 2016. Letter from Deborah A. Szaro, EPA Acting Regional Administrator, February 15, 2017; LCTMDL at p. 55-57. Therefore, the WQBELs in the permits are consistent with the assumptions and requirements of the LCTMDL WLAs.

Additionally, in *Montpelier WWTF*, the Court did not object to using a WLA as a WQBEL, but rather the Court objected to readopting the same WQBEL when *reissuing* a wastewater treatment facility (WWTF) discharge permit without analyzing whether the assumptions that the WLA was based upon still held true when the original TMDL had been adopted over six and a half years earlier.[1] *Montpelier WWTF* at 10. The Agency would also like to clarify that nowhere in the Court's opinion in the *Montpelier WWTF* case did the Court state that the most significant assumption underlying the WLA assignments was that "point sources could increase without contributing to the ongoing water quality standards violations if and when dramatic nonpoint source reductions offset the point source increase."[2]

CLF cited to several cases to support its comment that "The phrase "consistent with," as it is used in 40 C.F.R. § 122.44(d)(1)(vii)(B), does not mean the WQBEL should be an exact duplicate of the WLA provided in the TMDL." While the Agency agrees WQBELs do not need to be exact copies of a WLA, the cases cited to do not dictate that WQBELs must be more stringent until nonpoint source load reductions are completed. In the case *In re City of Moscow, Idaho*, 10 E.A.D. 135, *slip op.* at 6 (EPA July 27, 2001), EPA had established a WLA under a TMDL for a WWTF based upon a proposed upgrade to the facility that would change its design flow from 3.6 mgd to 4.0 mgd. When the facility reapplied for a discharge permit, the facility had not yet completed the proposed upgrade, so its design flow was still 3.6 mgd. Under 40 C.F.R. § 122.45(b)(1), effluent limitations for WWTFs must be calculated based upon "design flow." Therefore, in order to comply with the requirements of § 122.45(b)(1), EPA established a WQBEL for the facility consistent with, but slightly more stringent than the WLA. *City of Moscow* at 6.

Additionally, in the case *American Farm Bureau Federation v. U.S. EPA*, 984 F.Supp.2d 289, 327-28 (M.D. Penn. 2013), the appellants argued that under the Chesapeake Bay TMDL, EPA created pollutant allocations that were unlawfully binding on the states in that the allocations encroached into the realm of implementation – an area reserved for the states. In defense of the Chesapeake Bay TMDL, the Court held that the Bay TMDL did not create unlawfully binding allocations because "WLAs are not permit limits *per se*; rather they still require translation into permit limits … Accordingly, in some circumstances, a state may write a NPDES permit limit that is different from the WLA, provided that it is consistent with the operative assumptions underlying the WLA." *Id.* (internal citations omitted).

Both the foregoing cases provide the permitting authority flexibility to be establish WQBELs more stringent than a WLA, but they do not serve to support the comment that more stringent WQBELS and a demonstration of need and assimilative capacity or "offsets" are required until nonpoint source load reductions are implemented. Furthermore, CLF cites to no cases nor provides any examples where EPA or any states have established more stringent WQBELs and required a demonstration of need and assimilative capacity or "offsets" in the TMDL context.

For the permits for St. Albans Northwest Correctional Facility (Permit 3-1260) and Shelburne #2 Harbor Road (Permit 3-1304), the Agency used just the approach allowed for under *City of Moscow* and *American Farm Bureau*, and established WQBELs different from, but still consistent with the WLAs for the facilities. The immediate receiving waters for both the Northwest Correctional and Shelburne #2 facilities have water quality impairments – Stevens Brook, to which the Northwest Correctional Facility discharges, is impaired for nutrients and other pollutants, and

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[1] The Court stated, "40 C.F.R. § 122.44(d)(1)(vii)(B) directs agencies not blindly accept such *past assumptions* [for which WLAs are based upon], but rather analyze them at each permit issuance-or at least at each permit issuance that occurs more than five years after the issuance of the applicable TMDL-to determine whether those assumptions continue to have a basis in reliability." *Id.*

[2] That quote was misattributed to the Court. The quote is actually a sentence from CLF's brief to Supreme Court in its appeal of the *Montpelier WWTF* decision.

McCabes Brook, to which the Shelburne #2 facility discharges, is also impaired for nutrients; both waters are listed on the 2016 303(d) List of Impaired Surface Waters in Need of TMDL. Because Lake Champlain is not the only impaired water receiving the discharges from these facilities, the Agency established more stringent WQBELs for these facilities to ensure the discharges from these facilities do not cause or contribute to the water quality impairments in Stevens and McCabes Brooks.

B. The Agency need not translate the WLAs into more stringent WQBELs in the near term.

As stated above, CLF cites to no cases nor provides any examples where EPA or any states have established more stringent WQBELs and required a demonstration of need and assimilative capacity or "offsets" in the TMDL context until implementation of nonpoint source load reductions is complete. Additionally, EPA did not provide any comments to the Agency objecting to or taking issue with the WQBELs in these permits.

The TMDL framework does not create a one-for-one "see-saw" approach as described in the comments. A WWTF need not demonstrate one pound of phosphorus has been removed prior to the addition of one pound of phosphorus. Rather the Vermont Lake Champlain Phosphorus TMDL Phase I Implementation Plan (Phase I Plan) and the accountability framework lay out the necessary activities that must be completed as well as a schedule for completing them to achieve the overall reductions required by the LCTMDL. If EPA finds that the State has failed to make satisfactory progress in implementing its commitments under the Implementation Plan and accountability framework, EPA may: (1) reallocate load reductions from nonpoint to point sources, (2) residually designate stormwater discharges not currently regulated under the state NPDES program, and (3) increase enforcement actions. LCTMDL p. 57.

Furthermore, an approach requiring facilities to hold their current loads and demonstrate a need to access more of their WLAs as well as available assimilative capacity would penalize WWTFs that have been optimizing phosphorus reductions (i.e. facilities that have already implemented low/no cost measures to reduce phosphorus and which are using less of their WLAs) and reward facilities that have yet to undertake such optimization (i.e. facilities that have not implemented low/no cost measures to reduce phosphorus and which are currently using more of their WLAs).

C. Establishing WQBELs for WWTFs based on actual production, rather than their design flows, would violate federal regulations, which the State must comply with when establishing effluent limitations.

CLF's comments that the draft permits "must hold phosphorus discharge levels at current amounts," does not comply with the federal requirement to establish effluent limitations for WWTFs based on design flows, rather than actual production. Under 40 C.F.R. § 122.45(b)(1), which governs establishment of production-based limits, it requires "[i]n the case of POTWs [also referred to as WWTFs], effluent limitations, standards, or prohibitions shall be calculated based on *design flow*." Design flow is not defined, but based upon the context[3] and its plain meaning, it means "the wastewater flow rate the plant was "built to handle."" *In re: Town of Concord Department of Public Works*, NPDES Appeal No. 13-08, *slip op.* at 19 (E.A.B. August 28, 2014); *City of Moscow* at 6. CLF, in its brief to the First Circuit Court of Appeals in the case *Upper Blackstone Water Pollution Abatement District v. U.S. EPA*,[4] also recognized that POTW effluent

[3] The subdivision immediately below requires that for all other facilities requiring production-based limits, limitations shall be based upon "a reasonable measure of *actual production* of the facility." 40 C.F.R. § 122.45(b)(2)(i) (emphasis added).

[4] filed September 8, 2011 (page 27).

limits must be calculated based on design flow, rather than actual production. Were the Agency to establish WQBELs based on a WWTF's actual production, rather than its design flow, as proposed by CLF, the permits would not be in compliance with 40 C.F.R. § 122.45(b).

D. Requiring WWTFs to reduce loads to a level consistent with the limit-of-technology and requiring offsets flies in the face of the entire LCTMDL framework.

In its comments, CLF suggested that "a combination of reducing WWTF load to a level consistent with limit-of-technology and requiring offsets of phosphorus discharges could be a solution to permitting WWTFs in the interim period before reductions in nonpoint source discharges take place." This comment flies in the fact of the entire LCTMDL framework by requiring "limit-of-technology" upgrades upfront.

Under the LCTMDL, EPA established larger WLAs for point sources based on the reasonable assurances provided by the State in the Phase I Plan to implement extensive nonpoint source load reductions. This tradeoff is a more economical way to achieve the same pollutant reductions since many activities and practices to address nonpoint source discharges are far cheaper and provide more "bang for the buck" than costly WWTF upgrades, which may only provide relatively minor benefits when looking at the phosphorus discharges from the various sectors overall – base load 2001-2010: agriculture (261 metric tons, 41%), stream banks (130 metric tons, 21%) developed lands (114 metric tons, 18%), silviculture (101 metric tons, 16%), and WWTFs (25 metric tons, 4%).

Were the Agency to require all WWTFs to upgrade upfront to the limit-of-technology prior to implementation of nonpoint source load reductions, as suggested in the comments, that would negate the entire purpose of proposing larger nonpoint source load reductions in exchange for larger WLAs. Rather, as stated in the LCTMDL, if EPA finds that Vermont has failed to make satisfactory progress, EPA may for example, "reduce the wasteload allocations for facilities in South Lake B, Main Lake, Shelburne Bay, Burlington Bay, St. Albans Bay, and Missisquoi Bay segments to loads equivalent to the *limit of phosphorus removal technology*." LCTMDL p. 57 (emphasis added).

II. The law and the facts do not support CLF's comments that the permits fail to assure attainment of water quality standards in the receiving waters.

A. The permits assure attainment of water quality standards in the receiving waters.

The permits include more stringent limitations necessary to meet water quality standards as required by CWA § 301(b)(1)(C) (33 U.S.C. § 1311(b)(1)(C)). The permits don't just include technology-based effluent limitations (TBELs), but rather they all include WQBELs for phosphorus, as required by 40 C.F.R. § 122.44(d)(1), to control the discharges "reasonable potential to cause, or contribute to an excursion above any State water quality standard," and which are consistent with the WLAs established by EPA in the LCTMDL, as required by 40 C.F.R. § 122.44(d)(1)(vii)(B). For many of the facilities, these limits are much lower than the phosphorus WQBELs in their previous permits and will require significant facility upgrades.

The Agency agrees with the U.S. Supreme Court case, *Arkansas v. Oklahoma*, 503 U.S. 91, 106 (1992), cited by CLF, in which the Supreme Court stated that "§ 301(b)(1)(C) expressly identifies the achievement of state water quality standards as one of the Act's central objectives," and the Agency also notes that the Supreme Court made a significant holding in the case. In *Arkansas v. Oklahoma*, the state of Arkansas appealed a Court of Appeals decision that "construed the Clean Water Act to prohibit any discharge of effluent that would reach waters already in violation of existing water quality standards." *Arkansas* at 107. The Supreme Court reversed the lower court's finding stating:

> Although the Act contains several provisions directing compliance with state water quality standards, see, *e.g.*, § 1311(b)(1)(C), the parties have pointed to nothing that mandates a complete ban on discharges into a waterway that is in violation of those standards. The statute does, however, contain provisions designed to remedy existing water quality violations and to allocate the burden of reducing undesirable discharges between existing sources and new sources. See, *e.g.*, § 1313(d). Thus, rather than establishing the categorical ban announced by the Court of Appeals—which might frustrate the construction of new plants that would improve existing conditions—the Clean Water Act vests in the EPA and the States broad authority to develop *long-range, area-wide* programs to alleviate and eliminate existing pollution. See, *e.g.*, § 1288(b)(2).

Id. at 108 (emphasis added). Thus, the Supreme Court has recognized that EPA and the states are given broad authorities under the CWA to ensure compliance with water quality standards, which may be achieved through use of "long-range, area-wide programs" like the LCTMDL and Phase I Plan.

COMMENT:

A discussion of Shelburne Bay Lake Segment with respect to the sources of phosphorus and the reductions due to the new TMDL must be included in the Fact Sheet. Specifically, a comparison of the current in-lake phosphorus concentration in this lake segment to the mandated in-lake criteria, the current loadings from the sources of phosphorus in this watershed (each WWTF, various land uses, wetlands release, and internal recycling), the reduction in phosphorus from each of these sources required by the new TMDL, and the impacts of the more stringent phosphorus limit at the Hinesburg WWTF should be addressed in detail.

This Discharge Permit is issued by the State of Vermont under Vermont law based on the provisions of 10 Vermont Statutes Annotated Chapter 47 "Vermont Water Pollution Control Act". The Town submitted a complete application for renewal of this Discharge Permit on March 31, 2010. Per Vermont's common law Vested Rights Doctrine, the Town's right to have this application reviewed and processed under the statues, rules, regulations and Water Quality Standards and supporting information in effect at that time vested. The Town has not waived this right. However, the Town notes that the Agency reviewed their application and conditioned the draft permit based on the Vermont Water Quality Standards, effective January 1, 2017 and other supporting documents such as EPA 2013 Ammonia Criteria which became effective after the Town's right was vested. Representatives of the Town has had preliminary discussions with several attorneys on this issue including former legal staff of the Agency and the Department of Environmental Conservation all who indicated that this Doctrine applies to permits issued under 10 VSA Chapter 47 and that historically the Agency has diligently followed this Doctrine when administering the Vermont Water Pollution Control Act since the inception of the program. Therefore the Town is requesting the Agency comply with the Vested Rights Doctrine and review this permit renewal application based on the statues, rules, regulations and Water Quality Standards and supporting information that was in effect at the time of application. If the Agency has made a recent determination that the Vested Rights Doctrine no longer applies to permits issued under 10 VSA Chapter 47, then the Fact Sheet should be modified to specifically explain that the Vested Rights Doctrine does not apply to this permit and the Agency must provide written confirmation from the Vermont Attorney General concurring with the Agency's new determination that the Vested Rights Doctrine is not applicable to permits issued under 10 VSA Chapter 47.

RESPONSE:

There are no legal requirements, state or federal, that require the level of detail in the fact sheet requested by Hinesburg. Under Section 13.3(d)(3) of the Vermont Water Pollution Control Permit Regulations (VWPCPRs) a fact sheet must contain, "[a] *brief* citation ... of the water quality standards and effluent standards and limitations applied to proposed discharge." (emphasis added). Under 40 C.F.R. § 124.8 fact sheets shall "*briefly* set forth the principal facts and the significant factual, legal, methodological and policy questions considered in preparing the draft permit," and include "[a] *brief* summary of the basis for the draft permit conditions including references to applicable statutory or regulatory provisions." (emphasis added). The fact sheet meets the foregoing requirements.

If Hinesburg would like more information about the Lake Champlain Total Maximum Daily Load (LCTMDL) or how the specific waste load allocation (WLA) for the facility was developed, Hinesburg should refer to the "Phosphorus TMDLs for Vermont Segments of Lake Champlain," issued by the United States Environmental Protection Agency (EPA) on June 17, 2016, available here: https://www.epa.gov/tmdl/lake-champlain-phosphorus-tmdl-commitment-clean-water. Comments about the TMDL are not germane to this permitting decision. Under 40 C.F.R. § 122.44(d)(1)(vii)(B), the State is bound to develop water quality-based effluent limitations (WQBELs) "consistent with the assumptions and requirements of any available wasteload allocation for the discharge," which in this case is the WLA established for the Hinesburg Wastewater Treatment Facility (WWTF) under the LCTMDL.

As to the vested rights comment, while it is true that the Agency has previously applied the minority rule, after consultation with EPA and a more careful examination of the law, the Agency has determined that it must apply the law in effect at the time of permit issuance, rather than permit application when issuing permits as a state approved by EPA to administer a permitting program consistent with the minimum requirements of the federal Clean Water Act's National Pollutant Discharge Elimination System (NPDES) permit program.

Under 40 C.F.R. § 122.43(b)(1), "[f]or a State issued permit, an applicable requirement is a State statutory or regulatory requirement which takes effect prior to final administrative disposition of a permit." Section 122.43 is clearly identified as a section "applicable to State programs" under 40 C.F.R. § 123.25(a)(14).

The Agency acknowledges the state common law has previously established the minority rule as the rule for the vesting of rights, however the cases establishing the rule have primarily involved zoning and subdivision regulations.[5] In *Smith v. Winhall*, the seminal case establishing the minority rule in Vermont, a landowner applied to his town planning commission for approval of a subdivision, in response the town amended its zoning regulations to preclude the requested subdivision, and then the commission denied the permit. *Smith v. Winhall* at 760-761. Importantly, in its ruling the Court stated that the minority rule "avoids much of the protracted maneuvering which is too often characterizes *zoning* controversies in our communities." *Id.* at 761 (emphasis added). The Court was concerned about municipalities changing their land use and zoning regulations in response to development applications.

The legislative process to amend statutes and the administrative rulemaking process to amend rules governing water quality permitting, involve significant time and public participation and scrutiny, which serve to avoid the type of "protracted maneuvering" of concern to the Court in *Smith v. Winhall*. In fact, pursuant to federal law, Section 301(c) of the federal Clean Water Act (CWA) (33 U.S.C. § 1313(c)), the State is required to review and update its water quality standards

[5] For example: *Smith v. Winhall Planning Commission*, 140 Vt. 178, 436 A.2d 760 (Vt. 1981); *In re Taft Corners Associates, Inc.*, 171 Vt. 135, 758 A.2d 804 (Vt. 2000); *In re Rivers Development, LLC*, 2008 WL 7242687 (Envtl. Ct. 2008); and *In re Keystone Development Corp.*, 186 Vt. 523, 973 A.2d 1179 (Vt. 2009).

every three years, and these updates are not based upon the arbitrary whims of the Agency, but rather are based upon science, which evolves and improves over time, and the updates must incorporate new and revised criteria for pollutants established by EPA pursuant to CWA § 304(a) (33 U.S.C. § 1314(a)).

Under the Vermont Water Pollution Control Permit Regulations (VWPCPR) the Agency must apply the "applicable water quality standards" when issuing discharge permits. "Applicable water quality standards" is defined under VWPCPR § 13.1(u) as "all water quality standards to which a discharge is subject under the Federal Act of the Act and which have been (1) approved or permitted to remain in effect by the Administrator pursuant to section 303(a) or 303(e) of the Federal Act, or (2) promulgated by the Administrator pursuant to section 303(b) or 303(c) of the Federal Act." The ammonia standard at issue in the present case was approved by EPA on September 15, 2015 as part of EPA's review of the 2014 VWQS.[6] Pursuant to VWPCPR § 13.4(b)(1)(d), "[t]he terms and conditions of each permit shall apply and insure compliance with … [a]ny more stringent limitation, including those … required to implement any *applicable water quality standards*." (emphasis added).

Additionally, if the State were to ignore the most current version of the VWQS and instead apply the 2008 VWQS, which were in effect when Hinesburg submitted its application, the State would not be able to ensure the discharge would not have a reasonable potential to cause, or contribute to an excursion above any state water quality standard, as required under 40 C.F.R. § 122.44(d)(1).

A similar set of facts to the case at hand was recently presented to the Supreme Court of the State of Washington in the case *Snohomish County v. Pollution Control Hearings Board*, 187 Wash.2d 346, 386 P.3d 1064 (Wash. December 29, 2016). The state of Washington, like Vermont, is one of just ten states that apply the minority rule.[7] In Washington the rule originated in the common law and was later codified in statute, however, both the caselaw and the legislative history "indicate that the vested rights doctrine grew out of a concern that municipalities were abusing their discretion with respect to land use and zoning rules." *Id.* at 1069-71. In *Snohomish County*, counties and municipalities regulated under the state's approved NPDES program argued that Washington's NPDES Municipal Separate Storm Sewer System (MS4) permit was subject to the minority rule. *Id.* at 1067-69. The Supreme Court disagreed holding that because the "storm water regulations [under the MS4 permit] are mandatory state regulations, rather than discretionary local regulations," the minority rule does not excuse compliance with the requirements of the MS4 permit. *Id.* at 1074. The Court recognized the State's responsibilities as a state approved to implement the NPDES permitting program consistent with the requirements of the CWA. *Id.* at 1066-67. Additionally, the Court noted that "a developer does "not have a legitimate expectation that pollution control measures will be frozen in time to outdated or ineffective measures."" *Id.* at 1077 (internal citation omitted). Similar reasoning must also apply to ensure the protection of Vermont's waters.

Other considerations also support application of the current law, rather than laws adopted almost ten years ago. Under Vermont law, which is derived from the CWA, permits shall have terms "not to exceed five years." VWPCPR § 13.5(a); CWA § 402(b)(1)(B) (33 U.S.C. § 1342(b)(1)(B)). More than five years have passed since Hinesburg applied to renew its permit in March of 2010. The reason for the significant delay in issuance of the town's permit was due to the

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[6] Letter, Re: Review and Action on Vermont Water Quality Standards 2014 Triennial Review, from Kenneth Moraff, Director, EPA Office of Ecosystem Protection to Alyssa Schuren, Commissioner, Department of Environmental Conservation (Sept. 15, 2015).

[7] The other states are: Georgia, Idaho, Maine, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, and Utah.

appeal and revocation of the 2002 LCTMDL, [8] and the following lengthy time-period it took for EPA to re-issue a TMDL for Lake Champlain on June 17, 2016. While this was due to no fault of the town, the town cannot have a reasonable expectation to application of water quality standards adopted before March 2015, five years from the date they reapplied for permit coverage.

Furthermore, related to the permit term, the Agency is under no obligation to issue permits for a full five-year term. As stated above, the law says permits shall have terms "*not to exceed* five years," meaning the Agency has the authority to issue permits for a much shorter term. For example, the Agency could issue a permit for a duration of 210 days or less, which would give the permittee at most 30 days to reapply for permit coverage once its new permit was issued.[9] Therefore, while the town is hoping to delay application of the 2013 Ammonia Criteria, applying the minority rule would likely only delay application of the 2013 Criteria by an extra six months or so and would require the town to pay all the costs related to reapplication sooner than it might otherwise have to.

Additionally, were the state to apply the minority rule, as requested by Hinesburg, rather than the majority rule, as required by EPA, EPA could object to the permit and authority to issue the permit would pass to EPA if the state does not address the objection consistent with federal law,[10] meaning Hinesburg would receive a permit directly from EPA, and there is no question that EPA follows the majority rule. [11]

COMMENT:

Total Ammonia Nitrogen 1

The Agency used the 2013 EPA Ammonia Criteria to derive the TAN effluent limitations in the draft permit which became effective after the Town's renewal application was deemed complete and its application review rights vested. Since this permit is being issued under the authority of state law, the Town requests that the Agency follow the Vested Rights Doctrine and derive the TAN limits based on the 1999 EPA Ammonia Criteria that were in effect at the time of the Town's application and the draft permit, Fact Sheet, and Reasonable Potential Analysis revised accordingly.

RESPONSE:

See the response to the comment above regarding vested rights.

COMMENT:

Total Ammonia Nitrogen 2

The TAN effluent limitations in Condition I.A.1 Effluent Limitations, the Fact Sheet, and the Reasonable Potential Analysis were not derived correctly. Attached (Attachment A1) are TAN effluent limitations for this WWTF based on the EPA December 1999 Ammonia Criteria and the EPA April 2013 Ammonia Criteria using the procedures mandated the Vermont Water Quality Standards and historically applied by the Agency to derive WQBEL limitations. None of these limitations correspond to the TAN limitations in Condition I.A.1. Please note without a winter 7Q10 flow value for the LaPlatte River, it is not possible to derive TAN winter limitations. The draft Permit, Fact Sheet, and Reasonable Potential Analysis should be revised accordingly.

RESPONSE:

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[8] The Conservation Law Foundation appealed the 2002 LCTMDL on October 28, 2008. EPA revoked its approval of the 2002 LCTMDL on January 24, 2011.

[9] VWPCPR § 13.5(b)(1) requires a permittee to apply 180 days prior to expiration of his or her permit.

[10] 40 C.F.R. § 123.44.

[11] 40 C.F.R. § 122.43(b)(1); *Baxley v. EPA*, 557 F.2d 1101, 1108 (5th Cir. 1977) (See also *In re Phelps Dodge Corp.*, 10 E.A.D. 460, 478 n.10 (EAB 2002)).

Regarding Attachment A1 "Ammonia Analysis & Effluent Limitation" using the December 1999 EPA Ammonia Criteria, we are in agreement with how acute and chronic effluent limits were derived. However, the TAN effluent limits presented in the draft permit utilized the 2013 EPA Ammonia Criteria.
We are in agreement with how the acute effluent limit was derived using the 2013 EPA Ammonia Criteria as shown in Attachment A1 and note that there is a typographical error in draft permit for the Instantaneous Maximum value; this has been corrected.
The chronic criteria (concentration and mass) are not in agreement with Attachment A1 Analysis & Effluent Limits because DEC did not use the 7Q10 flow to derive the chronic limit.
DEC calculated the chronic limit based on 30Q10 flow conditions. The 2013 EPA "Chronic" Ammonia Criteria is based on "30-day rolling average," as such it is appropriate to use the 30Q10 flow to derive TAN Limits. The 30Q10 is defined as the 30-day average low flows with a 10-year return period. The use of the 30Q10 flow for deriving chronic limit has been approved by EPA Region 3.
We have noted your comment on winter 7Q10 flow and the DEC Hydrologist has calculated a Winter 7Q10 and a Winter 30Q10 for the LaPlatte River which has been considered for use in deriving TAN Limits for the winter season for both acute and chronic criteria (concentration and mass).

COMMENT:

Total Ammonia Nitrogen 3

Notwithstanding comment Total Ammonia Nitrogen 2 above, the Agency used the summer 7Q10 flow of the LaPlatte River to derive the TAN "winter effluent" limitations. Using winter stream temperatures and summer low flow stream conditions to derive winter effluent limitation has no scientific basis. Winter 7Q10 flows are typically significantly different than summer 7Q10 flows. The winter 7Q10 flow of the LaPlatte River that corresponds with the winter stream temperature (5oC) must be to calculate the TAN "winter effluent" limitations and the draft Permit, Fact Sheet and Reasonable Potential Analysis should be revised accordingly.

RESPONSE:

We have noted your comment on winter 7Q10 flow (see response to Total Ammonia Nitrogen 2, above) and the DEC Hydrologist has calculated a Winter 7Q10 and a Winter 30Q10 for the LaPlatte River which was used to derive TAN Limits for the winter season for both acute and chronic criteria (concentration and mass). The draft Permit, Fact Sheet and Reasonable Potential Analysis have been revised accordingly.

COMMENT:

Total Ammonia Nitrogen 4

Notwithstanding comment Total Ammonia Nitrogen 2 above, both the summer and winter TAN "Monthly Average" Mass effluent limitations (lbs/day) in Condition I.A.1 were not derived correctly based the TAN concentration effluent limitations (mg/l), the permitted flow, and the "lbs/day" conversion factor. The draft permit, Fact Sheet, and Reasonable Potential Analysis should be revised accordingly.

RESPONSE:

We are in agreement that the summer and winter TAN "Monthly Average" Mass effluent limitations (lbs./day) in Condition I.A.I were not derived correctly; the correct mass should be 7.3 lbs./day (based on a monthly average limit of 3.5 mg/L) and 42.1 lbs./day (based on a monthly average limit of 20.2 mg/L) for summer and winter, respectively. The draft Permit and Fact Sheet have been revised.

COMMENT:

Total Ammonia Nitrogen 5

Condition I.A.1 Page 2 Effluent Limitations of the draft permit, contains a "Weekly Average" TAN effluent limitation based a 30Q10 flows. The Vermont Water Quality Standards (Section 3-01.10) only authorizes the Secretary to use 7Q10 flows and derive acute and chronic TAN effluent limitations. Therefore this limitation has no basis and the draft Permit, Fact Sheet and Reasonable Potential Analysis should be revised accordingly.

RESPONSE:

Use of 30Q10 flows are appropriate for deriving TAN "chronic," limit which is based on a "30-day rolling average," and has been approved by EPA Region 3.

COMMENT:

Total Ammonia Nitrogen 6

Condition I.A.1. Page 2 Effluent Limitations of the draft permit contains both monthly average mass (lbs/day) and concentration (mg/l) effluent limits for TAN and "Footnote 3" requires the Town meet either the mass limit or concentration limit , whichever is more restrictive. Since the TAN effluent limits are Water Quality Based Effluent Limitations (WQBELs), the requirement to meet an effluent concentration limit once an effluent mass limitation is established is unnecessarily to protect water quality and overly restrictive to the operation of the Town's WWTF. In deriving a "mass limitation (lbs/day) WQBEL", the effluent concentration (mg/l) of a discharge necessary to meet the instream water quality criteria) is calculated based on the pollutant's instream water quality criteria and the instream waste concentration (IWC) of the discharge based on the permitted flow of the facility and the applicable stream flow conditions. This effluent concentration limitation (mg/l) is then converted to a mass limitation (lbs/day) by using the effluent concentration, the permitted effluent flow of the facility, and a "pounds conversion factor". Consequently since the effluent concentration is a component in the equation, as long as the mass limitation is met, the discharge cannot cause a violation of the instream criteria regardless of the flow of the facility.

Therefore the Town is requesting that the requirement for the discharge to comply with a TAN effluent concentration limitation (mg/l) in addition to the mass limitation be eliminated.

RESPONSE:

The argument that TAN concentration (mg/L) limit is not needed and unnecessary to protect water quality once the effluent mass limitation is established is flawed. This may be true if the facility were operating at full design flow. However, if the facility were operating at ½ design flow, the TAN concentration could be 2 X the draft permit limits for concentration without exceeding the mass limit. This would not be protective of the receiving water and would result in significant exceedances of both acute and chronic TAN criteria. This illustrates the need for both mass (lbs.) and concentration (mg/L) limits within the permit. Additionally, if the draft permit only included "monthly average," mass, this would be based on chronic criteria and would not be protective of "acute," 1-hour average exposures (which is the function of the Instantaneous Maximum).
In accordance with the 2013 Ammonia Criteria and EPA, in order to be protective of the acute Ammonia criteria an instantaneous max concentration needs to be included. Similarly, to be protective of the chronic criteria at flows less than facility's design flow, a monthly average concentration needs to be included.

COMMENT:

Total Ammonia Nitrogen 7

The TAN Instantaneous Maximum concentration effluent limitation should be converted to a mass limitation (lbs/day) and applied as a Maximum Day limitation. TAN is natural pollutant subject to biological treatment processes in the WWTF and TAN in municipal WWTF effluent does not change rapidly instead effluent TAN changes take over several hours to occur even under a worst case scenario. Therefore aquatic biota in the receiving water is able to relocate or avoid an effluent plume with increasing ammonia. Consequently a Maximum Day limitation is applicable for this pollutant. Also conversion of this limitation to a "Maximum Day" mass limitation (lbs/day) would allow operational flexibility at the WWTF and not result in an instream violation of the TAN criteria (See Previous Comment above). Historically the Agency has implemented this approach in other NPDES Discharge Permits where ammonia was determined to be a pollutant of concern, for example the City of Barre WWTF and the Town of Stowe WWTF.

RESPONSE:

The 2013 EPA Ammonia Criteria have established acute and chronic criteria to be protective of aquatic biota in the receiving waters. As described in Total Ammonia Nitrogen 6 above, mass limits without a concentration limit would not be protective of receiving waters and could easily result in exceedances of acute and chronic criteria derived to be protective of receiving waters.

COMMENT:

Total Ammonia Nitrogen 8

TAN influent concentrations at WWTFs are significantly lower than the "Winter Instantaneous Maximum" TAN effluent limit. Therefore this limitation should be removed or replaced with a "Monitor Only" requirement since there is not a reasonable potential for the effluent to contain TAN that would exceed this limitation.

RESPONSE:

Reasonable Potential Analysis is not based on influent concentrations, they are based on effluent concentrations and receiving water concentrations for pollutants of concern. This comment has no merit on protecting the receiving waters, especially given the nature of the Nitrogen cycle.

COMMENT:

Total Ammonia Nitrogen 9

The Town is requesting that the Agency clearly state in the Fact Sheet and on Page 2 of the draft Permit, that compliance with the TAN effluent limitations is not required until the facility upgrade has been completed. Currently there is no discussion of this waiver in the Fact Sheet and it is not mentioned until the last sentence of Condition I.C.2 on Page 7 in the draft permit.

RESPONSE:

In the draft permit, footnote 5 in Table 1 was expanded to include "These limits are effective once the facility upgrade is complete".

COMMENT:

Total Ammonia Nitrogen 10

The sample type for TAN required by Condition I.C.2 conflicts with the TAN sample type mandate by Condition I.I.2 on Page 9 of the draft permit.

RESPONSE:

The final sentence of Condition I.C.2 was changed to "The facility shall monitor for TAN once weekly via grab sample as described in Condition I.I.2."

COMMENT:

Chlorine 1

The Fact Sheet references the "March 1988 Chlorine Policy" as a basis for the 0.02 mg/l Total Residual Chlorine Effluent Limitation. This Policy was predicated upon the chlorination and dechlorination design standards and technology and the detection limits for chlorine that were in use at that time. The design standards for chlorination and dechlorination and the detection limits for chlorine have been significantly modified since March 1988. Therefore this Policy has been superseded by WQBELs derived from the Water Quality Standard unless the Anti-Backsliding is applicable. Based on the IWC for the Hinesburg WWTF and the VT Water Quality Standards instream criteria of the chlorine, an effluent limitation of 0.034 mg/l, Instantaneous Maximum, Total Residual Chlorine is appropriate for this discharge. (0.019 mg/l/0.555 IWC = 0.034 mg/l) and the draft permit and Fact Sheet should be revised accordingly.

RESPONSE:

VT Water Quality Standards for Chlorine provide both chronic and acute criteria for the protection of aquatic biota. The chronic criteria is 0.011 mg/L-TRC and the acute criteria is 0.019 mg/L-TRC. The first draft permit limit for TRC (Instantaneous Maximum) was derived using the chronic criteria (0.011 mg/L /0.555 IWC = 0.02 mg/L-TRC.) In the current draft this limit remains; However, a compliance limit of 0.05 mg/L is in place. As written in the Fact Sheet for the revised draft permit "A compliance level is specified because the limitations for TRC are below the minimum level (ML) for analysis of TRC using Method 4500-Cl G, N, N-diethyl-p-phenylenediamine (DPD) colorimetric, of 0.05 mg/L. This approach is consistent with EPA's Technical Support Document for Water Quality-based Toxics Control (EPA-505-2-90-001, March 1991), page 111, which recommends, "the compliance level be defined in the permit as the minimum level (ML)." See Standard Methods for the Examination of Water and Wastewater for the full text of these test methods. TRC measurements of 0.05 mg/L and less will be considered in compliance."

COMMENT:

<u>Chlorine 2</u>

The Town is requesting that seasonal Total Residual Chlorine WQBELs, to coincide with the seasonal TAN limitations, be derived and incorporated into the permit. The winter TRC limits, based on winter 7Q10 flows, would provide a higher TRC effluent limitation for the WWTF which would allow greater operational flexibility, ensure reliable TRC effluent analytical data is obtained, (see 3. Below) and still ensure compliance with the Vermont Water Quality Standards. The Town is aware that the winter limit could not exceed 0.1 mg/l TRC due to "Anti-Backsliding" requirements.

RESPONSE:

We agree that it would be appropriate to apply "winter" TRC limits based on winter flows. However, given that the compliance limit is included in the draft permit, seasonal limits are unnecessary.

COMMENT:

<u>Chlorine 3</u>

The Town has significant concerns regarding the ability of the analytical method (Method 4500 CL-E and G) cited on Page 13 of the Fact Sheet permit to reliably produce accurate results when trying to detect extremely low concentrations in treated wastewater effluent. It is common knowledge in the water and wastewater field (and supported by a national wastewater laboratory expert formerly employed by ANR) that this analytical method is extremely susceptible to interference from other parameters in the wastewater such as natural occurring metals and compounds (ie manganese and nitrate). Consequently this method, when attempting to detect chlorine concentrations near the minimum of detection (less than 0.05 mg/l) often produces inaccurate data. The Agency itself, is familiar with this issue due to its oversight of other permitted discharges, for example the Champlain Water District, which have commonly experienced significant interference issues and inaccurate TRC results when using this method to detect TRC of less than 0.05 mg/l. Requiring a TRC effluent limitation of 0.05 mg/l to reflect the known

shortcomings of attempting to detect lower TRC concentrations should be considered to ensure accurate and reliable analysis of the discharge.

RESPONSE:

We understand that a detection limit of 0.02 mg/L-TRC may have interference from other parameters within the wastewater. The permit limits are set to meet VWQS and protect the aquatic biota within the receiving waters. Implementation of the compliance limit of 0.05 mg/L should address this concern.

COMMENT:

Phosphorus Optimization Plan

A requirement should be added to Condition I.B.2 which requires the Agency to review and approve the POP before it is implemented to ensure that this Plan meets the Agency's requirements.

Specifically, the draft permit does not require the Agency to review and approve the POP before it is implemented but authorizes the Agency to require modifications of the Plan at a later date. It is not prudent to invest the users' money to prepare and implement a POP if the Agency cannot make a positive finding that this Plan meets their requirements before its implementation. Having to revise the POP at a future date after it has been prepared and implemented, will cost additional monies in engineering services, will require the Town to revisit and significantly modify operations at the WWTF, and will delay the optimization of the WWTF to reduce phosphorus. Review and approval of the POP by the Agency before its implementation will avoid these problems.

RESPONSE:

We are in agreement and have changed Condition I.B.2.b. to read: "If the POP fails to meet the requirements of subsection (a) of this section, the Secretary may reject the POP. The Permittee shall commence implementation of the POP immediately."

COMMENT:

Phosphorus Reduction/ Elimination Plan (PERP)

This Condition should be removed from the draft Permit and replaced with a "Compliance Schedule" to achieve compliance with the annual average phosphorus effluent limitation in Condition I.A.1 of the draft permit in coordination with upgrading the WWTF for TAN removal. The current WWTF must be significantly modified or a new treatment technology installed to ensure reliable compliance with the proposed phosphorus limitation and TAN limitations. It is common wastewater treatment knowledge that an aerated lagoon wastewater treatment facility with chemical addition is not sufficiently designed nor can it be reliably operated to meet a phosphorus effluent mass limitation based on 0.2 mg/l effluent concentration at permitted conditions (ie permitted flow) as mandated by the Vermont Water Quality Standards (Section 1-04) and the Vermont Water Pollution Control Permit Regulations (13.4.b). In fact a review of the past 3.5 years of monitoring reports indicates that, even at discharging significantly less than the permitted flow, the WWTF would have violated the proposed new annual pounds effluent limitation in 2014 and has already violated this proposed limit in 2017. Therefore rather than

investing money and time to develop a Phosphorus Reduction/ Elimination Plan, it is more prudent and fiscally responsible to invest money to design and construct either advanced phosphorus and TAN removal systems at the existing WWTF or upgrade the existing WWTF to a new treatment technology which will provide adequate treatment for phosphorus and TAN.

RESPONSE:

In the current draft permit, condition I.B.1 includes an implementation schedule for compliance with the total phosphorus (TP) waste load allocation (WLA) of 0.069 metric tons per year (152 lbs/yr). This schedule coincides with the implementation schedule for meeting TAN limits.

COMMENT:

Whole Effluent Toxicity (WET) Testing

Condition I.H.1.b requires a WET test a two species 48-hour acute and 96-hour chronic WET test be conducted March or April 2018 and 2020. WET tests are very costly and the ability of WET tests done during this time period to produce reliable data is highly questionable. Specifically as part of the WET test procedure, dilution water, replenishment water, and the control water for the WET test are collected from the LaPlatte River. Since high flows in the LaPlatte River typically occur in March or April, the quality of the dilution, replenishment, and control water will be significantly degraded due to high runoff conditions in the watershed which can compromise the accuracy of the WET test and could easily cause an inconclusive test results due to effects not attributed to the WWTF's effluent and consequently require additional WET tests be conducted to obtain valid results. Conducting these WET tests in January or February when runoff conditions are minimal would avoid this issue.

RESPONSE:

The winter WET requirement in the draft permit was changed to January and February. In addition, the dates of the required testing were changed to allow the facility additional preparation time.

COMMENT:

Ultimate Oxygen Demand Sampling and Calculation

To avoid confusion regarding the sampling, analytical, and calculation requirements for reporting Ultimate Oxygen Demand (UOD), the Town requests that Condition I.I.2 clearly state the BOD and TKN analysis must be conducted on the same effluent sample and the BOD and TKN results from the same sample used to calculate UOD.

RESPONSE:

Footnote 1 to the table in Condition I.I.2 was revised to include "the BOD and TKN analysis must be conducted on the same effluent sample and the BOD and TKN results from the same sample used to calculate UOD".

COMMENT:

Settleable Solids collection

The Town requests that the collection time for Settleable Solids specified in Condition I.I.2. (10:00 AM to 2:00 PM) be eliminated or modified to 6:00 AM to 6:00 PM. The Hinesburg WWTF is a 4 celled aerated lagoon facility with over 2 months of detention time and uses a telescoping valve to control the discharge. It is not subject to spikes in flows through the process or short detention times that occur in WWTFs with other treatment technologies (such as extended air). Therefore settleable solids sampling can be done outside the "10 to 2" time period and still be representative of the discharge.

RESPONSE:

Footnote 6 to the table in Condition I.I.2 was revised to read "Settleable Solids samples shall be collected between 6:00 AM and 6:00 PM or during the period of peak flow."

COMMENT:

Influent Total Phosphorus Sampling

Condition I.I.4 does not contain a requirement to sample, analyze, or report Influent Total Phosphorus. Without Influent Total Phosphorus data, the Town is not clear how it will be possible for the Agency or the Town to assess the efficiency of the POP required by Condition I.B.2. or any PERP. This issue must be addressed and information provided in the Fact Sheet regarding the process the Agency will use to assess POPs and PERPs without Influent Total Phosphorus data.

RESPONSE:

The Agency will be using current and historical effluent data to evaluate the efficiency of the POP. If the facility chooses to sample the influent for process control that is their choice, it is not required by the permit.

COMMENT:

Operation Management and Emergency Response Plans

The Town requests the submittal of the Operation Management and Emergency Response Plan for the collection system be required within 180 days from the effective date of the permit to enable the Town to complete this Plan, the POP, and the plan to achieve compliance with the TAN effluent limitations in a sequenced coordinated manner.

RESPONSE:

The due date of this plan was changed to July 31, 2018, in anticipation of a permit issuance date of February 1, 2018. If the issuance date is changed, the plan due date will be updated to provide the facility 180 days to comply with this permit condition.

COMMENT:

Additional Public Participation

Due to the large number of concerns and requests in these comments the Town is requesting that after the Agency has considered these comments and modified the draft Permit, that the "revised draft permit", Fact Sheet, and Reasonable Potential Analysis be placed on the public comment to allow the Town to review and comment on these documents before the "revised draft permit" is issued as a "final effective permit".

RESPONSE:

The Agency agrees and the revised draft permit, Fact Sheet, and Reasonable Potential Determination will be placed on public comment a second time to allow the Town to review and comment on the revisions.

ATTACHMENT A1

AMMONIA ANALYSIS & EFFLUENT LIMITATION

December 1999 EPA Ammonia Criteria

Discharger: **Hinesburg**
Receiving Water: **LaPlatte** **Summer**

Stream Flow CFS 7Q10	**0.310**
Effluent Flow MGD	**0.250**
Instream Waste Concentration	**0.555**

Instream Ammonia Criteria: Acute - pH Based

pH	**7.5**	
CMC: Salmonids Absent (mg/l)	**19.9**	**mg/l**

Instream Ammonia Criteria: Chronic - pH & Temperature Based

CCC Fish Early Life Stages Present		
pH 7.5, Temperature 20c	**3.06**	mg/l

Effluent Ammonia Concentration (mg/l) to meet Instream Criteria at Permitted Flow

Max Day	Monthly Avg	
35.84	*5.51*	mg/l

*** Effluent Ammonia Mass Limitation (lbs/day) to meet Instream Criteria**

Max Day	Monthly Avg	
74.73	***11.49***	lbs/day

AMMONIA ANALYSIS & EFFLUENT LIMITATIONS
April 2013 EPA Criteria

Discharger:	**Hinesburg**		
Receiving Water:	**LaPlatte River**		**Summer Conditions**
Stream Flow CFS 7Q10		**0.310**	
Effluent Flow MGD	(Design)	**0.250**	
Instream Waste Concentration		**0.555**	

Instream Ammonia Standard
2013 Updated Ammonia Criteria
Oncorhynchus absent

Instream Criteria: Acute - pH & Temperature Based

pH	**7.5**	
Temperature	**20**	
CMC - Instream Critiera (mg/l)	**9.2**	**mg/l**

Instream Criteria: Chronic - pH & Temperature Based

pH	**7.5**	
Temperature	**20**	
CCC - Instream criteria (mg/l)	**1.4**	**mg/l**

Effluent Ammonia Concentration (mg/l) necessary to meet Instream Criteria at Permitted Flow

Max Day	Monthly Avg	
16.57	*2.52*	mg/l

*** Effluent Ammonia Mass Limitation (lbs/day) to meet Instream Criteria**

Max Day	Monthly Avg	
34.55	***5.26***	lbs/day