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.:3-1176
PIN: BR95-0057
NPDES No.:VT0100722

Name of Applicant: Town of Williamstown
PO Box 646
Williamstown, VT 05679

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, Williamstown, Vermont (hereinafter referred to as the "Permittee") is authorized by the Secretary of the Agency of Natural Resources (Secretary) to discharge from the Williamstown Wastewater Treatment Facility (WWTF) to Stevens Branch in accordance with the following conditions.

This permit shall become effective on **January 1, 2018**.

Emily Boedecker, Commissioner
Department of Environmental Conservation

By: Jessica Bulova Date: December 18, 2017

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 Williamstown WWTF to the Stevens Branch, an effluent for which the characteristics shall not exceed the values listed below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS							
	Annual Limitation	Monthly Average	Weekly Average	Maximum Day	Monthly Average	Weekly Average	Maximum Day	Instantaneous Maximum
		Mass (**lbs/day**)			Concentration (**mg/L**)			
Flow[1]	0.150 MGD	Monitor only						
Biochemical Oxygen Demand (5-day, 20° C) (BOD_5)		38 lbs	56 lbs		30 mg/l	45 mg/l	50 mg/l	
Total Suspended Solids (TSS)[2]		38 lbs	56 lbs		30 mg/l	45 mg/l	50 mg/l	
Total Phosphorus (TP)[3]	366 lbs	Monitor only			0.8 mg/l			
Total Ammonia Nitrogen (TAN) (May 1 – June 30)		43.2 lbs		101.1 lbs				80.8 mg/l
Total Ammonia Nitrogen (TAN) (July 1 – October 31)		9.0 lbs		31.0 lbs				24.8 mg/l
Total Ammonia Nitrogen (TAN) (November 1 – April 30)		37.8 lbs		85.7 lbs				68.5 mg/l
Total Nitrogen (TN)[4]				Monitor Only			Monitor Only	
Total Kjeldahl Nitrogen (TKN)							Monitor Only	
Nitrate/Nitrite Nitrogen (NO_x)							Monitor Only	
Settleable Solids								1.0 ml/l
Escherichia coli								77/100 ml
Total Residual Chlorine								0.08 mg/l
pH					Between 6.5-8.5 Standard Units			

[1] Monthly average flow is 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] 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.

[3] 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.

[4] 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)*

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 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 Agency projected loadings and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans.

6. Annually, in 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.

7. Any action on the part of the Agency 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 Agency, 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.

B. TOTAL PHOSPHORUS

1. Waste Load Allocation and Implementation Schedule

This permit includes a formal total phosphorus (TP) waste load allocation (WLA) of 366 lbs., or 0.166 metric tons, per year, as established by the United States Environmental Protection Agency (U.S. EPA) in the 2016 "Phosphorus TMDLs for Vermont Segments of Lake Champlain" (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 TP limitation or additional monitoring requirements based on the monitoring data, the results of phosphorus optimization activities, or a reallocation of phosphorus wasteload allocations between the Permittee and another WWTF pursuant to the requirements of TMDL and Vermont's "Wasteload Allocation Process" Rule (Environmental Protection Rule, Chapter 17).

The Permittee shall achieve compliance with the TP limit of **366 lbs** (0.166 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 September 30, 2018** the Permittee shall achieve compliance with the TP limitations specified in Condition I.A.1. While the WWTF is making the necessary facility modifications, including phosphorus treatment upgrades, to ensure compliance with its WLA, the facility shall have interim TP limits from the previous discharge permit (**2,283 lbs**).

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

1. Phosphorus Optimization Plan

a) **By no later than September 30, 2018**, 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 phosphorus 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. The Permittee shall commence implementation of the POP 60 days after submittal to the Secretary, unless the Secretary rejects the POP prior to that date for failure to meet the requirements of subsection (a) of this section.

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

i. The optimization techniques implemented under the POP during the previous year.

ii. Whether the techniques are performing as expected.

iii. The phosphorus discharge trends relative to the previous year.

The first annual report shall include data collected during 2018, and shall be attached to the December 2018 DMR form WR-43.

3. Phosphorus Elimination/Reduction Plan

a) The facility shall have **12 months from completion of the phosphorus treatment upgrades or 12 months from September 30, 2018, whichever occurs first,** to optimize removal of TP.

b) If, after the 12-month 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 (Section I.B.4. of this permit) 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 Permitee 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.

f) The PERP shall include:

i. An evaluation of alternatives to ensure the WWTF's compliance with its WLA.

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

g) 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 (presented in Condition I.A.1. and I.B.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.

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. 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 Williamstown Wastewater Treatment Facility in the Stevens Branch downstream 1.0 mile.

D. 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**

E. OPERATING FEES

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

F. TOXICITY TESTING

1. WHOLE EFFLUENT TOXICITY (WET) TESTING

a) During **August or September 2019**, the Permittee shall conduct two-species (*Pimephales promelas* and *Ceriodaphnia dubia*) 48-hour acute and 96-hour chronic WET tests on a composite effluent sample collected from S/N 001. The results shall be submitted to the Secretary by **December 31, 2019**.

b) During **January of February 2018**, the Permittee shall conduct two-species (*Pimephales promelas* and *Ceriodaphnia dubia*) 48-hour acute and 96-hour chronic WET tests on a composite effluent sample collected from S/N 001. The results shall be submitted to the Secretary by **May 31, 2018**.

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.

G. 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 effluent sample locations is included in Condition I.G.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 Williamstown WWTF, according to the following schedule and other provisions:

PARAMETER	MINIMUM FREQUENCY OF ANALYSIS	SAMPLE TYPE
Flow	Continuous	Daily Total, Max., Min.
Biochemical Oxygen Demand (BOD_5)	1 × month	composite[1]
Total Suspended Solids (TSS)	1 × month	composite[1]
Total Phosphorus (TP)	1 × month	composite[1]
Total Ammonia Nitrogen (TAN)	1 × month	grab
Total Nitrogen (TN)	1 × quarter	[calculated[2]]
Total Kjeldahl Nitrogen (TKN)	1 × quarter	composite[1]

Nitrate/Nitrite Nitrogen (NO_x)	1 × quarter	composite[1]
Settleable Solids	1 × day	grab[3]
Escherichia coli	1 × month	grab[4]
Total Residual Chlorine	1 × day	grab[5]
pH	1 × day	grab
Temperature	1 × year	grab
Dissolved Oxygen	1 × year	grab
Oil & Grease	1 × year	grab
Total Dissolved Solids (TDS)	1 × year	composite[1]

Samples collected in compliance with the monitoring requirements specified above shall be collected at the manhole in the building after the chlorine contact tank.

[1] Composite samples for BOD_5, TSS, TP, TKN and NO_x shall, at a minimum, 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.

[2] TN = TKN + NO_x

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

[4] The monthly *E. coli* sample shall be collected at the same time and location as a daily Total Residual Chlorine sample. Samples shall be collected between the hours of 6:00 AM and 6:00 PM.

[5] Total Residual Chlorine 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; a composite sample shall be used for Total Dissolved Solids. 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 shall be taken during the Fall season, the second samples shall be taken during the Summer, the third in the Fall, and so forth in chronological order. For easy reference regarding the season in which you must sample, please refer to 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	composite[1]
Total Suspended Solids (TSS)	1 × month	composite[1]

[1] Composite samples for BOD_5, and 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, 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 Section 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/QA 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.

H. 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 Section II.A.2 of this permit.

I. 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 April 21, 2010.

2. The Permittee shall implement the Operation, Management, and Emergency Response Plan for the sewage collection system as approved by the Secretary on September 24, 2010.

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

J. 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.

K. 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 a qualified laboratory or as part of an EPA DMR-QA study) for the analysis of all pollutant parameters performed within their facility laboratory and reported as required by this permit. 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: Secretary 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 – mean**s 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
(July 2017)
(Revised December 2017)*

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

PERMIT NO: 3-1176
PIN: BR95-0057
NPDES NO: VT0100722

NAME AND ADDRESS OF APPLICANT:

Town of Williamstown
PO Box 646
Williamstown, VT 05679

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Williamstown Wastewater Treatment Facility
61 Vesper Road
Williamstown, Vermont

RECEIVING WATER: Stevens Branch

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 designated receiving water from the above named applicant on June 27, 2011 and an updated application on January 18, 2016. The Town's previous permit became effective on January 1, 2007. 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.

The previous permit authorized the discharge from the outfall of the wastewater treatment facility (WWTF) to Tributary 23 of the Stevens Branch. The Secretary recommended the outfall be moved from Tributary 23 to address the impairment due to high levels of phosphorous and ammonia in the tributary. A determination was made that no lowering of water quality would occur as a result of the outfall relocation. An existing use determination was also made and noted there were no impacts to recreational waters downstream of the outfall. These determinations satisfy the requirements of the Interim Anti-Degradation Implementation Procedure.

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

II. Description of Discharge

The facility is engaged in the treatment of municipal wastewater. The WWTF is a lagoon. The design flow of the facility is 0.150 million gallons per day (MGD) and design BOD loading is 229 mg/l (124 lbs/day).

The WWTF maintains a constant discharge to the Stevens Branch.

III. Limitations and Monitoring Requirements

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

Effluent Limitations:	Page 2-3 of 28
Monitoring Requirements:	Pages 7-11 of 28

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 BOD5, TSS, and pH. 40 C.F.R. Part 133.

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

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 previous 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 previous permit.

V. Description of Receiving Water

The receiving water for this discharge is the Stevens Branch, a designated Cold Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 15.7 square miles. The summer 7Q10 flow of the river is estimated to be 1.42 cubic feet per second (CFS) and the summer Low Median Monthly flow is estimated to be 5.26 CFS. The instream waste concentration at the summer 7Q10 flow is 0.14 (9.86%) and the instream waste concentration at the summer Low Median Monthly flow is 0.042 (0.8%).

In addition, the Stevens Branch drains into the Winooski River, and, ultimately, 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 wastewater from the Town of Williamstown. The facility consists of two aerated lagoons with chlorine disinfection followed by de-chlorination. There are three pump stations throughout the collection system.

The Town is currently upgrading the facility, including relocation of the outfall, reconstruction of the headwords, installation of two new blowers, and chemical addition to achieve phosphorous removal.

VII. Permit Basis and Explanation of Effluent Limitation Derivation

This permit was evaluated under the 2017 Vermont Water Quality Standards.

A. Flow

The draft permit maintains the annual average flow limitation of 0.150 MGD. This facility maintains a constant discharge. Continuous flow monitoring is required.

B. Conventional Pollutants

1. 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 (38 lbs/day, monthly average and 56 lbs/day, weekly average) are calculated using the concentration limits outlined above and the permitted flow. The BOD_5 monthly monitoring requirement is unchanged from the current permit.

2. Total Suspended Solids (TSS)

The monthly average effluent limitation for TSS has changed from the current permit. The facility has been achieving the secondary treatment standard TSS effluent limitations set forth under 40 C.F.R. § 133.102(b) for at least the past five years based upon the Discharge Monitoring Report (DMR) WR-43 forms submitted by the facility. Because the facility has consistently been achieving the TSS effluent limitations set forth under 40 C.F.R. § 133.102(b), the facility does not meet all of the criteria under 40 C.F.R. § 133.101(g) necessary for eligibility for application of the effluent limitations for treatment equivalent to secondary treatment, and it follows that the facility must comply with the secondary treatment standards for TSS: (1) the 30-day average shall not exceed 30 mg/l; (2) the seven-day average shall not exceed 45 mg/l. The seven-day average concentration limit of 45 mg/l and the 50 mg/l maximum day concentration limit remain unchanged from the current permit. The TSS monthly monitoring requirement is unchanged from the current permit.

3. *Escherichia coli*

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

4. pH

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

C. Non-Conventional and Toxics

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 "Phosphorus TMDLs for Vermont Segments of Lake Champlain" (June 2016). The 2016 LC TMDL specifies allowable phosphorus loads, or waste load allocations (WLA), expressed as metric tons per year (mt/yr), for each of the 59 WWTFs that discharge to the Lake's watershed. Discharge NPDES permits will be issued by the Secretary in accordance with the permit issuance schedule in the Lake Champlain TMDL Phase 1 Implementation Plan (Chapter 3, page 46). The Secretary will follow this schedule unless special circumstances are raised by the facility that warrant the issuance of the permit sooner (e.g., planned facility upgrades), and the 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 an existing monthly effluent concentration limit for TP in their NPDES permit.

Phosphorus Limit in Draft Permit:

The previous discharge permit for this facility included a mass-based, effluent limit of 2283 pounds of TP per year. This annual mass limitation was based on an allocation of 1.036 metric tons established in the 2002 Lake Champlain Phosphorus TMDL. The previous permit contained no effluent TP concentration limit but used a default concentration of 5.0 mg/l to establish the mass-based effluent limit.

This proposed draft permit contains a phosphorous effluent concentration limit of 0.8 mg/l, monthly average, and a mass effluent limit of 366 total pounds, annual limitation. The concentration effluent limitation is based on the requirements of 10 V.S.A. § 1266a and is a change from the previous permit. The mass annual effluent limitation is based on the LC TMDLs. The LC TMDL allocated 0.166 metric tons per year or 366 pounds per year to the Williamstown WWTF. The Secretary 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 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 an 83% reduction (-1917 pounds) from the previous permit and is equivalent to setting the effluent TP limit at 0.8 mg/L at the design capacity of

the WWTF (0.150 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:

(0.166 mt/yr) (2204.62lbs/mt) = 366 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.

The requirement for monthly sampling for total phosphorus is unchanged from the previous permit.

Condition I.G.5 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 form WR-43-P04. 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 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 120 days of completion of the phosphorus treatment upgrades or December 1, 2017, 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.

To ensure the facility is operating as efficiently as possible for purposes of phosphorus removal, Condition I.B.2 of the permit requires by no later than September 30, 2018, the permittee shall develop or update (as appropriate), and submit to the Secretary, a Phosphorus Optimization Plan (POP) to increase the WWTF's phosphorus removal efficiency by implementing optimization techniques that achieve phosphorus reductions using primarily existing facilities and equipment. The techniques to be evaluated may include operational process changes to enhance biological and/or chemical phosphorous

removal, incorporation of anaerobic/anoxic zones, septage receiving policies and procedures, and side stream management.

The facility shall have 12 months from completion of the phosphorus treatment upgrades or December 1, 2017, whichever occurs first, to optimize removal of total phosphorus. If, after the 12-month optimization period, the WWTF's actual TP loads reach or exceed 80% of the LC TMDL WLA for the WWTF, based on the WWTF's 12-month running annual load calculated using the Phosphorus Load Calculation (Condition I.B.3 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.

The facility shall have 12 months from September 30, 2018 to optimize removal of total phosphorus. If, after the 12-month optimization period, the WWTF's actual TP loads reach or exceed 80% of the LC TMDL WLA for the WWTF, based on the WWTF's 12-month running annual load calculated using the Phosphorus Load Calculation (Condition I.B.3 of the permit) the permittee shall, within 90 days of reaching or exceeding 80% of the LC TMDL WLA for the WWTF, develop and submit to the Secretary a projection based on the WWTF's current operations and expected future loadings of whether it will exceed its WLA during the permit term.

If the facility is not projected to exceed its WLA within the permit term, the WWTF shall reassess when it is projected to reach its WLA prior to permit renewal and submit that information with its next permit application. If the facility is projected to exceed its WLA during the permit term, the permittee shall submit a Phosphorus Elimination/Reduction Plan (PERP) within 6 months to the Secretary to ensure the WWTF continues to comply with its WLA. The PERP shall be treated as an application to amend the permit, and therefore, shall be subject to all public notice, hearing, and comment provisions, in place at the time the plan is submitted, that are applicable to permit amendments. The WWTF shall revise the PERP, if required by the Secretary.

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, 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 Total Nitrogen. TKN sampling is required once per quarter. Monitoring via composite sample is required.

4. Total Ammonia Nitrogen

Because the facility's discharge has a reasonable potential to cause or contribute to an impairment in the Stevens Branch, based on the previous self-reporting data and Vermont Water Quality Standards, the draft permit contains new water quality-based effluent limitations for TAN.

Limits are imposed on both mass and concentration and vary seasonally. Annually, from June 1 to September 30 the monthly mass limit of 6.5 lbs/day will apply. Concentration limits during the period of June 1 to September 30 are 5.2 mg/L monthly average, 13.0 mg/l weekly average, and 19.2 mg/L instantaneous maximum. Annually, from October 1 to May 30 the monthly mass limit of 14.8 lbs/day will apply. Concentration limits during the period of October 1 to May 30 are 11.9 mg/L monthly average, 29.7 mg/l weekly average, and 27.1 mg/L instantaneous maximum. Monthly average limits correspond to the 30-day chronic

criteria and weekly average to the 4-day chronic criteria. The instantaneous maximum is the concentration required to meet the acute water quality criteria.

Limits are imposed on both mass and concentration and vary seasonally. Annually, from May 1 to June 30 the monthly average mass limits of 43.2 lbs/day will apply and a maximum day mass limit of 101.1 lbs/day will apply. Also during this period, an instantaneous maximum limit concentration of 80.8 mg/l will apply. Mass limits during the period of July 1 to October 31 are 9.0 lbs/day monthly average, and 31.0 lbs/day maximum day. An instantaneous maximum limit concentration of 24.8 mg/l will apply during this period. Mass limits during the period of November 1 to April 30 are 37.8 lbs/day monthly average, and 85.7 lbs/day maximum day. An instantaneous maximum limit concentration of 68.5 mg/l will apply during this period. Monthly average limits correspond to the 30-day chronic criteria and weekly average to the 4-day chronic criteria. The instantaneous maximum is the concentration required to meet the acute water quality criteria.

These limitations have been computed based on mass loading that reflects the worst-case using the permitted flow limitation (0.15 MGD annual average), by computing the allowable mass for the lowest observed summer flows, at the 30Q10 (chronic) and 7Q10 (acute) flows. Because the facility is operating at one-third of the permitted design flow, it is expected to meet these limitations. (See RPD, Attachment B).

TAN sampling is required once per month.

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 limitation is 0.08 mg/1, instantaneous maximum. This limitation is changed from the previous permit. Based on the Agency's Chlorine Policy, a limit of 0.08 mg/l will ensure that the instream water quality criteria of chlorine of 0.019 mg/1, (acute) and 0.011 mg/1 (chronic) of the Vermont Water Quality Standards is met. Total residual chlorine sampling is required once per day (unchanged from the previous 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 analysis 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.F. of the draft permit, which indicates yearly, 2-species, 48-hour acute and 96-hour chronic WET tests. Tests are required in August or September of 2019 and 2021 and March or April of 2018 and 2020. 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.

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 analysis 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.F. of the draft permit, which indicates yearly, 2-species, 48-hour acute and 96-hour chronic WET tests. Tests are required in August or September of 2019 and January or February of 2018. 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.G.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. <u>Special Conditions</u>

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 WMZ in the proposed permit extends from a new outfall, which discharges directly to the Stevens Branch, downstream 1.0 mile, pursuant to Appendix A of the Agency's "Waste Management Zone Designation Procedure" (December 1, 1995). The prior WMZ extended from the facility's old outfall, which discharged to Tributary 23 (which flows to the Stevens Branch), downstream 1.2 miles. The proposed WMZ overlaps with the prior WMZ and does not include any new areas of river.

The relocation of the outfall is necessary to address high levels of phosphorus and ammonia in the small Tributary.

In support of this change to the WMZ for the Williamstown WWTF, the Secretary has conducted the analysis included with this Fact Sheet as Attachment A.

In accordance with the Secretary's Waste Management Zone Designation Procedure (December 1995), the Secretary will accept public comment on this WMZ designation during the public comment period for the proposed discharge permit, and the hearing for the proposed discharge permit will also serve as the hearing for the WMZ.

2. 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. Proficiency test samples must be obtained from an accredited laboratory or as part of an EPA DMR-QA study. Results shall be submitted to the Secretary by December 31, annually.

3. 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.I. 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 April 21, 2010 and Emergency Response Plan for the sewage collection system as approved by the Secretary on September 24, 2010.

4. 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.

5. 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. The Secretary completed a

phased roll out of mandatory electronic reporting. 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.

6. 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.

7. 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 Analysis

The Secretary has conducted a reasonable potential analysis, which is attached to this Fact Sheet as Attachment B. 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 Stevens Branch. 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.

VIII. Procedures for Formulation of Final Determinations

The public comment period for receiving comments on this draft permit is from **July 12 through August 30, 2017** during which time interested persons may submit their written views on the draft permit. All written comments received by 4:30 PM on **August 30, 2017** will be retained by the Secretary and considered in the formulation of the final determination to issue, deny, or modify the draft permit. The period of comment may be extended at the discretion of the Secretary.

Written comments should be sent to:

Agency of Natural Resources
Department of Environmental Conservation
Watershed Management Division
One National Life Drive, Main Building, 2nd Floor
Montpelier, VT 05620-3522

Comments may be submitted by e-mail to:

ANR.WSMDWastewaterComments@vermont.gov

For additional information, contact Jessica Bulova at 802-828-1535

The Secretary will hold a public hearing on **Tuesday, August 22, 2017 from 4:00 to 6:0**0 **PM** at the **Agency of Natural Resources Annex Building**, located at **190 Junction Road, Berlin, Vermont 05602**. Any person may submit oral or written statements and data concerning the draft permit at the public hearing. The Secretary may establish reasonable limits on the time allowed for oral statements and may require the submission of statements in writing. All statements, comments, and data presented at the public hearing will be retained by the Secretary and considered in the formulation of the final determination to issue, deny, or modify the draft permit.

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

The public comment period for receiving comments on the draft permit was from July 12, 2017 through August 30, 2017. Comments received were addressed in the Responsiveness Summary.

ATTACHMENT A – WASTE MANAGEMENT ZONE DESIGNATION ANALYSIS FOR THE NEW OUTFALL LOCATION

Williamstown Wastewater Treatment Facility

Due to impairment caused by high levels of phosphorus and ammonia in Tributary 23 of the Stevens Branch, the Secretary has recommended relocation of the outfall to the Stevens Branch. The waste management zone (WMZ) in the proposed permit extends from a new outfall, which discharges directly to the Stevens Branch, downstream 1.0 mile, pursuant to Appendix A of the Agency's "Waste Management Zone Designation Procedure" (December 1, 1995). The prior WMZ extended from the facility's old outfall, which discharged to Tributary 23 (which flows to the Stevens Branch), downstream 1.2 miles. The proposed WMZ overlaps with the prior WMZ and does not include any new areas of river.

The Town of Williamstown provided an existing use determination, pursuant to the "Waste Management Zone Designation Procedure" (December 1, 1995).

The Secretary has conducted the following analysis pursuant to the Agency's Procedure.

I. Section 29A-105(b) of the Vermont Water Quality Standards and Section VII.F. of the Interim Antidegradation Procedure

Section 29A-105(b) of the Vermont Water Quality Standards and Section VII.F. of the Interim Antidegradation Procedure require that the existing uses of receiving waters be protected and maintained and the Secretary must consider the following factors in making a determination:

a. Aquatic biota and wildlife that utilize or are present in the waters;
b. Habitat that supports or is capable of supporting aquatic biota, wildlife, or plant life;
c. The use of the waters for recreation or fishing;
d. The use of the water for water supply, or commercial activity that depends directly on the preservation of an existing high level of water quality; and
e. For factors (a) and (b) above, evidence of the use's ecological significance in the functioning of the ecosystem or evidence of the use's rarity.

While the Reasonable Potential Determination, included as Attachment B, found the discharge has a reasonable potential to cause or contribute to an impairment in the Stevens Branch, the proposed permit contains effluent limitations for Total Ammonia Nitrogen and monitoring requirements that are protective of the Vermont Water Quality Standards for Class B(2) waters. The proposed discharge shall comply with all terms and conditions of the draft discharge permit, including effluent limitations. Based upon this analysis, the Secretary finds that the discharge will not cause or contribute to the lowering of existing water quality. Because the facility has proposed an increase in treatment and will relocate the discharge, an impairment will be eliminated and the existing water quality will improve. As a result, the receiving water's high quality aquatic habitat and suitability for use by aquatic biota, wildlife, and plant life will be maintained and protected.

Next, based upon the existing use determination provided by Williamstown, there is no evidence of

the water being used for recreation and fishing. There are no public accesses within the WMZ; the tall dense brush adjacent to the Stevens Branch impedes access for recreation; and the shallow stream depth would limit recreational uses such as swimming, wading, and bathing. Therefore, the WMZ will not impact such uses.

Finally, the Secretary has determined there are no water supplies or commercial enterprises that depend directly on the preservation of an existing high level of water quality in the one-mile stretch that is the proposed WMZ, so there will not be any impact to those uses.

Based upon this analysis, the Secretary has determined that the proposed discharge satisfies the criteria of Section 29A-105(b) of the Vermont Water Quality Standards and Section VII.F. of the Interim Antidegradation Procedure.

II. Section 29A-105(c) of the Vermont Water Quality Standards and Section VII.E. of the Interim Antidegradation Procedure

Section 29A-105(c) of the Vermont Water Quality Standards and Section VII.E. of the Interim Antidegradation Procedure require that higher quality water be protected and the risk minimized to existing and designated uses, and prohibit limited reductions in the existing higher quality of such waters unless the criteria under 29A-105(c)(2) are met.

As mentioned above, the discharge shall satisfy effluent limitations in the discharge permit that ensure compliance with the Vermont Water Quality Standards. Additionally, while the outfall is moving from Tributary 23 to the Stevens Branch, the WMZ proposed for the Stevens Branch is identical to the existing WMZ on the Stevens Branch. Therefore, the higher water quality will be protected; there will be no impacts to existing uses, as discussed above; there will be no new impacts to designated uses; and therefore, the discharge will not result in a limited lowering of water quality.

III. Waste Management Zone Designation and Criteria, Section 29A-204(b) of the Vermont Water Quality Standards

Section 29A-204(b) establishes the following criteria for waste management zones:

a. It shall be the minimum length necessary to accommodate the authorized discharge;
b. It shall be consistent with the anti-degradation policy (Section 29A-105) of these rules;
c. It shall not result in significantly increased health risks when evaluated using reasonable assumptions about exposure pathways;
d. It will be located and managed so as to not result in more than a negligible increased risk to public health adjacent to or downstream of the waste management zone; and
e. It will not constitute a barrier to the passage or movement of fish or prevent the full support of aquatic biota, wildlife, and aquatic habitat uses.

As described above and throughout the fact sheet of the draft discharge permit, the WMZ shall begin at the new facility discharge point S/N 001, which discharges directly to the Stevens Branch rather than Tributary 23, and extend 1.0 river mile downstream. The discharge shall satisfy all effluent limitations specified in the draft discharge permit which does not authorize an increase in flow or

pollutants within the discharge. Therefore, pursuant to Appendix A of the Agency's "Waste Management Zone Designation Procedure" (December 1, 1995), the waste management zone is sufficient.

Sections I and II of this analysis conclude that the waste management zone designation satisfies the Antidegradation Policy within the Vermont Water Quality Standards and Interim Antidegradation Procedure. In addition, as stated in the Antidegradation analysis, because the discharge will comply with the Vermont Water Quality Standards, the WMZ will not constitute a barrier to the passage or movement of fish, and will continue to support aquatic biota, wildlife, and aquatic habitat uses.

Due to the absence of contact recreation occurring downstream of the discharge, it is determined that the WMZ designation will not cause significantly increased health risks or pose more than a negligible increased risk to public health adjacent or downstream of the WMZ.

IV. The Public Interest – 10 V.S.A. § 1253(e)

Pursuant to 10 V.S.A. § 1252(d)(6), the Secretary must also "[d]etermine that the creation or expansion of such a waste management zone is in the public interest after giving due consideration to the factors specified in subdivisions 1253(e)(1) through (10)."

While the WMZ for this facility is technically new because the outfall is being relocated, no new section of river is being designated as a WMZ. The proposed 1.0 mile WMZ overlaps entirely with the existing 1.2 mile WMZ. Additionally, moving the outfall from Tributary 23 addresses water quality impairments in the small tributary due to high levels of phosphorus and ammonia. Therefore, because this 1.0 reach is currently a WMZ, relocating the outfall will address a water quality issue, and the effluent limitations in the permit are protective of water quality and existing uses, the Secretary finds that the proposed 1.0 WMZ is in the public interest.

In closing, after giving due consideration to the applicable conditions of the Vermont Water Quality Standards, the Interim Antidegradation Procedure, and requirements under state statute, the Secretary believes the new discharge location complies with all applicable standards. The Secretary will hold a public hearing pertaining to this proposed discharge, WMZ designation, and draft permit, convenient to the waters affected, to accept verbal and written public comments on the items described above. Those comments will be used to supplement this analysis.

ATTACHMENT B – REASONABLE POTENTIAL DETERMINATION

Agency of Natural Resources
Department of Environmental Conservation

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

MEMORANDUM

To: Allison Lowry, Wastewater Program

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

Cc: Pete LaFlamme, Director, WSMD
Jessica Bulova, Manager, Wastewater Program
Ethan Swift, Manager, MAPP

Date: December 14, 2017

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

MAPP has evaluated the draft permit limits for the Williamstown WWTF in Williamstown, 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 Williamstown WWTF prepared by the WWM.

Facility:
Williamstown Wastewater Treatment Facility
Permit No. 3-1176
NPDES No. VT0100722

Hydrology for Williamstown WWTF used in this evaluation:
Design Flow: 0.15 MGD = 0.232 CFS
LMM = 5.3 CFS
IWC-LMM= 0.042 (IWC > 1%)

Season	7Q10 (cfs)	IWC	30Q10 (cfs)	IWC
May 1 – June 30	4.73	0.047	8.86	0.026
July 1 -Oct 31	1.28	0.153	1.87	0.11
Nov. 1 -April 30	3.95	0.055	5.16	0.043

Receiving Water:
Stevens Branch, Williamstown, VT
Facility Location: Lat. 44.12747 Long. 72.53290 (NAD 83)

The Stevens Branch downstream of the Williamstown WWTF is classified as Class B and is designated a Cold-Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 15.7 square miles. The proposed permit waste management zone (WMZ) in the Stevens Branch begins at the outfall of this WWTF and extends downstream approximately 1.0 mile downstream (Figure 1). There are no permitted discharges upstream of this discharge.

The outfall is newly located. The previous permit authorized the discharge from the outfall of the WWTF to Tributary 23 of the Stevens Branch. The Agency recommended the outfall be moved from Tributary 23 to address the impairment due to high levels of phosphorous and ammonia in the tributary. A determination was made that no lowering of water quality would occur as a result of the outfall relocation; in fact, water quality is being improved under the proposed permit, which eliminates a discharge to Tributary 23 which to-date has caused an impairment.

Since the waste management zone was being modified, an existing use determination was also made pursuant to the Procedure for the Determination for Waste Management Zones. There were no impacts to recreational waters downstream of the outfall. These determinations satisfy the requirements of the Interim Anti-Degradation Implementation Procedure, as documented by the Antidegradation Review.

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 Stevens Branch segment to which this facility discharges, the database indicates full support of all designated uses.

Ambient Chemistry Data for the Stevens Branch above and below the Williamstown WWTF:
There is ambient chemistry data available above and below the "new outfall" location which is located just below the confluence of Tributary 23. Although the VTDEC water quality sampling conducted in 2015 at River Mile (RM) 12.1 and RM 11.9 respectively was sampled prior to the operation of the new outfall in 2016, the water chemistry below the confluence with Tributary 23 (RM 11.9) is reflective of the "new outfall" receiving water conditions since the distance from the prior outfall on Tributary 23 to the 'new outfall" location is only 0.3 miles, and there is no further dilution within this section. VTDEC established monitoring sites on Stevens Branch (RM 12.1 & 11.9) in 1991 to further delineate the Williamstown facility discharge on receiving waters downstream.

Water chemistry measures for the following parameters are available: pH, hardness, dissolved oxygen, turbidity, total phosphorus (TP), total nitrogen (TN) and total ammonia is summarized in Table 1. Priority metals were analyzed below the WWTF at RM 11.9 and were all below detection limits (Table 4).

Data repesentiveness 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, and in consideration of possible downstream sensitive reaches. The location of the upstream and downstream sampling locations RM 12.1 and RM 11.9 effectively 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 Williamstown Wastewater Treatment Facility (River Mile 12.1 and RM 11.9 refer to stations above and below the "new" outfall respectively).

Sample Date	River Mile	pH	Hardness	DO (%)	DO (mg/l)	Turbidity (NTU)	Total Phosphorus (ug/l)	Total Nitrogen (mg/l)	Total Ammonia Nitrogen (mg/l)	Water Temp (deg C)
7/14/2015	11.9	8.06	-	103.1	9.01	1.31	55.3	0.6	< 0.05	20.1
8/3/2015	11.9	8.11	-	85.9	7.95	0.88	142	0.84	0.197	17.55
8/19/2015	11.9	8.11	-	97.3	9.02	0.73	108	0.78	0.068	18.15
9/24/2015	12.1	8.26	172.0	-	-	1.11	11.6	0.39		15.1
9/24/2015	11.9	8.2	198	92.2	9.85	0.92	19.4	0.45	<0.05	12.4

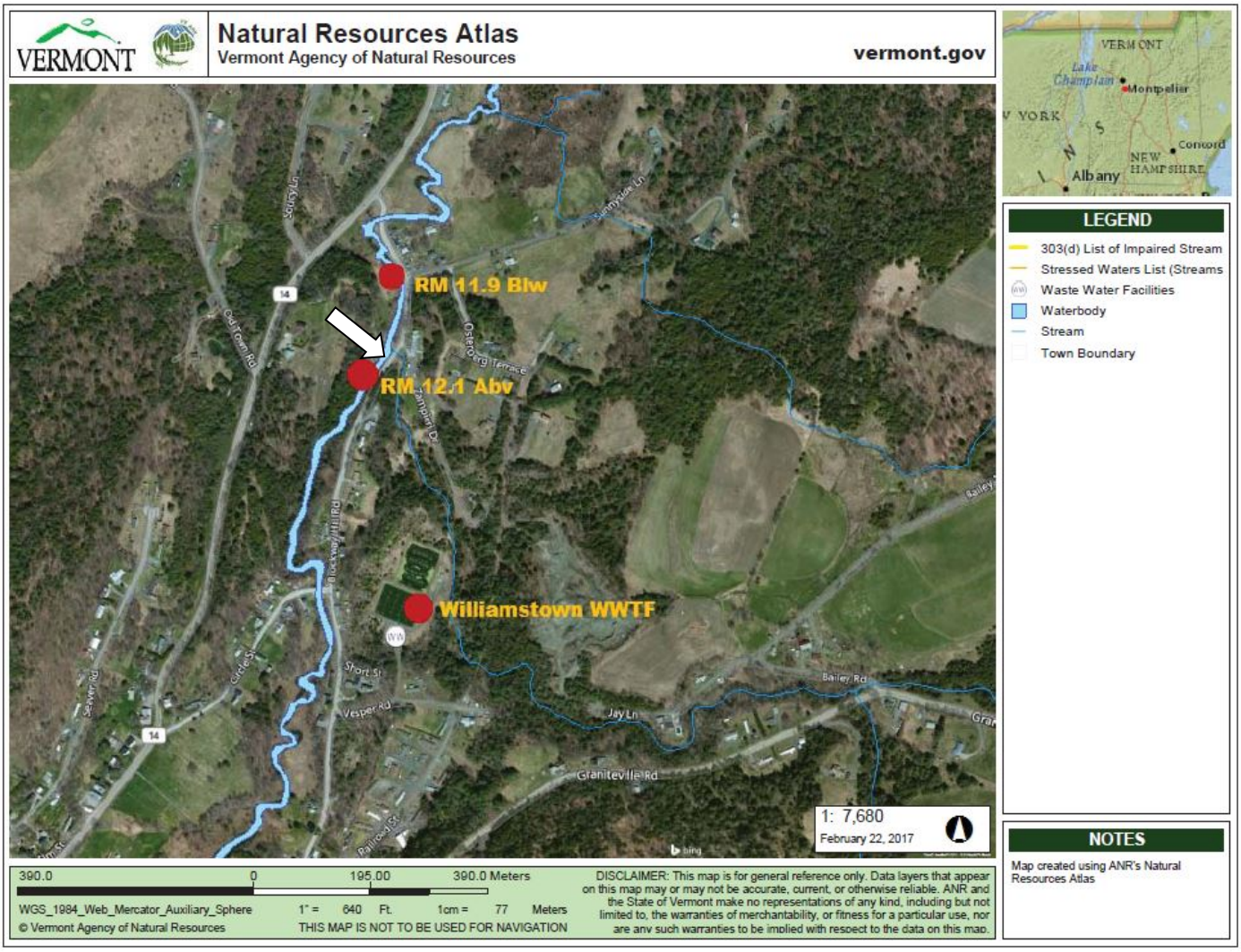

Figure 1. Stevens Branch near the Williamstown WWTF, showing up and downstream sampling locations (RM 12.1 & 11.9). New outfall location shown by arrow. Figure taken from the Vermont Integrated Watershed Assessment System on the VTANR Atlas (https://anrweb.vt.gov/DEC/IWIS/).

Total Phosphorus (TP) values below the outfall (RM 11.9) ranged from 19.4 – 142 µg/L, the highest concentration observed was on 8/19/2015. TP values above the outfall (RM 12.1) were 11.6 µg/L.

Total Nitrogen (TN) values below the outfall (RM 11.9) ranged from 0.45 – 0.84 mg/L, and above the outfall (RM 12.1) were 0.39mg/L.

Turbidity, Dissolved Oxygen, pH:

Turbidity values below the outfall (RM 11.9) ranged from 0.73 – 1.31 Nephelometric Turbidity (NTU). Turbidity above the outfall (RM 12.1) were 1.1 NTU. Dissolved oxygen below ranged from 7.95 mg/L to 9.85 mg/L, percent saturation below ranged from 85.9 – 103.1 percent. There is no dissolved oxygen data from above location. All pH values were within the range of VWQS, at RM 11.9 the pH ranged from 8.06 - 8.2, above at RM 12.1 the pH was 8.26.

Biological Assessments:
Biological assessments were conducted below the confluence with Tributary 23 in 1991, 2005 and 2015 at RM 11.9 (Table 2). The bioassessments conducted at RM 11.9 have met and exceeded water quality standards for all years sampled for Medium High Gradient Stream Type. Biological assessments have not been conducted above the confluence of Tributary 23 at RM 12.1.

Table 2. Results of the Biological Monitoring for Macroinvertebrates on the Stevens Branch, downstream (RM 11.9) of the Williamstown WWTF discharge.

Macroinvertebrate Site Summary			
Location:	Stevens Branch RM 11.9	**Location ID:**	502141
Town:	Williamstown	**Bio Site ID:**	495600000119
Description:	Approx. 100m below "New" Williamstown WWTF Outfall	**WBID:**	VT08-16
Stream Type:	Medium High Gradient		

Date	Density	Richness	EPT Richness	PMA-O	B.I.	Oligo.	EPT/EPT + Chiro	PPCS-F	Community Assessment
8/28/1991	3600	60.0	26.5	83.2	4.05	0.00	0.76	0.54	Meets WQS
9/13/2005	6060	58.0	25.0	69.1	4.92	0.07	0.70	0.49	Meets WQS
9/24/2015	1461	39.0	22.0	73.5	3.73	0.62	0.84	0.48	Meets WQS
Full Support	≥ 350	≥ 32	≥ 20	≥ 50	≤ 4.85	≤ 9.5	≥ 0.47	≥ 0.45	
Meets Threshold	≥ 300	≥ 30	≥ 18	≥ 45	≤ 5	≤ 12	≥ 0.45	≥ 0.4	
Near Threshold	≥ 250	≥ 28	≥ 16	≥ 40	≤ 5.15	≤ 14.5	≥ 0.43	≥ 0.35	
Non-Support	< 250	< 28	< 16	< 40	> 5.15	> 14.5	< 0.43	< 0.35	

*Scoring Guidelines for Stream Type MHG and WQ Class B.

Total Phosphorus:
Instream Phosphorus Concentrations were calculated using the low monthly median flow (LMM) of 5.3 CFS at design flow of 0.232 CFS (0.15 MGD) and using the effluent phosphorus concentration of 5.0 mg/L which is about the average monthly effluent concentration observed in 2016 (4.5 – 6.7 mg/L-TP) from facility monitoring records. The calculated phosphorus concentration at these conditions attributable to discharge was 0.21 mg/L (210 µg/L).

The average instream TP observed below the outfall at RM 11.9 (Table 1) was 81µg/L-TP considerably less than the calculated TP concentration of 210 µg/L. Review of the Williamstown WWTF flow records indicate that average flow for 2016 was 1/3rd (0.05 MGD) of the design flow (0.15 MGD). Instream TP concentrations at these flow rates would be 70 µg/L-TP, and are in alignment with instream TP monitoring results after adjusting for upstream TP concentrations.

The Williamstown WWTF is currently undergoing facility upgrades which will be reflected in a TP permit limit of 0.8 mg/L by December 01, 2017 or sooner, this will significantly decrease the instream phosphorus concentrations. At full design flow, TP attributable to the facility will be 0.033mg/L (33 µg/L) and at current facility flow instream TP concentrations will be only 11 µg/L-TP.

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, MAPP typically relies on a framework which examines TP concentrations in relation to existing numeric phosphorus criteria and response criteria in §29A-306(a)(3)(c) of the 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 nutrient criteria are attained, or when specific nutrient response variables; pH, Turbidity, Dissolved Oxygen, and aquatic life use, all display compliance with their respective criteria in the Water Quality Standards.

The total phosphorus concentrations in receiving waters are presently elevated when comparing the above and below chemistry results, and this finding, coupled with the mass balance calculation presented above, indicated that very slight increases in phosphorus attributable to the facility are occurring, which exceed the numeric nutrient criterion of 15 ug/L TP for streams of this type. However, aquatic life use is shown to be fully supported at high levels immediately downstream of the facility, and the stream complies with VWQS for all identified response variables. Therefore, the narrative standard presented in the VWQS is supported (Table 3), as are the combined numeric nutrient criteria in §29A-306(a)(3)(c). As described below, for facilities where there are increases in phosphorus attributable to the discharge, and biological monitoring results do consistently indicate attainment of all thresholds, MAPP supports the effluent monitoring which included TP required by the permit, this will help to better assess compliance with the 2014 nutrient criteria at the next permit issuance.

Table 3. Assessment of phosphorus response variables for Williamstown WWTF. The relevant target values are referenced to the appropriate section of the VWQS.

Response variable (VWQS reference)	Target Value	River-mile 12.1 (Upstream)	River-mile 11.9 (Downstream)
pH (§3-01.B.9), range	<8.5 s.u.	8.26	8.2
Turbidity (§3-04.B.1), range	< 10 NTU at low mean annual flow	1.11	0.92
Dissolved Oxygen (§3-04.B.2), min	>6 mg/L and 70% saturation	-	9.85 (92.2%)
Aquatic biota, based on macroinvertebrates, (§3-04-B.4), also see Table 2.	Attaining an assessment of good, or better.	NA	Meets WQS (2015)

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 2006 permit required a two-species WET test (acute/chronic) be conducted in January or February of 2008 and June 2008. There was no toxicity observed in the June 2008 WET test, however the February 2008 WET test indicated the LC50 for the Fathead minnow was 61.6% and the A-NOEC was 25%. The toxicity observed from this test was likely due to high ammonia levels, effluent ammonia levels reported from WET test

were 23 mg/L-TAN. WET test toxicity results from 2006 also indicated toxicity for C. dubia and Fathead minnow with LC50's of 72.8% and 47.8% respectively.

The draft permit requires a two-species WET test 48-hour acute and 96-hour chronic be conducted in August or September 2019 and 2021 and in March or April 2018 and 2020. 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:
Williamstown WWTF has been conducting monthly effluent monitoring (January -December) for ammonia for several years. Effluent ammonia concentrations in 2016 ranged from 0.5 to 31 mg/L total ammonia nitrogen (TAN), the average was 12.8 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 31 mg/L (TAN) observed during this period, the receiving water concentration (RWC) at 7Q10 instream waste concentration (IWC) of 14% used for implementing the acute criteria would be 4.34 mg TAN/L (7Q10 IWC 0.14 X 31 mg TAN/L). The RWC at 30Q10 IWC of 10% used for implementing the chronic criteria would be 3.1 mg TAN/L (30Q10 IWC 0.10 X 31 mg TAN/L).

Monitoring data indicates the pH of the Stevens Branch within this reach is 8.2, 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 4.34 mg TAN/L and 3.1 mg TAN/L exceed the chronic and acute criteria of 0.57 mg/L and 2.7 mg/L respectively, when water temperature is 20°C. In fact, the chronic criteria are exceeded for all temperature conditions at the concentration of 3.1 mg TAN/L. Using the average effluent TAN observed of 12.8 mg/L, the chronic criteria would still be exceeded for all temperature conditions, and the acute criteria would be exceeded when temperatures were greater than 24°C. MAPP recommends monthly ammonia monitoring be continued 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 4 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 (0.15 MGD annual average), by computing the allowable mass for the lowest observed seasonal flows, at the 30Q10 (chronic) and 7Q10 (acute) flows.

Table 4. Ammonia Effluent Limits for Williamstown WWTF, using pH default of 8.2 and flow/ temperature regimes for three 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	Instantaneous Maximum
Total Ammonia Nitrogen (May 1 – June 30)	43.2	101.1	80.8
Total Ammonia Nitrogen (July 1 – October 31)	9.0	31.0	24.8
Total Ammonia Nitrogen (November 1 – April 30)	37.8	85.7	68.5

Sediment, Hardness, and Metals:
Instream total suspended solids were calculated using the 7Q10 of 1.4 CFS at design flow of 0.232 CFS (0.15 MGD), assuming the maximum permitted daily concentration of 50 mg/L. The calculated suspended sediment concentration at these conditions was 7.0 mg/l, indicating a moderate increase of instream ambient suspended sediment concentrations in receiving waters.

The hardness of the Stevens Branch below the Williamstown WWTF (RM 11.9) was recorded to be 198 mg/l CaCO3 on 9/24/2015 (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 priority metal chemistry data below the outfall (Table 5) did not detect any exceedances and were below detection for all priority metals.

Table 5. Stevens Branch Metals Water Chemistry – below the Williamstown WWTF outfall at RM 11.9.

Date	9/24/2015
Site	**Stevens Branch (RM 11.9)**
Total Aluminum (ug/l)	< 50
Total Antimony (ug/l)	< 10
Total Arsenic (ug/l)	< 1
Total Barium (ug/l)	8.863
Total Beryllium (ug/l)	< 1
Total Cadmium (ug/l)	< 1
Total Calcium (mg/l)	67.67
Total Chromium (ug/l)	< 5
Total Cobalt (ug/l)	< 1
Total Copper (ug/l)	< 10
Total Iron (ug/l)	93.1
Total Lead (ug/l)	< 1
Total Magnesium (mg/l)	7.076
Total Manganese (ug/l)	16.62
Total Molybdenum (ug/l)	< 5
Total Nickel (ug/l)	< 5
Total Potassium (mg/l)	2.01
Total Selenium (ug/l)	< 5
Total Silver (ug/l)	< 1
Total Sodium (mg/l)	21.66
Total Sulfate (mg/l)	10.92
Total Thallium (ug/l)	< 1
Total Zinc (ug/l)	< 50

Lake Champlain TMDL – Main Lake Segment.

The ultimate receiving water for this facility is the Main Lake Segment, 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 0.166 MT/yr, a reduction of 0.870 MT from the prior limitation in the 2002 TMDL to which this facility was permitted previously. This equates to an effluent concentration limit of 0.8 mg/L pursuant to the TMDL. Effluent limitations in the draft permit reflect the TMDL. The Lake Champlain TMDL also contains a reasonable assurance analysis and accountability framework demonstrating that the Main Lake Segment will achieve standards following implementation of the TMDL.

Recommended Biological and Water Quality Monitoring:
In light of the fact that biological monitoring results consistently indicate attainment of all thresholds, and the stream complies with VWQS for all identified response variables, and that the narrative standard presented in §29A-302(2)(A) of the VWQS is supported (Table 3), MAPP does not recommend biomonitoring be included in the permit. To better assess compliance with the 2014 nutrient criteria at the next permit issuance, MAPP does support the effluent monitoring required by the permit which includes monthly effluent monitoring for TP and TAN.

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 Stevens Branch. 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.

RESPONSIVENESS SUMMARY

for

NPDES Discharge Permit #3-1176

Williamstown Wastewater Treatment Facility

The above referenced permit was placed on public notice for comment from a period of **July 12, 2017** through **August 30, 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 #1:

See letter dated June 23, 2017 from Conservation Law Foundation (**Attachment A**)

RESPONSE #1:

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 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

[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.

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 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).

[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).

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 #2:

Total Ammonia Nitrogen

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 A) are TAN Water Quality Based Effluent Limitations (WQBELs) for this WWTF based on the EPA April 2013 Ambient Ammonia Criteria using the procedures mandated in the Vermont Water Quality Standards, EPA permitting guidance, and the calculations historically applied by the Agency to derive TAN WQBELs. These limitations do not correspond to the TAN limitations in Condition I.A.1. The draft Permit, Fact Sheet, and Reasonable Potential Analysis must be revised accordingly.

Response #2:

New TAN limits have been established based on updated information received from the Department's Monitoring Assessment and Planning Program (MAPP) and using the EPA April 2013 Ambient Ammonia Criteria as mandated under the VWQS, EPA permitting guidance, and the calculations historically applied by the Department to derive TAN WQBELs. Specific limits have been created for three seasons (May 1 – June 30, July 1 – October 31, and November 1 – April 30) using recalculated stream flows and temperatures. Below is the rationale provided by MAPP about how this data was derived:

Seasonal Temperatures for Stevens Branch:

The "average" seasonal temperatures provided for Stevens Branch were derived using "water temperature" data from Medium High Gradient (MHG) Streams with drainage areas similar to Stevens Branch.

Continuous temperature data loggers have been deployed at stream sites in Vermont as part of WSMD monitoring goals. Temperature is recorded "hourly" at these sites throughout the calendar year; as such depending on the length of the "seasonal period," there were approximately 3000 – 9000 temperature readings available for each stream site annually. This data was analyzed and used in deriving the "average" temperatures for Stevens Branch.

The mean for all years was computed at each site first, then averaged across the sites. The values for mean and average were very close for all (3) seasons computed, so both methods produced the same results. Additionally, the difference between using data from all MHG and MHG's with similar drainage area to Stevens Branch was also negligible, as shown below (Green, Winhall, and Moose were the sites with similar drainage area.

	May 1 - June 30	July 1 - Oct 31	Nov 1 - April 30
Mean of all MHG sites	13.03	14.65	1.36
Mean of comparably sized MHG sites (Green, Winhall, Moose)	**13.06**	**14.77**	**1.39**

Season	Temp. (Celsius)	7Q10 (cfs)	30Q10 (cfs)
May 1 -June 30	13	4.73	8.86
July 1 -Oct 31	15	1.28	1.87
Nov 1 -April 30	1.4*	3.95	5.16

*EPA Ammonia Criteria Table 6 Chronic Criteria provides range 0-7C
*EPA Ammonia Criteria Table 5a Acute Criteria (Oncorhynchus spp. Present) provides range 0-14C

Seasonal Flow of Stevens Branch: **Please see Attachment B.**

Comment #3:

Total Ammonia Nitrogen

The Agency used the summer 7Q10 flow of the Stevens Branch to derive the TAN "winter" WQBELs. Using winter stream temperatures and summer low flow stream conditions to derive winter WQBELs has no scientific basis since these stream conditions cannot physically occur. In Vermont, winter 7Q10 flows are significantly different, usually at least 2x greater, than summer 7Q10 flows. The winter 7Q10 flow of the Stevens Branch that corresponds with the winter stream temperatures must be used to calculate the TAN "winter" WQBLEs and the draft Permit, Fact Sheet and Reasonable Potential Analysis must be revised accordingly.

Note: attached (Attachment B) are TAN "winter" WQBELs using an assumed winter 7Q10 flow in the Stevens Branch about 2x greater than summer 7Q10 flows, the EPA April 2013 Ambient Ammonia Criteria, and the calculations historically applied by the Agency to derive TAN WQBELs.

Response #3:

We have noted your comment on winter 7Q10 flow and the DEC Hydrologist calculated a Winter 7Q10 and a Winter 30Q10 for the Stevens Branch (See Response #2), which was used to derive TAN Limits for the winter season for both acute and chronic criteria. The draft Permit, Fact Sheet and Reasonable Potential Analysis have been revised accordingly.

Comment #4:

Total Ammonia Nitrogen

Condition I.A.1 Page 2 Effluent Limitations of the draft permit, contains a TAN "Weekly Average" effluent limitation based a 30Q10 flows. The Vermont Water Quality Standards (Section 3-29A-303.7.C.i.) are binding on the Agency and this Section mandates the Secretary to use 7Q10 flows and derive acute and chronic effluent limitations. Therefore the Agency has no authority to establish this limitation. This limitation has no legal basis and must be removed from the draft Permit. In addition the derivation of this limit is highly questionable since it exceeds the "Instantaneous Maximum" limitation which is nonsensical since "average limits" are always less than Instantaneous Maximum or Maximum Day limitations since those limitations are designed to protect a receiving water from a "worst case" acute discharge of a pollutant.

Response #4:

Pursuant to Appendix C of the Vermont Water Quality Standards, the ammonia criteria for the protection of aquatic biota are to be derived using the "EPA April 2013 water quality criteria document for Ammonia," which bases the total ammonia nitrogen chronic limits upon a "30-day rolling average." Therefore, 30Q10 is the appropriate flow for establishing the TAN limits, and the Weekly Average effluent limitation has been removed from the permit.

Comment #5:

Total Ammonia Nitrogen

Condition I.A.1 Page 2 Effluent Limitations of the draft permit, the "Monthly Average" Mass (lbs/day) TAN effluent limitation is specified as 14.8 mg/ l, a concentration value.

Response #5:

This typographical error has been corrected and a new limit has been established.

Comment #6:

Total Ammonia Nitrogen

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. Therefore the Town must comply with both the mass limit and the concentration limit, whichever is more restrictive. Unlike BOD and TSS (see 40 CFR 133.102) there are no mandated federal concentration "technology based effluent limitations" (TBELs) for TAN and unlike phosphorus (see 10 VSA 1266.a) there is no state mandated concentration TBEL for TAN. Therefore since the TAN effluent limits in the draft permit are "water quality based effluent limitation" (WQBELs), the requirement to meet an effluent concentration limit once a mass limitation is established is not necessary to ensure compliance with the ambient instream TAN water quality criteria and is overly restrictive to the operation of the Town's WWTF at less than the permitted flow. 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 derived based on the pollutant's ambient instream water quality criterion, the instream waste concentration (IWC) of the discharge at the permitted flow and the applicable stream flow conditions (7Q10) and converted into a mass limit (lbs/day) In other words, the assimilative capacity of the receiving water (based on the stream flow, permitted discharge volume, and ambient instream pollutant criterion) is determined. Next an effluent concentration limitation necessary to comply with that assimilative capacity, based on the IWC at the permitted flow, is derived. Then this effluent concentration limitation (mg/l) is converted to a mass limitation (lbs/day) by using that effluent concentration, the permitted effluent flow of the facility, and a "pounds conversion factor". Therefore as long as the mass WQBEL (lbs/day) is met, the discharge cannot cause an exceedance of the ambient instream water quality criteria (aka instream assimilative capacity) regardless of the flow of the facility. Requiring the Town to meet a concentration limit, based on the permitted flow of the WWTF, when the actual flow is less than the permitted flow is overly restrictive. At less than the permitted flow, a discharge can have a higher concentration and comply with the mass limitation and therefore not cause an exceedance of the ambient instream criteria for TAN. The Town is requesting that the TAN effluent concentration limitation (mg/l) be eliminated from the draft permit or replaced with a "monitor only" requirement. 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, Town of Stowe WWTF, Town of Shelburne #2 WWTF, Cold Brook Fire District WWTF, and other permits.

Response #6:

The Agency agrees that monthly and weekly average concentration limits are not necessary to ensure compliance with water quality standards and therefore, the monthly and weekly average concentration limits have been removed from the permit.

Comment #7:

Total Ammonia Nitrogen

The TAN Instantaneous Maximum concentration effluent limitation in Condition I.A.1 should be converted to a mass limitation (lbs/day) and applied as a Maximum Day limitation. Unlike chlorine or E.coli which can instantly change in an effluent when a disinfection or dechlorination system malfunctions, TAN is a 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 several hours or more to occur even under a worst case scenario. Consequently a Maximum Day limitation is applicable for this pollutant. Also conversion of this limitation to a "Maximum Day" WQBEL mass limitation (lbs/day) ensures operational flexibility at the WWTF and will not result in a violation of the instream 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, Town of Stowe WWTF, Town of Shelburne #2 WWTF, Cold Brook Fire District WWTF, and other permits.

Response #7:

The Agency agrees that a maximum day effluent limitation is required and therefore, has added such limitations to the permit, but the Agency has also maintained instantaneous maximum concentration limits. The 2013 EPA Ammonia Criteria include acute and chronic criteria to be protective of aquatic biota in the receiving waters. 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 #8:

Total Ammonia Nitrogen

TAN influent concentrations at WWTFs are significantly lower than the "Winter Maximum Day" TAN WQBELs derived in Attachment B. Therefore this limitation should be removed since there is not a reasonable potential for the effluent to contain TAN that would exceed this limitation.

Response #8:

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

Comment #9:

Phosphorus Optimization Plan

Condition I.B.2. references a "tertiary" phosphorus removal system. The phosphorus removal system installed at this WWTF is a simple chemical addition system designed to remove phosphorus via a chemical binding and precipitation process. This phosphorus removal technology has been in use for decades at aerated lagoon WWTFs and is not a "tertiary" phosphorus removal system. The draft permit and Fact Sheet must be revised accordingly.

Response #9:

The permit and fact sheet have been amended to reflect this.

Comment #10:

Phosphorus Optimization Plan

Condition I.B.2 requires the submittal of a POP to the Agency by no later than December 1, 2017. Construction of the phosphorus removal system at the WWTF has only recently been completed and the system is not yet in operation. Since this an aerated lagoon WWTF with over 1.5 months of detention time, requiring the POP to be submitted by December 1, 2017 is not realistic. When the detention time in the WWTF is considered, it will take several months for the initial chemical dosing and subsequent adjustments of the phosphorus treatment system to optimize the phosphorus removal to be measured in the effluent. Also as the water temperatures increase in the treatment lagoons during the summer, the settling properties of phosphorus can be impacted and further adjustments may be necessary to ensure phosphorus removal optimization during the summer. Therefore submission of the POP should be required by no later than September 30, 2018 to provide adequate time for system start-up, the adjustment of the new system to optimize phosphorus removal, and to determine any adjustments needed to optimize the system during all operational conditions.

Response #10:

The permit has been amended to reflect the requested submittal date.

Comment #11:

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 #11:

Condition I.B.2.b. has been amended to read: "The Secretary shall review the POP. The Permittee shall commence implementation of the POP 60 days after submittal to the Secretary, unless the Secretary rejects the POP prior to that date for failure to meet the requirements of subsection (a) of this section."

Comment #12:

Whole Effluent Toxicity (WET) Testing

WET tests are extremely costly, over $2,000 per test, and the number of connections to this system is very small (about 300). The Town recent just spent approximately 2.01 million dollars to upgrade the WWTF to remove phosphorus and relocate the outfall to the Stevens Branch which has much more capacity to assimilate this discharge than the unnamed tributary of Rouleau Brook which previously received this discharge. Due to the relocation of the outfall the summer IWC has been reduced from 55% to 14%. In addition the aeration treatment process at the WWTF has been significantly upgraded twice over the past 7 years. Therefore the results of the previous WET tests conducted on this discharge are no longer representative of the impacts or quality of this discharge. Based on the lower IWC in the new receiving water and improvements at the WWTF, the potential for this discharge to cause or contribute to instream toxicity has been significantly reduced. Therefore, the requirement to conduct WET tests in winter of 2020 and the summer of 2021 should be eliminated from Condition I.F.1.a. and b. and a clause added to this condition authorizing the Agency to require additional WET tests to be done if the WET tests conducted in the winter of 2018 or the summer of 2019 indicate that this discharge causes or has a reasonable potential to contribute to toxicity in the new receiving water (Stevens Branch). Since this facility is less than 1.0 MGD, Federal Regulations, 40 CFR 122.21.j.5.ii, specifically grants the Agency flexibility to establish or eliminate WET testing for minor WWTFs (less than 1.0 MGD) based on the properties of receiving water and users in the collection system. In addition, the State of Vermont has been delegated by EPA to implement the NPDES program and the Vermont Toxic Discharge Control Strategy, incorporated by reference into the Vermont Water Quality Standards, recognizes this approach. Williamstown has no Categorical Industrial Users (CIUs) or Significant Industrial Users (SIUs). Nearly all the users of this WWTF discharge domestic sewage and the largest user on the system is a school. The Agency has used this procedure in many other NPDES discharge permits to gather data on the potential toxicity of other similar discharges including the recent Cavendish WWTF and Jacksonville WWTF discharge permits without overburdening a small municipality with possibly excessive, unnecessary, and repetitive analytical costs.

Condition I.F.1.b requires both a WET test for 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. As part of the WET test procedure the dilution water, replenishment water, and the control water for the WET test is collected from the receiving water. Since high flows in the Stevens Branch and spring thaw conditions occur in March and April, the quality of the dilution, replenishment, and control water will be significantly degraded due to the high runoff conditions and nonpoint source pollutants in the receiving water. This can easily compromise the accuracy of the WET test, causing inconclusive test results due to effects not attributed to the WWTF's effluent. Then additional WET tests will need to be conducted in an attempt to obtain valid test results which would be very costly to the Town. Modifying this Condition to require these WET tests be conducted in January or February when runoff conditions are minimal would avoid this issue.

Response #12:

The Agency agrees and, consistent with the Vermont Toxic Discharge Control Strategy, the permit has been amended to reflect the requested changes.

Comment #13:

Settleable Solids collection

The collection time for Settleable Solids specified in Condition I.G.2 (10:00 AM to 2:00 PM) should be eliminated or modified to 6:00 AM to 6:00 PM. The Williamstown WWTF is an aerated lagoon facility with over 1.5 months of detention time. 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 #13:

The Agency agrees, and the permit has been amended accordingly.

Comment #14:

Ammonia Sampling

Condition I.G.2. requires Ammonia sampling once per month and once per year. This discrepancy must be corrected.

Response #14:

This has been corrected.

Comment #15:

Influent Total Phosphorus Sampling

Condition I.G.4 does not contain a requirement to sample, analyze, or report Influent Total Phosphorus. Without Influent Total Phosphorus data, it is not possible for the Agency or the Town to assess the efficiency of the POP required by Condition I.B.2. or the PERP required by Condition I.B.3. 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 #15:

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 #16:

Reasonable Potential Determination (RPA)

Ammonia Monitoring: The methodology used by the Agency to assess the ammonia discharged from this WWTF and its potential instream impact does not acknowledge the effects of ammonia at various instream water temperatures and the variation in the ammonia in the WWTF effluent

due to the seasonal conditions effecting the nitrification/denitrification process and is significantly flawed.

Instream ammonia toxicity is directly correlated to temperature. Receiving waters are the most sensitive to ammonia during the summer due to ammonia toxicity being the most severe at high stream temperatures and the lowest 7Q10 stream flow conditions which occur in late summer. Receiving waters are much less sensitive to ammonia during winter conditions due to the lower stream temperatures causing less ammonia toxicity and the higher winter 7Q10 stream flow conditions.

Ammonia removal at aerated lagoon WWTFs is also directly correlated to temperature. It is common wastewater treatment knowledge that ammonia removal at aerated lagoon WWTFs is highly dependent on the water temperatures in the lagoons stimulating the nitrification/denitrification process necessary to remove ammonia. Specifically during warmer temperatures ammonia removal at aerated lagoons is significantly higher and the ammonia concentration in the effluent significantly lower due to optimum conditions for nitrification/denitrification. Therefore aerated lagoon WWTF effluent ammonia will be lowest in the summer and highest in the winter.

The methodology used by the Agency in the RPA did not include these factors. Instead, the RPA used an average of all the ammonia data collected on this discharge throughout the year and compared that value to the ambient instream ammonia criteria based on high summer water temperatures and the low summer 7Q10 flows. This scenario can never physically occur. When "worst case" summer stream conditions occur, the ammonia in WWTF effluent is at its lowest concentrations since maximum nitrification/denitrification in the WWTF treatment process also occurs during the summer. Therefore including ammonia effluent data collected during the winter to assess the potential for this discharge to cause ammonia toxicity during worst case summer stream conditions creates a statistical bias by artificially inflating the ammonia effluent concentrations above the actual ammonia effluent concentrations discharged during the summer when the highest stream temperatures and the lowest 7Q10 conditions occur and therefore is flawed.

An accurate scientifically based methodology for assessing the potential for the ammonia in a WWTF discharge to violate the ambient water quality ammonia criteria must incorporate the summer and winter conditions receiving water and the summer and winter variations of ammonia in the WWTF effluent due to temperatures impacting the nitrification/denitrification process.

Specifically for the summer, the RPA should use the average effluent ammonia concentration that occurs during the summer (June through September) when nitrification/denitrification is being maximized in the WWTF treatment process, the "summer" ambient instream stream ammonia criteria based on the receiving water temperature and pH during the summer, and the receiving water summer 7Q10 flows.

For the winter, the RPA should use the average effluent ammonia concentration that occurs during the winter (October through May) when ammonia removal is the lowest at the WWTF, the "winter" instream stream ammonia criteria based on the receiving water temperature and pH during the winter, and the receiving water winter 7Q10 flows.

The RPA must be revised to accordingly.

Response #16:

We have noted your comment on winter 7Q10 flow and the DEC Hydrologist has calculated a Winter 7Q10 and a Winter 30Q10 for the Stevens Branch (See Response #2) which was used to derive TAN Limits for the winter season for both acute and chronic criteria. The draft Permit, Fact Sheet and Reasonable Potential Analysis have been revised accordingly.

Comment #17:

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 reissued for public comment to allow the Town and other interested parties to review and comment on these documents before the "revised draft permit" is issued as a "final effective permit".

Response #17:

The Agency believes the comments received have been sufficiently addressed, that the changes made were to correct errors on the part of the Agency, and therefore, will not reissue the draft for public comment.

ATTACHMENT A

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August 7, 2017

Agency of Natural Resources
VT Dept. of Environmental Conservation
Watershed Management Division
1 National Life Drive, Main Building, 2nd Floor
Montpelier, VT 05620-3522

Sent via email to: ANR.WSMDWastewaterComments@vermont.gov

Re: CLF Comments on Draft NPDES Permit 3-1176 (Williamstown WWTF)

Dear Watershed Management Division:

Conservation Law Foundation ("CLF") appreciates the opportunity to comment on the proposed draft National Pollutant Discharge Elimination Permit No. 3-1176 for the Williamstown Wastewater Treatment Facility ("WWTF") ("draft Permit"). Founded in 1966, CLF is a member-supported environmental advocacy organization that works to solve the challenges threatening our natural resources and communities in Vermont and throughout New England. CLF is deeply engaged with finding lasting solutions to the water quality problems in Vermont's waterways.

For the reasons set forth below, the draft Permit violates the Clean Water Act ("CWA") because it fails to assure attainment of water quality standards in the receiving waters.[1] As this comment letter addresses in further detail below, ANR must impose conditions in the Permit that assure compliance with water quality standards.

Introduction

Lake Champlain is an economic engine that drives a multi-million dollar tourist economy, bolsters real estate prices, provides public drinking water, and serves as an international recreational resource. Unfortunately, total phosphorus pollution to the Lake is 34 percent higher than the maximum loading capacity established by the 2016 Lake Champlain Phosphorus Total Maximum Daily Load ("TMDL"). As a result, its degraded water quality consistently violates the Vermont Water Quality Standard for phosphorus.

[1] 33 U.S.C. §§ 1311(b)(1)(C), 1342(a)(2)(The "Administrator shall prescribe conditions for such permits to assure compliance with the requirements of paragraph (1) [incorporating § 1311]").

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Section 1311(b)(1)(C) of the CWA requires that National Pollutant Discharge Elimination System ("NPDES") permits include any more stringent limitation necessary to achieve water quality standards. Accordingly, the NPDES regulations require the permitting authority to follow a process for developing WQBELs at each permit issuance, imposing limitations on discharges that would otherwise cause or contribute to a violation of water quality standards.[2] In other words, the CWA compels ANR to tailor the WQBELs and conditions contained in permits such as this one to the exigencies of this pressing pollution problem in Vermont's crown jewel water resource.[3]

I. The Draft Permit Fails to Assure Discharges are in Compliance with Water Quality Standards

ANR has a statutory duty to impose conditions in NPDES permits that assure compliance with water quality standards. 33 U.S.C. § 1311(b)(1)(C). The Supreme Court recognized that "section 301(b)(1)(C) expressly identifies the achievement of state water quality standards as one of the [Clean Water] Act's central objectives." Arkansas v. Oklahoma, 503 U.S. 91, 106 (1992); accord Dubois v. U.S. Dep't of Agric., 102 F.3d 1273, 1301 n. 34 (1st Cir. 1996) (recognizing that EPA is "bound to include in the federal permit 'any more stringent limitations . . . established pursuant to any State law or regulations'") (citations and internal quotations omitted).

This same requirement is contained in EPA's regulations implementing section 301(b)(1)(C). 40 C.F.R. § 122.4(a) ("No permit may be issued (a) When the conditions of the permit do not provide for compliance with the applicable requirements of CWA, or regulations promulgated under CWA."). In fact, EPA's regulations require that WQBELs must be set to eliminate even the "reasonable potential" that a NPDES permitted discharge will cause or contribute to violation of water quality standards.[4]

Here, the conditions in the Williamstown draft Permit still permit phosphorus discharges to a phosphorus-impaired water body. This is in direct conflict with the requirements stated above. The CWA does not require discharges merely be reduced—rather, the Act requires permits to contain conditions that guarantee water quality standards are met. ANR is failing to eliminate any "reasonable potential" that Lake Champlain is not meeting water quality standards with this draft Permit. While a condition of "no phosphorus discharges" would be the safest way to ensure CWA compliance, it is conceivable that a NPDES permit could comply with this CWA provision if it required phosphorus load to be reduced to limit-of-technology and required offsets.

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[2] 40 C.F.R. § 122.44(d)(1)(i).

[3] 33 U.S.C. § 1311(b)(1)(C), 1313(c)(2)(A); 40 C.F.R. § 122.44(d).

[4] 40 C.F.R. § 122.44(d)(1)(NPDES permits must include conditions that "achieve water quality standards established under section 303 of the CWA."); Id. § 122.44(d)(1)(i) (requiring that when a discharge causes, has reasonable potential to cause, or contributes to a WQS violation, the NPDES permit must contain a water quality-based effluent limitation to control the pollutant of concern.).

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II. The Williamstown WWTF May Discharge Additional Phosphorus in the Future Once Assimilative Capacity Becomes Available

CLF is confident that the nonpoint source reduction actions contained in the TMDL Implementation Plan will lead to reductions from nonpoint sources and non-NPDES regulated point sources, thus creating more assimilative capacity in the Lake. But it is common understanding that those reductions will take time to occur. Former Governor Peter Shumlin made the following declaration in June 2015 on the day that he signed the Vermont Clean Water Act to help implement the TMDL: "Our problem in my view will not be a lack of financial resources. Our problem will be once we have taken the actions that need to be taken, it still is going to take time to see results."[5]

Once phosphorus load reductions are observed from the nonpoint source and non-NPDES regulated point source sectors, the necessity of offsets could be revisited. Rather, ANR could disperse incremental additional access to phosphorus discharge capacity through interim WQBELs contained in revised permits issued either annually, or over the five-year permit cycles. WWTFs could access additional increments of their WLA in step fashion based on two factors: (1) a demonstration of need that identifies the actual discharge (load) required to serve realistically near-term projected demand; and (2) a demonstration of available assimilative capacity achieved through verified load reductions from nonpoint sources in the same lake segment. The demonstration of need would be calculated based on a similar projection method referred to in the draft Permit section 1(A)(5). Available assimilative capacity would be measured with the assistance of ANR's BMP Tracking and Monitoring Tool.

This permitting scheme would go against the general rule that effluent limits decrease with each permit renewal cycle.[6] However, EPA regulations provide an exception to this general rule:

> "A permit may be renewed, reissued, or modified . . . to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit . . . [i]f information is available which was not available at the time of permit issuance . . . and which would have justified the application of a less stringent effluent limitation at the time of permit issuance."[7]

[5] Wilson Ring, *New Vermont Law Means Millions to Clean Lake Champlain*, June 16, 2015, THE WASHINGTON TIMES, http://www.washingtontimes.com/news/2015/jun/16/upcoming-vermont-law-means-millions-to-clean-lake-/ (emphasis added).
[6] 40 C.F.R. § 122.44(l) ("[W]hen a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit . . . .").
[7] 40 C.F.R. § 122.44(l)(2)(i)(B)(1) (emphasis added).

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The exception above would apply to the situation at hand. In five years (or less as the situation may be), when ANR is reissuing the WWTF permits, new information will be available pertaining to the success (or lack thereof) of the anticipated nonpoint source reduction programs. For instance, if after five years, ANR's TMDL Tracking and Accounting Database indicates that a certain amount of load reductions have indeed occurred from nonpoint sources, then this information could be used to in part justify the issuance of a less stringent effluent limitation in the next permit iteration. It is worth noting, however, that any increase in the effluent limit must be at least equal to (or less than) parallel load reductions from the nonpoint source sector in the relevant lake segment. This minimum degree of correlation is necessary to avoid any backsliding problems.[8]

Conclusion

The CWA embodies a national recognition that clean water is the fundamental building block of human survival and prosperity. Its purpose, therefore, is to protect and restore clean water so that it meets minimum water quality standards established by federal and state authorities to ensure that the water will fully serve all of society's needs without delay. The CWA requires regulators to use NPDES permits in conjunction with TMDLs to achieve that purpose. Distilled to their essence, the CWA's rules require ANR to confront the present-day pollution realities when it develops necessary discharge limits during a permit issuance or renewal.

CLF has no doubt the load reductions set out in the TMDL will occur. But the operative word is "will." Indeed, as EPA phrased it, "numerous elements combine [in the TMDL] to provide robust assurance that the necessary load reductions will occur and will achieve sufficient phosphorus reductions to meet the specified load allocations."[9] For now, Lake Champlain is impaired for phosphorus and cannot handle more discharges without a violation of that water quality standard. So in order to comply with the Clean Water Act's requirement that NPDES permit conditions eliminate even the "reasonable potential" that a discharge will cause or contribute to a violation of water quality standards, ANR must revisit this draft Permit's conditions.[10] At present, the conditions do not represent limit-of-technology, nor are any offsets required.

Lake Champlain cannot handle any more pollution, and this is why we have collectively spent the last decade crafting a plan (collectively, the TMDL and the Implementation Plan) that will bring the Lake back to attainment of Water Quality Standards. But this draft Permit does not embody that plan. As Judge Durkin wrote in the Montpelier decision, "A TMDL is meant to be a

[8] 40 C.F.R. § 122.44(l)(2)(ii) ("In no event may such a permit to discharge into waters be renewed, issued, or modified to contain a less stringent effluent limitation if the implementation of such limitation *would result in a violation of a water quality standard* under section 303 applicable to such waters.") (emphasis added).
[9] TMDL, pg. 49 (emphasis added).
[10] 40 C.F.R. § 122.44(d)(1)(i).

safety net."[11] The WQBEL in this draft Permit distorts this intended purpose and transforms the TMDL into a launching pad for continued phosphorus pollution into the Lake for decades to come.

* * *

Thank you for the opportunity to comment on this draft Permit. CLF urges ANR to make the changes suggested above in order to bring the draft Permit into alignment with CWA requirements. We welcome further discussion with you to create specific permit conditions that address our concerns.

Sincerely,

Elena Mihaly, Esq.
Staff Attorney
Conservation Law Foundation

[11] In re Montpelier, slip op. at 22.

ATTACHMENT B

I. Selection of Reference Stream Gage:

The drainage area calculated at the Williamstown WWTF discharge point on the Stevens Branch is 15.7 square miles. Neither a current nor historic streamflow dataset is available for this waterbody upon which site-specific low flow frequency statistics can be calculated. There are, however, several mostly unregulated streamflow gages with suitable records and neighboring watersheds of similar nature to that of Stevens Branch: Dog River at Northfield Falls (gage ID 04287000), Ayers Brook at Randolph (gage ID 01142500), and East Orange Branch at East Orange, VT (gage ID 01139800). Low-flow characteristics of a stream are influenced by a variety of watershed geoclimatic factors, including drainage area, geology, topography, land use and precipitation. Watershed characteristics as derived from USGS StreamStats and the Vermont ANR Atlas are very similar for each watershed (Table 1). A low-flow frequency analysis was conducted on each of the three surrogate gage datasets individually, and their values averaged due to some minor variation in drainage area and proximity to the Williamstown facility. Drainage area generally has the strongest correlation with absolute values of low-flow, and is most strongly the case when comparing different watersheds where topography, geology, and climate are relatively constant. Geological characteristics often exert an influence on low-flow regime even when differences are relatively minor (Hayes, 1991; Flynn, 2003). Unfortunately, a detailed study of geological characteristics most closely related to low-flows does not exist for this region. However, given the excellent proximity and very similar surface and climatic watershed characteristics it is prudent to apply and scale unit-area flow statistics calculated from these surrogate gages, which is likely to provide a much better representation than statewide averages that would otherwise be applied. Drainage area differences are partially accounted for by calculating low-flow statistics on a unit-area basis and scaling to the drainage area at the ungaged site of interest.

Table 1: watershed geoclimatic characteristics of Williamsville WWTF on Stevens Branch and three USGS surrogate gages.

Characteristic	Stevens Branch @ WWTF outfall	Dog River at Northfield Falls, VT	Ayers Brook at Randolph, VT	East Orange Branch at East Orange, VT
Location relative to WWTF	-	Approx. 6.4 mi. NW	Approx. 14.8 mi. S-SW	Approx. 10.1 mi. E-SE
Period of record	none	1934 - present	1958 - present	1939 - present
Drainage Area ($mi.^2$)	15.7	76.1	30.5	8.9
Percentage of water bodies and wetlands determined from the NLCD 2006	0.7	0.9	1.2	0.2
Basin average mean annual precipitation (in.) for 1981 to 2010 from PRISM	41.8	45.3	43.2	45.4
Percentage of basin at or above 1200 ft elevation as determined in USGS StreamStats.	71.1	74.7	65	100
Percentage of developed (urban) land from NLCD 2011 classes 21-24	8.9	5.4	6.6	2.4
Average percentage of impervious area determined from NLCD 2011 impervious dataset	2.1	1.1	1.1	0.2
Deciduous Forest, percent determined from NLCD 2011	24.6	40.0	35.8	59.6
Evergreen Forest, percent determined from NLCD 2011	14.0	9.0	14.4	5.3
Mixed Forest, percent determined from NLCD 2011	21.5	35.0	20.9	28.4
Shrub/Scrub, percent determined from NLCD 2011	2.5	1.8	2.3	1.8
Hay/Pasture, percent determined from NLCD 2011	13.6	4.3	11.1	-
Cultivated Crops, percent determined from NLCD 2011	12.3	1.7	6.3	1.7
Woody Wetlands, percent determined from NLCD 2011	1.6	1.2	1.8	0.9

II. Statistical Methods:

The low-flow statistics for each of the three USGS streamflow datasets were calculated using the HEC-SSP statistical program, as were all statistics for all other gages used to determine low-flow statistics. Methods were applied following the guidance in Riggs (1972). Observed annual minimum flows for selected durations (7 and 30 days) and within three seasons (November – April; May – June; July – October) were fitted to a Pearson Type III distribution using log transform, with skew applied as calculated from station data. A Weibull plotting position was specified. A hydrological year beginning May 1st was defined so as to avoid minimum periods spanning two sequential years or seasons. Review of the analytical plot of low-flow frequencies confirmed that the distribution fit observed data well. The period of record included in the analysis was the full record through April 2012 (the period of approved data at the time the most recent comprehensive review and analysis of gaged streamflows, as they relate to low-flow frequency statistics of WWTF receiving waterbodies, in 2013). Similar statistical methods for low-flow frequency analysis were used in a previous iteration of analyses conducted by the U.S. Geological Survey in 2006. The resulting flow statistics where scaled by the drainage area for each USGS gage and their arithmetic means in cfs/mi.^{2} was multiplied by the drainage area of 15.7 square miles at the Williamsville WWTF to get final flows for use in permitting.

III. Results

Results are summarized below, with raw HEC-SSP reports available upon request. Dividing the streamflow values in cfs by the gaged drainage area gives you flows in cfs/mi.^{2}, which can then be multiplied by the drainage area at the site of interest to get expected flows in cfs for that location.

Tables 2 – 8: Low-flow frequency statistics for three USGS surrogate gages and as averaged and applied to Williamsville WWTF location on Stevens Branch.

Nov-Apr	DA (sq. mi.)	7Q10 (cfs)	30Q10 (cfs)	7Q10 (csm)	30Q10 (csm)
Dog River at Northfield Falls (04287000)	76.1	18.81	25.27	0.25	0.33
Ayers Brook at Randolph (01142500)	30.5	7.85	10.28	0.26	0.34
East Orange Branch at East Orange, VT (01139800)	8.9	2.23	2.82	0.25	0.32
Average:				0.25	0.33

Jul-Oct	DA (sq. mi.)	7Q10 (cfs)	30Q10 (cfs)	7Q10 (csm)	30Q10 (csm)
Dog River at Northfield Falls (04287000)	76.1	7.65	9.86	0.10	0.13
Ayers Brook at Randolph (01142500)	30.5	2.1	3.09	0.07	0.10
East Orange Branch at East Orange, VT (01139800)	8.9	0.67	1.13	0.08	0.13
Average:				0.08	0.12

May-Jun	DA (sq. mi.)	7Q10 (cfs)	30Q10 (cfs)	7Q10 (csm)	30Q10 (csm)
Dog River at Northfield Falls (04287000)	76.1	19.56	32.76	0.26	0.43
Ayers Brook at Randolph (01142500)	30.5	8.29	15.22	0.27	0.50
East Orange Branch at East Orange, VT (01139800)	8.9	3.34	6.79	0.38	0.76
Average:				0.30	0.56

Final at Williamstown Outfall	7Q10 (csm)	30Q10 (csm)	7Q10 (cfs at outfall)	30Q10 (cfs at outfall)
Nov-Apr	0.25	0.33	3.95	5.16
Jul-Oct	0.08	0.12	1.28	1.87
May-Jun	0.30	0.56	4.73	8.86

References

Flynn, R.H., 2003, Development of Regression Equations to Estimate Flow Durations and Low-Flow Frequency Statistics in New Hampshire Streams: U.S. Geological Survey Water-Resources Investigations Report 02-4298, 99 p.

Hayes, D.C., 1991, Low-flow characteristics of streams in Virginia: U.S. Geological Survey Water-Supply Paper 2374, 69 p.

Riggs, H.C., 1972, Low-Flow Investigations: Techniques of Water-Resources Investigations of the United States Geological Survey, Book 4, Ch. B1, 23 p.