

**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.: 3-1304
PIN: EJ94-0011
NPDES No.: VT0100820

Name of Applicant: Town of Shelburne
PO Box 392
Shelburne, VT 05482

Expiration Date: December 31, 2022

DISCHARGE PERMIT

In compliance with the provisions of the Vermont Water Pollution Control Act as amended (10 V.S.A. Chapter 47), the Vermont Water Pollution Control Permit Regulations as amended (Environmental Protection Rules, Chapter 13), and the federal Clean Water Act as amended (33 U.S.C. § 1251 *et seq.*) and implementing federal regulations, the Town of Shelburne, Vermont (hereinafter referred to as the "Permittee") is authorized by the Secretary of the Agency of Natural Resources (Secretary) to discharge from the Shelburne #2 "Harbor Road" Wastewater Treatment Facility (WWTF) to the McCabes Brook 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 Shelburne #2, Harbor Road WWTF to the McCabes Brook, 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 ⁵	0.66 MGD	Monitor only						
Ultimate Oxygen Demand ⁴				482				
Biochemical Oxygen Demand (5-day, 20° C) (BOD ₅) ⁴			169		30	45	50	
Total Suspended Solids (TSS)		113	169		30	45	50	
Total Phosphorus (TP) June 1 through October 31 ^{1,3,7}	153.9 lbs.	Monitor Only			0.8			
Total Phosphorous (TP) November 1 through May 31 ^{1,3,7}	247.1 lbs.	Monitor Only			0.8			
Total Nitrogen (TN) ²							Monitor Only	
Total Kjeldahl Nitrogen (TKN) ⁴							Monitor Only	
Nitrate/Nitrite Nitrogen (NO _x)							Monitor Only	
Total Ammonia (June 1 – Sept 30) ³		6.3		36.2				6.6
Total Ammonia (Oct 1 – May 31) ³				70.6				27.3
Settleable Solids								1.0 ml/l

Whole Effluent Toxicity, C-NOEC ⁶ (June 1 - September 30)							≥ 89	
Whole Effluent Toxicity, C-NOEC ⁶ (October 1 - May 31)							≥ 70	
<i>Escherichia coli</i>								77/100 ml
pH					Between 6.5-8.5 Standard Units			

¹ 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.

² 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)*

³ The permittee shall operate the facility to meet the concentration limitations or pounds limitation, whichever is more restrictive.

⁴ The Ultimate Oxygen Demand (UOD) limit shall be in effect during the period of June 1 to September 30 each year. In addition, the quantity of BOD and TKN discharged shall be limited such that the discharge does not exceed the UOD limitation or the BOD limitations, whichever is more stringent.

⁵ Monthly average flow calculated by summing daily effluent flow for each day in the given month and dividing the sum by the number of days of discharge in that month.

⁶ C-NOEC is the No-Observed-Effect (chronic)-Concentration of the effluent in a sample.

⁷ Total annual phosphorous is 401 lbs.

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 (BOD₅) and Total Suspended Solids (TSS) in the effluent shall not exceed 15 percent of the monthly average concentrations of BOD₅ and TSS in the influent into the Permittee's WWTF. For the purposes of determining whether the Permittee is in compliance with this condition, samples from the effluent and the influent shall be taken with appropriate allowance for detention times.
5. If the effluent discharged for a period of 90 consecutive days exceeds 80 percent of the permitted flow limitation, the Permittee shall submit to the Secretary projected loadings and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans.
6. The Permittee shall clean the quartz sleeves of the ultraviolet light disinfection system at a frequency that assures that effective disinfection is maintained, and the Permittee shall replace the ultraviolet light disinfection system lamps as necessary to maintain compliance with the *E. coli* limitation.
7. Any action on the part of the Secretary in reviewing, commenting upon, or approving plans and specifications for the construction of WWTFs shall not relieve the Permittee from the responsibility to achieve effluent limitations set forth in this permit and shall not constitute a waiver of, or act of estoppel against any remedy available to the Secretary, the State of Vermont, or the federal government for failure to meet any requirement set forth in this permit or imposed by state or federal law.

B. TOTAL PHOSPHORUS

1. Effluent Limitation for Phosphorus

The US EPA established a waste load allocation (WLA) of 0.182 metric tons per year (401 lbs./yr.) in the 2016 "Phosphorus TMDLs for Vermont Segments of Lake Champlain" (LC TMDL), however, because of the nutrient impairment in McCabe's Brook, a more stringent effluent limitation has been established during the summer months (June 1 through October 31). Due to the nutrient impairment there is a water quality-based effluent limitation (WQBEL) of 153.9 lbs. The winter (November 1 through May 31) limit of 247.1 lbs. is the remainder of the EPA annual WLA limit of 401 lbs. The Secretary reserves the right to reopen and amend this permit, pursuant to Condition II.B.4 of this permit, to include an alternate total phosphorus (TP) limitation or additional monitoring requirements based on the monitoring data or the results of phosphorus optimization activities, or a reallocation of phosphorus wasteload allocations between the Permittee and another WWTF pursuant to the requirements of TMDL and Vermont's "Wasteload Allocation Process" Rule (Environmental Protection Rule, Chapter 17).

2. Phosphorus Optimization Plan

- a) **Within 120 days of permit issuance**, the Permittee shall develop or update (as appropriate), and submit to the Secretary a Phosphorus Optimization Plan (POP) to increase the WWTF's phosphorus removal efficiency by implementing optimization techniques that achieve phosphorus reductions using primarily existing facilities and equipment. The POP shall:
- i. Be developed by a qualified professional with experience in the operation and design of WWTFs in consultation with the WWTF;
 - ii. Evaluate alternative methods of operating the existing WWTF, including operational, process, and equipment changes designed to enhance phosphorus removal. The techniques to be evaluated may include operational process changes to enhance biological and/or chemical phosphorous removal, incorporation of anoxic/anaerobic zones, septage receiving policies and procedures, and side stream management;
 - iii. Determine which alternative methods of operating the existing WWTF, including operational, process, and equipment changes will be most effective at increasing phosphorus removal; and
 - iv. Include a proposed implementation schedule for those methods of operating the WWTF determined to be most effective at increasing phosphorus removal.
- b) The Secretary shall review the POP. The permittee shall commence implementation of the POP 60 days after submittal to the Secretary, unless the Secretary rejects the POP prior to that date for failure to meet the requirements of subsection (a) of this section.
- c) **Plan Evaluation and Reporting.** 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 the permit issuance date to optimize removal of total phosphorus
- (b) If, after the 12-month optimization period, the WWTF's actual, total phosphorus loads reach or exceed 80% of the LC TMDL WLA of 401 lbs./yr. for the WWTF, based on the WWTF's 12-month running annual load calculated using the Running Total Annual Pounds Calculation (Condition I.B.4 of this 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 TP effluent limitation during the permit term.
- (c) If the facility is not projected to exceed its TP effluent limitation within the permit term, the WWTF shall reassess when it is projected to reach its TP effluent limitation prior to permit renewal and submit that information with its next permit application.
- (d) If the facility is projected to exceed its TP effluent limitation during the permit term, the Permittee shall submit a Phosphorus Elimination/Reduction Plan (PERP) within 6 months from the date of submittal of the projection plan submitted under Part I.B.3.b. The PERP shall be submitted to the Secretary to ensure the WWTF continues to comply with its TP effluent limitation.
- (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 TP effluent limitation;
 - ii. An identification of the chosen alternative or alternatives to ensure the WWTF's compliance with its TP effluent limitation;
 - 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 TP effluent limitation 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 DEC.

4. Running Total Annual Pounds Calculation

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

- a) Calculate the average of results for all TP monitoring events conducted in a month (Monthly Average TP Concentrations). 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 Shelburne #2 Harbor Road Wastewater Treatment Facility in the McCabes Brook downstream 1.6 miles (to the confluence of the LaPlatte River and Shelburne Bay).

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 a two-species (*Pimephales promelas* and *Ceriodaphnia dubia*) 48-hour acute and 96-hour chronic WET test on a composite effluent sample collected from S/N 001. During **August or September 2021**, the Permittee shall conduct a one-species (*Pimephales promelas*) 48-hour acute and 96-hour chronic WET test on a composite effluent sample collected from S/N 001. The results shall be submitted to the Secretary by **December 31, 2019 and December 31, 2021**, respectively.
- b) During **January or February 2018**, the Permittee shall conduct a two-species (*Pimephales promelas* and *Ceriodaphnia dubia*) 48-hour acute and 96-hour chronic WET test on a composite effluent sample collected from S/N 001. During **January or February 2020**, the Permittee shall conduct a one-species (*Pimephales promelas*) 48-hour acute and 96-hour chronic WET test on a composite effluent sample collected from S/N 001. The results shall be submitted to the Secretary by **June 30, 2018 and June 30, 2020**, respectively.

The WET tests shall have a limit of No Observed Effect Concentration-Chronic (C-NOEC) at 89% effluent (summer) and 70% effluent (winter), where NOEC is the concentration of effluent in a sample that causes No Observed Effect (i.e. mortality not to exceed 10% of the test organisms in summer) to the test population at the 96-hour (chronic) exposure interval of observation.

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.

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 Shelburne #2 Harbor Road WWTF, according to the following schedule and other provisions:

PARAMETER	MINIMUM FREQUENCY OF ANALYSIS	SAMPLE TYPE
Flow	Continuous	Daily Total, Max., Min.
Ultimate Oxygen Demand (UOD)	1 × weekly	calculated ^{1,4}
Biochemical Oxygen Demand (BOD ₅)	1 × weekly	composite ¹
Total Suspended Solids (TSS)	1 × weekly	composite ¹
Total Phosphorus (TP)	1 × weekly	composite ¹
Total Nitrogen (TN)	1 × quarterly	calculated ^{2,3}
Total Kjeldahl Nitrogen (TKN) ⁷	1 × quarterly	composite ^{1,3}
Nitrate/Nitrite Nitrogen (NO _x)	1 × quarterly	composite ^{1,3}
Total Ammonia	1 × weekly	grab ⁶
Settleable Solids	1 × day	grab ⁶
<i>Escherichia coli</i>	1 × weekly	grab ⁵
pH	1 × day	grab ⁶

Samples collected in compliance with the monitoring requirements specified above shall be collected at the discharge weir prior to effluent entering the outfall.

¹ Composite samples for BOD₅, TSS, TP, TKN, and NO_x shall be taken during the hours 6:00 AM to 6:00 PM, unless otherwise specified. Eight hours is the minimum period for the composite, 24 hours is the maximum for the composite.

² TN = TKN + NO_x

³ Submit results each month on Total Nitrogen Monitoring Report Form WR-43-TN.

⁴ the BOD and TKN analysis must be conducted on the same sample and used to calculate UOD.

⁵ The weekly *E. coli* sample shall be collected between the hours of 6:00 AM and 6:00 PM.

⁶ Grab samples shall be collecting in an alternating manner to be representative of each SBR cell discharge (for example, on Monday, the sample shall be collected as Cell #1 discharges; on Tuesday, the sample shall be collected as Cell #2 discharges; etc.).

⁷ Quarterly except as needed for UOD calculation.

3. Annual Constituent Monitoring

Annually, by December 31, the Permittee shall monitor S/N 001 and submit the results, including units of measurement, as an attachment to the DMR form WR-43 for the month in which the samples were taken for the following parameters:

Temperature
Dissolved Oxygen
Oil & Grease
Total Dissolved Solids

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

The season in which samples are taken shall change chronologically from year to year. The sampling seasons are as follows: Winter (January 1 – March 31), Spring (April 1 – June 30), Summer (July 1 – September 30), and Fall (October 1 – December 31). The first samples under this permit should be taken during the **Fall** season. The second samples should be taken during the Winter, the third in Spring, and so forth in chronological order. For easy reference regarding the season in which sampling is recommended, please refer to the “The Secretary’s Guidance for Annual Constituent Monitoring.”

4. Influent Monitoring

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

PARAMETER	MINIMUM FREQUENCY OF ANALYSIS	SAMPLE TYPE
Biochemical Oxygen Demand (BOD ₅)	1 × month	composite ¹
Total Suspended Solids (TSS)	1 × month	composite ¹
Septage	Daily	Total volume received (gpd)

¹ Composite samples for BOD₅ 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 OR WR-43-TN. 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 Condition I.A of this permit.
- i) For analyses performed by contract laboratories:
 - a. The detection level reported by the laboratory for each sample; and
 - b. The laboratory analytical report including documentation of the QA/QC and analytical procedures.

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

When “non-detects” are recorded, the method detection limit shall be reported and used in calculating any time-period averaging for reporting 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 Condition 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 wastewater treatment facility, sewage pumping stations, and sewer line stream crossings as approved by the Secretary on September 29, 2009.
2. By no later than **December 31, 2018**, the Permittee shall prepare and submit to the Secretary for review and approval, an Operation, Management, and Emergency Response Plan for the sewage collection system. The Plan shall be immediately implemented upon approval by the Secretary. This plan shall comply with the provisions of 10 V.S.A. § 1278, which require:
 - a. Identification of those elements of the facility, including collection systems that are determined to be prone to failure based on installation, age, design, or other relevant factors.
 - b. Identification of those elements of the facility identified under subdivision (a) of this subsection which, if one or more failed, would result in a significant release of untreated or partially treated sewage to surface waters of the State.
 - c. A requirement that the elements identified in subdivision (b) of this subsection shall be inspected in accordance with a schedule approved by the Secretary.
 - d. An emergency contingency plan to reduce the volume of a detected spill and to mitigate the effect of such a spill on public health and the environment.

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

J. EMERGENCY ACTION - ELECTRIC POWER FAILURE

The Permittee shall indicate in writing to the Secretary **within 90 days after the effective 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.

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 of such discharge, 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 $\pm 10\%$.

For purposes of demonstrating compliance with the requirements of Condition II.A.3.a) of this permit regarding adequate laboratory controls and appropriate quality assurance procedures, the Permittee shall conduct an annual laboratory proficiency test (via an accredited laboratory 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 effective 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 requested sooner under Section II.A.2.

10 V.S.A. § 1268 reads as follows:

When a discharge permit holder finds that pollution abatement facilities require repairs, replacement or other corrective action in order for them to continue to meet standards specified in the permit, 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 effective 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.

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

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

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

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

Composite Sample - 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, of a holding tank when the system is cleaned or maintained.

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

Waste – means effluent, sewage or any substance or material, liquid, gaseous, solid, or radioactive, including heated liquids, whether or not harmful or deleterious to waters; provided however, the term “sewage” as used in this permit shall not include the rinse or process water from a cheese manufacturing process.

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

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

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

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

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

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

**FACT SHEET FOR PERMIT
(July 2017)
(Revised December 2017)**

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

PERMIT NO: 3-1304
PIN: EJ94-0011
NPDES NO: VT0100820

NAME AND ADDRESS OF APPLICANT:

Town of Shelburne
PO Box 392
Shelburne, VT 05482

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Shelburne 2 Harbor Road Wastewater Treatment Facility
Harbor Road
Shelburne, Vermont

RECEIVING WATER: McCabes Brook

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 Vermont Agency of Natural Resources (Agency) received a renewal application for the permit to discharge into the designated receiving water from the above-named applicant on July 8, 2009. The Town's permit was issued on January 1, 2005. The previous permit (hereafter referred to as the "current permit") has been administratively continued, pursuant to 3 V.S.A. § 814, as the

applicant filed a complete application for permit reissuance within the prescribed time period as per the Vermont Water Pollution Control Permit Regulations (VWPCPR) § 13.5(b). At this time the Secretary has made a tentative decision to reissue the discharge permit.

The facility is engaged in the treatment of municipal wastewater including domestic, commercial, and industrial wastewaters.

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

II. Description of Discharge

The facility is engaged in the treatment of municipal wastewater including domestic, commercial, and industrial wastewaters. The wastewater treatment facility is a Sequencing Batch Reactor (SBR). The design flow of the facility is 0.66 million gallons per day (MGD) and design BOD loading is 244 mg/l (904 lbs/day). The average flow to the facility over the past few years is about 0.48 MGD.

III. Limitations and Conditions

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

Effluent Limitations:	Page 2-4 of 26
Monitoring Requirements:	Pages 7-12 of 26

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 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 A.

B. Anti-Backsliding

Section 402(o) of the CWA provides that certain effluent limitations of a renewed, reissued, or modified permit must be at least as stringent as the comparable effluent limitations in the previous permit. EPA has also promulgated anti-backsliding regulations which are found at 40 C.F.R. § 122.44(1). 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 McCabes Brook, a designated Warm Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 4.7 square miles. The summer 7Q10 flow of the river is estimated to be 0.08 cubic feet per second (CFS) and the summer Low Median Monthly flow is estimated to be 0.59 CFS.

VTDEC assessment database indicates, that for the McCabes Brook segment to which this facility discharges, this segment of stream is impaired. McCabes Brook is listed in the 2016 303(d) List of Impaired Waters Part A as impaired from the mouth of the brook to River Mile (RM) 1.4, this includes stream segments above and below the WWTF. Nutrients are identified as the pollutant causing the impairment, aquatic life support is the use listed as impaired.

In addition, McCabes Brook drains into Lake Champlain via Shelburne Harbor, 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

An upgrade and expansion of the Shelburne #2 Harbor Road WWTF was completed in April 2003. The treatment facility expanded from 0.45 MGD to treat 0.66 MGD of wastewater. Discharge Permit No. 3-1304 was issued to the Town of Shelburne on September 2, 2004, with an effective date of January 1, 2005.

The WWTF consists of the headworks, two Sequencing Batch Reactors (SBR), filtration and disinfection via Ultraviolet (UV) light. The WWTF provides wastewater treatment capacity for both residential and commercial properties within its service area in the Town of Shelburne.

On July 8, 2009, the Town submitted an application for renewal of their discharge permit. Following is a discussion of the specific factors considered in the permit.

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 0.66 MGD. This facility maintains a constant discharge. Daily flow monitoring is required under the permit.

B. Conventional Pollutants

1. Ultimate Oxygen Demand (UOD)

The UOD limit remains in place from the previous permit. The UOD mass limitation is 482 lbs/day, maximum day, and is effective from June 1st through September 30th of each year. This limitation is based on the assimilative capacity of McCabes Brook. A review of the

monitoring data reported during the past five years indicates that the facility has reliably met this limitation.

UOD is dependent on the quantity of Biochemical Oxygen Demand (BOD₅) and Total Kjeldahl Nitrogen (TKN) in a discharge, as specified in the following equation:

$$\text{UOD (lbs/day)} = [(\text{BOD}_5 \text{ (lbs/day)} \times 1.43) + (\text{TKN (lbs/day)} \times 4.57)]$$

Calculation of the UOD concentration in the discharge is required weekly from the period of June 1st through September 30th. These sampling frequencies are unchanged from the previous permit.

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

2. Biochemical Oxygen Demand (BOD₅)

The effluent limitations for BOD₅ remain unchanged from the current permit. The monthly average (30 mg/L) and weekly average (45 mg/L) reflect the minimum level of effluent quality specified for secondary treatment in 40 C.F.R. § 133.102. In addition, the draft permit contains a 50 mg/L, maximum day, BOD₅ 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 (113 lbs/day, monthly average and 169 lbs/day, weekly average) are calculated using the concentration limits outlined above. The BOD₅ weekly monitoring requirement is unchanged from the current permit.

3. Total Suspended Solids (TSS)

The effluent limitations for TSS remain unchanged from the current permit. The monthly average (30 mg/L) and weekly average (45 mg/L) reflect the minimum level of effluent quality specified for secondary treatment in 40 C.F.R. § 133.102. In addition, the draft permit contains a 50 mg/L, maximum day, TSS limitation. This is the Agency standard applied to all such discharges pursuant to 13.4(c) of the Vermont Water Pollution Control Permit Regulations. The Secretary implements the limit to supplement the federal technology based limitations to prevent a gross one-day permit effluent violation to be offset by multiple weekly and monthly sampling events which would enable a discharger to comply with the weekly average and monthly average permit limitations. Mass limits (113 lbs/day, monthly average and 169 lbs/day, weekly average) are calculated using the concentration limits outlined above. The TSS weekly monitoring requirement is unchanged from the current permit.

4. *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, weekly monitoring is required.

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. Monitoring remains at daily.

6. pH

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

C. 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 current discharge permit for this Facility included a mass-based, effluent limit of 1095 pounds of TP per year. This annual mass limitation was based on an allocation of 0.49 metric tons established in the 2002 Lake Champlain Phosphorus TMDL. The current permit also contained an effluent TP concentration limit of 0.8 mg/L, monthly average, consistent with the annual load limit.

This proposed draft permit contains a phosphorous effluent concentration limit of 0.8 mg/l, monthly average, and a mass effluent limit of 401 total annual pounds, which equates to 0.1995mg/L at the design capacity. There is a seasonal limitation for the months of May through October which is due to the nutrient impairment to McCabe's Brook and the need to establish an appropriate water quality-based effluent limitation (WQBEL). The TP effluent of 153.9 lbs. was derived using the EPA 1986 Water Quality Criteria (Gold Book) Phosphorus criterion. The concentration effluent limitation of 0.8 mg/L is based on the requirements of 10 V.S.A. § 1266a and is unchanged from the current permit. The LC TMDL allocated 0.182 metric tons per year or 401 pounds per year to the Shelburne 2 Harbor Road WWTF.

The annual WLA represents a 68% reduction (-744 pounds) from the current and is equivalent to setting the effluent TP limit at 0.1995 mg/L at the design capacity of the WWTF (0.66 MGD). The LC TMDL limit was equivalent to setting the effluent TP limit at 0.20 mg/L. To convert units of the WLA from metric tons to pounds, the following equation was used and the resulting WLA rounded down to the nearest pound:

$$(0.182 \text{ mt/yr}) (2204.62\text{lbs/mt}) = 401 \text{ lbs/yr}$$

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, the permit must also include a monthly average concentration limit for phosphorus. While the effluent limitation in the permit was calculated based on a TP effluent concentration of 0.1995 mg/L, the permit does not include 0.1995 mg/L as the concentration effluent limitation because a permittee may not need to achieve 0.1995 mg/L to ensure compliance with the annual mass-based limit. Rather the permit includes a monthly average concentration limit for phosphorus of 0.80 mg/L to ensure compliance with state law and to recognize seasonal variations in the facility's discharge. It is important to note that because the annual mass load and average monthly concentration limits are not mathematically consistent in the permit, meeting a 0.8 mg/L concentration limit at design flows will not result in meeting the annual mass limit.

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

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

Condition I.H of this draft permit requires the submission of monitoring reports to the Secretary specific to tracking TP in the discharge. Monthly reporting of total monthly pounds, running total annual pounds, and a comparison (%) of running total annual pounds to the annual permit limitation shall be submitted monthly via electronic discharge monitoring report. 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 permit issuance, the permittee shall develop or update (as appropriate), and submit to the Secretary, a Phosphorus Optimization Plan (POP) to increase the WWTF's phosphorus removal efficiency by implementing optimization techniques that achieve phosphorus reductions using primarily existing facilities and equipment. The techniques to be evaluated may include operational process changes to enhance biological and/or chemical phosphorous removal, incorporation of anaerobic/anoxic zones, septage receiving policies and procedures, and side stream management.

The facility shall have 12 months from the permit issuance date to optimize removal of total phosphorus. If, after the 12-month optimization period, the WWTF's actual TP loads reach or exceed 80% of the LC TMDL WLA (401 lbs.) 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. Upon Secretary approval of the PERP, the PERP shall become an enforceable condition of the permit.

2. Total Nitrogen (TN)

To gather data on the amount of Nitrate/Nitrite (NO_x) and Total Nitrogen (TN) in this discharge and its potential impact on the receiving water, a quarterly "monitor only" requirement for NO_x 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 (NO_x) Nitrogen, and, shall be reported as pounds, calculated as:

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

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

Per EPA, excess nitrogen (N) and phosphorus (P) are the leading cause of water quality degradation in the United States. Historically nutrient management focused on limiting a single nutrient—phosphorus or nitrogen—based on assumptions that production is usually phosphorus limited in freshwater and nitrogen limited in marine waters. Scientific research demonstrates this is an overly simplistic model. The evidence clearly indicates management of both phosphorus and nitrogen is necessary to protect water quality. The literature shows that aquatic flora and fauna have differing nutrient needs, some are P dependent, others N dependent and others are co-dependent on these two nutrients.

Like P, N promotes noxious aquatic 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/nandfactsheet.pdf>.

Quarterly monitoring via composite sample is required for this facility.

3. Total Kjeldahl Nitrogen (TKN)

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

4. Total Ammonia Nitrogen

Previous whole effluent toxicity tests conducted on the effluent indicated that ammonia may contribute to toxicity previously detected in the effluent. As a result, previous permits contained weekly monitoring requirements. Given the ammonia concentrations that have been detected in the effluent in the past, the Secretary included ammonia effluent limitations and continue sampling once per week to ensure adequate protection of the receiving water.

The draft permit will maintain an ammonia limit for mass, along with an instantaneous maximum concentration, and has been revised to reflect US EPA 2013 Ammonia Criteria, the current permit limit used US EPA 1999 Ammonia Criteria. The revised ammonia limitation is 6.3 lbs/day, monthly average, and 36.2 lbs./day, daily maximum, during the period of June 1

through September 30. Effluent instantaneous maximum concentrations for this period will be 6.6 mg TAN/L. This limitation is based on the US EPA 2013 Ammonia Criteria. A summer temperature of 25° c was assumed with *Oncorhynchus spp.* absent. A pH of 7.5 was obtained from DEC sampling conducted in 2016. The chronic instream criteria were derived to be 0.868 mg TAN/L and the acute instream criteria was derived to be 0.926 mgTAN/L. A 7Q10 flow of 0.08 cfs was used for the acute limitation and a 30Q10 of 0.16 cfs was used for the chronic limitation.

The draft permit contains an ammonia limitation of 27.0 lbs./day, monthly average, and 70.6 lbs./day, daily maximum during the period of October 1 through May 31. Effluent instantaneous maximum concentrations for this period will be 27.3 mg TAN/L. The limitation for monthly average is based on the US EPA 2013 Ammonia Criteria, however due to anti-backsliding the limitation for daily maximum is based on the US EPA 1999 Ammonia Criteria that was established in the current permit. A winter temperature of 0 to 10°c was assumed. A pH of 7.5 was obtained from DEC sampling conducted in 2016. A 7Q10 flow of 0.31 cfs was used for the acute limitation and a 30Q10 of 0.54 cfs was used for the chronic limitation.

5. Toxicity Testing

40 C.F.R. § 122.44(d)(1) requires the Secretary to assess whether the discharge causes, or has the reasonable potential to cause or contribute to an excursion above any narrative or numeric water quality criteria. 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. Review of the 2015 and 2016 single species (*P. promelas*) acute and chronic WET test, indicate there was no effluent toxicity.

The WET tests shall have a limit of No Observed Effect Concentration-Chronic (C-NOEC) at 89% effluent during summer months and 70% during winter months, where NOEC is the concentration of effluent in a sample that causes No Observed Effect (i.e. mortality not to exceed 10% of the test organisms - summer) to the test population at the 96-hour (chronic) exposure interval of observation.

The draft permit requires a two-species WET test (acute/chronic) be conducted in August or September 2019 and in January or February of 2018. A one species test is required in August or September 2020 and in January or February 2021. If the results of the tests 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.

6. Annual Monitoring

For all facilities with a design flow of greater than 0.1 MGD, 40 C.F.R. § 122.21(j) requires the submittal of effluent monitoring data for those parameters identified in Section I.H. of the draft permit. Samples must be collected once annually such that by the end of the term of the permit, all quarters have been sampled at least once, and the results will be submitted by December 31 of each year. Sampling in 2017 should be taken in Fall. For subsequent sampling, the “Guidance for Annual Constituent Monitoring” document should be referred to determine the season in which samples should be taken each year.

D. Special Conditions

1. Waste Management Zone (WMZ)

As defined under 10 V.S.A. § 1251(16), a WMZ is “a specific reach of Class B waters designated by a permit to accept the discharge of properly treated wastes that prior to treatment contained organisms pathogenic to human beings. Throughout the receiving waters, water quality criteria must be achieved but increased health risks exist due to the authorized discharge.”

The proposed permit retains the existing WMZ that extends downstream from the outfall for approximately 1.6 miles, to the confluence of the LaPlatte River and Shelburne Bay.

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.J. 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 September 29, 2009. Because it was not completed at the time of writing the draft permit, the permittee shall prepare and submit to the Secretary for review and approval, an Operation, Management, and Emergency Response Plan for the sewage collection system by **December 31, 2018**. The permittee shall implement the plan upon submittal.

4. Engineering Evaluation

An engineering evaluation condition is not included in this permit. This condition requires the permittee to conduct an in-depth inspection and report of the treatment facility to identify and repair equipment, processes, and other possible deficiencies which may adversely affect effluent quality or proper operation. This type of evaluation is required once every 20 years and per DEC records was last completed in July 2013, therefore an Engineering Evaluation is not required in this permit cycle.

5. 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.

6. 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.

7. 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.

8. 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 A. Based on this analysis, the Secretary has determined the available data indicate that this discharge has a reasonable potential to cause, or contribute to an impairment in McCabes Brook. In this case, DEC is required to impose appropriate effluent limitations, which can take the form of monitoring requirements. The Secretary therefore recommends inclusion of the monitoring requirements as noted above, but will also assist in additional stream assessment by implementing the low gradient biological criteria. The efforts, in concert with the fact that allocations established by the LC TMDL, and provisions of Vermont Act 64 (2015), will also address instream impairments to the immediate receiving stream, provide additional assurances that the permit conditions ensure that the facility effluent is protective of water quality in McCabes Brook and Shelburne Bay.

VIII. Procedures for Formulation of Final Determinations

The public comment period for receiving comments on this draft permit is from **July 11 through August 17, 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 17, 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 also be submitted by e-mail using the e-mail comment provisions included at ANR.WSMDWastewaterComments@vermont.gov

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

The Secretary will hold a public meeting on **Thursday, August 10, 2017, 7:00pm – 9:00pm** at the Shelburne Town Offices, 5420 Shelburne Rd, Shelburne, VT 05482. Any person may submit oral or written statements and data concerning the draft permit at the public meeting. 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 meeting 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 11, 2017 through August 17, 2017. Comments received were addressed in the Responsiveness Summary.

**Agency of Natural Resources
Department of Environmental Conservation**

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

MEMORANDUM

To: David DiDomenico, Wastewater Management Program (WWP)

From: Rick Levey, Monitoring, Assessment and Planning Program (MAPP) *Rick Levey 07/10/17*

Cc: Pete LaFlamme, Director, Watershed Management Division (WSMD)
Jessica Bulova, Manager, (WWP)
Neil Kamman, Manager, (MAPP)

Date: July 10, 2017

Subject: MAPP Reasonable Potential Determination for the Shelburne (#2) Harbor Road
Wastewater Treatment Facility (WWTF).

MAPP has evaluated the draft permit limits for the Shelburne Harbor Road WWTF in Shelburne, 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 Shelburne Harbor Road WWTF prepared by the WWM.

Facility:

Shelburne Harbor Road Wastewater Treatment Facility
Permit No. 3-1304
NPDES No. VT0100820

Hydrology for Shelburne Harbor Rd WWTF used in this evaluation:

Design Flow: 0.66 MGD = 1.021 CFS
7Q10 = 0.12 CFS
LMM = 0.75 CFS
IWC-7Q10 = 0.89 (IWC > 10%)
IWC-LMM = 0.57 (IWC > 10%)

Receiving Water:

McCabes Brook, Shelburne, VT
Facility Location: Lat. 44.38321 Long. 73.23663 (NAD 83)

McCabes Brook River downstream of the Shelburne Harbor Rd WWTF is classified as Class B and is designated a Warm Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 6.7 square miles. The proposed permit retains the existing waste management zone (WMZ) in McCabes Brook beginning at the outfall of this WWTF and extending downstream approximately 1.6

miles downstream to the confluence of the LaPlatte River and Shelburne Bay (Figure 1). There are no permitted discharges upstream of this discharge.

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 Vermont Water Quality Standards(VWQS). For the McCabes Brook segment to which this facility discharges, the database indicates this segment of stream to be impaired. McCabes Brook is listed in the [2016 303\(d\) List of Impaired Waters Part A](#) as impaired from the mouth of the brook to River Mile (RM) 1.4, this includes stream segments above and below the WWTF. Nutrients are identified as the pollutant causing the impairment, aquatic life support is the use listed as impaired.

Ambient Chemistry Data for McCabes Brook above and below the Shelburne Harbor Rd. WWTF:

There is ambient chemistry data available above and below the WWTF from VTDEC water quality sampling conducted in 2011, 2012 and 2015 at River Mile (RM) 1.2 and 1.4 respectively.

Water chemistry measures for the following parameters: pH, alkalinity, conductivity, chloride, hardness, turbidity, total nitrogen (TN), ammonia (NH3), total phosphorus (TP) and dissolved oxygen are summarized in Table 1. Priority metals were also analyzed above and below the WWTF, results are summarized in Table 2.

Data representativeness was assessed by evaluating the flow conditions at which samples were collected from field sheets and from the most proximally-located USGS gauge for which data were available, and in consideration of possible downstream sensitive reaches. The location of the upstream and downstream sampling locations RM 1.4 and RM 1.2 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.

These data were also compared to data derived from the South Chittenden Riverwatch, a citizen science monitoring group supported through DEC’s LaRosa Partnership Program. The quality assured results from that program, summarized by Figure 2, align well with DEC results. Thus, the data presented below are relevant for inclusion in this analysis.

Table 1: Concentrations of surface-water chemistry above and below the Shelburne Harbor Rd. Wastewater Treatment Facility (River Mile 1.4 and 1.2 refer to stations above and below the outfall respectively).

Date	River Mile	pH	Alk mg/L	Cond umhos	Chloride	Hardness	DO mg/L	DO %	Turb NTU	TP ug/L	TN mg-N/l	TNH3 mg-N/l
9/16/2011	1.4	8.45	191	476	22.4	-	-	-	-	63.2	-	-
9/16/2011	1.2	8.35	184	590	60.9	-	-	-	-	85.7	-	-
10/08/2012	1.2	7.6	166	538	63.3	215	8.96	92.8	6.8	82.5	1.72	-
10/13/2015	1.4	8.0	216	615	63	261	8.8	85	7.52	37.6	0.35	<0.05
10/13/2015	1.2	7.49	140	791	130	166	8.75	95	2.61	117	3.56	<0.05



LEGEND

- 303(d) List of Impaired Stream
- 303(d) List of Impaired Waters
- Stressed Waters List (Streams)
- Waste Water Facilities
- Stream
- Town Boundary



1: 4,413
February 15, 2017

224.0 0 112.00 224.0 Meters
WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 368 Ft. 1cm = 44 Meters
© Vermont Agency of Natural Resources THIS MAP IS NOT TO BE USED FOR NAVIGATION

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

NOTES
Map created using ANR's Natural Resources Atlas

Figure 1. McCabes Brook in the vicinity of the Shelburne Harbor Rd. WWTF, showing upstream and downstream sampling locations (RM 1.4 & 1.2). McCabes Brook segment highlighted in yellow indicates the location of biological impairment, which initiates upstream of the WWTF. Discharge shown by arrow. Figure taken from the Vermont Integrated Watershed Assessment System on the VTANR Atlas (<https://anrweb.vt.gov/DEC/IWIS/>).

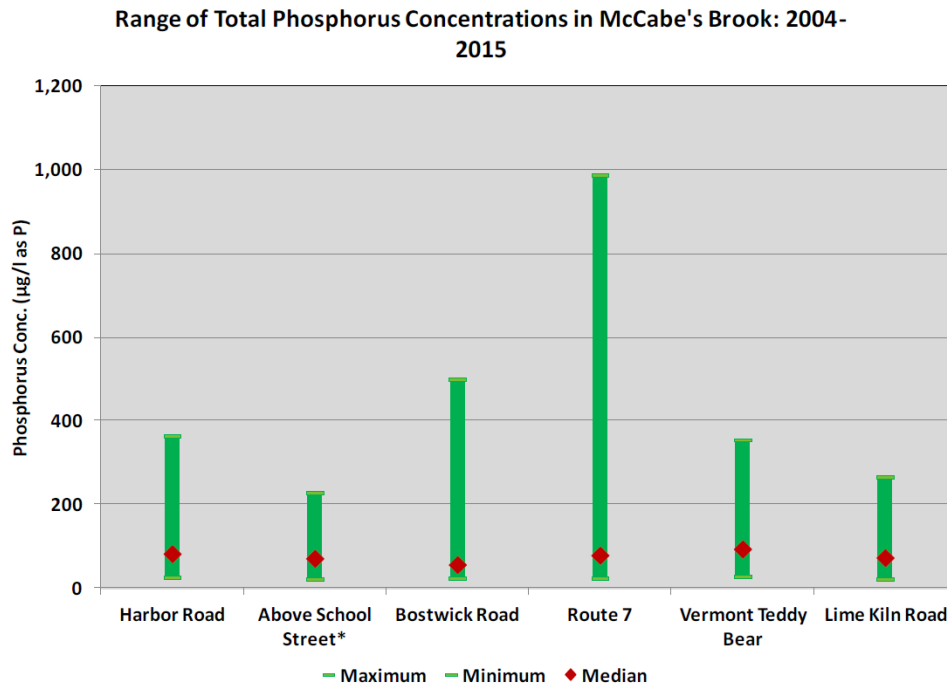


Figure 2. South Chittenden Riverwatch results for total phosphorus collected at sites in McCabe’s Brook. The Harbor Road location is upstream of the WWTF and in close proximity to DEC sampling site RM1.4.

Total Phosphorus (TP) values below the outfall (RM 1.2) ranged from 82.5 – 117 µg/L, the highest concentration observed was on 10/13/2015. TP values above the outfall (RM 1.4) ranged from 37.6 – 63 µg/L. Total Nitrogen (TN) values below the outfall (RM 1.2) ranged from 1.72 – 3.56 mg/L, and above the outfall (1.4) were 0.35mg/L-TN.

Turbidity, Dissolved Oxygen, pH:

Turbidity values below the outfall ranged from 2.61 – 6.8 Nephelometric Turbidity (NTU). Turbidity above the outfall at RM 1.4 was 7.52 NTU. Dissolved oxygen below the outfall ranged from 8.75 – 8.96 mg/L, percent saturation below the outfall ranged from 92.8 - 95 percent. The dissolved oxygen and percent saturation above the outfall was 8.8 mg/L and 85 percent saturation. All pH values were within the range of VWQS, below the outfall pH ranged from 7.49 – 8.35, above the outfall the pH range was 8.0 – 8.45.

Biological Assessments:

Biological assessments were conducted above and below the WWTF outfall, most recently in 2015 and 2016 at RM 1.4 and RM 1.2. The bioassessment conducted below the WWTF scored “Poor,” in both 2015 and 2016 using Hybrid Low Gradient (HLG) Stream Type biological criteria. The biological assessments conducted above the WWTF outfall scored “Fair” for HLG in both 2015 and 2016.

Macroinvertebrate Community Biocriteria is described in the [Vermont Water Quality Standards](#) (2017). The “Hybrid Low Gradient (HLG),” stream types are assessed using calculated Indices of Biotic Integrity (IBIs), in which individual metric values are summed to produce a single index value. For the bioassessments conducted at RM 1.4 and RM 1.2, the IBI score reflected a “Fair” assessment above the WWTF and a “Poor” assessment below the WWTF, both assessments are considered “non-support.” RM 1.4 has been consistently scoring better than the downstream site, RM 1.2.

Total Phosphorus:

Instream Phosphorus Concentrations were calculated using the low monthly median flow (LMM) of 0.75 CFS at design flow of 1.02 CFS (0.66 MGD) and using the effluent phosphorus concentration of 0.8 mg/L-TP which is the permit limit. The calculated phosphorus concentration at these conditions attributable to discharge would be 0.460 mg/L (460 µg/L). The average instream TP observed below the outfall is 94.6 µg/L (Table 1); considerably less than the calculated TP concentration of 460 µg/L.

Review of the Shelburne Harbor Rd. WWTF flow records indicate that average flow for 2016 was 0.27 MGD, less than ½ design flow of 0.66 MGD. Instream TP concentrations at this flow rate (½ design) would be 230 µg/L. Further review of facility monitoring data shows that the average TP effluent concentration for 2016 was 0.20 mg/L-TP, ¼ of the 0.8 mg/L-TP Permit Limit. Instream TP concentrations attributable to the facility at ½ design flow and 0.2 mg/L-TP effluent would be 57 µg/L - TP. This is more aligned with observed instream TP concentrations, after adjusting for upstream TP concentrations. Therefore, the elevation in concentrations of phosphorus downstream of the facility are explained by the facility discharge. The high-quality effluent concentrations produced by the facility are also noteworthy, and are reflected by new effluent limitations imposed by the draft permit.

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 response criteria in the water quality standards, for streams that can be assessed using macroinvertebrate biocriteria. Under the framework, MAPP can make a positive finding of compliance with the narrative standard when specific nutrient response variables; pH, Turbidity, Dissolved Oxygen, and aquatic life use, all display compliance with their respective criteria in the Water Quality Standards.

Monitoring data has shown there is a significant increase in total phosphorus attributable to the facility, and the recent aquatic life use has been shown to be not fully supported in the 2015 and 2016 Bioassessment. Therefore, the stream did not comply with VWQS for all identified response variables, and thus the narrative standard presented in the VWQS is not supported (Table 3).

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

Response variable (VWQS reference)	Target Value	River-mile 1.4 (Upstream) 10/13/2015	River-mile 1.2 (Downstream) 10/13/2015
pH	<8.5 s.u.	8.0	7.49
Turbidity	< 10 NTU at low mean annual flow	7.52	2.61
Dissolved Oxygen (min)	>6 mg/L and 70% saturation	8.8 (85)	8.75 (95)
Aquatic biota, based on macroinvertebrates, also see Table 2.	Attaining an assessment of good, or better.	Fair (Does not Meet WQS)	Poor (Does not Meet WQS)

However, there are additional factors that provide context to the low gradient biological criteria applied in this analysis. First, while the 2016 low gradient biological criteria present a clear indication of impairment both up and downstream, and diminishment in biological quality from upstream to downstream of the

facility, these biological criteria have not been analyzed specifically with respect to their specific sensitivity to total phosphorus. This is unlike the historically established biological criteria contained in prior versions of the WQS, which were subject to a robust analysis presented by the Nutrient Criteria Technical Support Document (VTDEC, 2014 – see watershedmanagement.vt.gov) which supported numeric phosphorus standards for those other stream types. Thus, it is inappropriate at this time to ascribe the additional diminishment in biological quality below the facility to a specific increase in total phosphorus, or any other specific pollutant, per se. Additional monitoring is needed that combines biological monitoring with ambient and effluent chemistry monitoring to clarify cause and effect in this instance.

These considerations influence monitoring recommendations made by this Determination. When the historically established biological criteria are applied, for facilities where there are increases in phosphorus attributable to the discharge, and biological monitoring results do not consistently indicate attainment of all thresholds, MAPP recommends that biomonitoring be conducted above and below the outfall to better assess compliance with the VWQS at the next permit issuance. The specific monitoring plan proposed by this Determination (below) reflects the considerations presented here.

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. Review of the 2015 and 2016 single species (*P. promelas*) acute and chronic WET test, indicate there was no effluent toxicity. The draft permit requires a two-species WET test (acute/chronic) be conducted in August or September 2019 and 2021 and in January or February of 2018 and 2020.

The draft permit also includes a WET tests limit of No Observed Effect Concentration-Chronic (C-NOEC) at 89% effluent, where NOEC is the concentration of effluent in a sample that causes No Observed Effect (i.e. mortality not to exceed 10% of the test organisms) to the test population at the 96-hour (chronic) exposure interval of observation. 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:

Review of the Shelburne Harbor Rd. WWTF effluent ammonia records for 2016, indicate effluent ammonia concentrations remain very constant between 0.1 - 0.5 mg TAN/L. The Shelburne Harbor Rd. facility uses advanced treatment with sequencing batch reactors for secondary treatment, nitrification, and ultraviolet light disinfection. The nitrification process converts all of the ammonia in wastewater to nitrate using aerobic autotrophic bacteria in the treatment process.

Using the effluent ammonia concentration of 0.5 mg/L TAN, the receiving water concentration (RWC) at 7Q10 instream waste concentration (IWC) of 89% used for implementing the acute criteria would be 0.44 mg TAN/L (7Q10 IWC .89 X 0.5 mg TAN/L). This value is below both the chronic and acute criteria, illustrating that there is not a reasonable potential for VWQS excursion.

The previous permit for this facility included ammonia limits derived from 1999 EPA Ammonia criteria, the draft permit has revised these ammonia limits to reflect the 2013 ammonia criteria. Limits are set for both mass and concentration. One exception to these limits exists, with respect to the maximum daily

mass which remains at 70.6 lbs./day, retained from the previous permit, due to anti-backsliding requirements. These permit limits will ensure that VWQS will not be exceeded. MAPP supports the ammonia limits and monitoring schedule detailed in the draft permit.

Sediment, Hardness, and Metals:

Instream total suspended solids were calculated using the 7Q10 of 0.12 CFS at design flow of 1.02 CFS (0.66 MGD), assuming the maximum permitted daily concentration of 50 mg/L. The calculated suspended sediment concentration at these conditions was 44.5 mg/l-TSS, indicating a moderate augmentation of instream ambient suspended sediment concentrations in receiving waters at lowest flows.

The hardness of McCabes Brook below the Shelburne Harbor Rd. WWTF (RM 1.2) was recorded to be 166 mg/l CaCO₃ on 10/13/2015 (Table 1). Hardness data is utilized to determine compliance with Vermont’s aquatic biota based metals criteria as specified in Section 29A-303(7)(C) and Appendix C of the Vermont Water Quality Standards. Vermont DEC priority metal chemistry data above and below the outfall (Table 4) did not detect any exceedances and were below detection for all priority metals except zinc at RM 1.2, which was well below the WQ chronic criteria of 184 µg/L-Zn (hardness adjusted).

Table 4. McCabes Brook Metals Water Chemistry – above and below Shelburne Harbor Rd. WWTF outfall.

Date	10/13/2015	
	Above (RM 1.4)	Below (RM 1.2)
Total Aluminum (ug/l)	98.45	111.7
Total Antimony (ug/l)	< 10	< 10
Total Arsenic (ug/l)	< 1	< 1
Total Barium (ug/l)	36.2	11.18
Total Beryllium (ug/l)	< 1	< 1
Total Cadmium (ug/l)	< 1	< 1
Total Chromium (ug/l)	< 5	< 5
Total Cobalt (ug/l)	< 1	< 1
Total Copper (ug/l)	< 10	< 10
Total Iron (ug/l)	475.7	130.3
Total Lead (ug/l)	< 1	< 1
Total Manganese (ug/l)	81.9	58.52
Total Molybdenum (ug/l)	< 5	< 5
Total Nickel (ug/l)	< 5	< 5
Total Selenium (ug/l)	< 5	< 5
Total Silver (ug/l)	< 1	< 1
Total Thallium (ug/l)	< 1	< 1
Total Zinc (ug/l)	< 50	88.71

Lake Champlain TMDL – Shelburne Bay Segment.

The ultimate receiving water for this facility is Shelburne Bay, a phosphorus-impaired segment of Lake Champlain subject to the 2016 Lake Champlain TMDLs promulgated by USEPA. That TMDL establishes a wasteload allocation for this facility not to exceed 0.182 MT/yr, a reduction of 0.315 MT from the prior limitation in the 2002 TMDL to which this facility was permitted previously. This equates to an effluent concentration limit of 0.2 mg/L pursuant to the TMDL. Effluent limitations in the draft permit reflect an effluent concentration of 0.175 mg/L which equates to 351.5 lbs./year, these limits were established due to the nutrient impairment of McCabe's Brook and the need to derive appropriate WQBEL.

Recommended Biological and Water Quality Monitoring:

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

Should the permit contain conditions for water quality assessment, samples for TP, pH, DO and turbidity should be collected monthly for the period of June through October during the years 2018, 2019 and 2020. For dissolved oxygen monitoring, an appropriate sampling strategy and location should account for the modeled oxygen depletion. Considering that this facility is a sequencing batch reactor, monitoring should also be conducted to account for periods during which discharge is occurring. MAPP is pleased to consult as needed with the Wastewater Program or facility operators. Locations should include:

- a. a site located at RM 1.4, upstream of the WWTF outfall; and
- b. a site located at RM 1.2, below the outfall.

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

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

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

Conclusion:

The available data indicate that this discharge does have a reasonable potential to cause, or contribute to an impairment in the McCabe's Brook. In this case, Federal requirements indicate that DEC impose appropriate effluent limitations, which can take the form of monitoring requirements. MAPP therefore recommends inclusion of the monitoring requirements as noted above, but will also assist in additional stream assessment by implementing the low gradient biological criteria. The efforts, in concert with the fact that allocations established by the Lake Champlain TMDL, and provisions of Vermont Act 64, will also address instream impairments to the immediate receiving stream, provide additional assurances that the permit conditions ensure that the facility effluent is protective of water quality in McCabes Brook and Shelburne Bay.

RESPONSIVENESS SUMMARY

for

NPDES Discharge Permit #3-1304

Village of Shelburne 2, Harbor Road Wastewater Treatment Facility

The above referenced permit was placed on public notice for comment from a period of **July 11, 2017** through August **17, 2017**. This is a renewal permit.

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

COMMENT:

See letters dated August 7, 2017 from the Conservation Law Foundation and August 17, 2017 from the Town of Shelburne (both attached).

RESPONSE (CLF):

- 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. Env'tl. 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 QWBELs 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 QWBEL, but rather the Court objected to readopting the same QWBEL 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 QWBEL should be an exact duplicate of the WLA provided in the TMDL.” While the Agency agrees QWBELs do not need to be exact copies of a WLA, the cases cited to do not dictate that QWBELs 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 QWBEL 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 QWBELs more stringent than a WLA, but they do not serve to support the comment that more stringent QWBELs 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

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.

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 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 context³ 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).

- 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 face 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

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).

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.

RESPONSE (Town of Shelburne):

The Town of Shelburne comments are numbered below. Each underlined heading in the comments was numbered below. Headings that include multiple comments have been divided into lettered sections.

1. Total Phosphorous Effluent Limitations, Condition I.B.1.

The Agency agrees with this comment but has modified the “eutrophication season” from the suggested 122 days from June through September to 153 days from June through October, adding 31 days of October. The total summer phosphorous limit from June 1 through October 31 is now 153.9 lbs. and the total phosphorous limit from November 1 through May 31 is 247.1 lbs. for a total annual limit of 401 lbs./year.

2. Total Ammonia Nitrogen (TAN): This comment includes three subsections, a. Vested Rights; b. stream flow data used to calculate nutrient limits and an ASCAP study that was said to be conducted on McCabes Brook; and, c. TAN concentration limits are not required if mass limits are in place.

a. As to the vested rights comment, while it is true that the Agency has previously applied the minority rule, after consultation with EPA and a more careful examination of the law, the Agency has determined that it must apply the law in effect at the time of permit issuance, rather

than permit application when issuing permits as a state approved by EPA to administer a permitting program consistent with the minimum requirements of the federal Clean Water Act's National Pollutant Discharge Elimination System (NPDES) permit program .

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

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

The legislative process to amend statutes and the administrative rulemaking process to amend rules governing water quality permitting, involve significant time and public participation and scrutiny, which serve to avoid the type of “protracted maneuvering” of concern to the Court in *Smith v. Winhall*. In fact, pursuant to federal law, Section 301(c) of the federal Clean Water Act (CWA) (33 U.S.C. § 1313(c)), the State is required to review and update its water quality standards every three years, and these updates are not based upon the arbitrary whims of the Agency, but rather are based upon science, which evolves and improves over time, and the updates must incorporate new and revised criteria for pollutants established by EPA pursuant to CWA § 304(a) (33 U.S.C. § 1314(a)).

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

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

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

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

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

Other considerations also support application of the current law, rather than laws adopted almost ten years ago. Under Vermont law, which is derived from the CWA, permits shall have terms “not to exceed five years.” VWPCPR § 13.5(a); CWA § 402(b)(1)(B) (33 U.S.C. § 1342(b)(1)(B)). More than five years have passed since Shelburne 2 applied to renew its permit on July 8, 2009. The reason for the significant delay in issuance of the town’s permit was due to the appeal and revocation of the 2002 LCTMDL,⁸ and the following lengthy time-period it took for EPA to re-issue a TMDL for Lake Champlain on June 17, 2016. While this was due to no fault of the town, the town cannot have a reasonable expectation to application of water quality standards adopted before March 2015, five years from the date they reapplied for permit coverage.

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

Additionally, were the state to apply the minority rule, as requested by Shelburne, rather than the majority rule, as required by EPA, EPA could object to the permit and authority to issue the permit would pass to EPA if the state does not address the objection consistent with federal

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

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

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

law,¹⁰ meaning Shelburne would receive a permit directly from EPA, and there is no question that EPA follows the majority rule.¹¹

b. The comment states that the summer stream flow value used to derive the TAN (and WET) effluent limitations is not consistent with the summer flow value used to derive the UOD limits in the draft permit. The Town claims an ASCAP study was used to derive the UOD limits which used a summer stream flow value (Q) of 0.27 cfs. The comment also points out that summer and non-summer flows and temperatures should be used to calculate the TAN limits.

Agency staff have reviewed all past Shelburne and area river files searching for the ASCAP study. The Agency also asked the permittee if there was a copy in their files. No ASCAP study has been found pertaining to McCabes Brook. Additionally, the May 1989 Fact Sheet states: “*an assimilative capacity (ASCAP) study has not been completed for McCabes Brook and that insufficient TKN data from the discharge is available to make an assessment of the Ultimate Oxygen Demand and ammonia toxicity impact on McCabe’s Brook*”. Therefore, the Agency believes the ASCAP study does not exist and the flow data (as discussed below) used to calculate nutrient limits in this permit is the most accurate and up to date data available.

Based on a review of past permits, the UOD limit was first incorporated into the facility’s permit in 1999, following a WWTF upgrade resulting in a permitted effluent flow increase from 0.45 MGD to 0.66 MGD. The corresponding February 1998 Fact Sheet states: “*this [UOD concentration of 495 lbs/day] limitation is based on the assumed current UOD being discharged from the existing facility and then adjusted for the proposed flow increase*”. Note there was a discrepancy in the number used in the 1998 fact Sheet and the permit. The permitted UOD limit of 482 lbs./day went into effect once the WWTF discharge flow increased to 0.66 MGD. This UOD limit has been in all permits since 1999 and does not appear to be based on stream flow data.

Based on the stream flows based discussed below, TAN limits were revised based on the 30Q10 flows for chronic limits and 7Q10 flows for acute limits for summer and non-summer seasons.

The stream flow for this permit was determined using a USGS stream gage on the LaPlatte River (ID 04282795). It was selected for use in estimating low-flow frequency statistics for McCabes Brook at the WWTF outfall. It is unclear which dataset was used to derive the summer 7Q10 value of 0.27 cubic feet per second (or 0.04 cfs/mi.²) in previous decisions, however it is likely that this was taken from a gage on a tributary to Lewis Creek draining forested mountains in Starksboro, VT (ID 04282700). Low-flow characteristics of a stream are influenced by a variety of watershed geoclimatic factors, including drainage area, topography, land use and precipitation. Drainage area generally has the strongest correlation with absolute values of low-flow, however this can only be considered the case when comparing different watersheds where topography, geology, and climate are relatively constant. These hydrogeological characteristics often exert a strong influence on low-flow regime even when differences are relatively minor (Hayes, 1991; Flynn, 2003). 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.

¹⁰ 40 C.F.R. § 123.44.

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

The Lewis Creek tributary was gaged from 1963-1974, and thus is less likely to represent the current hydroclimatological regime of the region as compared to gage 04282795, whose period of record is 1990 through present day. The drainage area of 5.3mi.² at 04282700 is comparable to that at the WWTF, however the land-cover and topography are very different. A majority of the more mountainous watershed of 04282700 is forested and above 1,200 ft. msl, whereas the more mixed agriculture/residential/forested watersheds of the LaPlatte River have much less forest and almost no higher elevation mountainous land area, which also results in almost 25% less annual precipitation. For these reasons the Department determined that streamflow statistics calculated from the LaPlatte River gage less than two miles from the facility were more representative of low-flow conditions that are likely to occur on McCabe's Brook.

The low-flow statistics for the LaPlatte River gage 04282795 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 seasons (summer and non-summer) 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. Summer was defined as June through September, and non-summer as October through May. A hydrological year beginning June 1st was defined to avoid annual minimum periods spanning two sequential years. 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 March 1990 through October 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.

c. The Town also requests that the concentrations for the TAN be deleted, deferring to the mass loading limit only. The Agency has eliminated the TAN concentrations; however, in accordance with the 2013 Ammonia Criteria and EPA, in order to be protective of the acute Ammonia criteria an instantaneous max concentration has been included along with monthly average and maximum day mass limits.

3. Phosphorous Optimization Plan, Condition I.B.2.

The following language has been added to the permit in response to the comment:

“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.”

4. Phosphorous Elimination / Reduction Plan

Based on Town of Shelburne comment #1 above, the total phosphorous limit for the Shelburne 2 WWTF has been changed. Therefore, this comment is no longer applicable.

5. Whole Effluent Toxicity (WET) Test, Condition I.A.1.

- a. The Agency agrees with the comment and has added a winter WET test Maximum Day limit of $\geq 70\%$.
- b. The Agency agrees with this comment and has modified the WET test requirement as suggested. *Daphnia* (*Ceriodaphnia dubia*) have been eliminated from the 2020 and 2021 WET tests.

6. Instream Monitoring, Condition I.G.

The Agency has re-evaluated this condition and removed it from the permit.

7. Ultimate Oxygen Demand Sampling and Calculation

The Agency agrees with this comment and a footnote has been added to clarify this requirement.

8. Total Ammonia Sampling, Condition I.H.2, footnote 4.

The Agency agrees and footnote 4 has been replaced with footnote 6.

9. Settleable Solids Sampling, Condition I.H.2, footnote 4.

The Agency agrees with this comment and the footnote has been replaced with footnote 6.

10. Annual Constituent Monitoring, Condition I.H.3.

The language in Condition I.H.3 has been modified for clarity.

11. Influent Sampling: Total Phosphorous, Condition I.H.4.

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.

12. Monthly DMR Reporting, Condition I.H.5.

The Agency recognizes that this condition can be difficult to meet, at times, due to contract laboratory report delays and other scheduling problems. The Agency does provide a grace period of one week from the due date. The language will remain unchanged for that condition.

13. Operation, Management and Emergency Response Plans, Condition I.J.2.

Agreed, this language has been changed in the permit.

14. Fact Sheet.

Changes have been made in the Fact Sheet based on the comments above.

15. Reasonable Potential Analysis.

Changes have been made in the Reasonable Potential Analysis based on the comments above.

16. Additional Public Participation.

The Agency will not be placing the permit on public notice again, but met with the Town prior to final permit issuance to discuss the Town's concerns.

End of Summary