

**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.: 3-1167
PIN: NS99-0009
NPDES No.: VT0100609

Name of Applicant: Village of Saxtons River
PO Box 243
Saxtons River, VT 05154

Expiration Date: December 31, 2022

**AMENDED
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 Village of Saxtons River, Vermont (hereinafter referred to as the "Permittee") is authorized by the Secretary of the Agency of Natural Resources (Agency) to discharge from the Saxtons River Wastewater Treatment Facility (WWTF) to the Saxtons River in accordance with the following conditions.

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

Emily Boedecker, Commissioner
Department of Environmental Conservation

By: 

Date: August 8, 2018

Jessica Bulova, Wastewater Program Manager
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 Saxtons River WWTF, an effluent for which the characteristics shall not exceed the following values:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS							
	Annual Average	Monthly Average	Monthly Average	Weekly Average	Monthly Average	Weekly Average	Maximum Day	Instantaneous Maximum
	Million Gallons Per Day (MGD)	Mass (lbs/day)		Concentration (mg/L)				

Flow ¹	0.105	Monitor Only						
Biochemical Oxygen Demand ² (5-day, 20° C) (BOD ₅)			26.3	39.4	30	45	50	
Total Suspended Solids (TSS) ²			26.3	39.4	30	45	50	
Total Phosphorus (TP)							Monitor Only	
Total Nitrogen (TN) ³	See Section I.C.						Monitor Only	
Total Kjeldahl Nitrogen (TKN)							Monitor Only	
Nitrate/Nitrite Nitrogen (NO _x)							Monitor Only	
Settleable Solids								1.0 ml/l
<i>Escherichia coli</i> ⁴								77/100 ml
Total Residual Chlorine ⁵								0.1 mg/l
pH					Between 6.5-8.5 Standard Units			

¹ Monthly average flow shall be calculated by summing daily effluent flow for each day in the given month and dividing the sum by the number of days of discharge in that month.

² The Permittee shall operate the facility to meet the concentration limitations or pounds limitation, whichever is more restrictive.

³ Total Nitrogen shall be calculated as $TN = TKN + NO_x$.

⁴ The effluent limitation for *E. coli* is effective from April 1 through October 31, annually.

⁵ The effluent limitation for Total Residual Chlorine shall only apply for the period of April 1 through October 31, or when disinfection is occurring. Monitoring for Total Residual Chlorine is not required following the upgrade; see Condition I.H.2.

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. Following the upgrade (see Special Condition I.B.2), 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. UPGRADE PROJECT

1. The WWTF upgrade project shall comply with the Basis for Final Design prepared by Tata and Howard, Inc. and approved by the Secretary on March 31, 2016.
2. The upgrade of the Saxtons River WWTF shall be considered complete when the Permittee notifies the Secretary, by means of an engineer's certification, that the new facility is operational and the Secretary issues a written acknowledgement of its operational status.

C. TOTAL NITROGEN

1. Optimization Plan

Within six months of completing the upgrade, the Permittee shall develop and submit to the Secretary for review and approval a Nitrogen Removal Optimization Evaluation Plan for the evaluation of alternative methods of operating the existing WWTF to optimize the removal of nitrogen. The methods to be evaluated include: operational, process, or

equipment changes designed to enhance nitrification and denitrification (seasonal and year-round); incorporation of anoxic zones; septage receiving policies and procedures; and side stream management. The Permittee shall implement these recommended operational changes to maintain a mass discharge of total nitrogen (TN) lower than the existing mass loading of TN. The baseline annual average daily TN load discharge from this facility is estimated to be **approximately 7 lbs/day**.

This Plan shall be developed by a qualified professional with experience in the operation and/or design of municipal WWTFs in conjunction with the Chief Operator of the facility.

This Plan shall be provided to the Secretary for review and approval prior to implementation and shall be revised upon the Secretary's request or by the Permittee to address equipment or operational changes.

Implementation of the Plan shall commence within 60 days of its approval by the Secretary.

2. Plan Evaluation

After implementing the Plan for one year, the Permittee shall evaluate the effectiveness of the Plan. The evaluation shall be conducted by a qualified professional with experience in the operation or design of municipal WWTFs in conjunction with the Chief Operator of the facility. The results of the evaluation shall be submitted to the Secretary for review and approval within one year and six months following the implementation of the Plan and shall be revised at the Secretary's request. Actions to implement the approved nitrogen removal optimization practices, if any, shall be initiated within 90 days of the Secretary's approval.

3. Reporting

Annually, the Permittee shall submit a report to the Secretary as an attachment to the **December** Discharge Monitoring Report (DMR) form WR-43 that documents the annual average TN discharged (in pounds per day) from the facility, summarizes nitrogen removal optimization and efficiencies, and tracks 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.

TN = Total Kjeldahl Nitrogen (TKN) + Nitrite/Nitrate (NO_x).

TN pounds per day, annual average, shall be calculated as follows:

1. Calculate the pounds of TN discharged on each sample date:

$$\text{TN (lbs/day)} = \text{TN (mg/L)} \times \text{volume discharged (million gallons) on day of sample} \times 8.34$$

2. Calculate the TN, pounds per day, annual average:

$$\text{TN (lbs/day, annual average)} = (\text{Sum of all TN [lbs/day]}) / (\text{count of TN samples})$$

4. Wasteload Allocation

This permit does not establish a formal Wasteload Allocation for the WWTF nor does it convey any right to ownership of the WWTF's estimated baseline annual average TN load.

The Secretary reserves the right to reopen and amend this permit, pursuant to Section II.B.4 of this permit, to include an alternate TN limitation or additional monitoring requirements based on the monitoring data, the results of nitrogen optimization activities, a formal Wasteload Allocation promulgated under Vermont's Wasteload Allocation Rule for Total Nitrogen in the Connecticut River Watershed based on the Long Island Sound Total Nitrogen Total Maximum Daily Load (TMDL), or the final Long Island Sound TMDL.

D. WASTE MANAGEMENT ZONE

In accordance with 10 V.S.A. § 1252, this permit hereby establishes a waste management zone for the Saxtons River WWTF in the Saxtons River. The waste management zone begins at the WWTF outfall and extends 1.0 mile downstream.

E. REAPPLICATION

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

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

F. OPERATING FEES

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

G. TOXICITY TESTING

1. WHOLE EFFLUENT TOXICITY (WET) TESTING

- a) **During August or September 2019, the Permittee shall conduct two-species (*Pimephales promelas* and *Ceriodaphnia dubia*) modified acute/chronic WET tests (48-hour acute endpoints within a 7-day chronic test) on a composite effluent sample collected from S/N 001. Total Ammonia and Total Residual Chlorine should be measured in the high concentration of test solution at the beginning of the test. The results shall be submitted to the Secretary by *December 31, 2019*.**
- b) **During January or February 2021, the Permittee shall conduct two-species (*Pimephales promelas* and *Ceriodaphnia dubia*) modified acute/chronic WET tests (48-hour acute endpoints within a 7-day chronic test) on a composite effluent sample collected from S/N 001. Total Ammonia and Total Residual Chlorine should be measured in the high concentration of test solution at the beginning of the test. The results shall be submitted to the Secretary by *June 30, 2021*.**

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

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

H. 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.

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

2. Effluent Monitoring

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

PARAMETER	MINIMUM FREQUENCY OF ANALYSIS	SAMPLE TYPE
Flow	Continuous	Daily Total, Max., Min. ¹
Biochemical Oxygen Demand (BOD ₅)	1 × Month	Composite ²
Total Suspended Solids (TSS)	1 × Month	Composite ²
Total Phosphorus (TP)	1 × Month	Composite ²
Total Nitrogen (TN)	1 × Month	[Calculated ^{3,4}]
Total Kjeldahl Nitrogen (TKN)	1 × Month	Composite ^{2,4}
Nitrate/Nitrite Nitrogen (NO _x)	1 × Month	Composite ^{2,4}
Settleable Solids	1 × Day	Grab ^{5,9}
<i>Escherichia coli</i>	1 × Month	Grab ^{6,7,9}
Total Residual Chlorine	1 × Day	Grab ⁸
pH	1 × Day	Grab ⁹
Temperature	1 × Year	Grab ¹⁰
Ammonia (as N)	1 × Year	Grab ¹⁰
Dissolved Oxygen	1 × Year	Grab ¹⁰
Oil & Grease	1 × Year	Grab ¹⁰
Total Dissolved Solids	1 × Year	Composite ¹⁰

Sample Location: Samples collected in compliance with the monitoring requirements specified above shall be collected at the dechlorination chamber, following the chlorine contact chamber. Following the upgrade, samples shall be collected at the effluent sample location prior to the trapezoidal flume.

¹ Following the upgrade, maximum and minimum daily flow monitoring is no longer required.

² 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.

³ TN = TKN + NO_x

⁴ Submit results each month on the Total Nitrogen Monitoring Report Form WR-43-TN.

⁵ Settleable Solids samples shall be collected between 10:00 AM and 2:00 PM or during the period of peak flow.

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

⁷ *E. coli* shall only be monitored during the period of April 1 through October 31.

⁸ Total Residual Chlorine shall be monitored and recorded prior to and following dechlorination, while the chlorination system is in operation. Following the upgrade, monitoring for Total Residual Chlorine is not required.

⁹ Following the upgrade, grab samples shall be collected in an alternating manner to be representative of each SBR cell discharge. For example, on Monday, the sample shall be collected as SBR cell #1 discharges; on Tuesday, the sample shall be collected as SBR cell #2 discharges; etc.

¹⁰ See Condition I.H.3. for Annual Constituent Monitoring.

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

Grab samples shall be used for temperature, ammonia, dissolved oxygen, and oil & grease; a composite sample shall be used for total dissolved solids. Samples shall be representative of the seasonal variation in the discharge.

Collect annual constituent monitoring samples once per year. The season in which samples are collected shall change chronologically from year to year to represent the seasonal variation of effluent constituents. 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). For easy reference regarding the season in which to sample, please refer to the “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
Total Nitrogen (TN)	1 × quarter	[Calculated ^{2,3}]
Total Kjeldahl Nitrogen (TKN)	1 × quarter	Composite ^{1,3,4}
Nitrate/Nitrite Nitrogen (NO _x)	1 × quarter	Composite ^{1,3,4}

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

² TN = TKN + NO_x

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

⁴ The influent TKN and NO_x sample shall be collected on the same day as an effluent TKN and NO_x sample.

5. Reporting

The Permittee is required to submit monthly reports of monitoring results on discharge monitoring report (DMR) forms WR-43 and WR-43-TN. WR-43 forms shall be submitted as attachments to electronic discharge monitoring report (eDMR) submissions through Vermont's electronic reporting system, ANR Online. Reports are due on the 15th day of each month, beginning with the month following the issuance date of this permit. When the Permittee submits DMRs using an electronic system designated by the Secretary, it is not required to submit hard copies of DMRs.

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 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.
- i) For analyses performed by contract laboratories:
 - i. The detection level reported by the laboratory for each sample; and
 - ii. The laboratory analytical report including documentation of the QA/QC and analytical procedures.

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

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

7. Additional Monitoring

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

I. 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.

J. OPERATION, MANAGEMENT, AND EMERGENCY RESPONSE PLANS

1. **Within 6 months of completing the upgrade**, the Permittee shall prepare and submit to the Secretary for review and approval, an Operation, Management, and Emergency Response Plan (OMERP) for the treatment facility, sewage pumping stations, sewer line stream crossings, and sewage collection system. The Permittee shall implement the plan upon approval by the Secretary. This plan shall comply with the provisions of 10 V.S.A. § 1278. The Secretary will review and approve the plan. The plan requires:
 - 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.

K. EMERGENCY ACTION - ELECTRIC POWER FAILURE

Within 6 months of completing the upgrade, the Permittee shall indicate in writing to the Secretary that, in the event the primary source of electric power to the WWTF (including pump stations) fails, the Permittee shall either provide an alternative source of power for the operation of its WWTF, or demonstrate that the treatment facility has the capacity to store the wastewater volume that would be generated over the duration of the longest power failure that would have affected the facility in the last five years, excluding catastrophic events.

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

L. 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, 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 criminal penalties pursuant to 10 V.S.A. Chapters 47, 201, and 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 date on which the Permittee is notified of such a 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 a qualified laboratory or as part of an EPA DMR-QA study) for the analysis of all pollutant parameters performed within their facility laboratory and reported as required by this permit. Results shall be submitted to the Secretary by **December 31, annually**.

5. Bypass

The bypass of facilities (including pump stations) is prohibited, except where authorized under the terms and conditions of an Emergency Pollution Permit issued pursuant to 10 V.S.A. § 1268. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the activity in order to maintain compliance with the conditions of this permit.

6. Duty to Mitigate

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

7. Records Retention

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

8. Solids Management

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

9. Emergency Pollution Permits

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

10 V.S.A. § 1268 reads as follows:

When a discharge permit holder finds that pollution abatement facilities require repairs, replacement or other corrective action in order for them to continue to meet standards specified in the permit, he may apply in the manner specified by the secretary for an emergency pollution permit for a term sufficient to effect repairs, replacements or other corrective action. The permit may be issued without prior public notice if the nature of the emergency will not provide sufficient time to give notice; provided that the secretary shall give public notice as soon as possible but in any event no later than five days after the issuance date of the emergency pollution permit. No emergency pollution permit shall be issued unless the applicant certifies and the secretary finds that:

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

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

B. RESPONSIBILITIES

1. Right of Entry

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

- a) To enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- b) To have access to and copy, at reasonable times, any records required to be kept under the terms and conditions of this permit;
- c) To inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d) To sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

2. Transfer of Ownership or Control

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

This request for transfer application must include as a minimum:

- a) A properly completed application form provided by the Secretary and the applicable processing fee.
- b) A written statement from the prospective owner or operator certifying:
 - i. The conditions of the operation that contribute to, or affect, the discharge will not be materially different under the new ownership;
 - ii. The prospective owner or operator has read and is familiar with the terms of the permit and agrees to comply with all terms and conditions of the permit; and

iii. The prospective owner or operator has adequate funding to operate and maintain the treatment system and remain in compliance with the terms and conditions of the permit.

c) The date of the sale or transfer.

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

3. Confidentiality

Pursuant to 10 V.S.A. § 1259(b):

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

Claims for confidentiality for the following information will be denied:

- a) The name and address of any permit applicant or Permittee.
- b) Permit applications, permits, and effluent data.
- c) Information required by application forms, including information submitted on the forms themselves and any attachments used to supply information required by the forms.

4. Permit Modification, Suspension, and Revocation

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

- a) Violation of any terms or conditions of this permit;
- b) Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- c) Reallocation of WLA under the LIS TMDL;
- d) Development of an integrated WWTF and stormwater runoff NPDES permit; or
- e) A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

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

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

5. Toxic Effluent Standards

If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under section 307(a) of the Clean Water Act for a toxic pollutant which is present in the Permittee's discharge and such standard or prohibition is more stringent than any limitation upon such pollutant in this permit, then this permit shall be modified or revoked and reissued, pursuant to Condition II.B.4. of this permit, in accordance with the toxic effluent standard or prohibition and the Permittee so notified.

6. Oil and Hazardous Substance Liability

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

7. Other Materials

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

- a) They are not:
 - i. Designated as toxic or hazardous under provisions of Sections 307 and 311, respectively, of the Clean Water Act, or
 - ii. Known to be hazardous or toxic by the Permittee,

except that such materials indicated in (i) and (ii) above may be discharged in certain limited amounts with the written approval of, and under special conditions established by, the Secretary or his/her designated representative, if the substances will not pose any imminent hazard to the public health or safety;

- b) The discharge of such materials will not violate the Vermont Water Quality Standards; and
- c) The Permittee is not notified by the Secretary to eliminate or reduce the quantity of such materials entering the water.

8. Navigable Waters

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

9. Civil and Criminal Liability

The Permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. Except as provided in “Bypass” (Condition II.A.5.) and “Emergency Pollution Permits” (Condition II.A.9.), nothing in this permit shall be construed to relieve the Permittee from civil or criminal penalties for noncompliance. Civil and criminal penalties for non-compliance are provided for in 10 V.S.A. Chapters 47, 201, and 211.

10. State Laws

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

11. Property Rights

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

12. Other Information

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

13. Severability

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

14. Authority

This permit is issued under authority of 10 V.S.A. §§ 1258 and 1259 of the Vermont Water Pollution Control Act, the Vermont Water Pollution Control Permit Regulation, and Section 402 of the Clean Water Act, as amended.

15. Definitions

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

Agency – means the Vermont Agency of Natural Resources

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

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

Bypass – means 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, or a holding tank when the system is cleaned or maintained.

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

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

Waste Management Zone – means a specific reach of Class B(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. 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 include all rivers, streams, creeks, brooks, reservoirs, ponds, lakes, springs, and all bodies of surface waters, artificial or natural, which are contained within, flow through, or border upon the State or any portion of it.

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

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

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

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

**FACT SHEET FOR DRAFT PERMIT
(November 2017, Amended August 2018)**

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

PERMIT NO: 3-1167
PIN: NS99-0009
NPDES NO: VT0100609

NAME AND ADDRESS OF APPLICANT:

Village of Saxtons River
PO Box 243
Saxtons River, VT 05154

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Village of Saxtons River
21 Plant Road
Saxtons River, VT 05154

RECEIVING WATER: Saxtons River

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

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

The Secretary of the Vermont Agency of Natural Resources (Secretary) received a renewal application for the permit to discharge into the Saxtons River from the Village of Saxtons River on September 21, 2009. The Village is currently operating under a discharge permit issued on April 1, 2005 (hereafter referred to as the “current permit”). The current permit has been administratively continued, pursuant to 3 V.S.A. § 814, as the applicant filed a complete application for permit reissuance within the prescribed time period 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 Village of Saxtons River (Permittee) owns the Saxtons River Wastewater Treatment Facility (WWTF). The Facility is engaged in secondary treatment of residential, commercial, and industrial wastewater from the Village of Saxtons River using an extended aeration activated sludge process followed by seasonal sodium hypochlorite disinfection and dechlorination. The design flow of the WWTF is 0.105 million gallons per day (MGD). A map showing the location of the WWTF, outfall, and the receiving water is provided in the Reasonable Potential Determination (RPD) (see Attachment A).

The WWTF has received approval to perform an upgrade, which will replace the existing oxidation ditch and chlorine disinfection system with a fine screen, grit removal system, two sequencing batch reactors (SBR), ultraviolet light (UV) disinfection system, and an equalization basin. In addition, the Facility has received approval to abandon the existing outfall pipe associated with the existing treatment infrastructure, and install a new outfall pipe to the Saxtons River. The discharge point within the Saxtons River will be extended toward the opposite bank of the river to accommodate for river channel evolution and migration caused by severe flooding associated with Tropical Storm Irene.

II. Description of Discharge

The WWTF continuously discharges treated wastewater effluent to the Saxtons River through primary WWTF outfall S/N 001.

III. Limitations and Monitoring Requirements

The draft permit contains limitations for effluent flow, biochemical oxygen demand (BOD), total suspended solids (TSS), settleable solids, *Escherichia coli* (*E. coli*), total residual chlorine (TRC), and pH. The permit also contains monitoring requirements for total nitrogen (TN), total phosphorus (TP), and annual constituents in accordance with 40 C.F.R. § 122.21(j). The basis for these limitations and monitoring requirements are explained in Section VI. of this fact sheet.

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. Under this section of the Act, the U.S. Environmental Protection Agency (EPA) may “issue a permit for the discharge of any pollutant, or combination of pollutants” in accordance with certain conditions. CWA § 402(a). The State of Vermont has been approved by 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).

B. 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 consecutive days with a recurrence interval of once in 10 years (7Q10) for aquatic life and human health criteria for non-carcinogens, or at all flows for human health (carcinogens only) in the receiving water. For nutrients, available dilution for stream and river discharges is assessed using the low median monthly flow computed as the median flow of the month containing the lowest annual flow. Available dilution for lakes is based on mixing zones of no more than 200 feet in diameter, in any direction, from the effluent discharge point, including as applicable the length of a diffuser apparatus; and
6. All effluent limitations, monitoring requirements, and other conditions of the proposed draft permit.

The Reasonable Potential Determination for this facility is attached to this fact sheet as Attachment A.

C. Anti-Backsliding

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

V. Description of Receiving Water

The receiving water for this discharge is the Saxtons River, a designated Cold Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 69 square miles. The summer 7Q10 flow of the river is estimated to be 3.73 cubic feet per second (CFS) and the summer Low Median Monthly flow is estimated to be 13.38 CFS. The instream waste concentration at the summer 7Q10 flow is 0.042 (4.2%) and the instream waste concentration at the summer Low Median Monthly flow is 0.012 (1.2%).

In addition, the Saxtons River basin drains into the Long Island Sound via the Connecticut River, which is impaired for total nitrogen and is subject to a Total Maximum Daily Load (TMDL) for nitrogen. This is discussed further in Section VI.C.2. of this fact sheet.

VI. 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 0.105 million gallons per day (MGD). Continuous flow monitoring is required under the draft permit.

B. Conventional Pollutants**1. 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 (26.3 lbs/day, monthly average and 39.4 lbs/day, weekly average) are calculated using the concentration limits outlined above. The BOD₅ monthly monitoring requirement is unchanged from the current permit.

2. 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, 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 (26.3 lbs/day, monthly average and 39.4 lbs/day, weekly average) are calculated using the concentration limits outlined above. The TSS monthly monitoring requirement is unchanged from the current permit.

3. Fecal Coliform - *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, monthly monitoring is required.

4. 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 Toxic Pollutants

1. Total Phosphorus (TP)

To gather data on the amount of Total Phosphorus (TP) in this discharge and its potential impact on the receiving water, a monthly “monitor only” requirement for TP has been included in this permit.

Per EPA excess nitrogen and phosphorus 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 phosphorus dependent, others nitrogen dependent and others are co-dependent on these two nutrients.

In light of the adoption of numeric water quality criteria for phosphorus in the revised Vermont Water Quality Standards (effective October 30, 2014), the Secretary is including monitoring requirements for TP in discharge permits. The Permittee shall monitor the discharge for TP once per month to be consistent with WWTFs of similar size in Vermont.

2. Total Nitrogen (TN)

On November 10, 2011, a letter from the EPA (Region I) to the Secretary indicated that Vermont must establish TN limitations in permits such that the TN load from all facilities in the Connecticut River watershed is consistent with the requirements of the Long Island Sound Total Maximum Daily Load (TMDL).

Section I.C.1. in this permit requires the Permittee have a qualified entity develop and submit a Nitrogen Removal Optimization Plan. The plan shall be provided to the Secretary before implementation. Because the Saxtons River WWTF is undergoing a complete facility upgrade, the deadline to submit the plan is set for six months following the upgrade's completion. This deadline will allow the plan to account for the new treatment infrastructure installed at the Facility.

Implementation of the plan shall occur after construction has been completed. Additionally, an annual report will be due to the Secretary documenting the pounds of TN discharged as well as removal optimization and efficiencies; the first annual report shall be submitted by January 15, 2019, as an attachment to the December 2018 electronic discharge monitoring report submittal.

Finally, this Condition contains as clause that allows the Secretary to reopen the permit to include a wasteload allocation for this facility based on the LIS TMDL.

TN is a calculated value based on Total Kjeldahl Nitrogen (TKN) and Nitrate/Nitrite (NO_x) Nitrogen. Monthly monitoring will be required for TKN and NO_x. The sum of TKN and NO_x shall be used to derive TN.

3. 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.

4. Toxicity Testing

40 C.F.R. § 122.44(d)(1) require the Secretary to assess whether the discharge causes, or has the reasonable potential to cause or contribute to an excursion above any narrative or numeric water quality criteria. In accordance with 40 C.F.R. § 122.44(d)(1), **Condition I.G.1. of the draft permit requires the facility to collect two-species 48-hour acute and 7-day chronic WET tests in August or September of 2019 and January or February 2021.**

If the results of these tests indicate a reasonable potential to cause an instream toxic impact, the Secretary may require additional WET testing, establish a WET limit, or require a Toxicity Reduction Evaluation.

5. Annual Constituent 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 Condition I.H.3. of the draft permit. Samples must be collected once annually such that by the end of the term of the permit, all quarters have been sampled at least once, and the results will be submitted by December 31 of each year. Refer to the "Guidance for Annual Constituent Monitoring" document to determine the season in which samples should be taken each year.

D. Special Conditions

1. WWTF Upgrade

Condition I.B. of the draft permit outlines requirements pertaining to the upgrade of the WWTF. Condition I.B.1. specifies the approved Basis for Final Design, which the upgrade shall comply with. Condition I.B.2. requires the Permittee to submit an engineer's certification to notify the Secretary that the new WWTF is operational.

2. 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 existing waste management zone is representative of the existing discharge point and new discharge point, associated with the new outfall structure to be completed during the forthcoming WWTF upgrade. Therefore, the draft permit retains the existing waste management zone that extends downstream from the outfall for approximately one mile in the Saxtons River.

3. Operation, Management and Emergency Response Plans

As required by the revisions to 10 V.S.A. § 1278, promulgated in the 2006 legislative session, Condition I.J. has been included in the draft permit. This condition requires that the Permittee submit and implement the Operation, Management and Emergency Response Plans for the WWTF, for the treatment facility, sewage pumping stations, sewer line streams crossings, and sewage collection system. The Permittee shall revise these plans upon the Secretary's request or on its own motion to reflect equipment or operational changes.

4. Electric Power Failure Plan

To ensure the WWTF can continue operations even during the event of a power failure, Condition I.K. has been included in this draft permit. Within 6 months of completing the WWTF upgrade, the Permittee must submit to the Secretary updated documentation addressing how the discharge will be handled in the event of an electric power outage.

5. 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.

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 has 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, Condition 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 Determination

The Secretary has conducted a Reasonable Potential Determination, which is attached to this fact sheet as Attachment A. Based on this analysis, the Secretary has determined that this discharge does not cause, have a reasonable potential to cause, or contribute to an instream toxic impact or instream excursion above the water quality criteria, and as such, the development of water quality-based effluent limitations is not necessary. The effluent water quality monitoring and chemical and biological assessments conducted above and below the Saxtons River WWTF discharge support this conclusion. The biological monitoring results consistently indicate the Saxtons River attains all thresholds, and complies with the Vermont Water Quality Standards for all identified response variables presented in Section 29A-306(a)(3)(C). The Reasonable Potential Determination supports the effluent monitoring described in the draft permit.

VII. Procedures for Formulation of Final Determinations

The public comment period for receiving comments on this draft permit is from **November 8, 2017 through December 8, 2017**. The Agency received no comments from the public concerning this draft permit.

ATTACHMENT A – REASONABLE POTENTIAL DETERMINATION

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

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

MEMORANDUM

To: Nick Giannetti, Wastewater Program (WWP)

From: Rick Levey, Monitoring, Assessment and Planning Program (MAPP) *Rick Levey 10/26/17*

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

Date: October 26, 2017

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

MAPP has evaluated the draft permit limits for the Saxtons WWTF in Saxtons River, 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 Saxtons River WWTF prepared by the WWP.

Facility:

Saxtons River Wastewater Treatment Facility
Permit No. 3-1167
NPDES No. VT0100609

Hydrology for Saxtons River WWTF used in this evaluation:

Design Flow: 0.105 MGD = 0.162 CFS
7Q10 = 3.73 CFS
LMM = 13.38 CFS
IWC-7Q10 = 0.042 (IWC > 1%)
IWC-LMM = 0.012 (IWC > 1%)

Receiving Water:

Saxtons River, Saxtons River, VT
Facility Location: Lat. 43.13750 Long. 72.50479 (NAD 83)

The Saxtons River downstream of the Saxtons River WWTF is classified as Class B and is designated a Cold-Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 69 square miles. The proposed permit waste management zone (WMZ) in the Saxtons River begins at the outfall of this WWTF and extends downstream approximately 1.0 mile (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 VWQS. For the Saxtons River segment to which this facility discharges, the database indicates the Saxtons River from mouth to River Mile (RM) 5.0 below the Saxtons River WWTF is stressed due to enrichment from phosphorus and incomplete stream canopy. Stressed waters are in compliance with the Water Quality Standards, though stressors are present that impede the water from attaining the highest water quality.

Ambient Chemistry Data for the Stevens Branch above and below the Williamstown WWTF:

There is ambient chemistry data available from VTDEC sampling that occurred in 2008, 2012, and 2015 bracketing the facility outfall with sites at RM 5.0 and RM 4.5. Additionally, Southeastern Vermont Watershed Alliance’s (SeVWA’s) water quality program made possible by the VTDEC LaRosa Partnership Program has collected water chemistry data (TP, TN, Turbidity) above and below the WWTF. For this evaluation, the VTDEC data will be used, as this sampling targeted the low flow conditions needed.

Water chemistry measures for the following parameters are available: pH, hardness, dissolved oxygen, turbidity, total phosphorus (TP), total nitrogen (TN), total ammonia (TAN) and water temperature are summarized in Table 1. Priority metals were analyzed below the WWTF at RM 4.5 and were all below detection limits (Table 4).

Data representiveness 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 5.0 and RM 4.5 effectively bracket the WWTF outfall (Figure 1). The downstream sampling location is the most sensitive location, and the sampling results are representative of low flows based on the actual flows shown from the USGS gauge, and field notes collected by DEC technical staff. Thus, the data presented below are relevant for inclusion in this analysis.

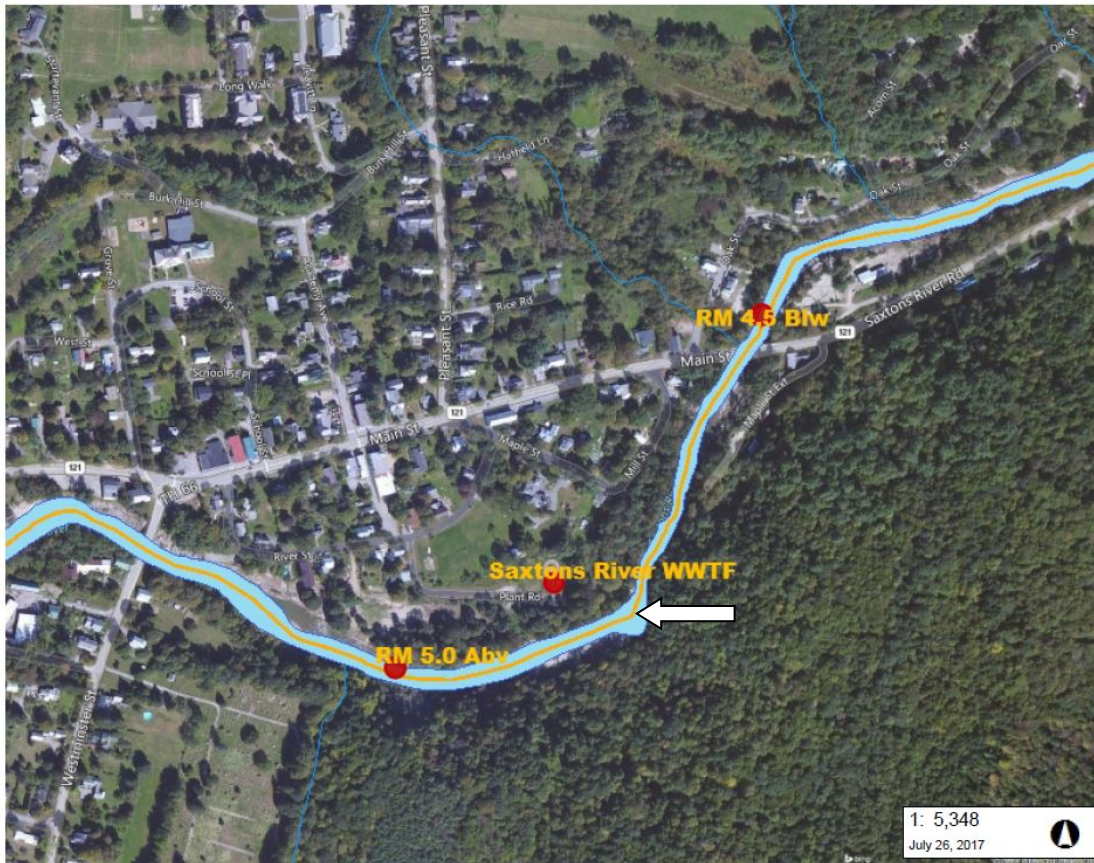
Table 1: Concentrations of surface-water chemistry above and below the Saxtons River Wastewater Treatment Facility (River Mile 5.0 and RM 4.5 refer to stations above and below the outfall respectively).

Sample Date	River Mile	pH	Hardness	DO (%)	DO (mg/l)	Turbidity (NTU)	Total Phosphorus (ug/l)	Total Nitrogen (mg/l)	Total Ammonia Nitrogen (mg/l)	Water Temp (deg C)
9/25/2008	5.0	7.85	30.6	89.2	8.74	0.33	5.65	<0.1	-	16.0
9/25/2008	4.5	7.8	32	112	12.1	0.32	20.4	0.22	-	13.6
9/21/2012	5.0	7.84	36	112	10.75	0.61	6.82	<0.1	<0.05	13.8
9/21/2012	4.5	7.82	37	-	-	0.56	11.9	0.11	<0.05	13.5
8/10/2015	5.0	8.32	38	-	-	0.48	8.46	0.18	<0.05	23.4
8/10/2015	4.5	-	40.5	-	-	0.35	26.5	0.34	<0.05	23.6



LEGEND

- Stressed Waters List (Streams)
- Waterbody
- Stream
- Town Boundary



272.0 0 136.00 272.0 Meters
 WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 446 Ft. 1cm = 53 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. Saxtons River near the Saxtons River WWTW, showing up and downstream sampling locations (RM 5.0 & 4.5). Outfall location shown by arrow. Figure taken from the Vermont Integrated Watershed Assessment System on the VTANR Atlas (<https://anrweb.vt.gov/DEC/IWIS/>).

Total Phosphorus (TP) values above the outfall (RM 5.0) from 2008 - 2012 ranged from 5.65 – 8.45 µg/L. Below the outfall (RM 4.5) for the same period TP values ranged from 11.9 – 26.5 µg/L, illustrating a downstream increase below the WWTW of 5.0 – 18.0 µg/L-TP.

Total Nitrogen (TN) values above the outfall (RM 5.0) from 2008 - 2012 ranged from <0.1 – 0.18 mg/L. Below the outfall (RM 4.5) for the same period TN values ranged from 0.11 – 0.34 mg/L, illustrating a minor increase.

Turbidity, Dissolved Oxygen, pH:

Turbidity values above the outfall (RM 5.0) ranged from 0.33 – 0.61 Nephelometric Turbidity (NTU). Turbidity below the outfall (RM 4.5) were 0.32 – 0.56 NTU, illustrating a slight decrease in turbidity below the WWTW. Dissolved oxygen and percent saturation above ranged from 8.7 – 10.7 mg/L and 89.2 - 112 percent respectively. Below the outfall (RM 4.5) dissolved oxygen and percent saturation were 12.1 mg/L and 112 percent saturation respectively. All pH values were within the range of VWQS, at RM 5.0 the pH ranged from 7.84 - 8.32, below at RM 4.5 the pH ranged from 7.8 – 7.82.

Biological Assessments:

Biological assessments were conducted below the Saxtons River WWTF at RM 4.5 (Table 2) most recently in 2008 & 2012. The bioassessments conducted at RM 4.5 have met water quality standards for all years sampled for Medium High Gradient Stream Type. Biological assessments have not been conducted above the WWTF since 1995, as such the upstream data has not been used for this evaluation.

Table 2. Results of the Biological Monitoring for Macroinvertebrates on the Saxtons River, downstream (RM 4.5) of the Saxtons River WWTF outfall.

Macroinvertebrate Site Summary										
Location:	Saxtons River						Location ID:	501283		
Town:	Rockingham						Bio Site ID:	060000000045		
Description:	Located below WWTF (1/4mi below bridge). Aprox. 0.4 miles below Saxton						WBID:	VT11-05		
Stream Type:	Medium High Gradient									
Date	Density	Richness	EPT Richness	PMA-O	B.I.	Oligo.	EPT/EPT + Chiro	PPCS-F	Community Assessment	
10/4/1993	2100	44.0	22.0	78.4	4.42	0.00	0.71	0.56	Meets WQS	
9/25/2008	3640	51.0	29.0	78.0	4.50	1.10	0.97	0.46	Meets WQS	
9/21/2012	1006	41.0	18.0	66.7	4.78	0.00	0.93	0.49	Meets WQS	
Full Support	≥ 350	≥ 32	≥ 20	≥ 50	≤ 4.85	≤ 9.5	≥ 0.47	≥ 0.45		
Meets Threshold	≥ 300	≥ 30	≥ 18	≥ 45	≤ 5	≤ 12	≥ 0.45	≥ 0.4		
Near Threshold	≥ 250	≥ 28	≥ 16	≥ 40	≤ 5.15	≤ 14.5	≥ 0.43	≥ 0.35		
Non-Support	< 250	< 28	< 16	< 40	> 5.15	> 14.5	< 0.43	< 0.35		

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

Total Nitrogen:

Total Nitrogen - EPA, in a November 10, 2011 letter to the Agency, indicated that Vermont must establish total nitrogen limitations in permits such that the total nitrogen load from all facilities in the Connecticut River watershed is consistent with the requirements of the Long Island Sound Total Maximum Daily Load (TMDL). We note and support the requirement for an optimization study to address controllable nitrogen discharges, and further note the requirement for a renewed engineering analysis, which will indicate options for the facility compliance with the Long Island Sound TMDL Wasteload Allocation. These beneficial provisions will ensure that receiving waters remain fully compliant with Vermont Water Quality Standards. Further, weekly monitoring will be required for Total Kjeldahl Nitrogen and Nitrate/Nitrite (NOx) Nitrogen. The sum of TKN and NOx shall be calculated to determine Total Nitrogen (TN).

Total Phosphorus:

Instream Phosphorus Concentrations were calculated using the low monthly median flow (LMM) of 13.38 CFS at design flow of 0.162 CFS (0.105 MGD) and using the effluent phosphorus concentration of 3.3 mg/L which is the average monthly effluent concentration observed during 2012 – 2016, from facility monitoring records; effluent TP values ranged from 0.91 – 5.5 mg/L-TP (n=5). The calculated phosphorus concentration at these conditions attributable to discharge is 0.039 mg/L (39 µg/L).

The instream TP observed below the outfall at RM 4.5 (Table 1) showed an increase below the outfall of 5.0 – 18.0 µg/L, significantly less than the 39 µg/L-TP shown above.

Review of the Saxtons River WWTF flow records indicate that average flow for 2012- 2017 is about 1/3rd (0.037 MGD) of the design flow (0.105 MGD). Instream TP concentrations at these flow rates would be 13.65 µg/L-TP using the average effluent concentration observed, and are in alignment with instream TP monitoring results when considering the variable effluent TP concentrations observed.

The Saxtons River WWTF has received approval to perform an upgrade, which will replace the oxidation ditch and chlorine disinfection system with a fine screen, grit removal system, two sequencing batch reactors (SBR), ultraviolet light (UV) disinfection system, and an equalization basin. These upgrades anticipated to begin in 2017 will significantly decrease the instream phosphorus concentrations. It is anticipated that once these upgrades are in place, the improved effluent quality will be reflected in subsequent bioassessments attaining higher water quality below the facility.

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

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

To interpret this standard, MAPP typically relies on a framework which examines TP concentrations in relation to existing numeric phosphorus criteria and response criteria in §29A-306(a)(3)(c) of the Water Quality Standards, for streams that can be assessed using macroinvertebrate biocriteria. Under this framework, MAPP can make a positive finding of compliance with the narrative standard when nutrient criteria are attained, or when specific nutrient response variables; pH, Turbidity, Dissolved Oxygen, and aquatic life use, all display compliance with their respective criteria in the Water Quality Standards.

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

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

Response variable (VWQS reference)	Target Value	River-mile 5.0 (Upstream)	River-mile 4.5 (Downstream)
pH (§3-01.B.9), range	<8.5 s.u.	8.32	7.82
Turbidity (§3-04.B.1), range	< 10 NTU at low mean annual flow	0.48	0.35
Dissolved Oxygen (§3-04.B.2), min	>6 mg/L and 70% saturation	10.75 (112%)	12.1 (112%)
Aquatic biota, based on macroinvertebrates, (§3-04-B.4), also see Table 2.	Attaining an assessment of good, or better.	NA	Meets WQS (2012)

Whole Effluent Toxicity (WET) and Priority Pollutant Testing:

40 C.F.R. § 122.44(d)(1) requires the Agency to assess whether the discharge causes, or has the reasonable potential to cause or contribute to an excursion above any narrative or numeric water quality criteria. The goal of the Vermont Toxic Discharge Control Strategy is to assure that the state water quality standards and receiving water classification criteria are maintained. The 2005 permit required a two-species WET acute test be conducted in August or September 2008. There was no toxicity observed in the WET test, which was conducted in August 2009; the A-NOEC was 100% and A-LC50 was 100%.

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

Ammonia Monitoring:

Review of the Saxtons River WWTF effluent ammonia records from 2012 - 2016, indicate effluent ammonia concentrations ranged from 0.5 mg – 2 mg TAN/L. Using the highest effluent ammonia concentration of 2.0 mg/L TAN observed in 2014, the receiving water concentration (RWC) at 7Q10 instream waste concentration (IWC) of 4.2% used for implementing the acute criteria would be 0.084 mg TAN/L (7Q10 IWC .042 X 2.0 mg TAN/L). This value is below both the chronic and acute ammonia criteria, illustrating that there is not a reasonable potential for VWQS excursion. MAPP supports the ammonia monitoring be continued to provide additional data for evaluation.

Sediment, Hardness, and Metals:

Instream total suspended solids were calculated using the 7Q10 of 3.73 CFS at design flow of 0.162 CFS (0.105 MGD), assuming the maximum permitted daily concentration of 50 mg/L. The calculated suspended sediment concentration at these conditions was 2.1 mg/l, indicating a modest increase of instream ambient suspended sediment concentrations in receiving waters.

The hardness of the Saxtons River below the Saxtons River WWTF (RM 4.5) was recorded to be 40.5 mg/l CaCO₃ on 8/10/2015 (Table 1). Hardness data is utilized to determine compliance with Vermont’s aquatic biota based metals criteria as specified in § 29A-303(7) and Appendix C of the Vermont Water Quality Standards. Vermont DEC priority metal chemistry data below the outfall (Table 4) did not detect any exceedances and were below detection for all priority metals.

Table 4. Saxtons River Metals Water Chemistry – below the Saxtons River WWTF outfall at RM 4.5.

Date	8/10/2015
Site	Saxtons River (RM 4.5)
Total Aluminum (ug/l)	< 50
Total Antimony (ug/l)	< 10
Total Arsenic (ug/l)	< 1
Total Beryllium (ug/l)	< 1
Total Cadmium (ug/l)	< 1
Total Chromium (ug/l)	< 5
Total Cobalt (ug/l)	< 1
Total Copper (ug/l)	< 10
Total Iron (ug/l)	68.5
Total Lead (ug/l)	< 1
Total Manganese (ug/l)	12.2
Total Molybdenum (ug/l)	< 5
Total Nickel (ug/l)	< 5
Total Selenium (ug/l)	< 5
Total Silver (ug/l)	< 1
Total Thallium (ug/l)	< 1
Total Zinc (ug/l)	< 50

Recommended Biological and Water Quality Monitoring:

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

Conclusion:

The available data indicate that this discharge does not cause, have a reasonable potential to cause, or contribute to an instream toxic impact or instream excursion above the water quality criteria. As such, the development of WQBELs will not be necessary. Additionally, as discussed in the “*Phosphorus Section*” above, facility upgrades including sequencing batch reactors (SBR) will result in phosphorus reductions that will be reflected in higher water quality below the facility.