

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

Permit No.: 3-1281  
PIN: NS97-0295  
NPDES No.: VT0100706

Name of Applicant: Town of Wilmington  
PO Box 217  
Wilmington, Vermont 05363

Expiration Date: September 30, 2023

DISCHARGE PERMIT

In compliance with the provisions of the Vermont Water Pollution Control Act as amended (10 V.S.A. chapter 47), the Vermont Water Pollution Control Permit Regulations as amended (Environmental Protection Rules, Chapter 13), and the federal Clean Water Act as amended (33 U.S.C. § 1251 *et seq.*), and implementing federal regulations, the Town of Wilmington, Vermont (hereinafter referred to as the "Permittee") is authorized by the Secretary of the Agency Natural Resources ("Secretary") to discharge from the Wilmington Wastewater Treatment Facility (WWTF) to the North Branch of the Deerfield River in accordance with the following conditions.

This permit shall become effective on October 1, 2018.

Emily Boedecker, Commissioner  
Department of Environmental Conservation

By: 

Date: September 18, 2018

Jessica Bulova, Wastewater Program Manager  
Watershed Management Division

**I. SPECIAL CONDITIONS**

**A. EFFLUENT LIMITS**

- During the term of this permit, the Permittee is authorized to discharge from outfall serial number S/N 001 of the Wilmington Wastewater Treatment Facility (WWTF) to the North Branch of the Deerfield River, an effluent for which the characteristics shall not exceed the values listed below:

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

Flow <sup>1</sup>	0.135 MGD	Monitor Only, MGD						
Ultimate Oxygen Demand <sup>2</sup> (June 1 – October 31)				121				
Biochemical Oxygen Demand (5-day, 20° C) (BOD <sub>5</sub> ) (November 1 – May 31)		34	51		30	45	50	
Total Suspended Solids (TSS)		34	51		30	45	50	
Total Phosphorus (TP)							Monitor only	
Total Ammonia Nitrogen (June 1 – September 30)				127.2				113.0 mg/l
Total Ammonia Nitrogen (October 1 – May 31)		92.2		502.8				446.6 mg/l
Total Nitrogen (TN) <sup>3</sup>	See Section 1.B.4.2						Monitor only	
Total Kjeldahl Nitrogen (TKN)							Monitor only	
Nitrate/Nitrite Nitrogen (NO <sub>x</sub> )							Monitor only	
Settleable Solids								1.0 ml/L
<i>Escherichia coli</i>								77/100mL
Total Residual Chlorine								0.1 mg/l
pH					Between 6.5-8.5 Standard Units			

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

<sup>2</sup> Ultimate Oxygen Demand (UOD) is defined by the following equation: UOD (lbs/day) = [(BOD<sub>5</sub> (lbs/day) x 1.43) + (TKN (lbs/day) x 4.57)]

<sup>3</sup> Total nitrogen (TN) shall be reported as pounds using the Nitrogen Form WR-43-TN and calculated as: Average TN (mg/L) x Total Daily Flow x 8.34; where, TN (mg/L) = TKN (mg/L) + NO<sub>x</sub> (mg/L)

2. The effluent shall not have concentrations or combinations of contaminants including oil, grease, scum, foam, or floating solids which would cause a violation of the Vermont Water Quality Standards.
3. The effluent shall not cause visible discoloration of the receiving waters.
4. The monthly average concentrations of Biochemical Oxygen Demand (BOD<sub>5</sub>) and Total Suspended Solids (TSS) in the effluent shall not exceed 15 percent of the monthly average concentrations of BOD<sub>5</sub> 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. Annually, by November, the Permittee shall measure the sludge depth throughout the treatment lagoons. The results of the sludge measurements and a copy of a plan depicting the grid location of the measurements shall be submitted with the December Discharge Monitoring Report (DMR) form WR-43.
7. Any action on the part of the Secretary in reviewing, commenting upon or approving plans and specifications for the construction of WWTFs shall not relieve the Permittee from the responsibility to achieve effluent limitations set forth in this permit and shall not constitute a waiver of, or act of estoppel against any remedy available to the Secretary, the State of Vermont or the federal government for failure to meet any requirement set forth in this permit or imposed by state or federal law.

## **B. TOTAL NITROGEN**

### **1. Optimization Plan**

By **December 30, 2018** the Permittee shall develop and submit to the Agency of Natural Resources for review and approval a Nitrogen Removal Optimization Evaluation Plan for the evaluation of alternative methods of operating the existing wastewater treatment facility to optimize the removal of nitrogen. The methods to be evaluated include: operational, process, 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 the existing mass discharge loading of total nitrogen (TN). The baseline annual average daily TN load discharge from this facility is estimated to be **approximately 15 lbs/day**.

This plan shall be developed by a qualified professional with experience in the operation and/or design of municipal wastewater treatment facilities 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 by the Permittee upon the Secretary's request to address equipment or operational changes.

Implementation of the plan shall commence within 30 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 and/or design of municipal wastewater treatment facilities 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 2019 and shall be attached to the December 2019 DMR form WR-43.

TN = Total Kjeldahl Nitrogen (TKN) + Nitrite/Nitrate (NO<sub>x</sub>).

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 facility nor does it convey any right to ownership of the facility'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 and/or additional monitoring requirements based on the monitoring data, the results of nitrogen optimization activities, or 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.

### C. WASTE MANAGEMENT ZONE

In accordance with 10 V.S.A. § 1252, this permit hereby establishes a waste management zone that extends from the outfall of the Wilmington Wastewater Treatment Facility in the North Branch of the Deerfield River downstream 1.0 mile.

### D. REAPPLICATION

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

Reapply for a Discharge Permit by:        March 31, 2023

### E. OPERATING FEES

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

### F. TOXICITY TESTING

#### 1. WHOLE EFFLUENT TOXICITY (WET) TESTING.

- a) During **August or September 2019**, the Permittee shall conduct a two-species (*Pimephales promelas* and *Ceriodaphnia dubia*) 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. The results shall be submitted to the Secretary by **December 31, 2019**.
- b) During **January or February 2021**, the Permittee shall conduct a 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. 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).

2. By **June 30, 2021**, the Permittee shall conduct an effluent analysis of S/N 001 for the pollutants included in Appendix J, Table 2 of 40 CFR Part 122 (see Attachment A) and submit the results to the Secretary.

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

**G. MONITORING AND REPORTING**

**1. Sampling and Analysis**

The sampling, preservation, handling, and analytical methods used shall conform to the test procedures published in Title 40 of the Code of Federal Regulations (C.F.R.) Part 136.

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

Samples shall be representative of the volume and quality of effluent discharged over the sampling and reporting period. All samples are to be taken during normal operating hours. The Permittee shall identify the effluent sampling location used for each discharge.

**2. Effluent Monitoring**

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

PARAMETER	MINIMUM FREQUENCY OF ANALYSIS	SAMPLE TYPE
Flow	Continuous	Daily Total, Max., Min.
Ultimate Oxygen Demand (June 1 – October 31)	1 × month	[Calculated <sup>1</sup> ]
Biochemical Oxygen Demand (BOD <sub>5</sub> )	1 × month	Composite <sup>2</sup>
Total Suspended Solids (TSS)	1 × month	Composite <sup>2</sup>
Total Phosphorus (TP)	1 × month	Composite <sup>2</sup>
Total Ammonia Nitrogen (TAN)	1 × month	Grab
Total Nitrogen (TN)	1 × month	[Calculated <sup>2,3,4</sup> ]
Total Kjeldahl Nitrogen (TKN)	1 × month	Composite <sup>2</sup>

Nitrate/Nitrite Nitrogen (NO <sub>x</sub> )	1 × month	Composite <sup>2</sup>
Settleable Solids	1 × day	Grab <sup>5</sup>
<i>Escherichia coli</i>	1 × month	Grab <sup>6</sup>
Total Residual Chlorine	1 × day	Grab <sup>7</sup>
pH	1 × day	Grab
Temperature	1 × year	Grab
Dissolved Oxygen	1 × year	Grab
Oil & Grease	1 × year	Grab
Total Dissolved Solids	1 × year	Composite <sup>2</sup>

*Samples collected in compliance with the monitoring requirements specified above shall be collected at the 90-degree weir before discharge to the North Branch of the Deerfield River.*

<sup>1</sup> Ultimate Oxygen Demand (UOD) is defined by the following equation: UOD (lbs/day) = [(BOD<sub>5</sub> (lbs/day) × 1.43) + (TKN (lbs/day) × 4.57)]

<sup>2</sup> Composite samples for BOD<sub>5</sub>, TSS, TP, TKN and NO<sub>x</sub> 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.

<sup>3</sup> TN = TKN + NO<sub>x</sub>

<sup>4</sup> Submit results each month on Total Nitrogen Monitoring Report Form WR-43-TN.

<sup>5</sup> Settleable Solids samples shall be collected between 6:00 AM and 6:00 PM or during the period of peak flow.

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

<sup>7</sup> Total Residual Chlorine shall be monitored and recorded both prior to and following dechlorination.

### 3. Annual Constituent Monitoring

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

Temperature  
Dissolved Oxygen  
Oil & Grease  
Total Dissolved Solids

Grab samples shall be used for Temperature, Ammonia, Dissolved Oxygen, and Oil & Grease; all other parameters shall be composite samples. 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). The first samples under this permit should be taken

during the summer season. For easy reference regarding the season in which sampling is recommended, 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 <sub>5</sub> )	1 × month	composite <sup>1</sup>
Total Suspended Solids (TSS)	1 × month	composite <sup>1</sup>
Total Nitrogen (TN)	1 × quarter	[calculated <sup>2,3</sup> ]
Total Kjeldahl Nitrogen (TKN)	1 × quarter	composite <sup>1,3,4</sup>
Nitrate/Nitrite Nitrogen (NO <sub>x</sub> )	1 × quarter	composite <sup>1,3,4</sup>

<sup>1</sup> Composite samples for BOD<sub>5</sub>, TSS, TKN and NO<sub>x</sub> shall be taken during the hours 6:00 AM to 6:00 PM, unless otherwise specified. Eight hours is the minimum period for the composite, 24 hours is the maximum for a composite.

<sup>2</sup> TN = TKN + NO<sub>x</sub>

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

<sup>4</sup> The influent TKN and NO<sub>x</sub> sample shall be collected on the same day as an effluent TKN and NO<sub>x</sub> sample.

**5. Reporting**

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

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

<https://anronline.vermont.gov/>

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

All reports shall be signed:

- a) In the case of corporations, by a principal executive officer of at least the level of vice president, or his/her duly authorized representative, if such representative is responsible



for the overall operation of the facility from which the discharge described in the permit form originates and the authorization is made in writing and submitted to the Secretary;

- b) In the case of a partnership, by a general partner;
- c) In the case of a sole proprietorship, by the proprietor; or
- d) In the case of a municipal, State, or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.

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

## **6. Recording of Results**

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

- a) The exact place, date, and time of sampling or measurement;
- b) The individual(s) who performed the sampling or measurements;
- c) The dates and times the analyses were performed;
- d) The individual(s) who performed the analyses;
- e) The analytical techniques and methods used including sample collection handling and preservation techniques;
- f) The results of such analyses;
- g) The records of monitoring activities and results, including all instrumentation and calibration and maintenance records; and
- h) The original calculation and data bench sheets of the operator who performed analysis of the influent or effluent pursuant to requirements of Condition I.A of this permit.
- i) For analyses performed by contract laboratories:
  - a. The detection level reported by the laboratory for each sample; and
  - b. The laboratory analytical report including documentation of the QA/QC and analytical procedures.

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

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

## **7. Additional Monitoring**

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

## **H. DRY WEATHER FLOWS**

Dry weather flows of untreated municipal wastewater from any sanitary or combined sewers are not authorized by this permit and are specifically prohibited by state and federal laws and regulations. If for any reason there is a discharge to waters of the State of dry weather flows of untreated municipal wastewater from any sanitary or combined sewer, the operator of the facility or the operator’s delegate shall comply with the notice requirements outlined in Condition II.A.2 of this permit.

## **I. OPERATION, MANAGEMENT, AND EMERGENCY RESPONSE PLANS**

1. The Permittee shall implement the Operation, Management, and Emergency Response Plan for the treatment facility, sewage pumping stations, and sewer line stream crossings as approved by the Secretary on August 1, 2008.
2. The Permittee shall implement the Operation, Management, and Emergency Response Plan for the sewage collection system as approved by the Secretary on November 9, 2010.

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

## **J. EMERGENCY ACTION - ELECTRIC POWER FAILURE**

The Permittee shall indicate in writing to the Secretary **within 90 days after the issuance date of this permit** that in the event the primary source of electric power to the WWTF (including pump stations) fails, the Permittee shall either provide an alternative source of power for the operation of its WWTF, or demonstrate that the treatment facility has the capacity to store the wastewater volume that would be generated over the duration of the longest power failure that would have affected the facility in the last five years, excluding catastrophic events.

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

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

## **K. SEWER ORDINANCE**

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

1. Prohibit the introduction by any person into the Permittee's sewerage system or WWTF of any pollutant which:
  - a) Is a toxic pollutant in toxic amounts as defined in standards issued from time to time under Section 307(a) of the Clean Water Act;
  - b) Creates a fire or explosion hazard in the Permittee's treatment works;
  - c) Causes corrosive structural damage to the Permittee's treatment works, including all wastes with a pH lower than 5.0;
  - d) Contains solid or viscous substances in amounts which would cause obstruction to the flow in sewers or other interference with proper operation of the Permittee's treatment works; or
  - e) In the case of a major contributing industry, as defined in this permit, contains an incompatible pollutant, as defined in this permit, in an amount or concentration in excess of that allowed under standards or guidelines issued from time to time pursuant to Sections 304, 306, and/or 307 of the Clean Water Act.
2. Require 45 days prior notification to the Permittee by any person or persons of a:
  - a) Proposed substantial change in volume or character of pollutants over that being discharged into the Permittee's treatment works at the time of issuance of this permit;
  - b) Proposed new discharge into the Permittee's treatment works of pollutants from any source which would be a new source as defined in Section 306 of the Clean Water Act if such source were discharging pollutants; or
  - c) Proposed new discharge into the Permittee's treatment works of pollutants from any source which would be subject to Section 301 of the Clean Water Act if it were discharging such pollutants.
3. Require any industry discharging into the Permittee's treatment works to perform such monitoring of its discharge as the Permittee may reasonably require, including the installation, use, and maintenance of monitoring equipment and monitoring methods, keeping records of the results of such monitoring, and reporting the results of such monitoring to the Permittee. Such records shall be made available by the Permittee to the Secretary upon request.

4. Authorize the Permittee's authorized representatives to enter into, upon, or through the premises of any industry discharging into the Permittee's treatment works to have access to and copy any records, to inspect any monitoring equipment or method required under subsection 3 above, and to sample any discharge into the Permittee's treatment works.

## II. GENERAL CONDITIONS

### A. MANAGEMENT REQUIREMENTS

#### 1. Facility Modification / Change in Discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant more frequently than, or at a level in excess of, that identified and authorized by this permit shall constitute a violation of the terms and conditions of this permit. Such a violation may result in the imposition of civil and/or criminal penalties pursuant to 10 V.S.A. chapters 47, 201, and/or 211. Any anticipated facility alterations or expansions or process modifications which will result in new, different, or increased discharges of any pollutants must be reported by submission of a new permit application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the Secretary of such changes. Following such notice, the permit may be modified, pursuant to Condition II.B.4 of this permit, to specify and limit any pollutants not previously limited.

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

- a) Any new introduction of pollutants into the treatment works from a source which would be a new source as defined in Section 306 of the Clean Water Act if such source were discharging pollutants;
- b) Except for such categories and classes of point sources or discharges specified by the Secretary, any new introduction of pollutants into the treatment works from a source which would be subject to Section 301 of the Clean Water Act if such source were discharging pollutants; and
- c) Any substantial change in volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into such works at the time of issuance of the permit.

The notice shall include:

- i. The quality and quantity of the discharge to be introduced into the system, and
- ii. The anticipated impact of such change in the quality or quantity of the effluent to be discharged from the WWTF.

#### 2. Noncompliance Notification

- a) The Permittee shall give advance notice to the Secretary of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- b) In the event the Permittee is unable to comply with any of the conditions of this permit due, among other reasons, to:
  - i. Breakdown or maintenance of waste treatment equipment (biological and physical-chemical systems including all pipes, transfer pumps, compressors, collection ponds or tanks for the segregation of treated or untreated wastes, ion exchange columns, or carbon absorption units);
  - ii. Accidents caused by human error or negligence;
  - iii. Any unanticipated bypass or upset which exceeds any effluent limitation in the permit;
  - iv. Violation of a maximum day discharge limitation for any of the pollutants listed by the Secretary in this permit; or
  - v. Other causes such as acts of nature,

the Permittee shall provide notice as specified in subdivisions (c) and (d) of this subsection.

- c) Pursuant to 10 V.S.A. §1295, notice for “untreated discharges,” as defined.
  - i. Public notice. For “untreated discharges” an operator of a WWTF or the operator’s delegate shall as soon as possible, but no longer than one hour from discovery of an untreated discharge from the WWTF, post on a publicly accessible electronic network, mobile application, or other electronic media designated by the Secretary an alert informing the public of the untreated discharge and its location, except that if the operator or his or her delegate does not have telephone or Internet service at the location where he or she is working to control or stop the untreated discharge, the operator or his or her delegate may delay posting the alert until the time that the untreated discharge is controlled or stopped, provided that the alert shall be posted no later than four hours from discovery of the untreated discharge.
  - ii. Secretary notification. For “untreated discharges” an operator of a WWTF shall within 12 hours from discovery of an untreated discharge from the WWTF notify the Secretary and the local health officer of the municipality where the facility is located of the untreated discharge. The operator shall notify the Secretary through use of the Department of Environmental Conservation’s online event reporting system. If, for any reason, the online event reporting system is not operable, the operator shall notify the Secretary via telephone or e-mail. The notification shall include:

- (1) The specific location of each untreated discharge, including the body of water affected. For combined sewer overflows, the specific location of each untreated discharge means each outfall that has discharges during the wet weather storm event.
  - (2) Except for discharges from a WWTF to a separate storm sewer system, the date and approximate time the untreated discharge began.
  - (3) The date and approximate time the untreated discharge ended. If the untreated discharge is still ongoing at the time of reporting, the entity reporting the untreated discharge shall amend the report with the date and approximate time the untreated discharge ended within three business days of the untreated discharge ending.
  - (4) Except for discharges from a WWTF to a separate storm sewer system, the approximate total volume of sewage and, if applicable, stormwater that was released. If the approximate total volume is unknown at the time of reporting, the entity reporting the untreated discharge shall amend the report with the approximate total volume within three business days.
  - (5) The cause of the untreated discharge and a brief description of the noncompliance, including the type of event and the type of sewer structure involved.
  - (6) The person reporting the untreated discharge.
- d) For any non-compliance not covered under Condition II.A.2.c. of this permit, an operator of a WWTF or the operator's delegate shall notify the Secretary within 24 hours of becoming aware of such condition and shall provide the Secretary with the following information, in writing, within five days:
- i. Cause of non-compliance;
  - ii. A description of the non-complying discharge including its impact upon the receiving water;
  - iii. Anticipated time the condition of non-compliance is expected to continue or, if such condition has been corrected, the duration of the period of non-compliance;
  - iv. Steps taken by the Permittee to reduce and eliminate the non-complying discharge; and
  - v. Steps to be taken by the Permittee to prevent recurrence of the condition of non-compliance.

### **3. Operation and Maintenance**

All waste collection, control, treatment, and disposal facilities shall be operated in a manner consistent with the following:

- a) The Permittee shall, at all times, maintain in good working order and operate as efficiently as possible all treatment and control facilities and systems (and related appurtenances) installed or used by the Permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the Permittee only when the operation is necessary to achieve compliance with the conditions of this permit.
- b) The Permittee shall provide an adequate operating staff which is duly qualified to carry out the operation, maintenance, and testing functions required to ensure compliance with the conditions of this permit; and
- c) The operation and maintenance of this facility shall be performed only by qualified personnel who are licensed as required by 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  $\pm 10\%$ .

#### **5. Bypass**

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

#### **6. Duty to Mitigate**

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

## **7. Records Retention**

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

## **8. Solids Management**

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

## **9. Emergency Pollution Permits**

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

10 V.S.A. § Section 1268 reads as follows:

When a discharge permit holder finds that pollution abatement facilities require repairs, replacement or other corrective action in order for them to continue to meet standards specified in the permit, he may apply in the manner specified by the secretary for an emergency pollution permit for a term sufficient to effect repairs, replacements or other corrective action. The Secretary shall proceed in accordance with chapter 170 of this title. No emergency pollution permit shall be issued unless the applicant certifies and the secretary finds that:

- (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, 2<sup>nd</sup> Floor, Montpelier VT 05620-3522.

## **B. RESPONSIBILITIES**

### **1. Right of Entry**

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

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

### **2. Transfer of Ownership or Control**

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

This request for transfer application must include as a minimum:

- a) A properly completed application form provided by the Secretary and the applicable processing fee.

- b) A written statement from the prospective owner or operator certifying:
  - i. The conditions of the operation that contribute to, or affect, the discharge will not be materially different under the new ownership;
  - ii. The prospective owner or operator has read and is familiar with the terms of the permit and agrees to comply with all terms and conditions of the permit; and
  - iii. The prospective owner or operator has adequate funding to operate and maintain the treatment system and remain in compliance with the terms and conditions of the permit.
- c) The date of the sale or transfer.

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

### **3. Confidentiality**

Pursuant to 10 V.S.A. § 1259(b):

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

Claims for confidentiality for the following information will be denied:

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

### **4. Permit Modification, Suspension, and Revocation**

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

- a) Violation of any terms or conditions of this permit;
- b) Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- c) Reallocation of WLA under the LC TMDL;

- d) Development of an integrated WWTF and stormwater runoff NPDES permit; or
- e) A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

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

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

## **5. Toxic Effluent Standards**

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

## **6. Oil and Hazardous Substance Liability**

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

## **7. Other Materials**

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

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

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

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

## **8. Navigable Waters**

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

## **9. Civil and Criminal Liability**

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

## **10. State Laws**

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

## **11. Property Rights**

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

## **12. Other Information**

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

## **13. Severability**

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

#### 14. Authority

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

#### 15. Definitions

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

**Agency** – means the Vermont Agency of Natural Resources.

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

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

**Bypass** – means 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) - 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** - 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.

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

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

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

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

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

## ATTACHMENT A

Hardness (of receiving water, upstream of outfall)

Metals (total recoverable), cyanide and total phenols:

Antimony  
Arsenic  
Beryllium  
Cadmium  
Copper  
Lead  
Mercury  
Nickel  
Selenium  
Silver  
Thallium  
Zinc  
Cyanide  
Total phenolic compounds

Volatile organic compounds:

acrolein  
acrylonitrile  
benzene  
bromoform  
carbon tetrachloride  
chlorobenzene  
chlorodibromomethane  
chloroethane  
2-chloroethylvinyl ether  
chloroform  
dichlorobromomethane  
1,1-dichloroethane  
1,2-dichloroethane  
Trans-1,2-dichloroethylene  
1,1-dichloroethylene  
1,2-dichloropropane  
1,3-dichloropropylene  
ethylbenzene  
methyl bromide  
methyl chloride  
methylene chloride  
1,1,2,2-tetrachloroethane  
tetrachloroethylene  
toluene  
1,1,1-trichloroethane  
1,1,2-trichloroethane  
trichloroethylene  
vinyl chloride

Acid-extractable compounds:

p-chloro-m-cresol  
2-chlorophenol  
2,4-dimethylphenol  
4,6-dinitro-o-cresol  
2,4-dinitrophenol

2-nitrophenol  
4-nitrophenol  
pentachlorophenol  
phenol  
2,4,6-trichlorophenol

Base-neutral compounds:

acenaphthene  
acenaphthylene  
anthracene  
benzidine  
benzo(a)anthracene  
benzo(a)pyrene  
3,4-benzofluoranthene  
benzo(ghi)perylene  
benzo(k)fluoranthene  
bis(2-chloroethoxy)methane  
bis(2-chloroethyl)ether  
bis(2-chloroisopropyl)ether  
bis(2-ethylhexyl)phthalate  
4-bromophenyl phenyl ether  
butyl benzyl phthalate  
2-chloronaphthalene  
4-chlorophenyl phenyl ether  
chrysene  
di-n-butyl phthalate  
di-n-octyl phthalate  
dibenzo(a,h)anthracene  
1,2-dichlorobenzene  
1,3-dichlorobenzene  
1,4-dichlorobenzene  
3,3'-dichlorobenzidine  
diethyl phthalate  
dimethyl phthalate  
2,4-dinitrotoluene  
2,6-dinitrotoluene  
1,2-diphenylhydrazine  
fluoranthene  
fluorene  
hexachlorobenzene  
hexachlorobutadiene  
hexachlorocyclo-pentadiene  
hexachloroethane  
indeno(1,2,3-cd)pyrene  
isophorone  
naphthalene nitrobenzene  
N-nitrosodi-n-propylamine  
N-nitrosodimethylamine  
N-nitrosodiphenylamine  
phenanthrene  
pyrene  
1,2,4-trichlorobenzene



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

**FACT SHEET FOR DRAFT PERMIT  
(JULY 2018)**

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

**PERMIT NO:** 3-1281  
**PIN:** NS97-0295  
**NPDES NO:** VT0100706

**NAME AND ADDRESS OF APPLICANT:**

Town of Wilmington  
PO Box 217  
Wilmington, VT 05363

**NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:**

Wilmington Wastewater Treatment Facility  
West Main Street  
Wilmington, Vermont

**RECEIVING WATER:** North Branch of the Deerfield River

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

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

The Vermont Agency of Natural Resources (Agency) received a renewal application for the permit to discharge into the designated receiving water from the above-named applicant on December 17, 2007. The facility's current permit was issued on July 1, 2003. The current permit (hereafter referred to as the "current permit") has been administratively continued, pursuant to 3 V.S.A. § 814, as the applicant filed a complete application for permit reissuance within the prescribed time period as per the Vermont Water Pollution Control Permit Regulations

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

The facility is engaged in the treatment of municipal wastewater.

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

## **II. Description of Discharge**

The facility is engaged in the treatment of municipal wastewater including domestic and commercial wastewater. There are no pretreaters permitted under the NPDES program discharging to the collection system. The wastewater treatment facility employs rotating biological contact and aerated lagoons to treat wastewater. The design flow of the facility is 0.135 million gallons per day (MGD). The average flow to the facility over the last three years is about 0.073 MGD.

The WWTF discharges to the North Branch of the Deerfield River.

## **III. Limitations and Conditions**

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

Effluent Limitations:	Pages 2-3 of 23
Monitoring Requirements:	Pages 6-10 of 23

## **IV. Statutory and Regulatory Authority**

### **A. Clean Water Act and NPDES Background**

Congress enacted the Clean Water Act (CWA or Act), “to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.” CWA § 101(a). To achieve this objective, the CWA makes it unlawful for any person to discharge any pollutant into the waters of the United States from any point source, except as authorized by specified permitting sections of the Act, one of which is Section 402. CWA §§ 301(a), 402(a). Section 402 establishes one of the CWA's principal permitting programs, the National Pollutant Discharge Elimination System (NPDES). Under this section of the Act, the U.S. Environmental Protection Agency (EPA) may “issue a permit for the discharge of any pollutant, or combination of pollutants” in accordance with certain conditions. CWA § 402(a). The State of Vermont has been approved by the EPA to administer the NPDES Program in Vermont. NPDES permits generally contain discharge limitations and establish related monitoring and reporting requirements. CWA § 402(a)(1) - (2).

Section 301 of the CWA provides for two types of effluent limitations to be included in NPDES permits: “technology-based” limitations and “water quality-based” limitations. CWA §§ 301, 303,

304(b); 40 CFR Parts 122, 125, 131. Technology-based limitations, generally developed on an industry-by-industry basis, reflect a specified level of pollutant-reducing technology available and economically achievable for the type of facility being permitted. CWA § 301(b). As a class, WWTFs must meet performance-based requirements based on available wastewater treatment technology. CWA § 301(b)(1)(B). The performance level for WWTFs is referred to as “secondary treatment.” Secondary treatment is comprised of technology-based requirements expressed in terms of BOD<sub>5</sub>, TSS and pH; 40 C.F.R. Part 133.

Water quality-based effluent limits, on the other hand, are designed to ensure that state water quality standards are achieved, irrespective of the technological or economic considerations that inform technology-based limits. Under the CWA, states must develop water quality standards for all water bodies within the state. CWA § 303. These standards have three parts: (1) one or more “designated uses” for each water body or water body segment in the state; (2) water quality “criteria,” consisting of numerical concentration levels and/or narrative statements specifying the amounts of various pollutants that may be present in each water body without impairing the designated uses of that water body; and (3) an antidegradation provision, focused on protecting high quality waters and protecting and maintaining water quality necessary to protect existing uses. CWA § 303(c)(2)(A); 40 C.F.R. § 131.12. The applicable water quality standards for this permit are the 2017 Vermont Water Quality Standards (Environmental Protection Rule, Chapter 29a).

A permit must include limits for any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) that is or may be discharged at a level that causes or has "reasonable potential" to cause or contribute to an excursion above any water quality standard, including narrative water quality criteria. See 40 CFR § 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 CFR § 122.44(d)(1)(vi)(A-C).

The state rules governing Vermont’s NPDES permit program are found in the Vermont Water

Pollution Control Permit Regulations (Environmental Protection Rule, Chapter 13).

### **1. Reasonable Potential Determination**

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

- 1) Existing controls on point and non-point sources of pollution as evidenced by the Vermont surface water assessment database;
- 2) Pollutant concentration and variability in the effluent as determined from the permit application materials, monthly discharge monitoring reports (DMRs), or other facility reports;
- 3) Receiving water quality based on targeted water quality and biological assessments of receiving waters, as applicable, or other State or Federal water quality reports;
- 4) Toxicity testing results based on the Vermont Toxics Control Discharge Strategy, and compelled as a condition of prior permits;
- 5) Available dilution of the effluent in the receiving water, expressed as the instream waste concentration. In accordance with the applicable Vermont Water Quality Standards, available dilution for rivers and streams is based on a known or estimated value of the lowest average flow which occurs for seven (7) consecutive days with a recurrence interval of once in ten (10) years (7Q10) for aquatic life and human health criteria for non-carcinogens, or at all flows for human health (carcinogens only) in the receiving water. For nutrients, available dilution for stream and river discharges is assessed using the low median monthly flow computed as the median flow of the month containing the lowest annual flow. Available dilution for lakes is based on mixing zones of no more than 200 feet in diameter, in any direction, from the effluent discharge point, including as applicable the length of a diffuser apparatus.
- 6) All effluent limitations, monitoring requirements, and other conditions of the proposed draft permit.

The Reasonable Potential Determination for this facility is attached to this Fact Sheet as Attachment A.

### **B. Anti-Backsliding**

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

### **V. Description of Receiving Water**

The receiving water for this discharge is the North Branch of the Deerfield River, a designated Cold-Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 42 square miles. The summer 7Q10 flow of the river is estimated to be 1.18 cubic feet per second (CFS) and the summer Low Median Monthly flow is estimated to be 8.56 CFS. The instream waste concentration at the summer 7Q10 flow is 0.150 (15.0%) and the instream waste concentration at the summer Low Median Monthly flow is 0.024 (2.4%). The winter 7Q10 flow of the river is estimated to be 3.68 CFS and the instream waste concentration at the winter 7Q10 flow is 0.054 (5.4%).

## **VI. Permit Basis and Explanation of Effluent Limitation Derivation**

This permit was evaluated under the 2014 Vermont Water Quality Standards

**A. Flow** – The draft permit maintains the annual average flow limitation of 0.135 MGD. This facility maintains a constant discharge. Continuous flow monitoring is required.

### **B. Conventional Pollutants**

- 1. Biochemical Oxygen Demand (BOD<sub>5</sub>)** – The effluent limitations for BOD<sub>5</sub> remain unchanged from the current permit. The monthly average (30 mg/L) and weekly average (45 mg/L) reflect the minimum level of effluent quality specified for secondary treatment in 40 CFR Part 133.102. In addition, the permit contains a 50 mg/L, maximum day, BOD<sub>5</sub> limitation. This is the Agency standard applied to all such discharges pursuant to 13.4 c. of the Vermont Water Pollution Control Permit Regulations. The Agency 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 (34 lbs/day, monthly average and 51 lbs/day, weekly average) are derived by multiplying the concentration limits by the permitted flow. The sampling frequency for BOD has been changed from the current permit. The current permit required sampling once per week for the period of June 1<sup>st</sup> through October 31<sup>st</sup> and twice per month from November 1<sup>st</sup> through May 31<sup>st</sup>. An increased monitoring frequency was originally established in 1984 because the permitted design flow was greater than the design capacity at the plant. Since that time, the plant has been upgraded and the permitted design flow no longer exceeds the design capacity of the plant. The permit also requires that during the period of June 1<sup>st</sup> through October 31<sup>st</sup>, the permittee must control the discharge such that neither the maximum day UOD mass limitation nor the BOD concentration limitation is exceeded, whichever is more restrictive. The sampling frequency is once per month.
- 2. Ultimate Oxygen Demand (UOD)** – The UOD mass limitation remains at 121 lbs/day maximum day and is effective from June 1<sup>st</sup> through October 31<sup>st</sup> of each year. This limitation is based on the North Branch of the Deerfield River Waste Load Allocation Order and is unchanged from the current permit. The sampling frequency has been decreased to be consistent with other facilities of similar size and instream waste concentrations. The current permit requires sampling once per week during the period of June 1<sup>st</sup> through October 31<sup>st</sup> and has been changed to once per month from the period of June 1<sup>st</sup> through October 31<sup>st</sup>.

3. **Total Suspended Solids (TSS)** – The effluent limitations for TSS remain unchanged from the current permit. The monthly average (30 mg/L) and weekly average (45 mg/L) reflect the minimum level of effluent quality specified for secondary treatment in 40 CFR Part 133.102. In addition, the draft permit contains a 50 mg/L, maximum day, TSS limitation. This is the Agency standard applied to all such discharges pursuant to 13.4 c. of the Vermont Water Pollution Control Permit Regulations. The Agency 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 (34 lbs/day, monthly average and 51 lbs/day, weekly average) are calculated using the concentration limits outlined above. The sampling frequency for TSS has been changed from the current permit. The current permit required sampling once per week for the period of June 1<sup>st</sup> through October 31<sup>st</sup> and twice per month from November 1<sup>st</sup> through May 31<sup>st</sup>. An increased monitoring frequency was originally established in 1984 because the permitted design flow was greater than the design capacity at the plant. Since that time, the plant has been upgraded and the permitted design flow no longer exceeds the design capacity of the plant. The sampling frequency is once per month.
4. ***Escherichia coli*** – The E. coli limitation is 77/100ml, instantaneous maximum and is based on Section 3-04.B.3 of the Vermont Water Quality Standards. The current permit requires weekly monitoring from June 1 – October 31 and monthly monitoring for the period of November 1<sup>st</sup> through May 31<sup>st</sup>. The sampling frequency has been decreased to be consistent with other facilities of similar size and instream waste concentrations. Sampling is required once per month.
5. **pH** – The pH limitation remains at 6.5 - 8.5 Standard Units as specified in Section 3-01 B.9. in the Vermont Water Quality Standards. Monitoring remains at daily.

### C. Non-Conventional and Toxics

1. **Total Nitrogen (TN)** – On November 10, 2011, a letter from the EPA (Region I) to the Agency 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.B in this draft permit requires the Permittee have a qualified consultant develop and submit a Nitrogen Removal Optimization Plan by **December 30, 2018**. The plan shall be provided to the Agency before implementation. The annual report shall document the pounds of TN discharged as well as removal optimization and efficiencies. In addition, this Condition contains as clause that allows the Agency 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<sub>x</sub>) Nitrogen. The sum of TKN and NO<sub>x</sub> shall be used to derive TN. Monthly monitoring is required.

2. **Total Ammonia Nitrogen** -- Because the facility's discharge has a reasonable potential to cause or contribute to an impairment in the North Branch of the Deerfield River, based on the

previous self-reporting data and Vermont Water Quality Standards, the draft permit contains new water quality-based effluent limitations for TAN.

Limits are imposed on both mass and concentration and vary seasonally. Annually, from June 1<sup>st</sup> through September 30<sup>th</sup>, the monthly average mass limits of 14.2 lbs/day will apply and a maximum day mass limit of 127.2 lbs/day will apply. Also during this period, an instantaneous maximum limit concentration of 113.0 mg/l will apply. Mass limits during the period of October 1<sup>st</sup> through May 31<sup>st</sup> are 92.2 lbs/day monthly average, and 502.8 lbs/day maximum day. An instantaneous maximum limit concentration of 446.6 mg/l will apply during this period. Monthly average limits correspond to the 30-day chronic criteria and weekly average to the 4-day chronic criteria. The instantaneous maximum is the concentration required to meet the acute water quality criteria.

These limitations have been computed based on mass loading that reflects the worst-case using the permitted flow limitation (0.135 MGD annual average), by computing the allowable mass for the lowest observed summer and non-summer flows, at 7Q10 flows. (See RPD, Attachment A).

The current permit requires weekly monitoring from June 1<sup>st</sup> through September 30<sup>th</sup> and twice monthly monitoring from November 1<sup>st</sup> through May 31<sup>st</sup>. The frequency has been decreased to once per month to be consistent with other facilities of similar size and instream waste concentrations. Sampling is required once per month.

3. **Settleable Solids** – The 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 3-01 B.5 of the Vermont Water Quality Standards. Monitoring requirement remains daily.
4. **Total Residual Chlorine** – The Total Residual Chlorine limit of 0.1 mg/l, instantaneous maximum, is set in accordance with the Agency's Chlorine Policy for the protection of aquatic biota. Monitoring requirement remains daily.
5. **Toxicity Testing** – 40 CFR Part 122.44(d)(1) and 122.21(j) require 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. Per these federal requirements, the Permittee shall conduct WET testing and toxic pollutant analyses according to the schedule outlined in Section I.F of the draft permit. If the results of these tests indicate a reasonable potential to cause an instream toxic impact, the Agency may require additional WET testing, establish a WET limit, or require a Toxicity Reduction Evaluation.

40 CFR Part 122.21(j)(4) requires all publicly owned treatment works (POTW) with flows greater than or equal to 1.0 MGD or any facility suspected of high potential (e.g., plants that discharge to small receiving waters] to complete an analysis of the pollutants listed in Table 2 of Appendix J, Table 2 of 40 CFR Part 122 and submit the results to the Agency.

6. **Annual Monitoring** - For all facilities with a design flow of greater than 0.1 MGD, 40 CFR § 122.21(j) requires the submittal of effluent monitoring data for those parameters identified in Section I.G.2 of the draft permit. Samples must be collected once annually such that by the

end of the term of the permit, all quarters have been sampled at least once, and the results will be submitted by December 31 of each year. Sampling in 2018 should be taken in summer. For subsequent sampling, the “Guidance for Annual Constituent Monitoring” document should be referred to determine the season in which samples should be taken each year.

#### **D. Special Conditions**

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

The proposed permit retains the existing waste management zone (WMZ) that extends downstream from the outfall for approximately one mile in the North Branch of the Deerfield River.

- 2. Operation, Management, and Emergency Response Plans** – As required by the revisions to 10 V.S.A. Section 1278, promulgated in the 2006 legislative session, Section I.I. has been included in the draft permit. This condition requires that the Permittee implement the Operation, Management and Emergency Response Plans for the WWTF, sewage pump/ejector stations, and stream crossings as approved by the Agency on August 1, 2008; and for the collection system as approved by the Agency on November 9, 2010.
- 3. Electric Power Failure Plan** – To ensure the facility can continue operations even during the event of a power failure, within 90 days of the effective date of the permit, the Permittee must submit to the Agency updated documentation addressing how the discharge will be handled in the event of an electric power outage.
- 4. 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 Agency has created an electronic reporting system for DMRs and has recently trained facilities in its use. As of December 2020, these NPDES facilities will also be expected to submit additional information electronically as specified in Appendix A in 40 CFR part 127.
- 5. 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 Agency specified information regarding the discharge within 12 hours of discovery.



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

**A. Reasonable Potential Analysis**

The Agency has conducted a reasonable potential analysis, which is attached to this Fact Sheet as Attachment A. Based on this analysis, the Agency has determined it is not possible to ascertain if the Wilmington WWTF discharge has a reasonable potential to cause or contribute to an instream toxic impact or instream excursion above the water quality criteria because of the limited data available.

Because of this, it is recommended that permit effluent monitoring conditions include Total Phosphorus, Total Nitrogen, Ammonia, Priority Metals (or Priority Pollutant scan) and Hardness. MAPP will collect instream chemistry to support nutrient response variables needed and conduct biomonitoring below the WWTF if conditions are suitable.

**VII. Procedures for Formulation of Final Determinations**

The public comment period for this draft permit was from **August 13, 2018 through September 14, 2018**. **No comments were received during the comment period.**

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

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

**MEMORANDUM**

To: Allison Lowry, Wastewater Program (WWP)

From: Rick Levey, Monitoring, Assessment and Planning Program (MAPP) *Rick Levey 07/23/2018*

Cc: Pete LaFlamme, Director, WSMD  
Jessica Bulova, Section Supervisor, Wastewater Program  
Ethan Swift, Manager, (MAPP)

Date: July 23, 2018

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

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

***Facility:***

Wilmington Wastewater Treatment Facility  
Permit No. 3-1149  
NPDES No. VT0100901

***Hydrology for Wilmington WWTF used in this evaluation:***

Design Flow: 0.135 MGD = 0.209 CFS  
Summer 7Q10 = 1.18 CFS  
Winter 7Q10 = 3.68 CFS  
LMM = 8.56 CFS  
IWC-Summer 7Q10 = 0.150 (IWC > 1%)  
IWC-Winter 7Q10 = 0.054 (IWC > 1%)  
IWC-LMM = 0.023 (IWC > 1%)

***Receiving Water:***

North Branch Deerfield River, Wilmington, VT  
Facility Location: Lat. 44.63521 Long. 72.68502 (NAD 83)

The North Branch Deerfield River downstream of the Wilmington 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 42 square miles. The proposed permit waste management zone (WMZ) extends from the outfall

of the Wilmington WWTF in the North Branch Deerfield River downstream for approximately one mile. (Figure 1). Cold Brook Fire District has permit for direct discharge at the same location on North Branch Deerfield River. Cold Brook Fire District has a direct discharge permit to discharge up to 28,000 GPD of treated municipal wastewater when the current treatment (spray irrigation) capacity is exceeded. However, there has been no direct discharge from this facility since 1989 (29 years), as such there is no data to review.

**General Assessment – VTDEC Assessment Database:**

MAPP maintains the VTDEC assessment database, an EPA-required database which describes the conditions of Vermont’s surface waters with respect to their attainment of VWQS. For the North Branch Deerfield River segment to which this facility discharges, the database indicates the North Branch Deerfield River does fully support all designated uses.

**Ambient Chemistry Data for the North Branch Deerfield River below the Wilmington WWTF:**

There is ambient chemistry data available from VTDEC sampling above and below the WWTF in 2012, results from this sampling are utilized for this analysis. The above sampling location is located approximately 20 meters above the outfall at RM 0.8, and the below location is approximately 0.3 miles below the WWTF outfall.

Water chemistry measures for the following parameters are available: pH, turbidity, conductivity, total phosphorus (TP), total nitrogen (TN), total ammonia (TAN) and water temperature are summarized in Table 1.

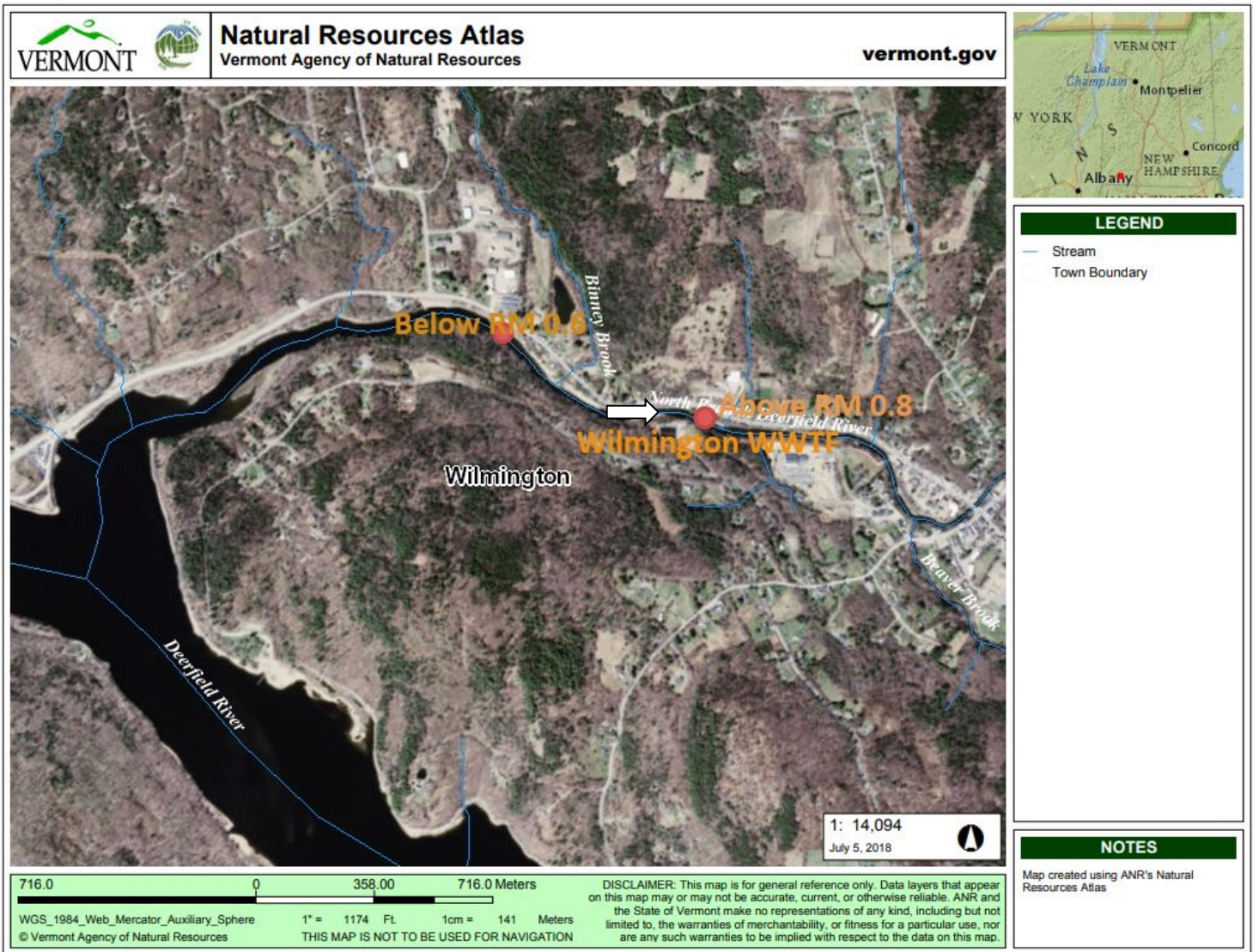
Data representiveness was assessed by evaluating the flow conditions at which samples were collected from field sheets and from the most proximally-located USGS gauge for which data were available, and in consideration of possible downstream sensitive reaches. The location of the upstream and downstream sampling locations RM 0.8 & 0.6 effectively targets 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 in the North Branch Deerfield River below the Wilmington Wastewater Treatment Facility (River Mile 0.8 & 0.6).

Sample Date	River Mile	pH	Conductivity	Water Temp (c)	Turbidity (NTU)	Total Phosphorus (ug/l)	Total Nitrogen (mg/l)	Total Ammonia Nitrogen
8/22/2012	0.8	7.08	149.3	16.9	1.09	9.83	0.19	<0.05
8/22/2012	0.6	7.12	149.5	16.5	1.19	29.70	0.25	<0.05

Total Phosphorus (TP) above the outfall (RM 0.8) was 9.83 µg/L and TP below the outfall was 29.70 µg/L indicating a 20 µg/L-TP increase attributable to the facility discharge. Total Nitrogen (TN) above the outfall (RM 0.8) was 0.19 mg/L and below the outfall (RM 0.6) was 0.25 mg/L. Total ammonia was <0.05 mg/L both above and below the outfall.

**Figure 1.** North Branch Deerfield River near the Wilmington WWTF, showing above and below sampling locations (RM 0.8 & 0.6). Outfall location shown by arrow. Figure taken from the Vermont Integrated Watershed Assessment System on the VTANR Atlas (<https://anrweb.vt.gov/DEC/IWIS/>).



***Turbidity, Dissolved Oxygen, pH:***

Turbidity above the outfall (RM 0.8) was 1.09 Nephelometric Turbidity (NTU) and below the outfall was 1.19 NTU. The pH above the outfall was 7.08 and below the outfall was 7.12. Values for all parameters measured were within the range of VWQS. There was no dissolved oxygen data to review.

***Biological Assessments:***

Biological assessments have not been conducted above or below the Wilmington WWTF. This reach of stream is likely a Medium High Gradient Stream type, although the proximity of the Harriman Reservoir downstream (0.6 miles) may preclude this reach from application of biocriteria. Consulting with Rivers Program to obtain more information on Reservoir influence and a site visit and bioassessment will be conducted if conditions are suitable.

***Total Phosphorus:***

There are no monitoring records for TP effluent concentrations to review. In the absence of TP effluent data, a default effluent TP concentration of 5 mg/L-TP which represents limited removal will be used to illustrate “worst case” instream phosphorus concentrations. At low median monthly flow (LMM) of 8.56 CFS at the full design flow of 0.209 CFS (0.135 MGD) and using the “default” effluent phosphorus concentration of 5.0 mg/L, the phosphorus concentration attributable to the discharge is 0.120 mg/L-TP (120 µg/L-TP) a significant contribution.

Review of the Wilmington WWTF flow records indicate that average flow for 2013- 2017 is about ½ (0.075 MGD) of the full design flow (0.135 MGD). Using the default effluent concentration of 5.0 mg/L-TP and the average flow, the instream TP concentrations attributable to the discharge would be 0.06 mg/L (60 µg/L-TP), still a significant increase and likely not a true representation based on the “default” effluent concentration of 5 mg/L-TP.

Based on limited instream TP monitoring above and below the facility (Table 1), the increase in instream TP below the facility was 20 µg/L-TP; which is 1/3<sup>rd</sup> of the 60 µg/L-TP calculated above using average design flow, at LMM flow conditions and effluent concentration of 5 mg/L-TP. Adjusting the 5 mg/L-TP effluent estimate to reflect limited instream TP monitoring would result in an effluent concentration of 1.6 mg/L-TP, which is likely a more accurate representation of the facilities effluent concentration. Effluent TP monitoring conditions in the draft permit will provide the needed data to update these computations and determine the facility’s TP contribution to the receiving waters.

When adequate data is available (nutrient response variables and facility monitoring records), the potential impacts of phosphorus discharges from facilities to the receiving water are assessed in relation to the phosphorus criteria in §29A-302(2)(A) of the 2017 VWQS, and the combined numeric nutrient criteria in §29A-306(a)(3)(c) shown in Table 3. The combined numeric nutrient criteria rely on numeric phosphorus concentrations in combination with response criteria related to eutrophication, and aquatic life use support criteria. However, if data are unavailable for applicable response condition(s), then the waterbody is assessed as impaired, pending further data collection.

The total phosphorus concentrations in these receiving waters above the Wilmington WWTF are presently low (9.8 µg/L-TP), and moderately elevated below the discharge (29 µg/L-TP). In, summary there is insufficient data to determine if there is reasonable potential for TP to cause or contribute to an instream toxic impact or instream excursion above the water quality criteria.

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

Response variable (VWQS reference)	Target Value	River-mile 0.8 (Upstream)	River-mile 0.6 (Downstream)
pH (§3-01.B.9), range	<8.5 s.u.	7.08	7.12
Turbidity (§3-04.B.1), range	< 10 NTU at low mean annual flow	1.09	1.19
Dissolved Oxygen (§3-04.B.2), min	>6 mg/L and 70% saturation	-	-
Aquatic biota, based on macroinvertebrates, (§3-04-B.4), also see Table 2.	Attaining an assessment of good, or better.	-	-

***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 2018 draft permit requires a two-species modified acute/chronic WET tests (48hr acute endpoints within a 7-day chronic test) on a composite effluent sample be conducted in August or September 2019 and during January or February 2021. If the results of this test indicate a reasonable potential to cause an instream toxic impact, the Department may require additional WET testing, establish a WET limit, or require a Toxicity Reduction Evaluation.

***Ammonia Monitoring:***

Review of the Wilmington WWTF draft permit limits for ammonia indicate that the permit limits will be protective of both chronic and acute ammonia criteria for the summer period of June 1- September 30<sup>th</sup> using 7Q10 IWC of 0.15 based on summer flow of 1.18 cfs and for the winter period of October 1 – May 31 using 7Q10 IWC of 0.054 based on winter flow of 3.68 cfs. These summer and winter TAN limits are protective of both 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 1.18 CFS at design flow of 0.209 CFS (0.135 MGD), assuming the maximum permitted daily concentration of 50 mg/L. The calculated suspended sediment concentration at these conditions was 7.5 mg/l, indicating a modest increase of instream ambient suspended sediment concentrations in receiving waters.

There is no hardness or metals data available for review from the receiving water, the North Branch Deerfield River, for above or below the Wilmington WWTF. Additionally, there is no effluent metals data to review. The recommended draft permit require effluent be characterized for priority metals and/or full Priority Pollutant list during permit period. Hardness data should be included in this analysis, which 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. MAPP will collect above and below metals chemistry during their next site visit.

***Recommended Biological and Water Quality Monitoring:***

As discussed within this review, with data on nutrient response variables as well as effluent monitoring data; it is not possible to determine if the Wilmington WWTF discharge has a reasonable potential to cause or contribute to an instream toxic impact or instream excursion above the water quality criteria.

Recommend that permit effluent monitoring conditions include Total Phosphorus, Total Nitrogen, Ammonia, Priority Metals (or Priority Pollutant scan) and Hardness. MAPP will collect instream chemistry to support nutrient response variables needed and conduct biomonitoring below the WWTF if conditions are suitable.

***Conclusion:***

Data are unavailable for applicable response condition(s), as such the following the 2014 Nutrient Criteria guidance the waterbody is assessed as impaired, pending further data collection.