

**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.:** 3-1260  
**PIN:** EJ95-0315  
**NPDES No.:** VT0101117

**Name of Applicant:** City of St. Albans  
(Northwest Correctional Facility)  
PO Box 867  
St. Albans, VT 05471

**Expiration Date:** June 30, 2022

**DRAFT  
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 City of St. Albans, Vermont (hereinafter referred to as the "Permittee") is authorized by the Secretary of the Agency Natural Resources (Secretary) to discharge from the St. Albans Northwest Correctional Facility Wastewater Treatment Facility (WWTF) to Stevens Brook in accordance with the following conditions.

Emily Boedecker, Commissioner  
Department of Environmental Conservation

By: \_\_\_\_\_ Date: \_\_\_\_\_

**I. SPECIAL CONDITIONS**

**A. EFFLUENT LIMITS**

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

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS							
	Annual Limit	Monthly Average	Weekly Average	Maximum Day	Monthly Average	Weekly Average	Maximum Day	Instantaneous Maximum
		Mass (lbs./day)			Concentration (mg/L)			
Flow (average annual)	0.04 MGD	Monitor Only <sup>5</sup>						
Ultimate Oxygen Demand (UOD) <sup>1</sup>				30				
Biochemical Oxygen Demand (BOD <sub>5</sub> ) <sup>1</sup>		10	15		30	45	50	
Total Suspended Solids (TSS)		10	15		30	45	50	
Total Phosphorus (TP) <sup>2,3</sup>	18 lbs.				0.5			
Total Nitrogen (TN) <sup>4</sup>		Monitor Only			Monitor Only			
Total Kjeldahl Nitrogen (TKN) <sup>1,4</sup>					Monitor Only			
Nitrate/Nitrite Nitrogen (NO <sub>x</sub> ) <sup>4</sup>					Monitor Only			
Settleable Solids								1.0 ml/l
<i>Escherichia coli</i>								77/100 ml
pH					Between 6.5-8.5 Standard Units			

<sup>1</sup> The Ultimate Oxygen Demand (UOD) limit shall be in effect during the period of June 1 to September 30 each year. In addition, the quantity of BOD<sub>5</sub> and TKN discharged shall be limited such that the discharge does not exceed the UOD limitation or the BOD<sub>5</sub> limitation, whichever is more stringent. UOD shall be calculated by the following formula:  $UOD (lbs.) = [(BOD_5 (lbs.) * 1.43) + TKN (lbs.) * 4.57]$

<sup>2</sup> Total Phosphorus shall be reported as Total Monthly Pounds, Running Total Annual Pounds, and Percentage of Running Total Annual Pounds to Annual Permit Limitation. See Condition I.G.5.

<sup>3</sup> The Permittee shall operate the facility to meet the concentration limitations or pounds limitation, whichever is more restrictive.

<sup>4</sup> TN shall be reported as total monthly pounds, calculated as:  $Monthly\ Average\ TN (mg/L) \times Total\ Monthly\ Flow \times 8.34$ ; where,  $TN (mg/L) = TKN (mg/L) + NO_x (mg/L)$

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

2. The 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**, 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 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 the WWTF shall not relieve the Permittee from the responsibility to achieve effluent limitations set forth in this permit and shall not constitute a waiver of, or act of estoppel against any remedy available to the Secretary, the State of Vermont or the federal government for failure to meet any requirement set forth in this permit or imposed by state or federal law.

## **B. TOTAL PHOSPHORUS**

### **1. Waste Load Allocation (WLA) for Phosphorous**

The ultimate receiving water for this facility is St. Albans Bay, a phosphorus-impaired segment of Lake Champlain that is subject to the 2016 Lake Champlain TMDL promulgated by the EPA. The LC TMDL establishes a wasteload allocation for this facility not to exceed 0.028 metric tons per year (61 lbs./yr.). The direct receiving water for this facility is Stevens Brook, which has been listed as impaired for nutrients and other pollutants. A total phosphorus (TP) effluent limitation of 0.0082 metric tons per year (18 lbs./yr.) was proposed in the Reasonable Potential Determination (RPD). This proposed annual mass limit will cap the facility's contribution to the impairment of Stevens Brook and is well within the LC TMDL allocation of 0.028 metric tons per year (61 lbs./yr.) that was established in the 2002 Lake Champlain Phosphorus TMDL.

## 2. Phosphorus Optimization Plan (POP)

- a) **Within 120 days of permit issuance**, the Permittee shall develop or update (as appropriate), and submit to the Secretary a Phosphorus Optimization Plan (POP) to increase the WWTF's phosphorus removal efficiency by implementing optimization techniques that achieve phosphorus reductions using primarily existing facilities and equipment. The POP shall:
- i. Be developed by a qualified professional with experience in the operation and design of WWTFs in consultation with the WWTF;
  - ii. Evaluate alternative methods of operating the existing WWTF, including operational, process, and equipment changes designed to enhance phosphorus removal. The techniques to be evaluated may include operational process changes to enhance biological and/or chemical phosphorous removal, incorporation of anaerobic/anoxic zones, septage receiving policies and procedures, and side stream management;
  - iii. Determine which alternative methods of operating the existing WWTF, including operational, process, and equipment changes that will be the most effective at increasing phosphorus removal; and
  - iv. Include a proposed implementation schedule for those methods of operating the WWTF determined to be most effective at increasing phosphorus removal.
- b) If the POP fails to meet the requirements of Condition I.B.2.a, the WWTF shall revise the POP as required by the Secretary. The Permittee shall commence implementation of the POP immediately.
- c) The Permittee shall annually submit a report to the Secretary as an attachment to the monthly electronic DMR form WR-43 that documents:
- i. The optimization techniques implemented under the POP during the previous year.
  - ii. Whether the techniques are performing as expected.
  - iii. The phosphorus discharge trends relative to the previous year.

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

## 3. Running Total Annual Pounds Calculation

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

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

- b) For flow, use the average daily flow for the month as reported on the DMR. Units = MGD
- c) Calculate Total Monthly Pounds = (Monthly Average TP Concentration) × (average daily flow from DMR) × 8.34 × number of daily discharges in the month.
- d) Sum the results for the immediately preceding 12 months to derive the Running Total Annual Pounds.

### C. WASTE MANAGEMENT ZONE (WMZ)

In accordance with 10 V.S.A. § 1252, this permit hereby establishes a waste management zone (WMZ) that extends from the outfall of the Northwest Correctional Facility WWTF in Stevens Brook 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: **December 31, 2021**

### 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

During **2021**, the Permittee shall conduct a two-species (*Pimephales promelas* and *Ceriodaphnia dubia*) 96-hour chronic WET test on a composite effluent sample collected from outfall S/N 001. Samples shall be collected on a quarterly basis within the following sampling seasons: 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 **Winter** season of **2021**. The results of the first quarterly test shall be submitted to the Secretary by **April 15, 2021**. The results of the second quarterly test shall be submitted to the Secretary by **July 15, 2021**. The results of the third quarterly test shall be submitted to the Secretary by **October 15, 2021**. The results of the fourth quarterly test shall be submitted with the application renewal by **December 31, 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).

## **G. MONITORING AND REPORTING**

### **1. Sampling and Analysis**

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

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

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

### **2. Effluent Monitoring**

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

PARAMETER	MINIMUM FREQUENCY OF ANALYSIS	SAMPLE TYPE
Flow	Continuous	Daily Total, Max., Min.
Ultimate Oxygen Demand (UOD)	1 x week	[calculated <sup>1</sup> ]
Biochemical Oxygen Demand (BOD <sub>5</sub> )	2 x month	Composite <sup>3</sup>
Total Suspended Solids (TSS)	2 x month	Composite <sup>3</sup>
Total Phosphorus (TP)	2 x month	Composite <sup>3,5</sup>
Total Nitrogen (TN)	1 x quarter	[calculated <sup>4</sup> ]
Total Kjeldahl Nitrogen (TKN)	1 x week	composite <sup>2,3,4</sup>
Nitrate/Nitrite Nitrogen (NO <sub>x</sub> )	1 x quarter	Composite <sup>3,4</sup>
Settleable Solids	1 x day	Grab <sup>6</sup>
<i>Escherichia coli</i>	2 x month	Grab <sup>7</sup>
pH	1 x day	Grab
Temperature	1 x year	Grab
Ammonia (as N)	1 x year	Grab
Dissolved Oxygen	1 x year	Grab
Oil & Grease	1 x year	Grab
Total Dissolved Solids	1 x year	Composite <sup>3</sup>

*Samples collected in compliance with the monitoring requirements specified above shall be collected from the sample tap located on the discharge line, after disinfection.*

<sup>1</sup> UOD monitoring is only required from June 1 through September 30.

<sup>2</sup> The Permittee shall monitor TKN at a frequency of once per week from June 1 through September 30 and at a frequency of once per quarter from October 1 through May 31.

<sup>3</sup> Composite samples for BOD<sub>5</sub>, TSS, TP, TKN, NO<sub>x</sub>, and TDS shall be taken during the hours of 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>4</sup> TN = TKN + NO<sub>x</sub>

<sup>5</sup> Submit results each month on the Discharge Monitoring Report Form WR-43. See Condition I.G.5.

<sup>6</sup> Settleable Solids samples shall be collected between 10:00 AM and 2:00 PM or during the period of peak flow.

<sup>7</sup> The monthly *E. coli* samples shall be collected between the hours of 6:00 AM and 6:00 PM.

### 3. Annual Constituent Monitoring

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

Temperature  
 Dissolved Oxygen  
 Oil & Grease  
 Total Dissolved Solids

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

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

#### 4. Influent Monitoring

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

PARAMETER	MINIMUM FREQUENCY OF ANALYSIS	SAMPLE TYPE
Biochemical Oxygen Demand (BOD <sub>5</sub> )	1 × month	composite <sup>1</sup>
Total Suspended Solids (TSS)	1 × month	composite <sup>1</sup>

<sup>1</sup> Composite samples for BOD<sub>5</sub> & TSS shall be taken during the hours of 6:00 AM to 6:00 PM, unless otherwise specified. Eight hours is the minimum period for the composite, 24 hours is the maximum for a composite.

#### 5. Reporting

The Permittee is required to submit monthly reports of monitoring results on DMR form WR-43. Reports are due on the 15<sup>th</sup> day of each month, beginning with the month following the issuance date of this permit. When the Permittee submits DMRs using an electronic system designated by the Secretary, it is not required to submit hard copies of DMRs.

Total Phosphorus shall be reported monthly, via electronic DMR, in the following ways:

- a) Monthly Average TP Concentration. See Condition I.B.3.a.
- b) Total Monthly Pounds, meaning the total monthly pounds of TP discharged during the month. See Condition I.B.3.c.
- c) Running Total Annual Pounds, meaning the 2-month running annual TP load, as specified by Condition I.B.3.d.



- d) Comparison (%) of Running Total Annual Pounds to Annual Permit Limitation,** meaning the percentage of the Running Total Annual Pounds to the Annual Total Phosphorus Limitation. The comparison shall be calculated as:

$$\text{Percentage of Running Total Annual Pounds to Annual Permit Limitation, \%} = \frac{\text{Running Total Annual Pounds}}{\text{Annual TP Permit Limit}} \times 100$$

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

Until such time as the Permittee is required by the Secretary to submit monitoring and reports electronically, the Permittee shall send signed copies of these to the Secretary at the following address:

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

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**

The Permittee shall implement the Operation, Management, and Emergency Response Plan for the WWTF, as approved by the Secretary on March 31, 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 of 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.

#### **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, 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 date on which the Permittee is notified, shall provide notice to the Secretary of the following:

- a) Any new introduction of pollutants into the treatment works from a source which would be a new source as defined in Section 306 of the Clean Water Act if such source were discharging pollutants;
- b) Except for such categories and classes of point sources or discharges specified by the Secretary, any new introduction of pollutants into the treatment works from a source

which would be subject to Section 301 of the Clean Water Act if such source were discharging pollutants; and

- c) Any substantial change in volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into such works at the time of issuance of the permit.

The notice shall include:

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

## **2. Noncompliance Notification**

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

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

- c) Pursuant to 10 V.S.A. § 1295, notice for “untreated discharges,” as defined.
  - i. Public notice. For “untreated discharges” an operator of a WWTF or the operator’s delegate shall as soon as possible, but no longer than one hour from discovery of an untreated discharge from the WWTF, post on a publicly accessible electronic network, mobile application, or other electronic media designated by the Secretary an alert informing the public of the untreated discharge and its location, except that if

the operator or his or her delegate does not have telephone or internet service at the location where he or she is working to control or stop the untreated discharge, the operator or his or her delegate may delay posting the alert until the time that the untreated discharge is controlled or stopped, provided that the alert shall be posted no later than four hours from discovery of the untreated discharge.

- ii.** Secretary notification. For “untreated discharges” an operator of a WWTF shall within 12 hours from discovery of an untreated discharge from the WWTF notify the Secretary and the local health officer of the municipality where the facility is located of the untreated discharge. The operator shall notify the Secretary through use of the DEC’s online event reporting system. If, for any reason, the online event reporting system is not operable, the operator shall notify the Secretary via telephone or e-mail. The notification shall include:

  - (1)** The specific location of each untreated discharge, including the body of water affected. For combined sewer overflows, the specific location of each untreated discharge means each outfall that has discharges during the wet weather storm event.
  - (2)** Except for discharges from a WWTF to a separate storm sewer system, the date and approximate time the untreated discharge began.
  - (3)** The date and approximate time the untreated discharge ended. If the untreated discharge is still ongoing at the time of reporting, the entity reporting the untreated discharge shall amend the report with the date and approximate time the untreated discharge ended within three business days of the untreated discharge ending.
  - (4)** Except for discharges from a WWTF to a separate storm sewer system, the approximate total volume of sewage and, if applicable, stormwater that was released. If the approximate total volume is unknown at the time of reporting, the entity reporting the untreated discharge shall amend the report with the approximate total volume within three business days.
  - (5)** The cause of the untreated discharge and a brief description of the noncompliance, including the type of event and the type of sewer structure involved.
  - (6)** The person reporting the untreated discharge.
- d)** For any non-compliance not covered under Condition II.A.2.c of this permit, an operator of a WWTF or the operator’s delegate shall notify the Secretary within 24 hours of becoming aware of such condition and shall provide the Secretary with the following information, in writing, within five days:

  - i.** Cause of non-compliance;

- ii. A description of the non-complying discharge including its impact upon the receiving water;
- iii. Anticipated time the condition of non-compliance is expected to continue or, if such condition has been corrected, the duration of the period of non-compliance;
- iv. Steps taken by the Permittee to reduce and eliminate the non-complying discharge; and
- v. Steps to be taken by the Permittee to prevent recurrence of the condition of non-compliance.

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

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

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

### **4. Quality Control**

The Permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at regular intervals to ensure accuracy of measurements, or shall ensure that both activities will be conducted.

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

The Permittee shall demonstrate the accuracy of the effluent flow measurement device weekly and report the results on the monthly report forms. The acceptable limit of error is  $\pm 10\%$ .

For purposes of demonstrating compliance with the requirements of Condition II.A.3.a of this permit regarding adequate laboratory controls and appropriate quality assurance procedures, the Permittee shall conduct an annual laboratory proficiency test (via a qualified laboratory or as part of an US EPA DMR-QA study) for the analysis of all pollutant parameters performed within their facility laboratory and reported as required by this permit. Results shall be submitted to the Secretary by **December 31, annually**.

## **5. Bypass**

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

## **6. Duty to Mitigate**

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

## **7. Records Retention**

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

## **8. Solids Management**

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

## **9. Emergency Pollution Permits**

Maintenance activities, or emergencies resulting from equipment failure or malfunction, including power outages, which result in an effluent which exceeds the effluent limitations specified herein, shall be considered a violation of the conditions of this permit, unless the Permittee's discharge is covered under an emergency pollution permit. The Permittee shall



notify the Secretary of the emergency situation by the next working day, unless notice is required sooner under Section II.A.2.

10 V.S.A. § 1268 reads as follows:

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

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

Applications 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 the 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)** – means the highest allowable “daily discharge” (mg/L, lbs., or gallons).

**Mean** – is the arithmetic mean.

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

**NPDES** – means the National Pollutant Discharge Elimination System.

**Secretary** – means the Secretary of the Agency of Natural Resources or the Secretary’s duly authorized representative.

**Septage** – means the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system, or a holding tank when the system is cleaned or maintained.

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

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

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

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

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

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

**FACT SHEET FOR DRAFT PERMIT  
(June 2017)**

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

**PERMIT NO:** 3-1260  
**PIN:** EJ95-0315  
**NPDES NO:** VT0101117

**NAME AND ADDRESS OF APPLICANT:**

City of St. Albans  
(Northwest Correctional Facility)  
PO Box 867  
St. Albans, VT 05471

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

Northwest Correctional Facility  
3649 Lower Newton Street  
Swanton, VT 05488

**RECEIVING WATER:** Stevens Brook

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

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

The Secretary of the Vermont Agency of Natural Resources (Secretary) received a renewal application for the permit to discharge into the designated receiving water from the above-named applicant on **June 25, 2010**. The Northwest Correctional Facility's current discharge permit was issued on **October 17, 2005**, became effective **January 1, 2006** and was 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 State of Vermont owns the Northwest Correctional Facility and the wastewater treatment facility (WWTF) serving the facility. The WWTF is engaged in the treatment of municipal wastewater from the correctional facility and is operated by the City of St. Albans (Permittee). The discharge from the WWTF is conveyed by gravity through underground plumbing to Stevens Brook.

The WWTF is designed to treat 0.04 million gallons per day (MGD) and the average flow to the facility over the current permit period (2006-2016) was ~0.23 MGD. The WWTF employs solids screening, four aerated treatment lagoons, and tertiary treatment via a package filtration system consisting of a flocculation tank with mixers, tube settlers in a settling tank and a mixed media sand filter system. The effluent is then disinfected via ultraviolet light prior to discharge to Stevens Brook.

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

## **II. Description of Discharge**

The WWTF is engaged in the treatment of municipal wastewater from the Northwest Correctional Facility. The treated effluent is discharged to Stevens Brook. During the current permitting period (2006-2016), the discharge typically (average, daily) contained ~33 pounds of ultimate oxygen demand (UOD), ~2.3 pounds of biochemical oxygen demand (BOD<sub>5</sub>), ~3.5 pounds of total suspended solids (TSS), and ~0.02 pounds of total phosphorus (TP).

## **III. Limitations and Monitoring Requirements**

The draft permit contains effluent limitations for flow, UOD, BOD<sub>5</sub>, TSS, TP, settleable solids, *Escherichia coli*, and pH. The draft permit also contains monitoring requirements for TN, total Kjeldahl nitrogen (TKN), NO<sub>x</sub>, and whole effluent toxicity (WET).

## **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 Clean Water Act, the U.S. Environmental Protection Agency (EPA) may “issue a permit for the discharge of any pollutant, or combination of pollutants” in accordance with certain conditions. CWA § 402(a). The State of Vermont has been delegated by 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 C.F.R. Parts 122, 125, 131. Technology-based limitations, generally developed on an industry-by-industry basis, reflect a specified level of pollutant-reducing technology available and economically achievable for the type of facility being permitted. CWA § 301(b). As a class, WWTFs must meet performance-based requirements based on available wastewater treatment technology. CWA § 301(b)(1)(B). The performance level for WWTFs is referred to as “secondary treatment.” Secondary treatment is comprised of technology-based requirements expressed in terms of BOD<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 C.F.R. § 122.44(d)(1). An excursion occurs if the projected or actual instream 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 instream pollutant concentrations. Acute aquatic life criteria are generally implemented through maximum daily limits and chronic aquatic life criteria are generally implemented through average monthly limits.

Where a state has not established a numeric water quality criterion for a specific chemical pollutant that is present in the effluent in a concentration that causes or has a reasonable potential to cause a violation of narrative water quality standards, the permitting authority must establish effluent limits in one of three ways: based on a “calculated numeric criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and fully protect the designated use”; on a “case-by-case basis”

using CWA Section 304(a) recommended water quality criteria, supplemented as necessary by other relevant information; or, in certain circumstances, based on an “indicator parameter.” 40 C.F.R. § 122.44(d)(1)(vi)(A-C).

The state rules governing Vermont’s NPDES permit program are found in the VWPCPR (Environmental Protection Rule, Chapter 13).

## **B. Reasonable Potential Determination (RPD)**

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

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

The RPD for this facility is attached to this Fact Sheet as Attachment A.

## **C. Anti-Backsliding**

Section 402(o) of the Clean Water Act 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 Stevens Brook, a designated Warm Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 8.5 square miles. The summer 7Q10 flow of the river is estimated to be 2.57 cubic feet per second (CFS) and the summer Low Median Monthly flow is estimated to be 4.36 CFS. The instream waste concentration at the summer 7Q10 flow is 0.024 (2.4%) and the instream waste concentration at the summer Low Median Monthly flow is 0.014 (1.4%). For the Stevens Brook segment to which this facility discharges, the VT DEC database indicates that this segment is impaired by agricultural uses from the mouth to 6.8 miles upstream. Pollutants include nutrients, sediment and E. coli. Phosphorus in this reach contributes to the impairment of St. Albans Bay that is addressed by the 2016 Lake Champlain TMDL.

In addition, Stevens Brook drains into St. Albans Bay of Lake Champlain, which is impaired for phosphorus and is subject to a total maximum daily load (TMDL). This is further discussed in Section VII of this Fact Sheet.

## **VI. Facility History and Background**

The WWTF serving the Northwest Correctional Facility is owned by the State of Vermont and operated by the City of St. Albans. Originally constructed in 1970, and designed based on 250 beds, the WWTF was upgraded with tertiary treatment in 1985 and refurbished in 2008-09. Approximately 10,000 gallons per day (GPD) of the total permitted flow capacity (40,000 GPD) is held in reserve for the Town of St. Albans.

Influent from the Northwest Correctional Facility flows by gravity to the WWTF, entering the headworks for solids removal via rotary screen. The wastewater then flows through a series of four, aerated treatment lagoons that provide a total detention time of 33.5 days at average daily flows.

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

### **A. Flow**

The draft permit maintains the annual average flow limitation of **0.04 MGD**. Continuous flow monitoring is required under this permit.

### **B. Conventional Pollutants**

#### **1. Biochemical Oxygen Demand (BOD<sub>5</sub>)**

The effluent limitations and twice per month monitoring requirements 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 C.F.R. § 133.102. In addition, the draft 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 VWPCPR. The Secretary implements the limit to supplement the federal technology-based limitations to prevent a gross one-day permit effluent violation to be offset by multiple weekly and monthly sampling events which would enable a discharger to comply with the weekly average and monthly average permit limitations. Mass limits (**10 lbs/day**, monthly average and **15 lbs/day**, weekly average) correspond to the concentration limits outlined above.

## **2. Total Suspended Solids (TSS)**

The effluent limitations and twice per month monitoring requirements for TSS remain unchanged from the current permit.

The monthly average (**30 mg/L**) and weekly average (**45 mg/L**) reflect the minimum level of effluent quality specified for secondary treatment in 40 C.F.R. § 133.102. In addition, the draft permit contains a **50 mg/L**, maximum day, TSS limitation. This is the Agency standard applied to all such discharges pursuant to 13.4(c) of the VWPCPR. The Secretary implements the limit to supplement the federal technology-based limitations to prevent a gross one-day permit effluent violation to be offset by multiple weekly and monthly sampling events which would enable a discharger to comply with the weekly average and monthly average permit limitations. Mass limits (**10 lbs/day**, monthly average and **15 lbs/day**, weekly average) correspond to the concentration limits outlined above.

## **3. Escherichia coli**

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

## **4. pH**

The pH limitation remains at **6.5 - 8.5 Standard Units** as specified in Section 29A-303(6) in the Vermont Water Quality Standards. The daily monitoring requirement for pH remains unchanged from the current permit.

## **5. Ultimate Oxygen Demand (UOD)**

The effluent limitations and weekly monitoring requirements for UOD remain unchanged from the current permit.

The UOD mass limitation is **30 lbs/day**, maximum day, and is effective from June 1 to September 30 of each year. This limitation is based on the assimilative capacity of Stevens Brook.

UOD is dependent on the quantity of BOD<sub>5</sub> and TKN in the discharge, as calculated in the following equation:

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

Since receiving waters are the most sensitive to oxygen depleting wastes during periods of high water temperature and low flow, the UOD limitation is in effect from June 1-September 30 of each year. The UOD limitation ensures compliance with the dissolved oxygen criteria during this period, as specified in Section 29A-302(5) of the Vermont Water Quality Standards. During the other months of the year, the BOD<sub>5</sub> limitation is adequate to ensure compliance with the dissolved oxygen criteria.

In addition, the quantity of BOD<sub>5</sub> and TKN discharged shall be limited such that the discharge does not exceed the UOD limitation or the BOD<sub>5</sub> limitation, whichever is more stringent.

### C. Non-Conventional and Toxic Pollutants

#### 1. Total Phosphorus (TP)

**Background:** Excess phosphorus entering Lake Champlain from a variety of sources has impaired the water quality of the Lake. The LC TMDL places a cap on the maximum amount of phosphorus from point and non-point sources that is allowed to flow into the Lake while still meeting Vermont's water quality standards. The EPA developed phosphorus TMDLs for the 12 Vermont segments of Lake Champlain in collaboration with the Vermont Agency of Natural Resources, Department of Environmental Conservation, and the Vermont Agency of Agriculture, Food, and Markets, and released the document titled "Phosphorus TMDLs for Vermont Segments of Lake Champlain" (June 2016). The 2016 LC TMDL specifies allowable phosphorus loads, or waste load allocations (WLAs), expressed as metric tons per year (mt/yr), for each of the 59 WWTFs that discharge to the Lake's watershed. Discharge NPDES permits will be issued by the Secretary in accordance with the permit issuance schedule in the Lake Champlain TMDL Phase I Implementation Plan (Chapter 3, page 46). The Secretary will follow this schedule unless special circumstances are raised by the facility that warrant the issuance of the permit sooner (e.g., planned facility upgrades), and the Program has sufficient staff capacity to handle the request.

Reductions in WLAs are targeted only to WWTFs in those lake segment watersheds where the currently permitted wastewater load represents a significant (defined as being 10% or greater) portion of the TP load to that segment from all sources (Main Lake, Shelburne Bay, Burlington Bay, St. Albans Bay) or where wastewater upgrades would meaningfully reduce the phosphorus reduction burden placed on non-wastewater (non-point) sources (Missisquoi Bay). Therefore, WWTFs discharging to the Port Henry, Otter Creek, Mallets Bay, Northeast Arm, Isle LaMotte, and the South Lake A/B lake segments were not assigned a new WLA. The EPA also determined that WWTFs with a design flow of < 0.1 MGD would be given the same allocations as in the 2002 TMDLs due their minor contribution of phosphorus loading.

The LC TMDL establishes new annual WLAs for WWTFs with a design flow capacity of above 0.1 MGD that discharge to the Main Lake, Shelburne Bay, Burlington Bay, St. Albans Bay, and Missisquoi Bay lake segments. Specifically, WWTFs with a design flow capacity of 0.1 to 0.2 MGD were assigned WLAs based on a 0.8 mg/L effluent phosphorus concentration at permitted flow while WWTFs with design capacity of > 0.2 MGD were assigned a WLA based on a 0.2 mg/L effluent phosphorus concentration at permitted flow.

In the LC TMDL, the EPA acknowledged and supported the Secretary's commitment to employ flexible approaches to implementing the WWTF WLAs including "providing a period of time for optimization to be pursued and the corresponding load reduction results to be realized, and then commencement of the process to upgrade phosphorus treatment facilities will be required when actual phosphorus loads reach 80% of the LC TMDL limits." The Wastewater Management Program maintains a tracking system for phosphorus loading from Vermont WWTFs so facilities approaching or over the 80% threshold can be identified. The 80% phosphorus load threshold is calculated by comparing the individual WWTF phosphorus WLA established in the LC TMDL to the actual phosphorus discharge load from the WWTF over last 12 months:

#### **WWTF Annual TP Load / LC TMDL WLA x 100**

There are currently WWTFs in the Lake Champlain watershed with existing discharged loads of phosphorus already at, or above, 80% of allowable loads. To ensure facilities are operating as efficiently as possible, all reissued wastewater discharge NPDES permits under the LC TMDL will specify a period of 12 months for optimization to be pursued and the corresponding load reduction results to be realized, prior to evaluating where a facility ranks relative to the 80% trigger. Discharge permits will specify that after the optimization period, when an existing facility reaches 80% of its WLA for phosphorus (evaluated as a rolling, 12-month load), the Permittee will have to develop and submit a projection of whether the facility will exceed its WLA during the permit term and if it is projected to do so, then the facility will be required to develop a Phosphorus Elimination/Reduction Plan (PERP) that will ensure the facility continues to comply with its WLA.

Effluent TP limits in permits are expressed as total annual mass loads for facilities that currently have existing monthly effluent concentration limits for TP in their NPDES permit, as monthly effluent concentration limits.

***Total Phosphorus Limit in Draft Permit:*** Steven's Brook is on the State of Vermont 2016 303(d) List of Impaired Waters for nutrients and other pollutants. As there is reasonable potential to contribute to this impairment, the Clean Water Act requires the imposition of effluent limitations necessary to address the facility's portion of the impairment. The draft discharge permit includes a mass-based, effluent limitation of **18 pounds** of TP per year. This annual mass limitation was based on an allocation of **0.0082 metric tons** and was established in the Reasonable Potential Determination (RPD) for the facility, attached to this Fact Sheet as Attachment A. The proposed annual mass limitation will cap the facility's contribution to the impairment of Steven's Brook and is well within the LC TMDL allocation of 0.028 metric tons (61 lbs./yr) that was established in the 2002 Lake Champlain Phosphorus TMDL.

Previous permits (1985, 1990, 1995, 2000) contained an effluent TP concentration limit of 0.5 mg/L, as a water quality-based effluent limitation. The effluent TP concentration limit was omitted from the 2005 discharge permit, in error. The previous effluent TP concentration limit of **0.5 mg/L** monthly average will be maintained in the draft permit.

To convert units of the annual mass limitation from metric tons to pounds for the annual, mass-based TP permit limit, the following equation was used and the resulting number rounded down to the nearest pound:

$$0.0082 \text{ mt} \times 2204.62 \text{ lb/mt} = 18 \text{ lbs.}$$

State law (10 V.S.A. § 1266a) requires that, “No person directly discharging into the drainage basins of Lake Champlain or Lake Memphremagog shall discharge any waste that contains a phosphorus concentration in excess of 0.80 milligrams per liter on a monthly average basis.” Therefore, in addition to the annual mass load effluent limitation, the permit must also include a monthly average concentration limit for phosphorus. The permit includes a monthly average concentration limit for phosphorus of 0.5 mg/L to ensure compliance with water quality limits and state law. It is important to note that the annual mass load and average monthly concentration limits are not mathematically consistent in the permit.

The Permittee must comply with both limitations and, as required by the permit, must operate the facility to meet the more restrictive limitation, which may vary depending upon discharge flows at the facility.

Additionally, while the concentration effluent limitation must be included in the permit, it is not the means of ensuring the facility complies with its mass-based annual effluent limitation. Rather, the monitoring and reporting requirements under the permit, including the Phosphorus Optimization Plan, shall ensure the facility complies with its TP effluent limitations.

The requirement for twice per month sampling for TP is unchanged from the current permit.

Condition I.G.5 of this draft permit requires the submission of monitoring reports to the Secretary specific to tracking TP in the discharge. Monthly reporting of total monthly pounds, running total annual pounds, and a comparison (%) of running total annual pounds to the annual permit limitations shall be submitted monthly via electronic discharge monitoring report. A report that documents the annual TP discharged from the facility, summarizes phosphorus removal optimization and efficiencies, and tracks trends relative to the previous year shall be attached to the December WR-43 form. The annual and monthly TP loads discharged from the facility shall also be reported electronically with other required parameters.

**Phosphorus Optimization Plan:** To ensure the facility is operating as efficiently as possible for purposes of phosphorus removal, Condition I.B.2 of the draft permit also requires that within 120 days of permit issuance, the Permittee shall develop or update (as



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

## 2. Total Nitrogen (TN)

To gather data on the amount of Nitrate/Nitrite (NO<sub>x</sub>) and Total Nitrogen (TN) in this discharge and its potential impact on the receiving water, a **monthly “monitor only”** requirement for NO<sub>x</sub> and TN has been included in the draft permit. TN is a calculated value based on the sum of TKN and Nitrate/Nitrite (NO<sub>x</sub>) Nitrogen, and, shall be reported as pounds, calculated as:

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

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

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

Like P, N promotes noxious aquatic plant and algal growth. High concentrations of P and N together cause greater growth of algae than P alone. The relative abundance of these nutrients also influences the type of species within the community. Furthermore, a high N-to-P ratio may exacerbate the growth of cyanobacteria, while elevated levels of N increase toxicity in some cyanobacteria species. Given the dynamic nature of all aquatic ecosystems, for the State to fully understand the degradation to water quality it is necessary to limit P and monitor bioavailable N (including nitrate, ammonium, and certain dissolved organic nitrogen compounds).

Facilities with design flow greater than 1 MGD will complete monthly monitoring unless more frequent sampling is already required by the permit. Facilities with design flows less than 1 MGD will complete quarterly monitoring, unless more frequent sampling is already required by the permit.

For more information, see:

<https://www.epa.gov/sites/production/files/documents/nandpfactsheet.pdf>

## 3. Total Kjeldahl Nitrogen (TKN)

The effluent limitations and weekly monitoring requirements for TKN from June 1 through September 30 remains unchanged from the current permit, however, additional quarterly monitoring is now included from October 1 through May 31.

#### **4. Nitrate/Nitrite (NO<sub>x</sub>)**

To gather data on the amount of NO<sub>x</sub> in this discharge and its potential impact on the receiving water, a new, “monitor only” requirement for NO<sub>x</sub> has been included in the draft permit. Quarterly monitoring is required.

#### **5. Settleable Solids**

The limitation of **1.0 ml/L** instantaneous maximum and daily monitoring remains unchanged from the current permit. This numeric limit was established in support of the narrative standard in Section 29A-303(2) of the Vermont Water Quality Standards. The daily monitoring requirement remains unchanged from the current permit.

#### **6. Toxicity Testing**

40 CFR 122.21.j.5.iv-v 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 Agency’s reasonable potential analysis found a very low instream waste concentration (7Q10 IWC = >1%). To ensure that the facility isn’t carrying toxicity into the impaired segment of Stevens Brook, the Permittee shall conduct WET testing according to the schedule outlined in Section I.F.1 of the draft permit, which indicates quarterly, 2-species, 96-hour chronic WET tests in 2021. 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.

#### **7. Annual Constituent Monitoring**

The Permittee shall monitor the outfall 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 in for the parameters listed in the draft permit. Samples must be collected once annually such that by the end of the term of the permit, all quarters have been sampled at least once, and the results will be submitted by December 31 of each year. Sampling in 2017 should be taken in the Fall. For subsequent sampling, the “Guidance for Annual Constituent Monitoring” document should be referred to determine the season in which samples should be taken each year.

### **D. Special Conditions**

#### **1. Waste Management Zone (WMZ)**

As defined under 10 V.S.A. § 1251(16), a WMZ is “a specific reach of Class B waters designated by a permit to accept the discharge of properly treated wastes that prior to

treatment contained organisms pathogenic to human beings. Throughout the receiving waters, water quality criteria must be achieved but increased health risks exist due to the authorized discharge.”

The proposed permit retains the existing WMZ that extends downstream from the outfall for approximately 1.0 mile in Stevens Brook.

## **2. Laboratory Proficiency Testing**

The Permittee shall conduct an annual laboratory proficiency test for the analysis of all pollutant parameters performed within their facility laboratory and reported as required by their NPDES permit. Proficiency samples must be obtained from an accredited laboratory or as part of an EPA DMR-QA study. Results shall be submitted to the Secretary by December 31, annually.

## **3. Operation, Management, and Emergency Response Plans**

As required by the revisions to 10 V.S.A. § 1278, promulgated in the 2006 legislative session, Condition I.I has been included in the draft permit. This condition requires that the Permittee implement the Operation, Management, and Emergency Response Plan for the WWTF, as approved by the Secretary on March 31, 2010.

## **4. Engineering Evaluation**

A 20-year engineering evaluation was completed for the Northwest Correctional Facility WWTF in 2006 and is therefore not required for submission during the period of the proposed permit.

## **5. Electric Power Failure Plan**

Within 90 days of the effective date of the permit, the Permittee must submit to the Secretary updated documentation addressing how the discharge will be handled in the event of an electric power outage. The effluent must receive a minimum of primary treatment (or in the case of ultraviolet light disinfection systems, not less than secondary treatment) plus disinfection.

## **6. Electronic Reporting**

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 DMRs, including majors and nonmajors, individually permitted or covered by a general permit, must do so electronically after December 2016. The Secretary has created an electronic reporting system for DMRs and has recently trained facilities in its use. The Secretary completed a phased roll out of mandatory electronic reporting. As of December 2020, these NPDES

facilities will also be expected to submit additional information electronically as specified in Appendix A in 40 C.F.R. § 127.

#### **7. Noncompliance Notification**

As required by the passage of 10 V.S.A. § 1295, promulgated in the 2016 legislative session, Condition II.A.2 has been included in the proposed permit. This condition requires the Permittee to provide public notification of untreated discharges from WWTFs. The Permittee is required to post a public alert within one hour of discovery and submit to the Secretary specified information regarding the discharge within 12 hours of discovery.

#### **8. Reopener**

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

#### **9. Reasonable Potential Determination (RPD)**

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

Based on available data, the Secretary has determined that this discharge does have a reasonable potential to cause, or contribute to an instream toxic impact or instream excursion above the water quality criteria. In the instance that reasonable potential exists, the Clean Water Act requires the imposition of effluent limitations necessary to address the facility's contribution to the impairment. Since no TMDL is in place specific to the impaired reach of Steven's Brook, the effluent limitation is derived as a function of the reasonable assurance analysis conducted by EPA in the promulgation of the LC TMDL for the Saint Albans Bay segment. Since an 11% reduction of nonpoint total phosphorus in this watershed may be expected over the permit term, a phosphorus effluent limitation has been expressed as a maximum mass load of 0.0082 MT/yr. or 18 lbs./yr., which is well below the WLA set by the LC TMDL. This is a proposed annual mass limit that will cap the facility's contribution to the impairments.

### **VIII. Procedures for Formulation of Final Determinations**

The public comment period for receiving comments on this draft permit is from **June 29 through August 9, 2017** during which time interested persons may submit their written views on the draft permit. All written comments received by 4:30 PM on **August 9, 2017** will be retained by the Secretary and considered in the formulation of the final determination to issue, deny, or modify the draft permit. The period of comment may be extended at the discretion of the Secretary.

Written comments should be sent to:

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

Comments may also be faxed to 802-828-1544 or submitted by e-mail to  
[ANR.WSMDWastewaterComments@vermont.gov](mailto:ANR.WSMDWastewaterComments@vermont.gov)

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

The Secretary will hold a public meeting at the City of St. Albans Free Library, at 11 Maiden Lane, on **August 2 from 4-6 PM**. Any person may submit oral or written statements and data concerning the draft permit at the public meeting. The Secretary may establish reasonable limits on the time allowed for oral statements and may require the submission of statements in writing. All statements, comments, and data presented at the public meeting will be retained by the Secretary and considered in the formulation of the final determination to issue, deny, or modify the draft permit.

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

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

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

**MEMORANDUM**

To: Katie Parrish, Wastewater Program

From: Rick Levey, Monitoring, Assessment and Planning Program (MAPP) *Rick Levey 05/24/17*

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

Date: May 24, 2017

Subject: MAPP Reasonable Potential Determination for the St. Albans Northwest Correctional Wastewater Treatment Facility (WWTF)

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MAPP has evaluated the draft permit limits for the St. Albans Northwest Correctional WWTF 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 St. Albans NW Correctional WWTF prepared by the WWM.

***Facility:***

St. Albans Northwest Correctional Wastewater Treatment Facility  
Permit No. 3- 1260  
NPDES No. VT0101117

***Hydrology for St. Albans NW Correctional WWTF used in this evaluation:***

Design Flow: 0.04 MGD = 0.062 CFS  
7Q10 = 2.57 CFS  
LMM = 4.36 CFS  
IWC-7Q10 = 0.024 (IWC > 1%)  
IWC-LMM = 0.014 (IWC > 1%)

***Receiving Water:***

Stevens Brook, St. Albans, VT  
Facility Location: Lat. 44.84345 Long. 73.12200 (NAD 83)

The Stevens Brook downstream of the NW Correctional WWTF is classified as Class B and is designated a Warm Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 8.5 square miles. The proposed permit retains the existing waste management zone (WMZ) in Stevens Brook beginning at the outfall of this WWTF and extending downstream approximately 1.0 mile downstream (Figure 1). There are no permitted discharges upstream of this discharge.

***General Assessment – VTDEC Assessment Database:***

MAPP maintains the VTDEC assessment database, an EPA-required database which describes the conditions of Vermont's surface waters with respect to their attainment of VWQS. For the Stevens Brook segment to which this facility discharges, the database indicates that this segment is impaired by agricultural uses from the mouth to 6.8 miles upstream. Pollutants include nutrients, sediment and E. coli. Phosphorus in this reach contributes to the impairment of St. Albans Bay that is addressed by the 2016 Lake Champlain TMDL. The lower part of Stevens Brook including this segment is in a heavily managed agricultural landscape, but also receives upstream urban pollutants and flow associated with a stormwater impairment (RM 6.5-9.3), that is addressed by the 2009 Stevens Brook Stormwater TMDL. The facility under evaluation is subject to a facility-specific wasteload allocation pursuant to the Lake Champlain TMDL not to exceed 0.028MT P/yr, which reflects the current facility load.

***Ambient Chemistry Data for the Stevens Brook above and below the NW Correctional WWTF:***

There are ambient chemistry data available above and below the WWTF from VTDEC LaRosa Partnership Program monitoring; most recently from 2005 for total nitrogen (TN), Total Phosphorus (TP), and Nephelometric Turbidity (NTU). There are more recent 2016 chemistry data available above the WWTF from VTDEC Lake Champlain monitoring data (LCM) for TN, TP, Dissolved Phosphorus (DP) and Total Suspended Solids (TSS).

The LaRosa Partnership above (WA-11) chemistry data indicate that TP values ranged from 21– 62 µg/L-TP, with an average concentration of 50 µg/L-TP. Chemistry data from below the WWTF (WA-12) indicate TP values ranged from 120 µg/L – 635 µg/L-TP, these higher TP values were associated with much higher turbidity values ranging from 3.4 NTU to 33 NTU respectively. The below site (WA-12) sampling was targeting agricultural runoff, and the elevated TP values observed reflect both sampling activities at higher flows, which is reflected by higher turbidities. Thus, these data provide useful context, but should be treated cautiously in assessing the direct effect of the WWTF discharge on instream nutrients, absent the effect of land use. See Figure 1.

The VTDEC Lake Champlain Monitoring (LCM) 2015/16 chemistry data from above the WWTF (STEV 01) indicate that TP values ranged from 33.7 µg/L – 127 µg/L-TP with an average concentration of 69 µg/L-TP, this value is similar to the average TP observed at WA-11 (above site). The LCM sampling does target high flow events overall, as was reflected in TSS values ranging from 2 – 5.38 mg/L. These chemistry data should also be used with caution when evaluating the WWTF discharge to Stevens Brook as they are not reflective of low flow conditions and are presented here to illustrate the water quality of Stevens Brook above and below the WWTF.

Data representiveness was assessed by evaluating parameters such as turbidity and TSS, in concert with the USGS gauge station at the STEV 01 location, to help cull out sampling events that represented high flow events. The downstream sampling location is the most sensitive location.

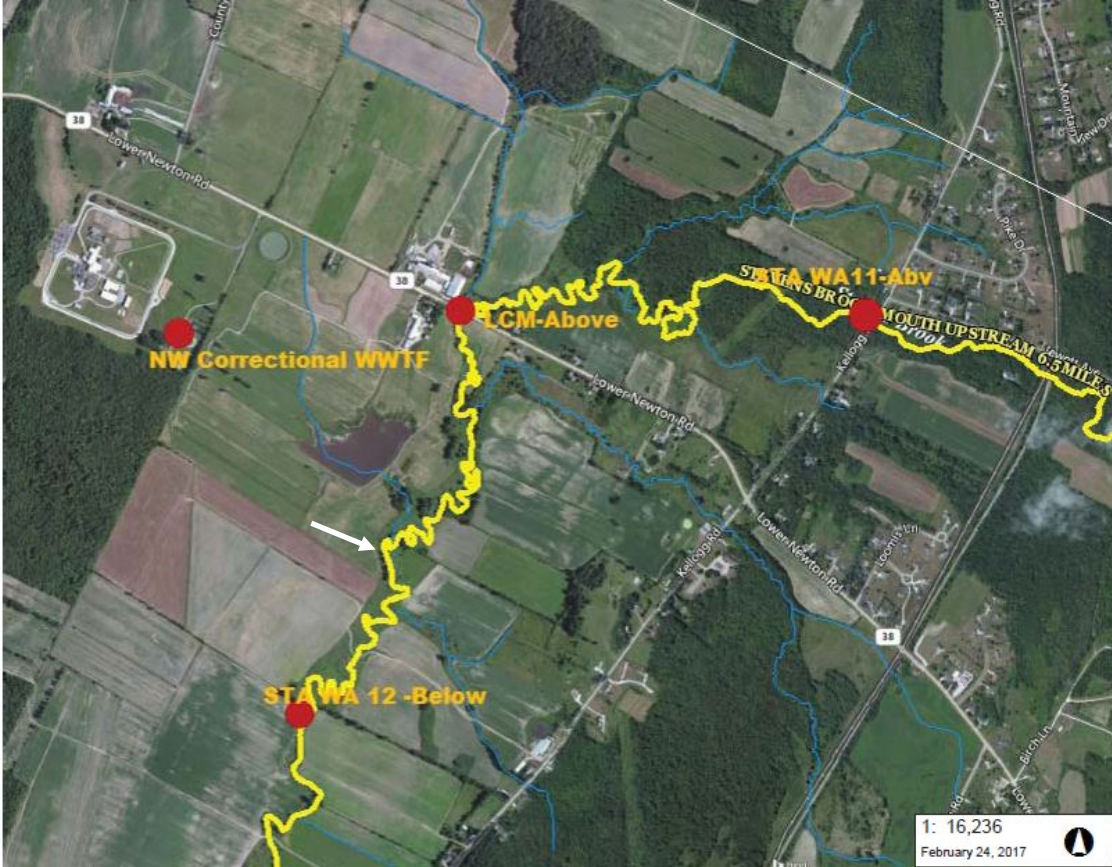


**LEGEND**

- 303(d) List of Impaired Stream
- Stream
- Town Boundary

**NOTES**

Map created using ANR's Natural Resources Atlas



825.0 0 412.00 825.0 Meters  
 WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere 1" = 1353 Ft. 1cm = 162 Meters  
 © Vermont Agency of Natural Resources THIS MAP IS NOT TO BE USED FOR NAVIGATION  
 DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

**Figure 1.** Stevens Brook near the St. Albans NW Correctional WWTF, showing up and downstream sampling locations (WA-11, LCM & WA-12). Stevens Brook segment highlighted in yellow indicates location of impairment. Arrow shows general location of outfall. Figure taken from the Vermont Integrated Watershed Assessment System on the VTANR Atlas (<https://anrweb.vt.gov/DEC/IWIS/>).

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

The water chemistry data available from above and below the WWTF is not suitable for analysis of these parameters as the sampling did not reflect low flows. However, even though sampling did not reflect low flows; there were still only (2) turbidity values below the WWTF that exceeded the warm water standard of 25 NTU’s. The highest turbidity observed (n=18) at the above site (WA-11) was 9.12 NTU’s. Data from LCM- above indicate pH range of 7.39 - 7.92. There is no dissolved oxygen data available from above or below the WWTF.

***Biological Assessments:***

Biological assessments have not been conducted below the WWTF, however assessments have been conducted by VTDEC above the WWTF at River Mile (RM) 4.2 (WA-11 on Figure 1), most recently in 2011 & 2016 (Table 1). The most recent assessment scored “Fair,” and did not meet Water Quality



Standards for Warm Water Medium Gradient Stream Type. The biological stream type downstream of the discharge at WA-12 has not been determined.

**Table 1.** Results of the Biological Monitoring for Macroinvertebrates on the Stevens Brook, upstream (RM 4.2) of the St. Albans NW Correctional WWTF discharge.

Macroinvertebrate Site Summary			
<b>Location:</b>	Stevens Brook	<b>Location ID:</b>	501788
<b>Town:</b>	St. Albans Town	<b>Bio Site ID:</b>	430000000042
<b>Description:</b>	Located adjacent to Jewett Rd, 50m below CC railroad bridge.	<b>WBID:</b>	VT05-07
<b>Stream Type:</b>	Warm Water Medium Gradient		

Date	Density	Richness	EPT Richness	PMA-O	B.I.	Oligo.	EPT/EPT + Chiro	PPCS-F	Community Assessment
8/18/1987	460	29.0	13.0	64.0	6.22	1.23	0.93	0.35	Poor
8/12/1988	1876	24.0	11.0	71.7	5.04	1.07	0.88	0.45	Poor
10/27/1988	1735	28.5	11.0	63.6	4.96	2.17	0.95	0.40	Fair
10/17/1989	2300	38.5	13.5	68.2	4.82	4.56	0.94	0.63	Fair
7/31/1990	2026	26.0	9.5	69.3	4.81	1.10	0.77	0.38	Poor
9/5/1991	2548	26.5	10.5	64.9	4.81	0.15	0.85	0.42	Poor
10/18/1993	1198	30.0	11.0	68.7	4.43	0.11	0.93	0.49	Fair
10/20/1998	1592	27.0	10.0	79.6	5.54	0.00	0.93	0.52	Fair
10/6/2004	2732	44.5	15.0	78.4	4.77	0.37	0.83	0.52	G-Fair
10/5/2009	1628	28.0	8.0	46.7	4.63	0.00	0.96	0.43	F-Poor
9/28/2011	1644	29.0	13.0	54.2	4.81	0.11	0.93	0.35	Fair
<b>Full Support</b>	≥ 350	≥ 32	≥ 17	≥ 50	≤ 5.35	≤ 9.5	≥ 0.47	≥ 0.45	
<b>Meets Threshold</b>	≥ 300	≥ 30	≥ 16	≥ 45	≤ 5.4	≤ 12	≥ 0.45	≥ 0.4	
<b>Near Threshold</b>	≥ 250	≥ 28	≥ 15	≥ 40	≤ 5.65	≤ 14.5	≥ 0.43	≥ 0.35	
<b>Non-Support</b>	< 250	< 28	< 15	< 40	> 5.65	> 14.5	< 0.43	< 0.35	

\*Scoring Guidelines for Stream Type WWMG and WQ Class B.

**Total Phosphorus:**

Instream Phosphorus Concentrations were calculated using the low monthly median flow (LMM) of 4.36 CFS at design flow of 0.062 CFS (0.04 MGD) and using the effluent phosphorus concentration of 0.2 mg/L which was the average observed from the facility monitoring data for the past 8 months. The calculated phosphorus concentration at these conditions attributable to discharge was 0.0028 mg/L (2.8 µg/L). Review of the NW Correctional WWTF flow records indicate that average flow for 2016 was about ½ design flow, at this flow rate TP attributable to the discharge would be 1.4 µg/L, a very small increase in any receiving water resulting in a negligible effect on instream water quality. At full design flow, the maximum possible increase in total phosphorus is 11 µg/L.

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

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

To interpret this standard, MAPP typically relies on a framework which examines TP concentrations in relation to existing response criteria in the water quality standards, for streams that can be assessed using macroinvertebrate biocriteria. Under the framework, MAPP can make a positive finding of compliance with the narrative standard when specific nutrient response variables; pH, Turbidity, Dissolved Oxygen, and aquatic life use, all display compliance with their respective criteria in the Water Quality Standards.

In the absence of downstream water quality nutrient response variables, the framework which MAPP utilizes for determination of compliance with the narrative standard cannot be used, and with respect to phosphorus discharge, this Determination relies instead on calculated instream concentrations.

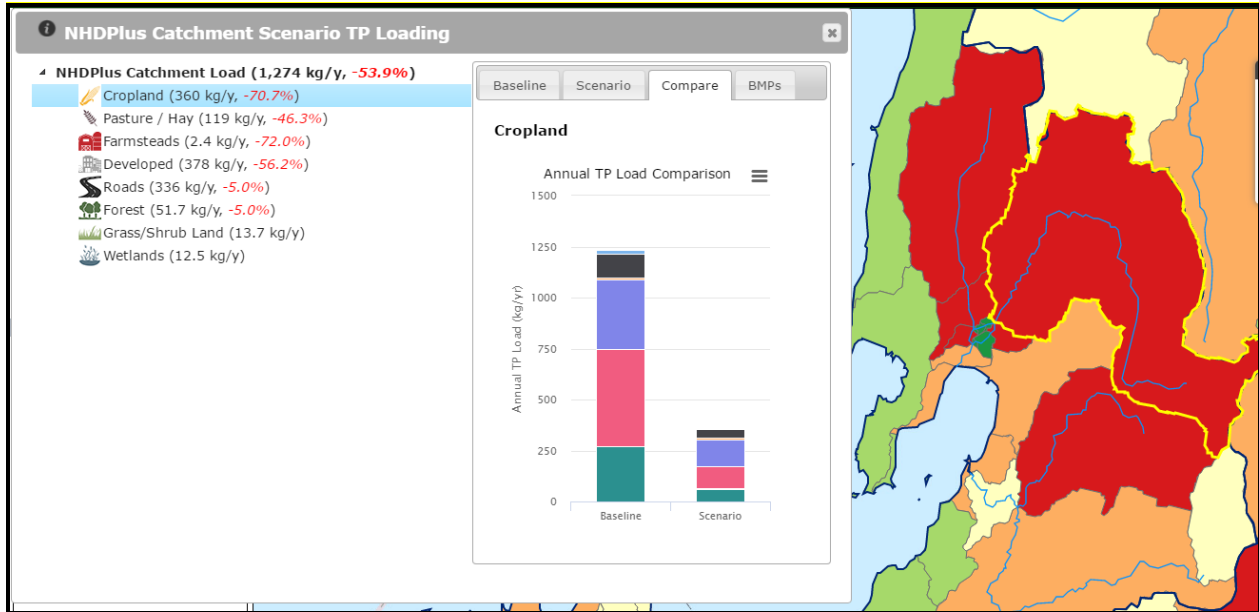
The total phosphorus concentrations in receiving waters are relatively high, particularly during higher flow periods when pollutants carried by flow are delivered to Lake Champlain. The mass balance calculations presented above, indicated that increases in phosphorus presently attributable to the facility are minimal (1.4 µg/L-TP) and clearly will not be adding appreciable TP to the receiving waters which have already been listed as “Impaired,” for nutrients and other pollutants. Monitoring results above the WWTF indicate average TP is about 60µg/L. Further, aquatic life use above the facility is shown to be not fully supported above the facility (Table 2). Because of the agricultural impairment of the receiving reach, there exists reasonable potential for the facility to contribute to the nutrient impairment.

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

Response variable (VWQS reference)	Target Value	River-mile (Upstream)	River-mile (Downstream)
pH (§3-01.B.9)	<8.5 s.u.	7.98 (9/27/16)	
Turbidity (§3-04.B.1)	< 10 NTU at low mean annual flow	No data	3 – 33 (2005)
Dissolved Oxygen (min) (§3-04.B.2)	>6 mg/L and 70% saturation	No data	No data
Aquatic biota, based on macroinvertebrates, (§3-04-B.4), also see Table 2.	Attaining an assessment of good, or better.	Does not meet WQS	No data

In the instance that reasonable potential exists, the Clean Water Act requires the imposition of effluent limitations necessary to address the facility’s proportion of the impairment. In this instance, since no TMDL is in place specific to the impaired reach of the Stevens Brook, the effluent limitation is derived as a function of the reasonable assurances analysis conducted by USEPA in the promulgation of the Lake Champlain TMDL for the Saint Albans Bay Segment. In this segment, the TMDL requires a total reduction of 24.5% in phosphorus loading, parsed among the various land uses in the entire contributing watershed. In the TMDL, USEPA also developed a reasonable assurance (RA) scenario that articulated a scenario by which the TMDL could be attained (see [Lake Champlain TMDLs, Scenario Tool](#)). More recently, DEC published the Clean Water Roadmap, which presents a downscaled application of the RA scenario that is implemented at the catchment scale. The Roadmap presents current and RA-modeled estimates of phosphorus load, and these estimates were used to derive the reductions expected when the RA scenario BMP suite is applied to the Steven’s Brook (Figure 2). This analysis indicates that a total reduction of 54% may be achieved based on full RA scenario implementation, with over 70% reduction achievable in cornlands, and farmsteads, which are plentiful in this watershed.

Further, in the 2016 annual report to the General Assembly on Basin Planning, DEC has signaled its intent to pursue implementation of the TMDL at the highest rate achievable given the regulatory authority conferred by Act 64. Accordingly, an implementation achievement rate of just over 20% has been identified as a reasonable level of implementation that might be expected by the close of the first five-year implementation cycle. Thus, it would be reasonable that a total nonpoint source reduction of 53.9% x 0.2, or an 11% reduction during the first five years, which coincides with the permit cycle.



**Figure 2. Clean Water Roadmap – Modeled phosphorus reductions resulting from implementation of the USEPA Reasonable Assurance Scenario, as applied to the Steven’s Brook watershed.**

Since an 11% reduction of total phosphorus in this watershed may be expected over the permit term, a phosphorus effluent limitation has been expressed as a mass load, based on the history of facility loading, plus 11%. The 90<sup>th</sup> percentile annual load is 0.0074 MT/yr, and the 11% allowance yields a maximum mass load of 0.0082 MT/yr, or 18 lbs./yr. MAPP proposes this as an annual mass limit that will cap the facility’s contribution to the impairment.

***Whole Effluent Toxicity (WET) and Priority Pollutant Testing:***

40 CFR Part 122.44(d)(1) requires the Agency to assess whether the discharge causes, or has the reasonable potential to cause or contribute to an excursion above any narrative or numeric water quality criteria. The goal of the Vermont Toxic Discharge Control Strategy is to assure that the state water quality standards and receiving water classification criteria are maintained.

MAPP notes that WET testing has not been required for this facility in prior permits, perhaps due to the small size. Given the sensitivity of this receiving water, MAPP recommends consideration of one or more rounds of WET testing. While the Toxics Discharge Control Strategy identifies this facility as Tier 4 (lowest risk), implementing a WET test would provide a level of surety that the facility is not exacerbating instream conditions with a toxic effect.

***Sediment, Hardness, and Metals:***

Instream total suspended solids were calculated using the 7Q10 of 2.57 CFS at design flow of 0.062 CFS (0.04 MGD), assuming the maximum permitted daily concentration of 50 mg/L. The calculated suspended sediment concentration at these conditions was 1.2 mg/l, indicating a minor augmentation of instream ambient suspended sediment concentrations in receiving waters.

There is no priority metal chemistry data above or below the outfall.

***Lake Champlain TMDL – St. Albans Bay Segment:***

The ultimate receiving water for this facility is St. Albans Bay, a phosphorus-impaired segment of Lake Champlain subject to the 2016 Lake Champlain TMDLs promulgated by USEPA. That TMDL establishes a wasteload allocation for this facility not to exceed 0.028 MT/yr. Effluent limitations in the draft permit will ensure compliance with the TMDL. The Lake Champlain TMDL also contains a reasonable assurance analysis and accountability framework demonstrating that the St. Albans Bay will achieve standards following implementation of the TMDL. The effluent limitations proposed to address the impairment in Steven's Brook are well within the TMDL allocation.

***Recommended Water Quality Monitoring:***

The following monitoring activities should be undertaken during the permit term, but not by the permittee: downstream water quality monitoring for conventional pollutants and metals. MAPP will undertake this monitoring.

MAPP recommends that the permittee undertake WET testing as a protective measure given the sensitivity of this stream.

***Conclusion:***

The available data indicate that while this discharge does have a reasonable potential to contribute to an instream nutrient impairment, the inclusion of the proposed phosphorus effluent limitation, in concert with the requirements of Act 64 ensure that the effluent limitations recommended by this Determination will protect water quality. The effluent water quality monitoring, flow records, mass balance computations, and legal requirements in place support this conclusion.

AGENCY OF NATURAL RESOURCES  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
WATERSHED MANAGEMENT DIVISION  
1 NATIONAL LIFE DRIVE – MAIN 2  
MONTPELIER, VERMONT 05620-3522

NOTICE: DRAFT DISCHARGE PERMIT  
PUBLIC NOTICE NUMBER: 3-1260  
PUBLIC COMMENT PERIOD: June 29 – August 9, 2017  
PUBLIC MEETING: August 2, 2017, 4:00-6:00 PM, St. Albans Free Library

**PERMITTEE INFORMATION**

PERMITTEE NAME: City of St. Albans (Northwest Correctional Facility)  
PERMITTEE ADDRESS: PO Box 867  
St. Albans, VT 05471  
PERMIT NUMBER: 3-1260  
PROJECT ID NUMBER: EJ95-0315

**DISCHARGE INFORMATION**

NATURE: Municipal wastewater  
VOLUME: 0.04 MGD  
RECEIVING WATER: Stevens Brook  
EXPIRATION DATE: June 30, 2022  
DESCRIPTION: Draft discharge permit renewal proposed for issuance to the City of St. Albans for the discharge of municipal wastewater from the Northwest Correctional Wastewater Treatment Facility to Stevens Brook.

**TENTATIVE DETERMINATIONS**

Tentative determinations regarding effluent limitations and other conditions to be imposed on the pending Vermont permit have been made by the State of Vermont Agency of Natural Resources (VANR). The limitations imposed will assure that the Vermont Water Quality Standards and applicable provisions of the Federal Clean Water Act, PL 92-500, as amended, will be met.

**FURTHER INFORMATION**

The complete application, proposed permit, and other information are on file and may be inspected by appointment on the 2<sup>nd</sup> floor of the Main Building at 1 National Life Drive, Montpelier, Vermont. Copies, obtained by calling 802-828-1535 from 7:45 AM to 4:30 PM Monday through Friday, will be made at a cost based upon the current Secretary of State Official Fee Schedule for Copying Public Records. The draft permit and fact sheet may also be viewed on the Division's website at <http://dec.vermont.gov/watershed/wastewater/public-notices--fact-sheets--draft-permits>.

**PUBLIC COMMENTS/PUBLIC MEETINGS**

Written public comments on the proposed permit are invited and must be received on or before the close of the business day (4:30 pm) on **August 9, 2017** to the Agency of Natural Resources, Department of Environmental Conservation, Watershed Management Division, 1 National Life Drive – Main 2, Vermont 05620-3522. Comments may also be submitted by e-mail using the e-mail comment provisions included at <http://dec.vermont.gov/watershed/wastewater/public-notices--fact-sheets--draft-permits>. All comments received by the above date will be considered in formulation of the final determinations.

During the notice period, any person may submit a written request to this office for a public meeting to consider the proposed permit. The request must state the interest of the party filing such request and the reasons why a meeting is warranted. A meeting will be held if there is a significant public interest (including the filing of requests or petitions for such meeting) in holding such a meeting.

**FINAL ACTION/RIGHTS TO APPEAL TO THE ENVIRONMENTAL COURT**

At the conclusion of the public notice period and after consideration of additional information received during the public notice period, VANR will make a final determination to issue or to deny the permit. Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Court within 30 days of the date of the decision. The appellant must submit the Notice of Appeal and include the applicable filing fee, payable to the state of Vermont.

The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Court; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and the description of the property, project or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal.

The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings.

The address for the Vermont Environmental Court is: Vermont Superior Court, Environmental Division, 32 Cherry Street, 2<sup>nd</sup> Floor, Suite 303, Burlington VT 05401 (Tel. 802-951-1740). For further information see the Vermont Rules for Environmental Court Proceedings, available at [www.vermontjudiciary.org](http://www.vermontjudiciary.org).

Emily Boedecker, Commissioner  
Department of Environmental Conservation