

**STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
1 NATIONAL LIFE DRIVE, MAIN 2
MONTPELIER, VT 05620-3522**

DRAFT 1272 ORDER - Discharge Permit No. 3-1207

IN THE MATTER OF:

City of Montpelier, Permit No. 3-1207
City Hall
39 Main Street
Montpelier, Vermont 05602

In accordance with the provisions of 10 V.S.A. § 1272 and the Combined Sewer Overflow Rule (Environmental Protection Rule, Chapter 34), the Secretary (Secretary) of the Vermont Agency of Natural Resources (Agency) makes the following findings of fact. The definitions in the Combined Sewer Overflow Rule shall apply to this Order.

FINDINGS OF FACT

- (1) The City of Montpelier (Montpelier) owns and operates the Montpelier Wastewater Treatment Facility (WWTF), which collects and treats both sewage and stormwater.
- (2) The WWTF is authorized to discharge treated and disinfected wastewater into the Winooski River under the terms and conditions of Discharge Permit No. 3-1207.
- (3) Discharge Permit No. 3-1207 lists the following combined sewer overflow (CSO) outfalls within the collection system: CSO 001, CSO 003, CSO 007, CSO 008, CSO 009, and CSO 023. During certain storm events, these CSO outfalls discharge untreated sewage to the Winooski River and North Branch River. Such discharges adversely affect the quality of waters of the State and create public health concerns.
- (4) The discharges from these CSO outfalls violate 10 V.S.A. Chapter 47, the Vermont Water Quality Standards (VWQS), and Discharge Permit No. 3-1207.
- (5) In 1992 Montpelier had sixteen CSO outfalls. The outfalls included: CSO 001, CSO 002, CSO 003, CSO 005, CSO 006, CSO 007, CSO 008, CSO 009, CSO 010, CSO 013, CSO 017, CSO 021, CSO 022, CSO 023, CSO 024, CSO 025.
- (6) A preliminary engineering assessment, conducted for Montpelier by Dufresne-Henry, Inc. and submitted to the Agency on December 31, 1992, determined the optimum alternative for elimination of the combined sewer overflow discharges

to be separation of the stormwater and sanitary collection systems.

- (7) An amendment to the preliminary engineering assessment was submitted to the Agency on December 15, 1993, and identified a two-phased separation of the stormwater and sanitary collection systems as the most feasible method of eliminating the combined sewer overflow discharges.
- (8) Montpelier completed Phase I of the combined sewer overflow elimination project in 1998.
- (9) Montpelier completed Phase II of the combined sewer overflow elimination project in August 2004.
- (10) During the summer and fall of 2004 and the spring of 2005, Montpelier conducted an “Effectiveness Study” to verify if the combined sewer overflow elimination project had resulted in compliance with the Vermont Combined Sewer Overflow Policy, June 1990 (CSO Policy).
- (11) The Effectiveness Study indicated that CSO 002, CSO 017, and CSO 024 were no longer active and could be eliminated.
- (12) The Effectiveness Study also indicated that the combined sewer overflow elimination project had not resulted in compliance with the CSO Policy.
- (13) The Effectiveness Study indicated that CSO 001, CSO 003, CSO 007, CSO 008, and CSO 023 were still actively discharging during certain storm events.
- (14) Further investigations into the possible causes of these overflow events revealed that the 36” trunk sewer line from the siphon structure located in CSO 023 near the Bailey Avenue bridge to the WWTF was partially filled with accumulated sand and sediment deposits. Also, the section of the trunk line from the Bailey Avenue bridge to the “North Branch” river crossing had substantial amounts of accumulated sand and sediment deposits. This accumulated material restricted the flow in the sewer line and created or contributed to overflow events occurring at CSO 001, CSO 003, CSO 007, CSO 008, and CSO 023.
- (15) Montpelier conducted a phased cleaning of the trunk sewer line. Montpelier cleaned the section from the Bailey Avenue bridge to the Montpelier WWTF in the summer of 2005 and the section from the Bailey Avenue bridge to the “North Branch” river crossing during the summer of 2006. In addition, Montpelier physically eliminated CSOs 002, 017, and 024.
- (16) During the summer of 2006 Montpelier also discovered an old stone box culvert which was conveying a significant volume of groundwater and runoff from a pond into the sewer collection system in the subcatchment for CSO 009.

Montpelier eliminated the old stone box culvert on November 9, 2006.

- (17) Based upon limited monitoring after the completion of the trunk line cleaning and elimination of the old stone box culvert from the collection system, it was presumed that CSO 009 and CSO 013 could be physically eliminated from the collection system. Additionally, the storm drain outfall of CSO 001 from the overflow structure to the river was full of sediment and needed cleaning to prevent the backup of stormwater into the sanitary sewer collection system.
- (18) The Effectiveness Study also noted that in order to protect the sewer siphons and pumps stations in the collection system and private property in Montpelier, the overflow structures for CSOs 001, 003, 007, 008, and 023 would need to be maintained.
- (19) On January 8, 2008, the Agency issued 1272 Order No. 3-1207A-2 to Montpelier which required elimination of CSO 009 and CSO 013 and the cleaning of the storm drain outfall of CSO 001 by December 31, 2008.
- (20) On February 1, 2008, Discharge Permit No. 3-1207 and 1272 Order 3-1207A-2 were appealed to the Environmental Court.
- (21) On June 26, 2008, Montpelier informed the Agency that CSO 013 had been physically plugged and the discharge eliminated. However, due to the potential to cause a sewage backup in adjacent buildings, CSO 009 could not be blocked without additional abatement work. In addition, due to a collapse of the storm drain outfall at CSO 001, extensive excavation work was necessary to repair the outfall.
- (22) On July 22, 2008, the Environmental Court dismissed the appeal of 1272 Order 3-1207A-2, however the appeal of Discharge Permit No. 3-1207 remained in effect.
- (23) On November 8, 2011, the Environmental Court remanded the pending NPDES permit application back to the Agency.
- (24) On May 16, 2012, at the request of the Agency, Montpelier provided an update of the status of the CSO abatement project to the Agency. While Discharge Permit No. 3-1207 was in litigation, Montpelier had:
 - 1. Repaired the collapsed outfall line at CSO 001;
 - 2. Raised the height of the overflow weirs at CSO 001 and CSO 008 approximately 3”;
 - 3. Completed combined sewer separation work on Richardson Street, Graham Terrace, Main Street, Lower State Street, Arsenal Drive, and McKinley Street;
 - 4. Routinely cleaned siphon lines and problematic areas of the collection

- system; and
5. Monitored CSO 001, 003, 007, 008, 009, and 023 for overflow frequency during April through October.
- (25) On December 31, 2013, Montpelier submitted a Combined Sewer Overflow Abatement Effectiveness Study. The Effectiveness Study recommended the separation of Towne Street and Sunset Avenue from the combined sewer system (CSS); the installation of ultrasonic flow monitoring devices on active CSO structures; and conducting an assessment of CSO weir elevations to determine if CSO weirs could be raised further to prevent overflow events.
- (26) On October 7, 2015, an analysis of Montpelier's CSO weir elevations were completed. In December of 2015, CSO 003 weir height was raised approximately 2 feet, CSO 008 weir height was raised approximately 1.93 feet, and CSO 009 weir height was raised approximately 1.43 feet.
- (27) On July 1, 2016, an analysis of Montpelier's CSO siphon overflow weir elevations was completed. In April of 2017, CSO 023 weir height was raised approximately 6 inches.
- (28) During the summer of 2016, Montpelier completed separation projects on Towne Street, Sunset Avenue, Hillhead Street, and Cedar Street.
- (29) On October 19, 2016, a Preliminary Engineering Report was completed for the separation of the East State Street sewer from the intersection of Hubbard Street to the intersection of Main Street.
- (30) Without the implementation of the requirements set forth in this Order, it can reasonably be expected that the overflows from Montpelier's remaining CSO outfalls 001, 003, 007, 008, 009, and 023 to the North Branch and the Winooski River will continue to create or cause a discharge of untreated sewage to waters of the State in violation of 10 V.S.A. Chapter 47, the Vermont Water Quality Standards (VWQS), and Discharge Permit No. 3-1207.

ORDER

Based on the foregoing findings of fact, the Secretary issues the following Order, under 10 V.S.A. § 1272 and the Combined Sewer Overflow Rule (Environmental Protection Rule, Chapter 34), to ensure all remaining CSOs in Montpelier are brought into compliance with the applicable requirements of state and federal law, including the VWQS.

- (I) **Minimum Controls:** The municipality shall implement the minimum technology-based requirements below, known as the Minimum Controls:
- (1) Proper operation and regular maintenance programs for collection systems and

CSO outfalls;

- (2) Maximum use of the collection system for storage without endangering public health or property, or causing solids deposition problems;
- (3) Review and modification of pretreatment requirements to assure that CSO impacts are minimized;
- (4) Maximization of flow to the treatment plant for treatment consistent with an evaluation of alternative treatment options;
- (5) Prohibition of CSOs during dry weather;
- (6) Control of solid and floatable materials in CSOs;
- (7) Establishment of pollution prevention programs to minimize contaminants in CSOs;
- (8) Public notification to ensure that the public receives adequate notification of CSOs and CSO impacts, which shall, at a minimum, comply with § 34-404 of the Combined Sewer Overflow Rule (Environmental Protection Rule, Chapter 34);
- (9) Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls, which shall include at a minimum:
 - (A) The municipality shall define through monitoring, modeling, and other means, as appropriate, the sewer system, the response of the system to a range of precipitation events that encompasses the 5-year design storm, the characteristics of the overflows, and the water quality impacts that result from CSOs. To comply with the foregoing requirement, the municipality shall, at a minimum:
 - (i) Establish and maintain a precipitation monitoring system. The system must provide unique precipitation amounts specific to individual CSO subcatchments. Such a system does not necessarily demand a precipitation recording device for each CSO outfall. Precipitation measurements shall be to the nearest 0.01 inches, continuous at a five-minute interval over the duration of a storm event, and indexed to time and date. If establishing a physical precipitation monitoring system, the municipality shall work to minimize impacts of wind and surrounding trees and buildings that may hinder the accuracy of precipitation recording devices. If a municipality proposes to use a system other than a physical precipitation monitoring system, the municipality shall get prior approval from the Secretary.

- (ii) Establish a CSO flow monitoring system. At a minimum, the municipality shall install a tell-tale block in each overflow structure and check the block after every precipitation/runoff event.
- (B) The municipality shall submit to the Secretary, by no later than January 31st of each year, a report on CSO control project(s) of the previous calendar year. The Secretary will use the information from the report to monitor the progress on implementation of CSO control project(s). The municipality shall report progress on:
 - (i) Compliance with the Minimum Controls;
 - (ii) The condition and operation of the CSS;
 - (iii) The frequency, duration, and magnitude of the precipitation events leading to CSOs from the system in the past year and a comparison to prior years;
 - (iv) The frequency, duration, and magnitude of all CSOs from the system in the past year and a comparison to prior years;
 - (v) The overall status of the Long Term Control Plan (LTCP); and Key CSO control accomplishments, highlighting those that reduced the frequency and magnitude of CSOs; projects under design; and construction that occurred in the previous year.
- (II) **Long Term Control Plan.** The municipality shall create a Long Term Control Plan (LTCP)¹ and submit it to the Secretary **within 18 months of the date of this Order.** In developing a LTCP, the municipality shall employ a public participation process that actively involves the affected public in the decision-making to develop and select the long-term CSO controls. The affected public includes rate payers, industrial users of the sewer system, persons who reside downstream from the CSO outfalls, persons who use and enjoy the downstream waters, and any other interested persons. The LTCP shall, at a minimum, include:
 - (1) An alternatives analysis that shall evaluate the costs and performance of multiple CSO control alternatives, such as:
 - (A) Installing a flow metering system for each CSO outfall;
 - (B) Reducing stormwater flows through the separation of combined stormwater and sanitary sewer lines;

¹ If the municipality wishes to apply for funding from the State to assist in the creation or implementation of its LTCP, the municipality shall draft all reports, including associated planning documents, according to the PER format.

- (C) Adding storage tanks or retention basins to hold overflow during storm events;
 - (D) Expanding the treatment plant capacity;
 - (E) Adding screening and disinfection facilities for the overflow;
 - (F) Incorporating green stormwater infrastructure to reduce stormwater flow into CSSs to the greatest extent feasible and practical; and
 - (G) Providing for disinfection of CSOs at the outfall.
- (2) A detailed list of the selected CSO control projects necessary to bring the CSOs into compliance with the VWQS and a timeline for implementing the projects. Projects shall be prioritized based on the relative importance of adverse impacts upon water quality, including impacts on designated and existing uses. The municipality shall give the highest priority to bringing overflows to “sensitive areas” into compliance with the VWQS. “Sensitive areas” means designated Outstanding Resource Waters, designated National Marine Sanctuaries, waters with threatened or endangered species and their habitat, waters where primary contact recreation occurs, public drinking water intakes or their designated protection areas, and shellfish beds.
 - (3) A strategy to ensure that new sources of stormwater and wastewater to the CSS do not increase the volume, frequency, or duration of CSO events through implementation of control measures, such as making reductions in existing sources of stormwater or wastewater to the CSS, creating or increasing storage capacity within the collection system, or other measures approved by the Secretary.
 - (4) Measures to address and prevent any documented, recurrent instances of sewage backups or discharges of raw sewage onto the ground surface.
 - (5) A financing plan to design and implement the CSO control projects identified pursuant to subsection (II)(2) of this Order.
 - (6) Green stormwater infrastructure for stormwater runoff and sewer overflow management to the greatest extent possible.
 - (7) A proposed schedule to bring the municipality’s CSOs into compliance with the Vermont Water Quality Standards. The Agency recognizes CSO abatement and control is a costly process and anticipates plans will take an iterative approach to lessen the number and quantity of CSO events and improve their quality. As such, the schedule may include interim CSO controls as a step in the process of bringing CSOs into compliance with the VWQS. Interim CSO controls should

be evaluated and designed based on storms with a theoretical 5-year recurrence interval (also known as the 5-year design storm). The 24-hour and 1-hour extreme precipitation depths at the 5-year recurrence interval for each CSO municipality are listed in Appendix A of the Combined Sewer Overflow Rule (Environmental Protection Rule, Chapter 34).

(III) General Conditions.

- (1) The plans and information required by this Order shall be submitted in electronic format to Nick Giannetti, Environmental Analyst, Nick.Giannetti@Vermont.gov.
- (2) The Secretary reserves the right to amend this Order at any time as necessary to protect water quality and to comply with state and federal law.
- (3) The State of Vermont and the Secretary reserve continuing jurisdiction to ensure future compliance with all statutes, rules, and regulations applicable to the facts and violations set forth above.
- (4) Nothing in this Order shall be construed as having relieved, modified, or in any manner affected the municipality's on-going obligation to comply with all other federal, state, or local statutes nor does it relieve the municipality of the obligation to obtain all necessary federal, state, and local permits.
- (5) This Order does not grant any exclusive rights or privileges, which would impair any rights possessed by riparian or littoral owners of the State of Vermont. It does not grant any right, title, or easement to or over any land, nor does it authorize any damage to private property or invasion of private rights or the violation of federal, state, or local laws or regulations.
- (6) The Secretary, in issuing this Order, accepts no legal responsibility for any damage, direct or indirect of whatever nature and by whoever suffered, arising out of the activities described.
- (7) This Order is not a resolution of any enforcement action that may be pending, contemplated, or initiated in this matter.
- (8) The municipality shall allow access to Agency representatives, upon the presentation of proper credentials, to inspect the subject site and sample any discharge or receiving waters as necessary to assess compliance with this Order and applicable state laws related to water quality.
- (9) Pursuant to 10 V.S.A. Chapter 220, any appeal of this Order must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of this Order. For further information, see the Vermont Rules for Environmental Court Proceedings, available online at www.vermontjudiciary.org. The address of the Environmental Court is Vermont Superior Court, Environmental

Division, 32 Cherry Street, 2nd Floor, Suite 303, Burlington, VT 05401 (Tel # (802) 951-1740). The filing of an appeal does not stay this Order. The Notice of Appeal must specify the parties taking the appeal and the statutory provisions under which each party claims party status; must state the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and description of the property, project, or facility 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.

- (10) This Order shall be effective upon the date of signing and shall remain in effect until such time as the activities governed under this Order are completed or until such time as the Agency rescinds this Order or issues a subsequent Order, whichever occurs first.

Emily Boedecker, Commissioner
Department of Environmental Conservation

By: _____
Peter LaFlamme, Director
Watershed Management Division

Date: _____

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

Permit No.: 3-1207
PIN: BR81-0002
NPDES No.: VT0100196

Name of Applicant: City of Montpelier
39 Main Street
Montpelier, VT 05602

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 Montpelier, Vermont (hereinafter referred to as the “Permittee”) is authorized by the Secretary of the Agency of Natural Resources (Agency) to discharge from the Montpelier Wastewater Treatment Facility (WWTF) to the Winooski River in accordance with the following conditions.

This permit shall become effective on **[Month] [Day], 2017**.

Emily Boedecker, Commissioner
Department of Environmental Conservation

By: _____ Date: _____
Jessica Bulova, Wastewater Section Supervisor
Watershed Management Division

I. SPECIAL CONDITIONS**A. EFFLUENT LIMITS**

1. During the term of this permit, the Permittee is authorized to discharge from outfall serial number S/N 001 and, pursuant to the terms of Condition I.B. of this permit, Seasonal Outfalls 1, 2, and 3 of the Montpelier WWTF to the Winooski River, an effluent for which the characteristics shall not exceed the values listed below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS								
	Annual Average	Monthly Average	Annual Limitation	Monthly Average	Weekly Average	Monthly Average	Weekly Average	Maximum Day	Instantaneous Maximum
	Million Gallons Per Day (MGD)		Mass (lbs/yr)	Mass (lbs/day)		Concentration (mg/L)			
Flow ¹	3.97	Monitor Only							
Biochemical Oxygen Demand ² (5-day, 20° C) (BOD ₅)				993	1490	30	45	50	
Total Suspended Solids (TSS) ²				993	1490	30	45	50	
Total Phosphorus (TP) ^{2,3}			2418			0.8			
Total Ammonia Nitrogen (TAN)								Monitor Only	
Total Nitrogen (TN) ⁴								Monitor Only	
Total Kjeldahl Nitrogen (TKN) ⁴								Monitor Only	
Nitrate/Nitrite Nitrogen (NO _x) ⁴								Monitor Only	
Settleable Solids									1.0 ml/l
<i>Escherichia coli</i>									77/100 ml
pH						Between 6.5-8.5 Standard Units			

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

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

³ Total 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.C.5.

2. The effluent shall not have concentrations or combinations of contaminants including oil, grease, scum, foam, or floating solids which would cause a violation of the Vermont Water Quality Standards.
3. The effluent shall not cause visible discoloration of the receiving waters.
4. The monthly average concentrations of Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS) in the effluent shall not exceed 15 percent of the monthly average concentrations of BOD₅ and TSS in the influent into the Permittee's WWTF. For the purposes of determining whether the Permittee is in compliance with this condition, samples from the effluent and the influent shall be taken with appropriate allowance for detention times.
5. If the effluent discharged for a period of 90 consecutive days exceeds 80 percent of the permitted flow limitation, the Permittee shall submit to the Secretary projected loadings and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans.
6. Any action on the part of the Secretary in reviewing, commenting upon or approving plans and specifications for the construction of WWTFs shall not relieve the Permittee from the responsibility to achieve effluent limitations set forth in this permit and shall not constitute a waiver of, or act of estoppel against any remedy available to the Secretary, the State of Vermont or the federal government for failure to meet any requirement set forth in this permit or imposed by state or federal law.

B. SEASONAL DISCHARGE

During the term of this permit, the Permittee is authorized to discharge effluent to the Winooski River during the months of December through March in an area not to exceed one mile upstream of primary outfall S/N 001, from Seasonal Outfall 1, Seasonal Outfall 2, and Seasonal Outfall 3 ("Seasonal Discharge"), in accordance with the terms of this permit and the following special conditions:

1. A Seasonal Discharge shall only occur when a threat of flooding posed by river ice jam exists. The duration of each Seasonal Discharge shall not exceed that necessary to mitigate flooding caused by the ice blockage.
2. The Permittee shall provide written notification to the Secretary at least 24 hours prior to initiating a Seasonal Discharge and within 24 hours of ceasing a Seasonal Discharge.
3. While performing a Seasonal Discharge, the Permittee shall post and maintain signage at the seasonal outfalls where the Seasonal Discharge is occurring. Signage shall advise pedestrians of the nature of the activity and provide contact information of an individual employed by the Permittee in the event of a leak, failure of effluent piping, or human exposure to wastewater effluent.

4. The Permittee shall operate and maintain the Seasonal Discharge pump station, force main, associated piping, and pertinent ancillary equipment in accordance with General Condition II.A.3. of this permit.
5. The Permittee shall inspect the Seasonal Discharge pump station, force main, associated piping, and pertinent ancillary equipment at least daily, while performing a Seasonal Discharge.
6. The Permittee is authorized to extend the discharge points for Seasonal Outfall 1, Seasonal Outfall 2, and Seasonal Outfall 3 using aboveground piping within the area extending up to 1 mile upstream of the primary outfall S/N 001. To ensure proper operation and maintenance of the aboveground piping, the Permittee shall comply with the following:
 - a) If aboveground piping is used to extend a discharge point, prior to initiating the Seasonal Discharge, the Permittee shall provide the Secretary with a certification from a professional engineer that the aboveground piping has been designed, installed, and will operate in a manner that minimizes leakage and prevents public exposure to wastewater effluent.
 - b) The Permittee shall take measures to limit public access to the area where aboveground piping is installed.
7. In the event that a leak occurs or effluent is discharged to an area other than the designated receiving water, the Permittee shall take immediate action to prevent exposure, immediately cease the Seasonal Discharge and revert back to primary outfall S/N 001, and notify the Secretary of the leak or discharge within 24 hours pursuant to Condition II.A.2.d.
8. The Permittee shall notify the Secretary in writing prior to constructing additional permanent infrastructure such as seasonal outfall discharge points, underground force mains, or other ancillary components. Prior to discharging from any new seasonal outfall, the Permittee shall seek a permit amendment authorizing discharge from that outfall.

C. TOTAL PHOSPHORUS

1. Waste Load Allocation

This permit includes a formal total phosphorus waste load allocation (WLA) of 2418 lbs., or 1.097 metric tons, per year, as established by the U.S. EPA in the 2016 “Phosphorus TMDLs for Vermont Segments of Lake Champlain” (LC TMDL). The Secretary reserves the right to reopen and amend this permit, pursuant to Condition II.B.4. of this permit, to include an alternate TP limitation or additional monitoring requirements based on the monitoring data, the results of phosphorus optimization activities, or a reallocation of phosphorus WLA between the Permittee and another WWTF pursuant to the requirements of the TMDL and Vermont’s “Wasteload Allocation Process” Rule (Environmental Protection Rule, Chapter 17).

2. Phosphorus Optimization Plan

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

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

3. Phosphorus Elimination/Reduction Plan

- a) The WWTF shall have 12 months from the permit issuance date to optimize removal of total phosphorus.

- b) If after the 12-month optimization period, the WWTF's actual, total phosphorus loads reach or exceed 80% of the LC TMDL WLA for the WWTF, based on the WWTF's 12 month running annual load calculated using the Running Total Annual Pounds Calculation (Condition I.C.4. of this permit) the Permittee shall, within 90 days of reaching or exceeding 80% of the LC TMDL WLA for the WWTF, develop and submit to the Secretary a projection based on the WWTF's current operations and expected future loadings of whether it will exceed its WLA during the permit term.
- c) If the facility is not projected to exceed its WLA within the permit term, the WWTF shall reassess when it is projected to reach its WLA prior to seeking permit renewal and submit that information with its next permit application.
- d) If the facility is projected to exceed its WLA during the permit term, the Permittee shall submit a Phosphorus Elimination/Reduction Plan (PERP) within 6 months from the date of submittal of the projection plan submitted under Condition I.C.3.b. The PERP shall be submitted to the Secretary to ensure the WWTF continues to comply with its WLA.
- e) The PERP shall be developed by qualified professionals in consultation with the WWTF.
- f) The PERP shall include:
 - i. An evaluation of alternatives to ensure the WWTF's compliance with its WLA;
 - ii. An identification of the chosen alternative or alternatives to ensure the WWTF's compliance with its WLA;
 - iii. A proposed schedule, including an engineer approved design and construction schedule and, if the chosen alternative or alternatives require a pilot study, a scheduling for testing, that shall ensure the WWTF's compliance with its WLA as soon as possible; and
 - iv. A financing plan that estimates the costs for implementing the PERP and describes a strategy for financing the project.
- g) The PERP shall be treated as an application to amend the permit, and therefore, shall be subject to all public notice, hearing, and comment provisions, in place at the time the plan is submitted, that are applicable to permit amendments. The WWTF shall revise the PERP, if required by the Secretary.

4. Running Total Annual Pounds Calculation

Compliance with the annual TP limitation (presented in Condition I.A.1. and I.C.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) \times (average daily flow from DMR) \times 8.34 \times number of daily discharges in the month.
- d) Sum the results for the immediately preceding 12 months to derive the Running Total Annual Pounds.

5. Total Phosphorus Reporting

Total Phosphorus shall be reported monthly, via electronic Discharge Monitoring Report, in the following ways:

- a) Monthly Average TP Concentration. See Condition I.C.4.a.
- b) Total Monthly Pounds, meaning the total monthly pounds of TP discharged during the month. See Condition I.C.4.c.
- c) Running Total Annual Pounds, meaning the 12-month running annual TP load, as specified by Condition I.C.4.d.
- d) Comparison (%) of Running Total Annual Pounds to Annual Permit Limitation, meaning the percentage of the Running Total Annual Pounds to the Annual Total Phosphorus Limitation. The comparison shall be calculated as:

Percentage of Running Total Annual Pounds to Annual Permit Limitation, % =
Running Total Annual Pounds / Annual TP Permit Limit \times 100

D. WASTE MANAGEMENT ZONE

In accordance with 10 V.S.A. § 1252, this permit hereby establishes a waste management zone for the Montpelier WWTF in the Winooski River. The waste management zone begins at the discharge point, whether the discharge point is outfall S/N 001 or Seasonal Outfalls 1, 2, or 3, and extends 3.5 miles downstream of outfall S/N 001.

E. REAPPLICATION

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

Reapply for a Discharge Permit by: **December 31, 2021**

F. OPERATING FEES

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

G. TOXICITY TESTING

1. WHOLE EFFLUENT TOXICITY (WET) TESTING

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

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

2. TOXIC POLLUTANT SCAN

- a) The Permittee shall conduct at least three toxic pollutant scans of the effluent of S/N 001 for the pollutants included in Appendix J, Table 2 of 40 C.F.R. Part 122 (see Attachment A). The analyses shall be conducted by **December 31, 2018, December 31, 2019, and December 31, 2020**. The results shall be submitted to the Secretary.

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

H. MONITORING AND REPORTING

1. Sampling and Analysis

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

The Permittee shall use sufficiently sensitive test procedures (i.e., methods) approved under 40 C.F.R. Part 136 for the analysis of the pollutants or pollutant parameters 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 the effluent sample locations is included in Condition I.H.2.

2. Effluent Monitoring

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

PARAMETER	MINIMUM FREQUENCY OF ANALYSIS	SAMPLE TYPE
Flow	Continuous	Daily Total, Max., Min.
Biochemical Oxygen Demand (BOD ₅)	1 × week	composite ¹
Total Suspended Solids (TSS)	1 × week	composite ¹
Total Phosphorus (TP)	1 × week	composite ¹
Total Nitrogen (TN)	1 × month	[calculated ²]
Total Kjeldahl Nitrogen (TKN)	1 × month	composite ^{1,2}
Nitrate/Nitrite Nitrogen (NO _x)	1 × month	composite ^{1,2}
Total Ammonia Nitrogen (TAN)	1 × month	grab
Settleable Solids	1 × day	grab ³
<i>Escherichia coli</i>	1 × week	grab ⁴
pH	1 × day	grab
Temperature	1 × year	grab
Dissolved Oxygen	1 × year	grab
Oil & Grease	1 × year	grab

With the exception of Flow, samples collected in compliance with the monitoring requirements specified above shall be collected after the ultraviolet light disinfection system channel. Flow shall be monitored at the influent Parshall flume.

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

² TN = TKN + NO_x

³ Settleable Solids samples shall be collected between 10:00 AM and 2:00 PM or during the period of peak flow.

⁴ The weekly *E. coli* samples shall be collected between the hours of 6:00 AM and 6:00 PM.

⁵ Collect in accordance with Annual Constituent Monitoring Condition I.H.3.

3. Annual Constituent Monitoring

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

Temperature
Dissolved Oxygen
Oil & Grease
Total Dissolved Solids

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

The season in which samples are taken shall change chronologically from year to year. The sampling seasons are as follows: Winter (January 1 – March 31), Spring (April 1 – June 30), Summer (July 1 – September 30), and Fall (October 1 – December 31). The first samples under this permit 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 you must sample, please refer to the “Guidance for Annual Constituent Monitoring.”

4. Influent Monitoring

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

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

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

5. Reporting

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

The Permittee shall electronically submit its daily monitoring reports (DMRs) via Vermont's on-line electronic reporting system. The Permittee shall begin this electronic submission in accordance with the schedule provided by the Secretary. The Permittee shall electronically submit additional compliance monitoring data and reports specified by the Secretary. When the Permittee submits DMRs using an electronic system designated by the Secretary, it is not required to submit hard copies of DMRs.

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, 2nd 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 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:
 - i. The detection level reported by the laboratory for each sample; and
 - ii. The laboratory analytical report including documentation of the QA/QC and analytical procedures.

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

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

7. Additional Monitoring

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

I. DRY WEATHER FLOWS

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

J. OPERATION, MANAGEMENT, AND EMERGENCY RESPONSE PLANS

1. The Permittee shall implement the Operation, Management, and Emergency Response Plan for the treatment facility, sewage pumping stations, and sewer line stream crossings as approved by the Secretary on June 5, 2008.
2. By no later than **December 31, 2018**, the Permittee shall prepare and submit to the Secretary for review and approval, an Operation, Management, and Emergency Response Plan for the sewage collection system. The Permittee shall implement the plan upon submittal. This plan shall comply with the provisions of 10 V.S.A. § 1278. The Secretary will review and approve the plan. The plan requires:
 - a) Identification of those elements of the facility, including collection systems that are determined to be prone to failure based on installation, age, design, or other relevant factors.
 - b) Identification of those elements of the facility identified under subdivision (a) of this subsection which, if one or more failed, would result in a significant release of untreated or partially treated sewage to surface waters of the State.
 - c) A requirement that the elements identified in subdivision (b) of this subsection shall be inspected in accordance with a schedule approved by the Secretary.
 - d) An emergency contingency plan to reduce the volume of a detected spill and to mitigate the effect of such a spill on public health and the environment.

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

K. EMERGENCY ACTION - ELECTRIC POWER FAILURE

By no later than **June 30, 2018**, the Permittee shall indicate in writing to the Secretary that, in the event the primary source of electric power to the WWTF (including pump stations) fails, the Permittee shall either provide an alternative source of power for the operation of its WWTF, or demonstrate that the treatment facility has the capacity to store the wastewater volume that would be generated over the duration of the longest power failure that would have affected the facility in the last five years, excluding catastrophic events.

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

L. COMBINED SEWER OVERFLOWS

All combined sewer overflows (CSOs) listed in Attachment B shall comply with the Vermont Water Quality Standards. The municipality shall implement the minimum technology-based

requirements below, known as the “Minimum Controls,” which are designed to maximize pollutant capture and minimize impacts to water quality:

1. Proper operation and regular maintenance programs for collection systems and CSO outfalls;
2. Maximum use of the collection system for storage without endangering public health or property, or causing solids deposition problems;
3. Review and modification of pretreatment requirements to assure that CSO impacts are minimized;
4. Maximization of flow to the WWTP for treatment consistent with an evaluation of alternative treatment options;
5. Prohibition of CSOs during dry weather;
6. Control of solid and floatable materials in CSOs;
7. Establishment of pollution prevention programs to minimize contaminants in CSOs;
8. Public notification to ensure that the public receives adequate notification of CSOs and CSO impacts, which shall, at a minimum, comply with § 34-404 of the Combined Sewer Overflow Rule (Environmental Protection Rule, Chapter 34);
9. Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls, which shall include at a minimum:
 - a) The municipality shall define through monitoring, modeling, and other means, as appropriate, the sewer system, the response of the system to a range of precipitation events that encompasses the 5-year design storm, the characteristics of the overflows, and the water quality impacts that result from CSOs. To comply with the foregoing requirement, the municipality shall, at a minimum:
 - i. Establish and maintain a precipitation monitoring system. The system must provide unique precipitation amounts specific to individual CSO subcatchments. Such a system does not necessarily demand a precipitation recording device for each CSO outfall. Precipitation measurements shall be to the nearest 0.01 inches, continuous at a five-minute interval over the duration of a storm event, and indexed to time and date. If establishing a physical precipitation monitoring system, the municipality shall work to minimize impacts of wind and surrounding trees and buildings that may hinder the accuracy of precipitation recording devices. If a municipality proposes to use a system other than a physical precipitation monitoring system, the municipality shall get prior approval from the Secretary.
 - ii. Establish a CSO flow monitoring system for the outfalls listed in Attachment B. At a minimum, the municipality shall install a tell-tale block in each overflow structure and check the block after every precipitation/runoff event.

- b) The municipality shall submit to the Secretary, **by no later than January 31st of each year**, a report on CSO control project(s) of the previous calendar year. The Secretary will use the information from the report to monitor the progress on implementation of CSO control project(s). The municipality shall report progress on:
- i. Compliance with the Minimum Controls;
 - ii. The condition and operation of the CSS;
 - iii. The frequency, duration, and magnitude of the precipitation events leading to CSOs from the system in the past year and a comparison to prior years;
 - iv. The frequency, duration, and magnitude of all CSOs from the system in the past year and a comparison to prior years;
 - v. The overall status of the Long Term Control Plan (LTCP); and
 - vi. Key CSO control accomplishments, highlighting those that reduced the frequency and magnitude of CSOs; projects under design; and construction that occurred in the previous year.

M. SEWER ORDINANCE

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

1. Prohibit the introduction by any person into the Permittee's sewerage system or WWTF of any pollutant which:
 - a) Is a toxic pollutant in toxic amounts as defined in standards issued from time to time under Section 307(a) of the Clean Water Act;
 - b) Creates a fire or explosion hazard in the Permittee's treatment works;
 - c) Causes corrosive structural damage to the Permittee's treatment works, including all wastes with a pH lower than 5.0;
 - d) Contains solid or viscous substances in amounts which would cause obstruction to the flow in sewers or other interference with proper operation of the Permittee's treatment works; or
 - e) In the case of a major contributing industry, as defined in this permit, contains an incompatible pollutant, as defined in this permit, in an amount or concentration in excess of that allowed under standards or guidelines issued from time to time pursuant to Sections 304, 306, or 307 of the Clean Water Act.
2. Require 45 days prior notification to the Permittee by any person or persons of a:

- a) Proposed substantial change in volume or character of pollutants over that being discharged into the Permittee's treatment works at the time of issuance of this permit;
 - b) Proposed new discharge into the Permittee's treatment works of pollutants from any source which would be a new source as defined in Section 306 of the Clean Water Act if such source were discharging pollutants; or
 - c) Proposed new discharge into the Permittee's treatment works of pollutants from any source which would be subject to Section 301 of the Clean Water Act if it were discharging such pollutants.
3. Require any industry discharging into the Permittee's treatment works to perform such monitoring of its discharge as the Permittee may reasonably require, including the installation, use, and maintenance of monitoring equipment and monitoring methods, keeping records of the results of such monitoring, and reporting the results of such monitoring to the Permittee. Such records shall be made available by the Permittee to the Secretary upon request.
4. Authorize the Permittee's authorized representatives to enter into, upon, or through the premises of any industry discharging into the Permittee's treatment works to have access to and copy any records, to inspect any monitoring equipment or method required under subsection 3 above, and to sample any discharge into the Permittee's treatment works.

II. GENERAL CONDITIONS

A. MANAGEMENT REQUIREMENTS

1. Facility Modification / Change in Discharge

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

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

- a) Any new introduction of pollutants into the treatment works from a source which would be a new source as defined in Section 306 of the Clean Water Act if such source were discharging pollutants;

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

The notice shall include:

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

2. Noncompliance Notification

- a) The Permittee shall give advance notice to the Secretary of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- b) In the event the Permittee is unable to comply with any of the conditions of this permit due, among other reasons, to:
 - i. Breakdown or maintenance of waste treatment equipment (biological and physical-chemical systems including all pipes, transfer pumps, compressors, collection ponds or tanks for the segregation of treated or untreated wastes, ion exchange columns, or carbon absorption units);
 - ii. Accidents caused by human error or negligence;
 - iii. Any unanticipated bypass or upset which exceeds any effluent limitation in the permit;
 - iv. Violation of a maximum day discharge limitation for any of the pollutants listed by the Secretary in this permit; or
 - v. Other causes such as acts of nature,the Permittee shall provide notice as specified in subdivisions (c) and (d) of this subsection.
- c) Pursuant to 10 V.S.A. § 1295, notice for “untreated discharges,” as defined.
 - i. Public notice. For “untreated discharges” an operator of a WWTF or the operator’s delegate shall as soon as possible, but no longer than one hour from discovery of an

untreated discharge from the WWTF, post on a publicly accessible electronic network, mobile application, or other electronic media designated by the Secretary an alert informing the public of the untreated discharge and its location, except that if the operator or his or her delegate does not have telephone or Internet service at the location where he or she is working to control or stop the untreated discharge, the operator or his or her delegate may delay posting the alert until the time that the untreated discharge is controlled or stopped, provided that the alert shall be posted no later than four hours from discovery of the untreated discharge.

- ii. Secretary notification. For “untreated discharges” an operator of a WWTF shall within 12 hours from discovery of an untreated discharge from the WWTF notify the Secretary and the local health officer of the municipality where the facility is located of the untreated discharge. The operator shall notify the Secretary through use of the Department of Environmental Conservation’s online event reporting system. If, for any reason, the online event reporting system is not operable, the operator shall notify the Secretary via telephone or e-mail. The notification shall include:
 - (1) The specific location of each untreated discharge, including the body of water affected. For combined sewer overflows, the specific location of each untreated discharge means each outfall that has discharges during the wet weather storm event.
 - (2) Except for discharges from a WWTF to a separate storm sewer system, the date and approximate time the untreated discharge began.
 - (3) The date and approximate time the untreated discharge ended. If the untreated discharge is still ongoing at the time of reporting, the entity reporting the untreated discharge shall amend the report with the date and approximate time the untreated discharge ended within three business days of the untreated discharge ending.
 - (4) Except for discharges from a WWTF to a separate storm sewer system, the approximate total volume of sewage and, if applicable, stormwater that was released. If the approximate total volume is unknown at the time of reporting, the entity reporting the untreated discharge shall amend the report with the approximate total volume within three business days.
 - (5) The cause of the untreated discharge and a brief description of the noncompliance, including the type of event and the type of sewer structure involved.
 - (6) The person reporting the untreated discharge.
- d) For any non-compliance not covered under Condition II.A.2.c. of this permit, an operator of a WWTF or the operator’s delegate shall notify the Secretary within 24 hours of becoming aware of such condition and shall provide the Secretary with the following information, in writing, within five days:

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

3. Operation and Maintenance

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

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

4. Quality Control

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

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

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

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

5. Bypass

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

6. Duty to Mitigate

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

7. Records Retention

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

8. Solids Management

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

9. Emergency Pollution Permits

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

10 V.S.A. § 1268 reads as follows:

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

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

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

B. RESPONSIBILITIES

1. Right of Entry

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

- a) To enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

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

2. Transfer of Ownership or Control

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

This request for transfer application must include as a minimum:

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

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

3. Confidentiality

Pursuant to 10 V.S.A. § 1259(b):

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

Claims for confidentiality for the following information will be denied:

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

4. Permit Modification, Suspension, and Revocation

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

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

Waste Management Zone – means a specific reach of Class B(1) or B(2) waters designated by a permit to accept the discharge of properly treated wastes that prior to treatment contained organisms pathogenic to human beings. Throughout the receiving waters, water quality criteria must be achieved but increased health risks exist in a waste management zone due to the authorized discharge.

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

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

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

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

ATTACHMENT A

Hardness (of receiving water, upstream of outfall)

Metals (total recoverable), cyanide and total phenols:

Antimony

Arsenic

Beryllium

Cadmium

Copper

Lead

Mercury

Nickel

Selenium

Silver

Thallium

Zinc

Cyanide

Total phenolic compounds

Volatile organic compounds:

acrolein

acrylonitrile

benzene

bromoform

carbon tetrachloride

chlorobenzene

chlorodibromomethane

chloroethane

2-chloroethylvinyl ether

chloroform

dichlorobromomethane

1,1-dichloroethane

1,2-dichloroethane

Trans-1,2-dichloroethylene

1,1-dichloroethylene

1,2-dichloropropane

1,3-dichloropropylene

ethylbenzene

methyl bromide

methyl chloride

methylene chloride

1,1,2,2-tetrachloroethane

tetrachloroethylene

toluene

1,1,1-trichloroethane

1,1,2-trichloroethane

trichloroethylene

vinyl chloride

Acid-extractable compounds:

p-chloro-m-cresol

2-chlorophenol 2,4-dichlorophenol

2,4-dimethylphenol

4,6-dinitro-o-cresol

2,4-dinitrophenol

2-nitrophenol

4-nitrophenol

pentachlorophenol

phenol

2,4,6-trichlorophenol

Base-neutral compounds:

acenaphthene

acenaphthylene

anthracene

benzidine

benzo(a)anthracene

benzo(a)pyrene

3,4-benzofluoranthene

benzo(ghi)perylene

benzo(k)fluoranthene

bis(2-chloroethoxy)methane

bis(2-chloroethyl)ether

bis(2-chloroisopropyl)ether

bis(2-ethylhexyl)phthalate

4-bromophenyl phenyl ether

butyl benzyl phthalate

2-chloronaphthalene

4-chlorophenyl phenyl ether

chrysene

di-n-butyl phthalate

di-n-octyl phthalate

dibenzo(a,h)anthracene

1,2-dichlorobenzene

1,3-dichlorobenzene

1,4-dichlorobenzene

3,3'-dichlorobenzidine

diethyl phthalate

dimethyl phthalate

2,4-dinitrotoluene

2,6-dinitrotoluene

1,2-diphenylhydrazine

fluoranthene

fluorene

hexachlorobenzene

hexachlorobutadiene

hexachlorocyclo-pentadiene

hexachloroethane

indeno(1,2,3-cd)pyrene

isophorone

naphthalene nitrobenzene

N-nitrosodi-n-propylamine

N-nitrosodimethylamine

N-nitrosodiphenylamine

phenanthrene

pyrene

1,2,4-trichlorobenzene

ATTACHMENT B

Serial # (S/N)	CSO #	Location	Receiving Water
S/N 002	001	Taylor Street Bridge abutment	Winooski River
S/N 004	003	Bailey Avenue	Winooski River
S/N 007	007	Near Railroad Bridge	North Branch River
S/N 008	008	100 Feet South of CSO #007	North Branch River
S/N 009	009	Main Street near Baird Street	North Branch River
S/N 014	023	Bailey Avenue Bridge	Winooski River

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

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

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

PERMIT NO: 3-1207
PIN: BR81-0002
NPDES NO: VT0100196

NAME AND ADDRESS OF APPLICANT:

City of Montpelier
39 Main Street
Montpelier, VT 05602

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Montpelier Wastewater Treatment Facility
949 Dog River Road
Montpelier, VT 05602

RECEIVING WATER: Winooski River

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

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

The Secretary of the Vermont Agency of Natural Resources (Secretary) received a renewal application for the permit to discharge into the Winooski River from the City of Montpelier on June 25, 2012. The City's previous permit, issued on January 2, 2008, was appealed and invalidated pursuant to an Environmental Court's Judgement Order, issued on June 30, 2009. Therefore, the City is currently operating under a discharge permit issued on June 15, 2006 (hereafter referred to as the "current permit"). The current permit has been administratively continued, pursuant to 3 V.S.A. § 814, as the applicant filed a complete application for permit

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

The City of Montpelier (Permittee) owns and operates the Montpelier Wastewater Treatment Facility (WWTF). The Facility is engaged in secondary treatment of residential, commercial, and industrial wastewater from the City of Montpelier and within the sewer service area in the Town of Berlin using an activated sludge process followed by ultraviolet light (UV) disinfection. The design flow of the WWTF 3.97 million gallons per day (MGD). A map showing the location of the WWTF, outfalls and the receiving water is provided in the Reasonable Potential Determination (RPD) (see Attachment B).

The Facility has one primary outfall known as S/N 001 that discharges to the Winooski River, at the confluence of the Winooski River and the Dog River. The proposed draft discharge permit also authorizes the use of three seasonal outfalls during the months of December through March, known as Seasonal Outfall 1, Seasonal Outfall 2, and Seasonal Outfall 3 (Seasonal Discharge). The Seasonal Discharge shall occur in an area 1 mile upstream of the primary outfall S/N 001, to assist the breakup of Winooski River ice jam by means of thermal weakening. The proposed Seasonal Discharge shall only occur when there is a documented threat of river flooding from river ice jam, to protect people, property, and infrastructure in the City of Montpelier metropolitan area. This discussion is expanded in Section VI.D.1.

The Permittee is currently planning a refurbishment project and upgrade, which will include the refurbishing of the secondary clarifiers, solids handling equipment, and improvements to the grit removal and disposal system. The most recent improvements to the Facility include an upgrade to the headworks and septage receiving station, performed in 2001, and conversion from sodium hypochlorite to a UV disinfection system in 2006.

The Permittee also owns and operates a combined sewer collection system which collects both sanitary sewage and stormwater runoff. The City of Montpelier collection system accepts wastewater from the Town of Berlin sewer service area at rate based upon flow and organic loading. The Town of Berlin owns and operates the sewer collection system and pump stations within their sewer service area.

The City of Montpelier's combined sewer-system currently has six combined sewer outfalls (see Appendix A of the draft permit) that discharge to the North Branch River and Winooski River during certain precipitation/runoff events, when the volume of the combined wastewater exceeds the capacity of the collection system. In response to compliance schedules issued by the Secretary, the Permittee has completed several construction projects designed to eliminate combined sewer overflow events via combined sewer separation and infiltration and inflow reduction. This discussion is expanded in Section VI.D.3. of this fact sheet.

II. Description of Discharge

The WWTF continuously discharges treated wastewater effluent to the Winooski River through primary WWTF outfall S/N 001. The draft permit authorizes a Seasonal Discharge of treated wastewater effluent to the Winooski through Seasonal Outfall 1, Seasonal Outfall 2, and Seasonal Outfall 3 at times when there is a documented threat of river flooding from river ice jams. In addition, 6 combined sewer overflow outfalls discharge a mixture of untreated wastewater and

stormwater to the North Branch River and Winooski River during certain precipitation/runoff events.

III. Limitations and Monitoring Requirements

The draft permit contains limitations for effluent flow, biochemical oxygen demand (BOD), total suspended solids (TSS), total phosphorous (TP), settleable solids, *Escherichia coli* (E. coli), and pH. The permit also contains a monitor only requirement for total nitrogen (TN) and total ammonia nitrogen (TAN). The basis for these limitations and monitoring requirements are explained in Section VI. of this fact sheet.

IV. Statutory and Regulatory Authority

A. Clean Water Act and NPDES Background

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

Section 301 of the CWA provides for two types of effluent limitations to be included in NPDES permits: “technology-based” limitations and “water quality-based” limitations. CWA §§ 301, 303, 304(b); 40 C.F.R. Parts 122, 125, 131. Technology-based limitations, generally developed on an industry-by-industry basis, reflect a specified level of pollutant-reducing technology available and economically achievable for the type of facility being permitted. CWA § 301(b). As a class, WWTFs must meet performance-based requirements based on available wastewater treatment technology. CWA § 301(b)(1)(B). The performance level for WWTFs is referred to as “secondary treatment.” Secondary treatment is comprised of technology-based requirements expressed in terms of BOD₅, TSS, and pH. 40 C.F.R. Part 133.

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

applicable water quality standards for this permit are the Vermont Water Quality Standards (Environmental Protection Rule, Chapter 29a).

A permit must include limits for any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) that is or may be discharged at a level that causes or has “reasonable potential” to cause or contribute to an excursion above any water quality standard, including narrative water quality criteria. See 40 C.F.R. § 122.44(d)(1). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion. A NPDES permit must contain effluent limitations and conditions in order to ensure that the discharge does not cause or contribute to water quality standard violations.

Receiving stream requirements are established according to numerical and narrative standards adopted under state law for each stream classification. When using chemical-specific numeric criteria from the State’s water quality standards to develop permit limits, both the acute and chronic aquatic life criteria are used and expressed in terms of maximum allowable in stream pollutant concentrations. Acute aquatic life criteria are generally implemented through maximum daily limits and chronic aquatic life criteria are generally implemented through average monthly limits.

Where a state has not established a numeric water quality criterion for a specific chemical pollutant that is present in the effluent in a concentration that causes or has a reasonable potential to cause a violation of narrative water quality standards, the permitting authority must establish effluent limits in one of three ways: based on a “calculated numeric criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and fully protect the designated use”; on a “case-by-case basis” using CWA Section 304(a) recommended water quality criteria, supplemented as necessary by other relevant information; or, in certain circumstances, based on an “indicator parameter.” 40 C.F.R. § 122.44(d)(1)(vi)(A-C).

The state rules governing Vermont’s NPDES permit program are found in the Vermont Water Pollution Control Permit Regulations (Environmental Protection Rule, Chapter 13).

B. Reasonable Potential Determination

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

- 1) Existing controls on point and non-point sources of pollution as evidenced by the Vermont surface water assessment database;
- 2) Pollutant concentration and variability in the effluent as determined from the permit application materials, monthly discharge monitoring reports (DMRs), or other facility reports;
- 3) Receiving water quality based on targeted water quality and biological assessments of receiving waters, as applicable, or other state or federal water quality reports;
- 4) Toxicity testing results based on the Vermont Toxics Control Discharge Strategy, and compelled as a condition of prior permits;
- 5) Available dilution of the effluent in the receiving water, expressed as the instream waste concentration. In accordance with the applicable Vermont Water Quality Standards, available dilution for rivers and streams is based on a known or estimated value of the lowest average flow which occurs for seven consecutive days with a recurrence interval of once in 10 years (7Q10) for aquatic life and human health criteria for non-carcinogens, or at all flows for

human health (carcinogens only) in the receiving water. For nutrients, available dilution for stream and river discharges is assessed using the low median monthly flow computed as the median flow of the month containing the lowest annual flow. Available dilution for lakes is based on mixing zones of no more than 200 feet in diameter, in any direction, from the effluent discharge point, including as applicable the length of a diffuser apparatus; and

6) All effluent limitations, monitoring requirements, and other conditions of the proposed draft permit.

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

C. Anti-Backsliding

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

V. Description of Receiving Water

The receiving water for this discharge is the Winooski River, a designated Cold Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 492 square miles. The summer 7Q10 flow of the river is estimated to be 73.95 cubic feet per second (CFS) and the summer Low Median Monthly flow is estimated to be 190.85 CFS. The instream waste concentration at the summer 7Q10 flow is 0.077 (7.7%) and the instream waste concentration at the summer Low Median Monthly flow is 0.031 (3.1%).

In addition, the Winooski River basin drains into Lake Champlain, which is impaired for total phosphorous and is subject to a Total Maximum Daily Load (TMDL) for phosphorous. This is discussed further in Section VI.C.1. of this fact sheet.

VI. Permit Basis and Explanation of Effluent Limitation Derivation

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

A. Flow

The draft permit maintains the annual average flow limitation of 3.97 million gallons per day (MGD). Continuous flow monitoring is required under the draft permit.

B. Conventional Pollutants

1. Biochemical Oxygen Demand (BOD₅)

The effluent limitations for BOD₅ remain unchanged from the current permit. The monthly average (30 mg/L) and weekly average (45 mg/L) reflect the minimum level of effluent quality specified for secondary treatment in 40 C.F.R. § 133.102. In addition, the draft permit contains a 50 mg/L, maximum day, BOD₅ limitation, which is the Agency

standard applied to all such discharges pursuant to Section 13.4(c) of the Vermont Water Pollution Control Permit Regulations. The Secretary implements the limit to supplement the federal technology based limitations to prevent a gross one-day permit effluent violation to be offset by multiple weekly and monthly sampling events which would enable a discharger to comply with the weekly average and monthly average permit limitations. Mass limits (993 lbs/day, monthly average and 1490 lbs/day, weekly average) are calculated using the concentration limits outlined above. The BOD₅ weekly monitoring requirement is unchanged from the current permit.

2. Total Suspended Solids (TSS)

The effluent limitations for TSS remain unchanged from the current permit. The monthly average (30 mg/L) and weekly average (45 mg/L) reflect the minimum level of effluent quality specified for secondary treatment in 40 C.F.R. § 133.102. In addition, the draft permit contains a 50 mg/L, maximum day, TSS limitation, which is the Agency standard applied to all such discharges pursuant to Section 13.4(c) of the Vermont Water Pollution Control Permit Regulations. The Secretary implements the limit to supplement the federal technology based limitations to prevent a gross one-day permit effluent violation to be offset by multiple weekly and monthly sampling events which would enable a discharger to comply with the weekly average and monthly average permit limitations. Mass limits (993 lbs/day, monthly average and 1490 lbs/day, weekly average) are calculated using the concentration limits outlined above. The TSS weekly monitoring requirement is unchanged from the current permit.

3. Fecal Coliform - *Escherichia coli*

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

4. pH

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

C. Non-Conventional and Toxic Pollutants

1. Total Phosphorus (TP)

Background

Excess phosphorus entering Lake Champlain from a variety of sources has impaired the water quality of the Lake. The EPA developed phosphorus Total Maximum Daily Loads (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.” The Lake Champlain Total Maximum Daily Loads (LC TMDL), place caps on the maximum amount of phosphorus from point and non-point sources that is allowed to flow into the Lake while

still meeting the Vermont Water Quality Standards. The 2016 LC TMDL specifies allowable phosphorus loads, or waste load allocations (WLA), expressed as metric tons per year (mt/yr), for each of the 59 WWTFs that discharge to the Lake's watershed. Discharge (NPDES) permits will be issued by the Secretary in accordance with the permit issuance schedule in the Lake Champlain TMDL Phase 1 Implementation Plan (Chapter 3, page 46). The Secretary will follow this schedule unless special circumstances are raised by the facility that warrant the issuance of the permit sooner (e.g., planned facility upgrades or WLA reallocation), and the Program has sufficient staff capacity to handle the request.

Reductions in WLAs are targeted only to WWTFs in those lake segment watersheds where the currently permitted wastewater load represents a significant (defined as being 10% or greater) portion of the total phosphorus load to that segment from all sources (Main Lake, Shelburne Bay, Burlington Bay, St. Albans Bay) or where wastewater upgrades would meaningfully reduce the phosphorus reduction burden placed on non-wastewater (non-point) sources (Missisquoi Bay). Therefore, WWTFs discharging to the Port Henry, Otter Creek, Mallets Bay, Northeast Arm, Isle LaMotte, and the South Lake A/B lake segments were not assigned a new 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. The LC TMDL allows for reallocations to be made between facilities that discharge to the same lake segment in accordance with the Wasteload Allocation Process Rule (Environmental Protection Rule, Chapter 17).

The LC TMDL provides an 80% of allowable load threshold specifically to provide time for a facility that is approaching the allowable load to optimize phosphorus treatment and/or to plan and implement the construction of the upgraded phosphorus treatment facilities. A facility must implement phosphorus treatment upgrades if its discharge of phosphorus exceeds the 80% of allowable load threshold. In the LC TMDL, EPA acknowledged and supported the Secretary's commitment to employ flexible approaches to implementing the WWTF WLAs including "providing a period of time for optimization to be pursued and the corresponding load reduction results to be realized, and then commencement of the process to upgrade phosphorous treatment facilities will be required when actual phosphorous 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:

$$\text{WWTF Annual TP Load} / \text{LC TMDL WLA} \times 100$$

There are currently WWTFs in the Lake Champlain watershed with existing discharge loads of phosphorus already at, or above, 80% of allowable loads. To ensure facilities are operating as efficiently as possible, all reissued wastewater discharge 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 phosphorous (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 Phosphorous 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 and, for facilities that currently have an existing monthly effluent concentration limit for phosphorous in their NPDES permit, as monthly effluent concentration limits.

Total Phosphorus Limit in Draft Permit

The current discharge permit for this WWTF includes a monthly average effluent limitation of 26.5 pounds of TP per day and a 0.8 mg/L monthly average concentration limit, which equals 4.388 metric tons per year or 9673 pounds per year. The 2002 Lake Champlain Phosphorous TMDL established a WLA of 3.290 metric tons per year, which equals 7253 pounds per year. This annual limitation was included in the 2008 discharge permit renewal for the WWTF, which was appealed and invalidated pursuant to an Environmental Court's Judgement Order, issued on June 30, 2009.

This proposed draft permit contains a TP effluent concentration limit of 0.8 mg/L, monthly average and a mass effluent limit of 2418 total pounds, annual limitation. The concentration effluent limitation is based on the requirements of 10 V.S.A. § 1266a and is unchanged from the previous permit. The sample requirement for TP is weekly and is unchanged from the current permit. The mass annual effluent limitation is based on the LC TMDL. The LC TMDL allocated 1.097 metric tons per year or 2418 pounds per year to the Montpelier WWTF. This annual limitation replaces the 26.5 pound per day, monthly average mass effluent limitation specified in the previous permit. The Secretary is adopting the WLA from the LC TMDL as the water quality based effluent limitation for this permit without additional analysis because this WLA was set by EPA less than a year ago as the limit necessary to ensure Lake Champlain is brought into compliance with the Vermont Water Quality Standards, and undertaking further analysis to determine if more stringent effluent limitations are needed would be meaningless at this time since the State has just started to implement the Vermont Lake Champlain Phosphorous TMDL Phase I Implementation Plan. *See In re Montpelier WWTF Discharge Permit*, 2009 WL 4396740, 6 (Vt. Envtl. Ct. June 30, 2009).

This new, annual WLA represents a 75% reduction (-3.291 metric tons or approximately - 7255 pounds) from the previous limit and is based on an effluent TP concentration of 0.20 mg/L multiplied by the design capacity of the WWTF (3.970 MGD). The TP limit in this permit was derived by:

$$(1.097 \text{ metric tons}) (2204.623 \text{ lbs/metric ton}) = 2418 \text{ lbs}$$

Although the new WLA of 2418 pounds is based on an effluent TP concentration of 0.20 mg/L, this permit maintains the previous TP effluent limit of 0.8 mg/L, monthly average, which allows for TP discharge concentrations to fluctuate above 0.20 mg/L while holding the annual limit at a mass (total pounds) based on 0.20 mg/L.

The LC TMDL includes WLAs for WWTFs expressed as total annual mass loads; the LC TMDL does not include monthly average concentration effluent limits for WWTFs. State law (10 V.S.A. § 1266a) requires that, “No person directly discharging into the drainage basins of Lake Champlain or Lake Memphremagog shall discharge any waste that contains a phosphorus concentration in excess of 0.80 milligrams per liter on a monthly average basis.” Therefore, in addition to the annual mass load effluent limitation required by the TMDL, the permit must also include a monthly average concentration limit for phosphorus. While the WLA in the TMDL was calculated based on a TP effluent concentration of 0.20 mg/L, the permit does not include 0.20 mg/L as the concentration effluent limitation because a permittee may not need to achieve 0.20 mg/L to ensure compliance with the WLA established in the TMDL. Rather the permit includes a monthly average concentration limit for phosphorus of 0.80 mg/L to ensure compliance with state law and to recognize seasonal variations in the facility’s discharge. It is important to note that because the annual mass load and average monthly concentration limits are not mathematically consistent in the permit, meeting a 0.8 mg/L concentration limit at design flows will not result in meeting the annual mass limit.

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

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

Total Phosphorus Optimization and Elimination/Reduction Plan

To ensure the facility is operating as efficiently as possible for purposes of phosphorus removal, Condition I.C.2. of the permit requires that within 120 days of permit issuance, the Permittee shall develop or update (as appropriate), and submit to the Secretary, a Phosphorus Optimization Plan (POP) to increase the WWTF’s TP removal efficiency by implementing optimization techniques that achieve phosphorus reductions using primarily existing facilities and equipment. The techniques to be evaluated may include operational process changes to enhance biological and/or chemical phosphorous removal, incorporation of anaerobic/anoxic zones, septage receiving policies and procedures, and

side stream management.

The Permittee shall have 12 months from the permit issuance date to optimize removal of TP. If, after the 12-month optimization period, the WWTF's actual TP loads reach or exceed 80% of the LC TMDL WLA for the WWTF, based on the WWTF's 12-month running annual load calculated using the Running Total Annual Pounds Calculation (Condition I.C.4. of the permit) the Permittee shall, within 90 days of reaching or exceeding 80% of the LC TMDL WLA for the WWTF, develop and submit to the Secretary a projection based on the WWTF's current operations and expected future loadings of whether it will exceed its WLA during the permit term.

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

2. Total Nitrogen (TN)

To gather data on the amount of Total Nitrogen (TN) in this discharge and its potential impact on the receiving water, a monthly "monitor only" requirement for Nitrate/Nitrite (NO_x) and Total Kjeldahl Nitrogen (TKN) has been included in this permit. TN is a calculated value based on the sum of NO_x and TKN, and, shall be reported as pounds, calculated as:

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

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

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

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

organic nitrogen compounds).

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

For more information, see:

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

3. Total Ammonia Nitrogen (TAN)

Based on the EPA's Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater (2013), this discharge does not have a reasonable potential to cause ammonia toxicity in the Winooski River. However, the WWTF does receive a significant amount of leachate. To gather data on the amount of ammonia in this discharge and its potential impact on the receiving water, a monthly “monitor only” requirement for Total Ammonia Nitrogen has been included in this permit.

4. Settleable Solids

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

5. Toxicity Testing

40 C.F.R. §§ 122.44(d)(1) and 122.21(j) require the Secretary to assess whether the discharge causes, or has the reasonable potential to cause or contribute to an excursion above any narrative or numeric water quality criteria. In accordance with 40 C.F.R. § 122.44(d)(1), Condition I.G.1. of the draft permit requires the facility to collect two-species 48-hour acute and 96-hour chronic WET tests in January or February of 2018, August or September of 2019, January or February of 2020, and August or September of 2021. In accordance with 40 C.F.R. § 122.21(j), Condition I.G.2. of the draft permit includes a requirement to conduct three toxic pollutant scans on the effluent of outfall S/N 001 for the pollutants listed in Appendix J, Table 2 of 40 C.F.R. Part 122 in 2018, 2019, and 2020.

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

6. Annual Constituent Monitoring

For all facilities with a design flow of greater than 0.1 MGD, 40 C.F.R. § 122.21(j) requires the submittal of effluent monitoring data for those parameters identified in Condition I.H.3. of the draft permit. Samples must be collected once annually such that by the end of the term of the permit, all quarters have been sampled at least once, and the results will be submitted by December 31 of each year. Sampling in 2017 should be taken

in Fall. For subsequent sampling, the “Guidance for Annual Constituent Monitoring” document should be referred to determine the season in which samples should be taken each year.

D. Special Conditions

1. Seasonal Discharge for Flood Mitigation

The Permittee has documented damage caused by ice jam induced flooding of the Winooski River to the City of Montpelier metropolitan area. To mitigate ice jam induced flooding, the Permittee has cited thermal weakening by discharge of treated wastewater effluent as an effective means of non-structural flood mitigation. On March 10, 2014¹, and again on February 19, 2015², the Permittee effectively utilized a temporary discharge of treated wastewater effluent to mitigate flooding of the Winooski River caused by river ice jams, effectively protecting the people, property, and infrastructure along areas of U.S. Route 2, Memorial Drive, the Montpelier High School, and the City of Montpelier downtown district.

The Permittee received a grant from the Vermont Department of Public Safety in collaboration with the Federal Emergency Management Agency’s Hazard Mitigation Grant Program to construct an effluent pump station, underground force main, and discharge points upstream of the Montpelier WWTF, to be used for the purpose of seasonal discharge of treated wastewater effluent. The approved design allows for treated wastewater effluent to be delivered to target locations on the Winooski River, upstream of the Montpelier WWTF. Treated wastewater effluent is discharged through outfalls constructed on the southern bank of the Winooski River, into the receiving water by means of flexible piping to thermally weaken river ice, accelerate natural ice deterioration, and develop channels for ice passage on the Winooski River. Seasonal Outfall 1 through Seasonal Outfall 3, shown in Figure 1, are the extent of fixed underground force main and outfall infrastructure. Fixed infrastructure to serve Seasonal Outfall 4, Seasonal Outfall 5, and Seasonal Outfall 6 has yet to be constructed.

Condition I.B. of the draft permit authorizes the WWTF to conditionally discharge treated wastewater effluent from the three seasonal outfalls, known as Seasonal Outfall 1, Seasonal Outfall 2, and Seasonal Outfall 3 during the months of December through March. The Seasonal Discharge is authorized in an area not to exceed one mile upstream of the Montpelier WWTF primary outfall S/N 001, depicted as the Seasonal Discharge Area on Figure 1. The primary Montpelier WWTF outfall S/N 001 is located at the confluence of the Dog River and Winooski River and is not displayed on Figure 1. The draft permit also authorizes the use of aboveground piping to extend the discharge points within the Seasonal Discharge Area, when there is a documented threat of flooding caused by Winooski River ice jams. The maximum extension permitted is shown to Seasonal Outfall 6 in Figure 1.

¹ City of Montpelier. *Montpelier Effluent Pump Station use 2014*. April 14, 2014.

² City of Montpelier. *Montpelier Effluent Pump Station Report 2015*. April 6, 2015.

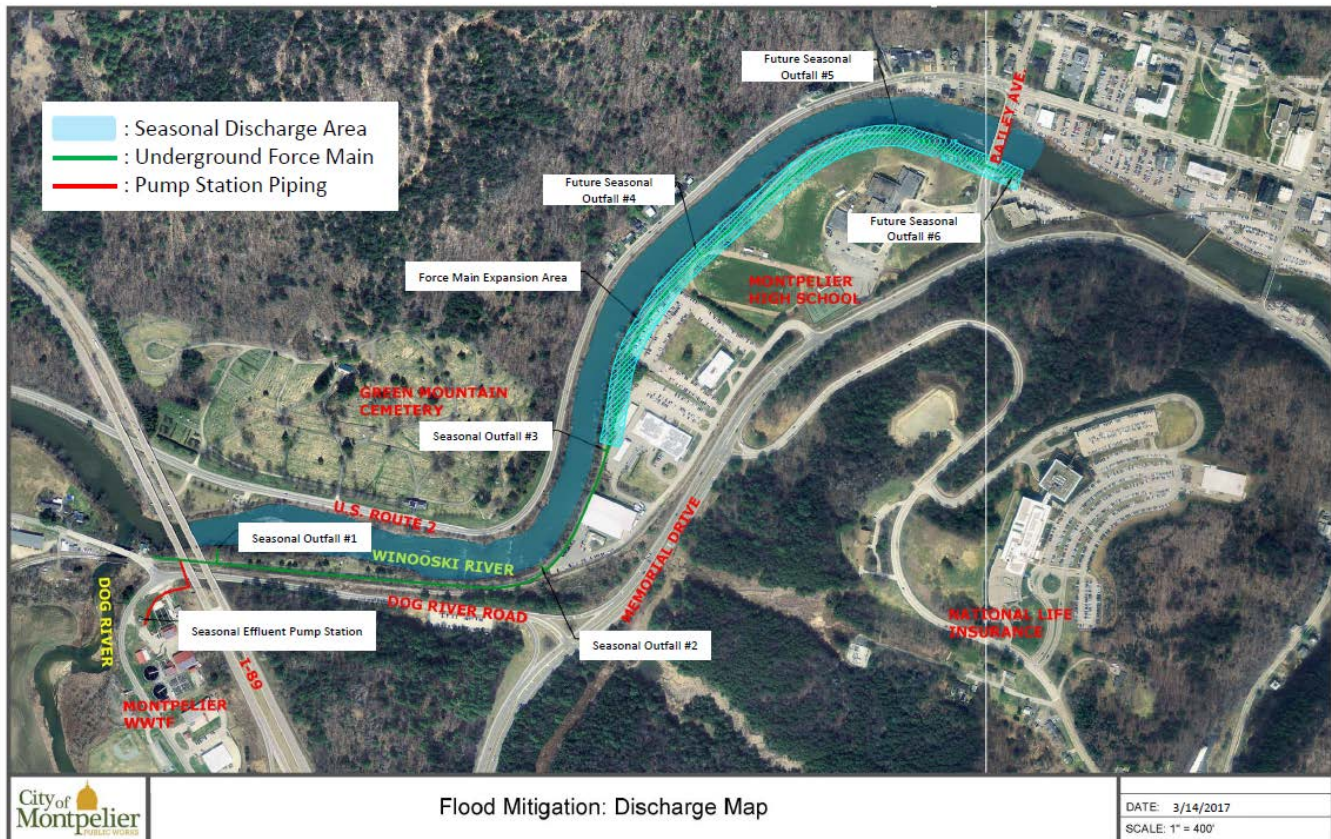


Figure 1: 1 mile stretch of the Winooski River to accommodate the seasonal discharge of treated wastewater effluent from the Montpelier WWTF for the purpose of thermal weakening ice jam. This Figure does not portray Montpelier WWTF S/N 001. Figure produced by the Department of Environmental Conservation in collaboration with the City of Montpelier Public Works Department.

The proposed Seasonal Discharge shall comply with all terms and conditions of the draft discharge permit, including effluent limitations, and Conditions I.B.1. – 8 specific to the Seasonal Discharge. Here is a summary of the special conditions specific to the Seasonal Discharge:

- The draft permit authorizes a Seasonal Discharge only when a threat of flooding posed by river ice jams exists. The duration of each Seasonal Discharge shall not exceed that necessary to mitigate flooding caused by the ice blockage.
- Notification shall be provided to the Secretary 24 hours prior to initiating a Seasonal Discharge and within 24 hours of ceasing a Seasonal Discharge. With respect to adequate public notification, the Permittee shall post and maintain signage at seasonal outfalls while performing a Seasonal Discharge.
- With respect to proper operation and maintenance, the Permittee shall operate and maintain the Seasonal Discharge pump station, force main, associated piping and pertinent ancillary equipment in accordance with General Condition II.A.3. of the draft permit. The draft permit also requires daily inspection of the Seasonal Discharge piping and associated structures while a discharge is being performed.

- Aboveground piping utilized to extend a discharge point shall be certified by a professional engineer that it has been designed, installed, and will operate in a manner that minimizes leakage and prevents public exposure to wastewater effluent.
- In the event that a leak occurs or effluent is discharged to an area other than the designated receiving water, the Permittee shall take immediate action to prevent exposure, immediately cease the Seasonal Discharge and revert back to primary outfall S/N 001, and notify the Secretary of the leak or discharge within 24 hours pursuant to Condition II.A.2.d.
- Finally, the Permittee shall notify the Secretary in writing prior to constructing additional permanent infrastructure such as seasonal outfall discharge points, underground force mains, or other ancillary components. Prior to discharging from any new seasonal outfall, the Permittee shall seek a permit amendment authorizing discharge from that outfall.

Due to this conditional relocation of the discharge point, the Secretary has conducted an analysis to document attainment of the Antidegradation Policy contained in the applicable Vermont Water Quality Standards. To ensure the Seasonal Discharge complies with the Vermont Water Quality Standards, including the Antidegradation Policy, the Secretary has conducted an antidegradation analysis included as Attachment A of this fact sheet. This analysis evaluates the proposed discharge into the Winooski River of treated domestic wastewater effluent through Seasonal Outfall 1 through Future Seasonal Outfall 6, in an area 1 mile upstream of the primary WWTF outfall S/N 001. With respect to the waste management zone associated with the primary outfall S/N 001 and the Seasonal Discharge Area, please refer to Section VI.D.2. of this fact sheet, immediately below.

2. Waste Management Zone (WMZ)

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

Due to the seasonal movement of the WWTF’s discharge point, the Secretary has conducted an analysis included with this fact sheet as Attachment A, *Waste Management Zone Designation Analysis for Seasonal Discharges*). As a result of this analysis, the draft permit elects to extend the existing 3.5 mile WMZ at times when there is a Seasonal Discharge. Therefore, the WMZ shall begin at the discharge, whether it be within the Seasonal Discharge Area or from outfall S/N 001, and extend 3.5 miles downstream of outfall S/N 001 in the Winooski River.

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

3. Combined Sewer Overflows (CSOs)

The Permittee has eliminated 10 of the City's 16 combined sewer overflows. There are currently 6 combined sewer overflows remaining that do not discharge during dry weather conditions, which are depicted on Figure 2. Most recently, the Secretary issued 1272 Order No. 3-1207-A4 to the City of Montpelier on September 15, 2012. In response to this Order, the Permittee performed an effectiveness study to assess compliance with the Combined Sewer Overflow Policy (CSO Policy) (June 1990). The effectiveness study indicated that the Permittee was not in compliance with the CSO Policy.

The recently adopted Combined Sewer Overflow Rule (CSO Rule) (Environmental Protection Rule, Chapter 34), which became effective in September 2016, supersedes the CSO Policy. The CSO Rule codifies, updates, and clarifies the technology-based and water quality-based requirements applicable to CSOs. The technology-based controls for CSOs are referred to as the "Minimum Controls" and are included in this draft permit under Condition I.L. To ensure the remaining CSOs are brought into compliance with the Vermont Water Quality Standards, the Secretary, concurrent with issuance of this final permit, shall issue a 1272 Order to the Permittee, requiring the creation of a Long Term Control Plan that complies with the requirements of the CSO Rule.

The following CSO monitoring requirements are included in the draft permit:

- Implementation of a precipitation monitoring system;
- Continued monitoring and reporting of overflow events utilizing tell-tales, at a minimum;
- Notification of wet-weather overflows through public alert within one hour of discovery, and submit to the Secretary specified information regarding the discharge within 12 hours of discovery; and
- A report on CSO control project(s) of the previous calendar year, due by January 31 of each year.

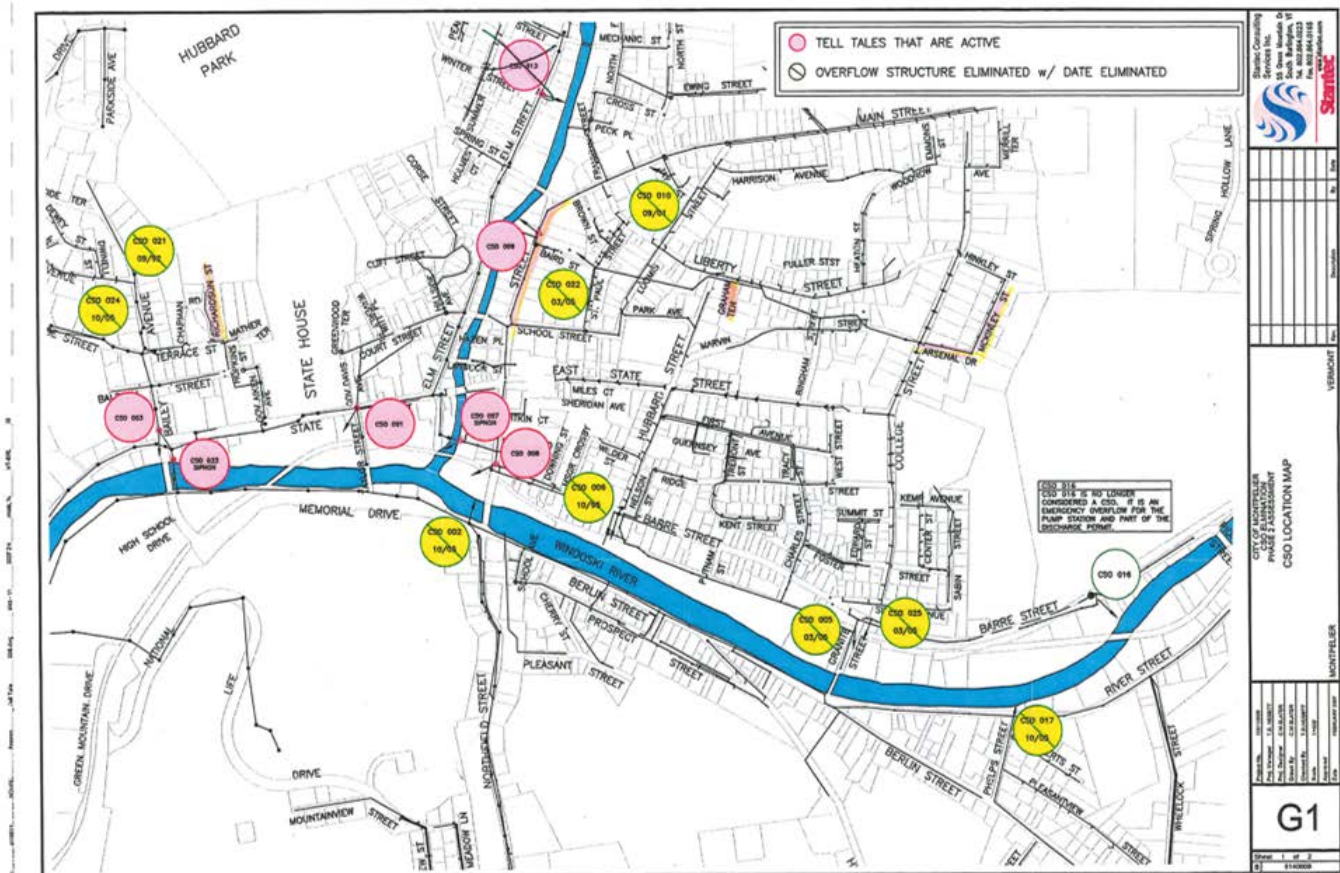


Figure 2: Map of current combined sewer outfalls.

4. Operation, Management and Emergency Response Plans

As required by the revisions to 10 V.S.A. § 1278, promulgated in the 2006 legislative session, Condition I.J. has been included in the draft permit. This condition requires that the Permittee implement the Operation, Management and Emergency Response Plans for the WWTF, sewage pump/ejector stations, and stream crossings as approved by the Secretary on June 5, 2008.

The Secretary has not approved the Operation, Management and Emergency Response Plan for the collection system. By December 31, 2018, the Permittee shall prepare and submit to the Secretary for review and approval the Operation, Management, and Emergency Response Plan for the sewage collection system. The Permittee shall implement the plan upon submittal.

5. Electric Power Failure Plan

To ensure the WWTF can continue operations even during the event of a power failure, Condition I.K. has been included in this draft permit. No later than June 30, 2018, the Permittee must submit to the Secretary updated documentation addressing how the discharge will be handled in the event of an electric power outage.

6. Laboratory Proficiency Testing

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

7. Electronic Reporting

The EPA recently promulgated a final rule to modernize the Clean Water Act reporting for municipalities, industries, and other facilities by converting to an electronic data reporting system. The final rule requires the inclusion of electronic reporting requirements in NPDES permits that become effective after December 21, 2015. The rule requires that NPDES regulated entities that are required to submit discharge monitoring reports (DMRs), including majors and nonmajors, individually permitted or covered by a general permit, must do so electronically after December 2016. The Secretary has created an electronic reporting system for DMRs and has recently trained facilities in its use. The Secretary has completed a phased roll out of mandatory electronic reporting. As of December 2020, these NPDES facilities will also be expected to submit additional information electronically as specified in Appendix A in 40 C.F.R. Part 127.

8. Noncompliance Notification

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

9. Reopener

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

E. Reasonable Potential Determination

The Secretary has conducted a Reasonable Potential Determination, which is attached to this fact sheet as Attachment B. Based on this analysis, the Secretary has determined that this discharge does not cause, have a reasonable potential to cause, or contribute to an instream toxic impact or instream excursion above the water quality criteria, and as such, the development of water quality-based effluent limitations is not necessary. The effluent water quality monitoring and chemical and biological assessments conducted above and below the Montpelier WWTF discharge support this conclusion. In light of the fact that biological monitoring results consistently indicate attainment of all thresholds, and the Winooski River complies with the Vermont Water Quality Standards for all identified response variables

presented in Section 29A-306(a)(3)(C) of the Vermont Water Quality Standards. The Reasonable Potential Analysis supports the effluent monitoring described in the draft permit.

VII. Procedures for Formulation of Final Determinations

The public comment period for receiving comments on this draft permit is from **June 29, 2017 through August 8, 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 8, 2017** will be retained by the Secretary and considered in the formulation of the final determination to issue, deny or modify the draft permit. The period of comment may be extended at the discretion of the Secretary.

Written comments should be sent to:

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

or submitted by e-mail to ANR.WSMDWastewaterComments@vermont.gov

Questions may be directed to Jessica Bulova at 802-828-1535 or faxed to 802-828-1544.

The Secretary will hold a meeting on **Tuesday, August 1, 2:00 – 4:00 PM** at the **Agency of Natural Resources Annex Building**, located at **190 Junction Road, Berlin, Vermont 05602**. Any person may submit oral or written statements and data concerning the draft permit at the public meeting. The Secretary may establish reasonable limits on the time allowed for oral statements and may require the submission of statements in writing. All statements, comments, and data presented at the public meeting will be retained by the Secretary and considered in the formulation of the final determination to issue, deny, or modify the draft permit.

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

ATTACHMENT A – WASTE MANAGEMENT ZONE DESIGNATION ANALYSIS FOR SEASONAL DISCHARGES

City of Montpelier
Montpelier Wastewater Treatment Facility

The draft permit for the City of Montpelier (Permittee) Wastewater Treatment Facility (Facility) authorizes a temporary Seasonal Discharge of treated wastewater effluent during the months of December through March, in an area 1 mile upstream of the primary outfall S/N 001 (Seasonal Discharge Area), to assist the breakup of Winooski River ice jams by means of thermal weakening, at times when there is a documented threat of river flooding, to protect people, property, and infrastructure in the City of Montpelier metropolitan area. The proposed temporary Seasonal Discharge shall not exceed that duration necessary to mitigate flooding caused by the ice blockage.

The draft permit proposes to extend the waste management zone, during times when there is a Seasonal Discharge. The waste management zone shall begin at the discharge point, whether it be within the Seasonal Discharge Area or from outfall S/N 001, and extend 3.5 miles downstream of outfall S/N 001 to accommodate the treated wastewater discharge. Due to the conditional wintertime relocation of the discharge point upstream of the primary facility outfall S/N 001 for the protection of public safety and property, the Department has determined the need to conduct an analysis, pursuant to the Agency's "Waste Management Zone Designation Procedure" (December 1, 1995). This analysis is conducted relative to the proposed discharge of treated domestic wastewater effluent in an area not to exceed one mile upstream of the primary Facility Outfall S/N 001, into the Winooski River.

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

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

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

The proposed Seasonal Discharge shall comply with all terms and conditions of the draft discharge permit, including effluent limitations, and Conditions I.B.1. – 8. specific to the Seasonal Discharge. These conditions are protective of the Vermont Water Quality Standards for Class B(2) waters, as supported by the Reasonable Potential Determination. In addition, the Seasonal Discharge shall be conducted using flexible piping, which will have negligible impacts on the function of the geomorphic system. Based upon this analysis, the Secretary finds that the discharge will not cause or contribute to the lowering of existing water quality, and thus, the receiving water's high quality aquatic habitat and suitability for use by aquatic biota, wildlife, and plant life will be maintained and protected.

With respect to fishing and recreational use of the waterbody, ice jams and river ice-pack pose extreme hazards to prospective users of surface waters. As such, contact recreational uses such as swimming, and non-contact recreational uses such as boating are precluded during the periods when the seasonal outfalls are proposed for use. Fishing is likewise precluded due to the lack of ability to put a line into the water, and ice-fishing is precluded due to the extreme hazard of traversing ice-jams and river pack ice.

Non-contact aesthetic use of the waterbody was reported as the sole existing recreational use of the waterbody in an existing use survey performed by the Permittee for the proposed Seasonal Discharge Area. The documented aesthetic use largely occurs outside of the proposed Seasonal Discharge months. Due to the conditionality and the short-term nature of the Seasonal Discharge, the Secretary has determined that the waterbody will maintain water character, flows, water level, and bed and channel characteristics exhibiting good aesthetic value.

The Secretary has determined there are no water supplies or commercial enterprises that depend directly on the preservation of an existing high level of water quality in the one-mile stretch that is the proposed Seasonal Discharge Area. In addition, as aforementioned, there will be no limited lowering of existing high level water quality because the discharge shall comply with the Vermont Water Quality Standards.

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

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

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

As aforementioned, the Seasonal Discharge shall satisfy effluent limitations in the discharge permit that ensure compliance with the Vermont Water Quality Standards. Additionally, the Seasonal Discharge is only authorized for purposes of breaking-up ice jams that pose a threat of flooding and thus, the Seasonal Discharge will occur infrequently and for limited durations of time. Therefore, the higher water quality will be protected and the Seasonal Discharge will not result in a limited lowering of water quality.

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

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

- a. It shall be the minimum length necessary to accommodate the authorized discharge;
- b. It shall be consistent with the anti-degradation policy, Section 29A-105 of these rules;
- c. It shall not result in significantly increased health risks when evaluated using reasonable assumptions about exposure pathways;

- d. It will be located and managed so as to not result in more than a negligible increased risk to public health adjacent to or downstream of the waste management zone; and
- e. It will not constitute a barrier to the passage or movement of fish or prevent the full support of aquatic biota, wildlife, and aquatic habitat uses.

The Secretary shall extend the existing waste management zone upstream to accommodate the Seasonal Discharge. As described above and throughout the fact sheet of the draft discharge permit, the waste management zone shall begin at the Facility discharge point, whether it be from primary outfall S/N 001 or within the Seasonal Discharge Area, and extend 3.5 miles downstream of outfall S/N 001. The existing 3.5-mile waste management zone, beginning at outfall S/N 001, is sized appropriately to accommodate the discharge. During times of a Seasonal Discharge, the length of the waste management zone shall be extended to the discharge point within the Seasonal Discharge Area (up to 1-mile upstream of S/N 001). This extension offers additional dilution, and conservatively accommodates the Facility discharge.

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

Due the conditionality of the Seasonal Discharge, its short-term nature, and the absence of contact recreation occurring during the periods which the Seasonal Discharge is authorized, it is determined that the waste management zone designation shall not cause significantly increased health risks or pose more than a negligible increased risk to public health adjacent or downstream of the waste management zone. In fact, the Seasonal Discharge will afford protection to the people, property, and infrastructure along areas of U.S. Route 2, Memorial Drive, the Montpelier High School, and the City of Montpelier downtown district from ice jam induced river flooding.

In closing, after giving due consideration to the applicable conditions of the Vermont Water Quality Standards and Interim Antidegradation Procedure, the Secretary believes that it is in the public interest to create a waste management zone in the Seasonal Discharge Area, during times when there is a Seasonal Discharge. The Secretary will hold a public meeting pertaining to this proposed discharge, waste management zone designation, and draft permit, convenient to the waters affected, to accept oral and written public comments on the items described above. Those comments will be used to supplement this analysis.

ATTACHMENT B – REASONABLE POTENTIAL DETERMINATION

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

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

MEMORANDUM

To: Nick Giannetti, Wastewater Program (WWP)

From: Rick Levey, Monitoring, Assessment and Planning Program (MAPP) *Rick Levey 06/23/17*

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

Date: June 23, 2017

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

MAPP has evaluated the draft permit limits for the Montpelier WWTF in Montpelier, Vermont pursuant to the 2012 procedure outlining WWM-WSMD roles and responsibilities. This memo provides MAPP's concurrence with the permit limits set forth by the draft permit for Montpelier WWTF prepared by the WWP.

Facility:

Montpelier Wastewater Treatment Facility
Permit No. 3-1207
NPDES No. VT0100196

Hydrology for Montpelier WWTF used in this evaluation:

Design Flow: 3.97 MGD = 6.142 CFS
7Q10 = 73.95 CFS
30Q10 = 94.0 CFS
LMM = 190.85 CFS
IWC-7Q10 = 0.077 (IWC > 1%)
IWC-30Q10 = 0.061 (IWC > 1%)
IWC-LMM = 0.031 (IWC > 1%)

Receiving Water:

Winooski River, Montpelier, VT
Facility Location: 44.25426, -72.60012 (WGS 84)

The Winooski River downstream of the Montpelier WWTF is classified as Class B and is designated a Cold-Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 489 square miles. The proposed permit retains the existing waste management zone (WMZ) in the Winooski

River beginning at the outfall of this WWTF and extending approximately 3.5 miles downstream (Figure 1). There are multiple discharges upstream of this discharge, including the Cabot WWTF, Marshfield WWTF, Plainfield WWTF on the main stem, Williamstown WWTF and Barre WWTF on the Stevens Branch and Northfield WWTF on the Dog River.

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 Winooski River segment to which this facility discharges, the database indicates the Winooski River above the Montpelier WWTF does not meet VT Water Quality Standards. The reason for impairment is the WWTF collection system passes combined sewer overflows, resulting in a use impairment of contact recreation (i.e. swimming) due to E. coli.

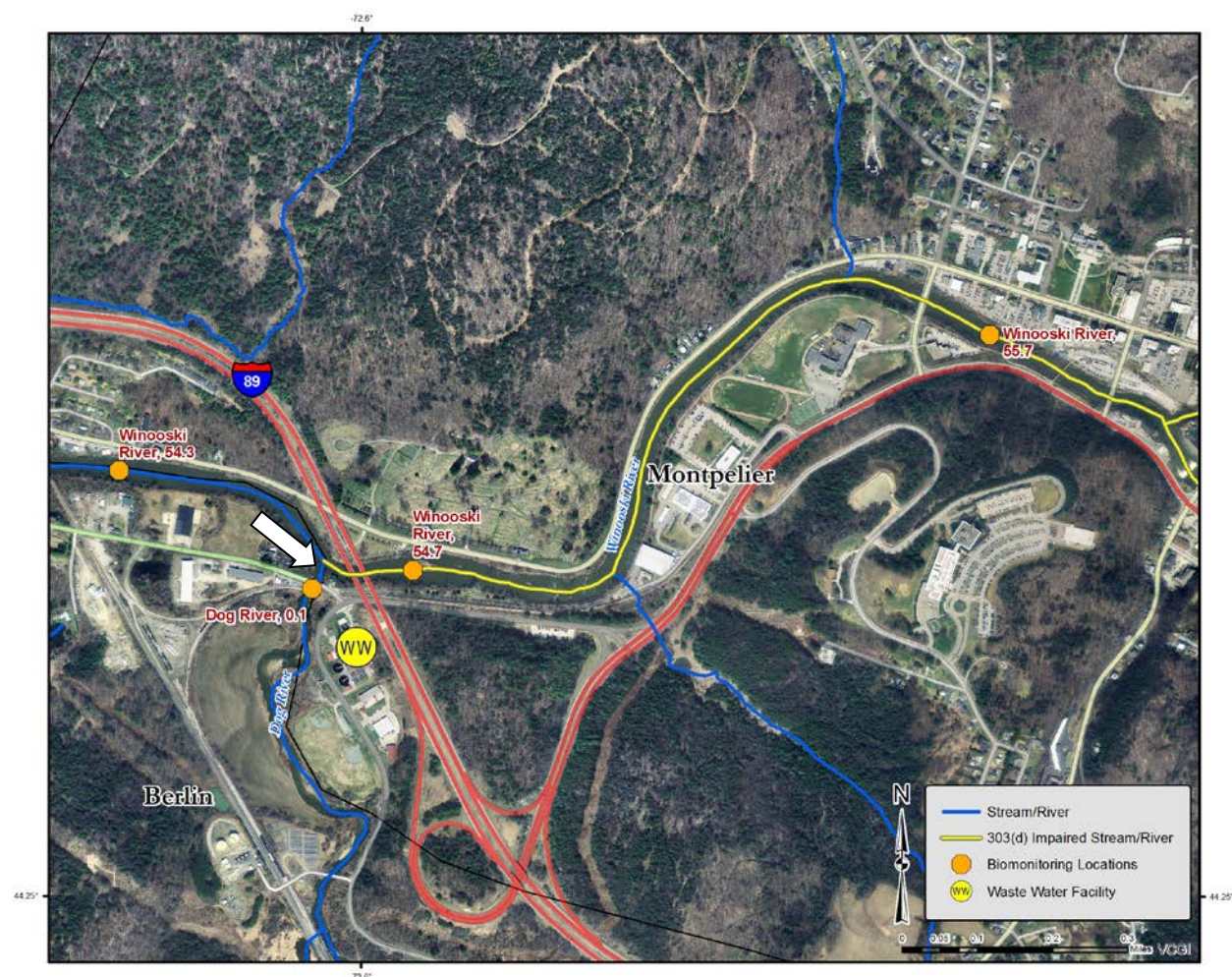


Figure 1. Winooski River near the Montpelier WWTF, showing upstream and downstream sampling locations (RM 54.7 & 54.3), and the Dog River (RM 0.1) sampling location. Main outfall location shown by arrow.

Ambient Chemistry Data for the Winooski River above and below the Montpelier WWTF:

There is ambient chemistry data available above and below the WWTF discharge from VTDEC water quality sampling conducted in 2010 and 2015 at river mile (RM) 54.7 and 54.3 respectively, as well as data collected at RM 0.1 of the Dog River, to determine this tributary's contribution to the receiving water.

Water chemistry measures for the following parameters are available: water temperature, pH, dissolved oxygen, turbidity, total phosphorus, total nitrogen and total ammonia as summarized in Table 1. Priority metals were also analyzed and were all below detection limits (Table 4).

Data representativeness was assessed by evaluating the flow conditions at which samples were collected from field sheets and from the most proximally-located USGS gauge for which data were available (USGS 04286000 on the Winooski River at Montpelier & USGS 04287000 on the Dog River at Northfield Falls) and in consideration of possible downstream sensitive reaches. The location of the upstream and downstream sampling locations, river mile (RM) 54.7 and RM 54.3, bracket the WWTF outfall (Figure 1). The downstream sampling location is the most sensitive location, and the most recent sampling results are representative of low flows based on the actual flows shown from the USGS gauge, and field notes collected by DEC technical staff. Thus, the data presented below are relevant for inclusion in this analysis. Biological data are also available further downstream, including in Moretown VT (RM 47.2), and in Waterbury, VT (RM 42.9), but upstream of the Village of Waterbury, and the Waterbury WWTF; bioassessments at both of these sites meet WQS for Warm Water Medium Gradient streams.

Nutrient data was collected from the Dog River (RM 0.1) to help assess how this tributaries water chemistry may be affecting the downstream monitoring site. At LMM flow conditions, the Dog River represents about 10% of the Winooski River LMM flow. As such, the average TP concentration observed in the Dog River would be reflected in only a 1 µg/l-TP addition to the Winooski. However, it is likely the Dog River is slightly lowering the TP concentrations in the Winooski River, since the average TP concentration of 10 µg/L-TP is lower than the Winooski River TP average of 17 µg/L. Based on hydrology and data reviewed the diluting effect is likely about 1 – 2 µg/L-TP; not a significant factor for this analysis.

Table 1: Concentrations of surface-water chemistry above and below the Montpelier Wastewater Treatment Facility (river mile 54.7 and 54.3 refer to stations above and below the outfall respectively). Also included is chemistry from the Dog River, a large tributary entering the Winooski River at the outfall location.

Sample Date	Location	River Mile	Water Temp (deg C)	pH	DO (%)	DO (mg/l)	Turbidity (NTU)	Total Phosphorus (ug/l)	Total Nitrogen (mg/l)	Total Ammonia Nitrogen (mg/l)
8/16/2010	Dog River	0.1	18.8	7.33	85.5	7.81	0.61	8.5	0.34	< 0.05
	Winooski River	54.7	20.5	7.85	83.8	7.43	1.66	14.6	0.49	< 0.05
	Winooski River	54.3	20.1	7.7	85.1	7.62	1.51	18.8	0.68	< 0.05
9/1/2010	Dog River	0.1	22.5	7.95			0.43	11.3	0.42	< 0.05
	Winooski River	54.7	26.5	8.59			1.08	15.1	0.6	< 0.05
	Winooski River	54.3	25.5	8.53			0.79	24.3	1.32	< 0.05
11/15/2010	Dog River	0.1	6.1	7.17	86.7	10.41	2.61	8.9	0.29	< 0.05
	Winooski River	54.7	5.0	7.57	81.6	10.11	2.42	11.9	0.31	< 0.05
	Winooski River	54.3	5.2	7.59	88.3	10.85	2.37	11.9	0.39	< 0.05
8/11/2015	Dog River	0.1	18.7	7.53	80.5	7.28	0.66	8.1	0.51	< 0.05
	Winooski River	54.7	20.6	8.15	93.2	8.11	3.45	16.7	0.61	< 0.05
	Winooski River	54.3	20.2	8.03	81	7.09	3.67	16.8	0.87	< 0.05
8/19/2015	Dog River	0.1	20.7	7.31	80.2	7	0.83	12.9	0.48	< 0.05
	Winooski River	54.7	23.0	7.93	87.6	7.33	1.77	12.7	0.5	< 0.05
	Winooski River	54.3	22.6	7.81	82.5	6.94	1.69	13.7	0.71	< 0.05
9/9/2015	Winooski River	54.7	22.1	7.85	93.4	7.88	1.99	14.1	0.85	< 0.05
	Winooski River	54.3	22	7.74	89.3	7.55	1.98	18.0	1.56	0.067

Total Phosphorus (TP) values below the outfall (RM 54.3) ranged from 11.9 – 24.3 µg/L, the highest concentration observed was on 9/1/2010. TP values above the outfall (RM 54.7) ranged from 11.9 – 16.7 µg/L. The greatest above/below TP difference observed was 11.3 µg/L-TP on 09/01/2010.

Total Nitrogen (TN) values below the outfall (RM 54.3) ranged from 0.39 – 1.56 mg/L, and above the outfall (RM 54.7) ranged from 0.31 – 0.85 mg/L; the highest results collected on 9/9/2015.

Turbidity, Dissolved Oxygen, pH:

Turbidity values below the outfall (RM 54.3) ranged from 0.79 – 3.67 Nephelometric Turbidity Units (NTU). Turbidity above the outfall (RM 54.7) ranged from 1.08 – 3.45 NTU. Dissolved oxygen below the outfall ranged from 6.94 – 10.85 mg/L, percent saturation below the outfall ranged from 81% – 89.3%. The dissolved oxygen and percent saturation above the outfall ranged from 7.33 mg/L – 10.1 mg/L and 81.6 – 93.4 percent respectively. The pH values were within the range of VWQS, except for 09/01/2010 results above and below the WWTF, values were slightly above 8.5. Below the outfall pH ranged from 7.6 - 8.53, above the outfall the pH range was 7.6 – 8.59. The high pH value observed above the WWTF is indicative that the elevated pH is likely not due to the facilities discharge.

Biological Assessments:

The most recent biological assessments were conducted above and below the WWTF outfall in 2015; a sample was collected below the discharge in 2010 (Table 2). All bioassessments conducted above and below the WWTF met WQS for Warm Water Medium Gradient streams.

Table 2. Results of Biological Monitoring for Macroinvertebrates on the Winooski River, above and below the Montpelier WWTF discharge.

Macroinvertebrate Site Summary										
Location:		Winooski River							Location ID:	501942/501943
Town:		Montpelier							Bio Site ID:	490000000543/547
Description:		Above and below WWTF discharge biological sampling results.							WBID:	VT08-05
Stream Type:		Warm Water Medium Gradient								
Date		Density	Richness	EPT Richness	PMA-O	B.I.	Oligo.	EPT/EP T +	PPCS-F	
9/1/2010	Below	4076	58.0	30.0	90.9	4.63	0.00	0.85	0.61	Meets WQS
9/9/2015	Above	704	38.0	19.0	65.2	5.01	0.00	0.61	0.52	Meets WQS
	Below	3948	56.0	32.0	82.2	4.66	0.10	0.93	0.56	Meets WQS
Full Support		≥ 350	≥ 32	≥ 17	≥ 50	≤ 5.35	≤ 9.5	≥ 0.47	≥ 0.45	
Meets Threshold		≥ 300	≥ 30	≥ 16	≥ 45	≤ 5.4	≤ 12	≥ 0.45	≥ 0.4	
Near Threshold		≥ 250	≥ 28	≥ 15	≥ 40	≤ 5.65	≤ 14.5	≥ 0.43	≥ 0.35	
Non-Support		< 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 190.9 CFS at design flow of 6.14 CFS (3.97 MGD) and using an effluent phosphorus concentration of 0.26 mg/L which was the average monthly effluent concentration reported on facility monitoring records in 2016 (range 0.1 – 0.7 mg/L-TP). The calculated phosphorus concentration at these conditions attributable to discharge was 0.008 mg/L-TP (8 µg/L). The average instream TP increase observed below the outfall was 3.0 µg/L (Table 1); less than the calculated TP of 8.0 µg/L. Review of the Montpelier WWTF flow records indicate that average flow for 2016 was 1.64 MGD, less than ½ design flow of 3.97 MGD. Instream TP concentrations at ½ design flow would be 4 µg/L-TP, which is in alignment with instream TP monitoring results after adjusting for upstream TP concentrations.

Therefore, the elevation in concentrations of phosphorus downstream of the facility are explained by the facility discharge. The high-quality effluent concentrations produced by the facility are also noteworthy, and are reflected by new effluent limitations imposed by the draft permit, associated with the 2016 Lake Champlain TMDL.

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)(C) of the 2017 VWQS, which states:

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

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

The total phosphorus concentrations in receiving waters are slightly elevated when comparing the above and below chemistry results, and this finding, coupled with the mass balance calculation presented above, indicated that very slight increases in phosphorus attributable to the facility are occurring, which do not exceed the numeric nutrient criterion of 27 ug/L TP for streams of this type. Aquatic life use is shown to be fully supported at high levels immediately downstream of the facility, and the stream complies with VWQS for all identified response variables. Therefore, the narrative standard presented in the VWQS is supported (Table 3). In addition, biological monitoring in Moretown and Waterbury also indicate on-going attainment of biological criteria. As described below, for facilities where there are increases in phosphorus attributable to the discharge, but biological and other monitoring results do consistently indicate attainment of all thresholds, MAPP supports continued effluent monitoring which includes TP required by the permit, to help better assess compliance with the nutrient criteria at the next permit issuance.

Table 3. Assessment of phosphorus response variables for Montpelier WWTF. Relevant target values within the VWQS shown.

Response variable (VWQS reference)	Target Value	River-mile 54.7 (Upstream)	River-mile 54.3 (Downstream)
pH (§3-01.B.9), range	<8.5 s.u.	7.85	7.74
Turbidity (§3-04.B.1), range	< 10 NTU at low mean annual flow	1.99	1.98
Dissolved Oxygen (§3-04.B.2), min	>6 mg/L and 70% saturation	7.88 (93.4%)	7.55 (89.3%)
Aquatic biota, based on macroinvertebrates, (§3-04-B.4), also see Table 2.	Attaining an assessment of good, or better.	Meets WQS 2015	Meets WQS 2015

Whole Effluent Toxicity (WET) and Priority Pollutant Testing:

40 CFR Part 122.44(d)(1) requires the Agency to assess whether the discharge causes, or has the reasonable potential to cause or contribute to an excursion above any narrative or numeric water quality criteria. The goal of the Vermont Toxic Discharge Control Strategy is to assure that the state water quality standards and receiving water classification criteria are maintained. As required in the 2002 permit issued, a two-species WET test was conducted in September of 2003 and 2004. Review of these WET test results indicate there was no effluent toxicity in 2003. The 2004 WET test had no acute toxicity, however the chronic C-NOEC was 25 and 50 for *P. promelas* and *C. dubia* respectively. These toxicity results will not pose a risk to the receiving waters since the 7Q10-IWC is 7.7%, well below the Wet Testing effluent concentrations used. The draft permit includes a requirement to conduct a two-species 48-hour acute and 96-hour WET test in August or September of 2019 and 2021 and in January or February 2018 and 2020. If the results of this test indicate a reasonable potential to cause an instream toxic impact, the Department may require additional WET testing, establish a WET limit, or require a Toxicity Reduction Evaluation.

Ammonia Monitoring:

Ammonia effluent monitoring conducted at the Montpelier WWTF from 2014-2017 was reviewed. Effluent ammonia concentrations from 2014 - 2017 (n=107) ranged from 0.1 to 35.5 mg/L total ammonia nitrogen (TAN), the average was 9.6 mg TAN/L and the 75th percentile was 15.1 mg TAN/L.

Under the WQS, two ammonia criteria apply – chronic and acute – which are temperature and pH dependent. The chronic criteria are applied at the 30Q10 flow and the acute criteria are applied at the 7Q10 flow. The maximum ammonia concentration of 35.5 mg/L (TAN) observed during this period will be applied at 7Q10 flow to determine compliance with the acute criteria. The receiving water concentration (RWC) at 7Q10 instream waste concentration (IWC) of 7.7% would be 2.48 mg TAN/L ($7Q10\ IWC\ 0.077 \times 35.5\ \text{mg TAN/L}$). The 75th percentile value of 15.1 mg TAN/L observed will be applied at the 30Q10 IWC of 6.1% to determine compliance with the chronic criteria. The receiving water concentration (RWC) at 30Q10 instream waste concentration (IWC) of 6.1% would be 0.92 mg TAN/L ($30Q10\ IWC\ 0.061 \times 15.1\ \text{mg TAN/L}$).

Monitoring data indicates the pH of the Winooski River within this reach is 7.7, using the temperature and pH dependent values provided in Tables 5a, b and 6 within the [2013 EPA Ammonia Criteria](#) we find that the acute RWC value of 2.48 mg TAN/L does not exceed the acute criteria of 6.7 mg TAN/L for 20°C or at any temperature. The chronic RWC of 0.92 mg TAN/L does not exceed the chronic criteria at 20°C, but will exceed the chronic criteria when the water temperature is above 23°C.

To further evaluate the potential for chronic criteria to be exceeded during seasonal warm water temperatures above 23°C, the 2014 – 2017 summer season (June 1 – August 30) ammonia effluent data was reviewed. Effluent ammonia concentrations ranged from 0.2 mg TAN/L to 7.8 mg TAN/L, the average was 1.91 mg TAN/L and the 75th percentile was 2.3 mg TAN/L. Effluent ammonia concentrations are considerably less during warm weather months due to the increased nitrification occurring at the facility. Using the maximum effluent ammonia concentration 7.8 mg TAN/L observed for the 2014 – 2017 period, the RWC at 30Q10 flow would be 0.47 mg TAN/L ($30Q10\ IWC\ 0.061 \times 7.8\ \text{mg TAN/L}$). The RWC of 0.47 mg TAN/L does not exceed the chronic criteria for any temperature.

With respect to ammonia, the above computations using worst-case for current facility flows (3.97 MGD) indicate that there does not exist reasonable potential to cause or contribute to a violation of the toxic criteria contained within the VWQS. MAPP does support monthly effluent monitoring required by the permit which includes TAN.

Sediment, Hardness, and Metals:

Instream total suspended solids were calculated using the 7Q10 of 73.9 CFS at design flow of 6.14 CFS (3.97 MGD), assuming the maximum permitted daily concentration of 50 mg/L. The calculated suspended sediment concentration at these conditions was 3.85 mg/l, indicating a minor augmentation of instream ambient suspended sediment concentrations in receiving waters.

The hardness of the Winooski River below the Montpelier WWTF (RM 54.3) was recorded to be 128 mg/l CaCO₃ on 9/9/2015 (Table 1). Hardness data is utilized to determine compliance with Vermont's aquatic biota based metals criteria as specified in Section 29A-303(7)(C). and Appendix C of the Vermont Water Quality Standards. Vermont DEC priority metal chemistry data above and below the outfall (Table 5) did not detect any exceedances and were below detection for arsenic, cadmium, chromium, copper, lead, nickel and zinc.

Table 5. Winooski River Total Metals, Water Chemistry – above and below the Montpelier WWTF outfall.

Date	9/9/2015	
	Above (54.7)	Below (54.3)
Total Aluminum (ug/l)	< 50	< 50
Total Antimony (ug/l)	< 10	< 10
Total Arsenic (ug/l)	< 1	< 1
Total Barium (ug/l)	11.4	10.5
Total Beryllium (ug/l)	< 1	< 1
Total Cadmium (ug/l)	< 1	< 1
Total Calcium (mg/l)	48.3	43.9
Total Chromium (ug/l)	< 5	< 5
Total Copper (ug/l)	< 10	< 10
Total Iron (ug/l)	161.7	153.3
Total Lead (ug/l)	< 1	< 1
Total Magnesium (mg/l)	4.6	4.5
Total Manganese (ug/l)	43.3	41.6
Total Molybdenum (ug/l)	< 5	< 5
Total Nickel (ug/l)	< 5	< 5
Total Potassium (mg/l)	2.1	2.2
Total Selenium (ug/l)	< 5	< 5
Total Silver (ug/l)	< 1	< 1
Total Sodium (mg/l)	28.5	30.2
Total Sulfate (mg/l)	10.2	10.3
Total Thallium (ug/l)	< 1	< 1
Total Zinc (ug/l)	< 50	< 50

Lake Champlain TMDL – Main Lake Segment.

The ultimate receiving water for this facility is the Main Lake Segment, a phosphorus-impaired segment of Lake Champlain subject to the 2016 Lake Champlain TMDLs promulgated by USEPA. That TMDL establishes a wasteload allocation for this facility not to exceed 1.097 MT/yr, a reduction of 2.193 MT from the prior limitation in the 2002 TMDL to which this facility was permitted previously. This equates to an effluent concentration limit of 0.2 mg/L pursuant to the TMDL. Effluent limitations in the draft permit reflect the TMDL. The Lake Champlain TMDL also contains a reasonable assurance analysis and accountability framework demonstrating that the Main Lake Segment will achieve standards following implementation of the TMDL.

Recommended Biological and Water Quality Monitoring:

In light of the fact that biological monitoring results consistently indicate attainment of all thresholds, and the stream complies with VWQS for all identified response variables, and thus the narrative standard presented in the VWQS is supported (Table 3), MAPP does not recommend biomonitoring be included in the permit. To better assess compliance with the 2014 nutrient criteria at the next permit issuance, MAPP supports effluent monitoring described in the draft permit, which includes monitoring for TP and TAN.

Conclusion:

The available data indicate that this discharge does not cause, have a reasonable potential to cause, or contribute to an instream toxic impact or instream excursion above the water quality criteria, and as such, the development of a WQBEL's will not be necessary. The effluent water quality monitoring and chemical and biological assessments conducted above and below the Montpelier WWTF discharge to date supports 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: 3-1207

PUBLIC COMMENT PERIOD: **June 29 – August 8, 2017**

PERMITTEE INFORMATION

PERMITTEE NAME: City of Montpelier

PERMITTEE ADDRESS: 39 Main Street
Montpelier, VT 05602

PERMIT NUMBER: 3-1207

PROJECT ID NUMBER: BR81-0002

DISCHARGE INFORMATION

NATURE: Treated and disinfected municipal wastewater

VOLUME: 3.97 MGD, yearly average

RECEIVING WATER: Winooski River

EXPIRATION DATE: **June 30, 2022**

DESCRIPTION: This is a draft discharge permit proposed for issuance to the City of Montpelier for the discharge of treated municipal wastewater from the Montpelier Wastewater Treatment Facility. This permit is a renewal, and implements the requirements of the Lake Champlain Total Maximum Daily Load for total phosphorus.

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 2nd 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 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 8, 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>. All comments received by the above date will be considered in formulation of the final determinations.

A public meeting will be held on **August 1, 2017 from 2:00 – 4:00 PM** at the **Agency of Natural Resources Annex Building**, located at **190 Junction Road, Berlin, Vermont 05602**. Any person may submit oral or written statements and data concerning the draft permit at the public 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.

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, the 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, 2nd Floor, Suite 303, Burlington VT 05401 (Tel. (802) 951-1740). For further information, see the Vermont Rules for Environmental Court Proceedings, available online at www.vermontjudiciary.org.

Emily Boedecker, Commissioner

Department of Environmental Conservation