

AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WASTEWATER MANAGEMENT DIVISION
103 SOUTH MAIN STREET
WATERBURY, VERMONT 05671-0405

FACT SHEET
November 2007

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

FILE NO.: 12-11
PROJECT ID NO.: BR81-0002
PERMIT NO.: 3-1207
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, Vermont

RECEIVING WATER AND CLASSIFICATION: Winooski River: Class B with a waste management zone. Class B waters are suitable for bathing and recreation; irrigation and agricultural uses; good fish habitat; good aesthetic value; acceptable of public water supply with filtration and disinfection. A waste management zone 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.

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

The above named applicant has applied to the Vermont Department of Environmental Conservation for renewal of a permit to discharge into the designated receiving water. The facility is engaged in the treatment of domestic and industrial wastewater from the City of Montpelier and a portion of the Town of Berlin. The discharge is from the Montpelier Wastewater Treatment Facility to the Winooski River.

II. Description of Discharge

This permit authorizes the discharge of 3.97 MGD of treated municipal wastewater. The treatment system is considered secondary treatment and consists of the following processes: an activated sludge process for secondary treatment and nitrification, chemical precipitation for phosphorus removal, and ultraviolet light for disinfection.

A quantitative description of the discharge in terms of significant effluent parameters is presented in section IV. below.

III. Limitations and Conditions

The effluent limitations of the permit, the monitoring requirements, and any implementation schedule (if required), may be found on the following pages of the permit:

Effluent Limitations: Page 2
 Monitoring Requirements: Pages 5, 6, and 7

IV. Permit Basis and Explanation of Effluent Limitation Derivation

History & Summary

On June 27, 2007 the City submitted an application for renewal of their discharge permit for the Montpelier WWTF. Having completed its review of the application, the Department has made a determination to renew the discharge permit for the wastewater treatment facility's discharge. Following is a discussion of the specific factors considered in the renewal of this permit.

The WWTF provides wastewater treatment capacity for residential, commercial, and industrial properties in the City of Montpelier and within the sewer service area in the Town of Berlin.

Effluent Limitations

Flow

This permit includes a flow limitation of 3.97 MGD, annual average, based on the design capacity of the facility. This is unchanged from the previous permit. Flow monitoring is required daily. This facility maintains a constant discharge.

Phosphorus

This draft discharge permit for the Montpelier WWTF contains a phosphorus effluent concentration limit of 0.8 mg/l, monthly average, and a mass effluent limit of 7,253 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 mass annual effluent limitation is based on the Lake Champlain Phosphorus TMDL, effective November 4, 2002. The TMDL allocated 3,290 metric tons per year or 7,253 pounds per year to the Montpelier WWTF and this allocation is being incorporated into the draft permit. This annual pounds limit replaces the 26.5 lbs/day, monthly average, mass effluent limitation specified in the previous permit.

The "annual total pounds" is the total of the twelve monthly totals which are calculated by multiplying the total monthly flow x the monthly average phosphorus concentration x 8.34. The annual total must be submitted with the December monthly monitoring report.

This permit requires weekly monitoring of effluent composite samples for total phosphorus. This requirement is unchanged from the previous permit.

Carbonaceous Biochemical Oxygen Demand (CBOD₅)

As part of the renewal application, the City requested changing the BOD₅ effluent limitations which were based on 40 CFR Part 133.102.a.1 and 2 to the CBOD₅ limitations specified in 40 CFR Part 133.102.a.4.

CBOD₅ or Carbonaceous BOD₅ represents the Biological Oxygen Demand (BOD) from organic compounds and oxidation of inorganic compounds. Any BOD from nitrifying organisms, which consume oxygen in the nitrification process of converting ammonia to nitrate, is removed by adding

a nitrification inhibitor. Based on a review of the data collected on the CBOD₅ and BOD₅ concentrations in this discharge and considering the WWTF goes in and out of the nitrification process in the spring and fall and that chlorine based disinfection system has been replaced with an ultraviolet light system, the Agency agrees that a CBOD₅ limitation is warranted.

The CBOD₅ mass limitations are 827 lbs/day, monthly average, and 1324 lbs/day, weekly average. The CBOD₅ effluent concentration limits are 25 mg/l, monthly average, and 40 mg/l, weekly average. These limitations are set in accordance with the limitations specified for secondary treatment in 40 CFR Part 133.102.a.4.

These CBOD₅ limitations replace BOD₅ limitations of 933 lbs/day, monthly average, and 1490 lbs/day, weekly average, mass limitations and the 30 mg/l, monthly average, and 45 mg/l, weekly average, concentration limitations in the previous permit.

In addition, the permit contains a 45 mg/l, maximum day, CBOD₅. This is a limitation which the Agency implements 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.

The sampling frequency for CBOD₅ is once per week and is unchanged from the BOD₅ sampling frequency specified in the previous permit.

Total Suspended Solids (TSS)

The TSS mass limitations are 933 lbs/day, monthly average, and 1490 lbs/day, weekly average, and are unchanged from the previous permit. The TSS effluent concentration limits are 30 mg/l, monthly average, and 45 mg/l, weekly average. These limitations are set in accordance with the limitations specified for secondary treatment in 40 CFR Part 133.102.

In addition, the permit contains a 50 mg/l, maximum day, TSS limitation. This is a limitation which the Agency implements 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. These limitations are unchanged from the previous permit.

The sampling frequency for TSS is once per week and is unchanged from the previous permit.

Escherichia coli bacteria

The *E. coli* limitation is 77 colonies /100ml, instantaneous maximum and is based on Section 3-04.B.3 of the Vermont Water Quality Standards. This limitation is unchanged from the previous permit. Sampling is required once per week and is unchanged from the previous permit.

Settleable Solids

The Settleable Solids limitation is 1.0 ml/l, instantaneous maximum and is established in support of the narrative standard in Section 3-01.B.5 of the Vermont Water Quality Standards. This limitation is unchanged from the previous permit. Sampling is required once per day and is unchanged from the previous permit.

Ammonia

Based on the US EPA 1999 Update of Ambient Water Quality Criteria for Ammonia, this discharge does not have a reasonable potential to cause ammonia toxicity in the Winooski River. However, this WWTF often receives and treats more than 20,000 gallons per day of landfill leachate and the Total Kjeldahl Nitrogen (TKN) concentration of the leachate is often greater than 500 mg/l. Further nitrogen analysis of the leachate indicates that the majority of the TKN consists of ammonia. Therefore to ensure that this leachate does not cause operational problems at the WWTF, a “monitor only” require for ammonia has been included in the draft permit. Ammonia monitoring is required once per month and must be sampled on the same day as CBOD₅

Waste Management Zone

The previous permit established a waste management zone beginning at the outfall of the Montpelier WWTF and extending downstream in the Winooski River for 3.5 miles. The draft permit will maintain this waste management zone.

Toxicity Testing and Additional Pollutant Testing

Previous Whole Effluent Toxicity (WET) tests conducted on this discharge, have indicated that this discharge does not have a reasonable potential to cause an instream toxic impact.

However to ensure that this discharge does not develop the potential to cause toxicity, a requirement (Condition I.E) to conduct WET testing has been included in the draft permit. This Condition requires a two species acute WET test to be done in 2009 and 2011.

In addition, per the requirements of 40 CFR 122.21.j, annual monitoring for temperature, Dissolved Oxygen, Oil & Grease, Nitrate/Nitrite, Total Dissolved Solids, and Total Kjeldahl Nitrogen, has been included in the draft permit.

Operation, Management, and Emergency Response Plan

Per the requirements of the revisions to 10 V.S.A. Sections 1263 and 1278, promulgated in the 2006 legislative session, Condition I.G. has been included in the draft permit. These statutory modifications required that each municipality develop an Operation, Management and Emergency Response Plan to prevent and mitigate any accidental releases of sewage.

Condition I.G requires the preparation and submission of the Operation, Management and Emergency Response Plan in two parts. First, an Operation, Management and Emergency Response Plan should be developed for the components at the wastewater treatment facility, the components at the pump/ejector stations, and stream crossings. Second, an Operation, Management and Emergency Response Plan should be developed for the sewage collection system.

The field work necessary for preparing an Operation, Management and Emergency Response Plan for the components at the wastewater treatment facility, the components at the pump/ejector stations, and stream crossings is not extremely time consuming. Therefore, the draft permit requires submittal of an Operation, Management and Emergency Response Plan for the components at the wastewater treatment facility, the components at the pump/ejector stations, and stream crossings by April 1, 2008.

The field work necessary for preparing an Operation, Management and Emergency Response Plan for the sewage collection can be extremely time-consuming and complex. Therefore, the draft permit requires submittal of an Operation, Management and Emergency Response Plan for the

sewage collection system by July 1, 2010.

Combined Sewer Overflows

In 2006, the City completed the final work on a combined sewer overflow elimination project. The project began in 1992 and was done in two major construction phases, with Phase II being completed in 2004. In 2005, the City conducted an effectiveness study to determine if the project, as completed, met the requirements of the Vermont Combined Sewer Overflow Policy. The effectiveness study concluded that there were still areas where significant sources of stormwater entered the sewer collection system and the main 36" trunk line to the wastewater treatment facility had an accumulation of up to 18" of sediment which severely restricted its ability to convey wastewater. Consequently the Agency required the City to clean the trunk line and conduct an additional effectiveness study. During the summer of 2006 the City cleaned the trunk line. The City also discovered an old granite 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. The City completed cleaning of the trunk line on October 23, 2006 and eliminated the stone box culvert on November 9, 2006.

Currently seven overflows remain in the system, CSO 001, 003, 007, 008, 009, 013 and 023. The City anticipates being able to eliminate CSO 009 and 013, as soon as follow-up monitoring confirms that the sources to these overflows have been eliminated. The remaining overflows will need to remain to protect property from sewage backups should an episodic storm occur. Consequently the Agency is issuing 1272 Order which requires the City to eliminate CSO 009 and 013, clean the outfall of CSO 001, monitor the remaining overflows and to implement the "Nine Minimum Controls for Combined Sewer Collection Systems".

VI. Procedures for Formulation of Final Determinations

The public comment period for receiving comments on this draft permit is from November 26, 2007 through December 27, 2007 during which time interested persons may submit their written views on the draft permit. All written comments will be retained by the Department 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 Department.

Written comments should be sent to:

Vermont Agency of Natural Resources
 Department of Environmental Conservation
 Wastewater Management Division - Sewing Building
 103 South Main Street
 Waterbury, VT 05671-0405

Comments may also be faxed to: 802-241-2596.

Any interested person or groups of persons may request or petition for a public hearing with respect to this draft permit. Any such request or petition for a public hearing shall be filed within the public comment period described above and shall indicate the interest of the party filing such request and the reasons why a hearing is warranted.

The Department will hold a hearing if there is significant public interest in holding such a hearing. Any public hearing brought in response to such a request or petition will be held in the geographical

area of the draft discharge or other appropriate area, at the discretion of the Department and may, as appropriate, consider related groups of draft permits. Any person may submit oral or written statements and data concerning the draft permit at the public hearing. The Department 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 hearing will be retained by the Department 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 at the VTDEC, Wastewater Management Division, Waterbury Office. Copies will be made at a cost based on the previous Secretary of State Official Fee Schedule for Copying Public Records from 8:00 am to 4:30 pm, Monday through Friday.

The draft permit and this fact sheet may also be viewed on the Wastewater Management Division's web site at www.anr.state.vt.us/dec/ww/wwmd.cfm.