

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

FACT SHEET

February 2004

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

FILE NO.: 04-06

PROJECT ID NO.: EJ93-0004

PERMIT NO.: 3-1254

NAME AND ADDRESS OF APPLICANTS:

Village of Essex Jct.
2 Lincoln Street
Essex Junction, VT 05452

Town of Essex
81 Main Street
Essex, VT 05452

Town of Williston
722 Williston Road
Williston, VT 05495

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Village of Essex Junction Wastewater Treatment Facility
Cascade Street
Essex Junction, 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 applicants have applied to the Vermont Department of Environmental Conservation for renewal of their discharge permit to discharge into the designated receiving water. The facility is engaged in the treatment of domestic wastewater from the Village of Essex Junction, Town of Essex, and the Town of Williston. The discharge is from the Village of Essex Junction Wastewater Treatment Facility (WWTF) outfall to the Winooski River.

II. Description of Discharge

This permit authorizes the discharge of 3.3 MGD of treated municipal wastewater. The treatment system consists of an activated sludge treatment process, chemical precipitation for phosphorus removal, and chlorine addition for disinfection with dechlorination prior to discharge.

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: Pages 2 and 3
Monitoring Requirements: Pages 5, 6, and 7

IV. Permit Basis and Explanation of Effluent Limitation Derivation

History & Summary

On April 6, 1999, the Department issued Discharge Permit No. 3-1254 to the Village of Essex Junction, the Town of Essex, and the Town of Williston. This permitting action renewed their existing discharge permit including authorization of a phased upgrade and expansion of the Village of Essex Junction Wastewater Treatment Facility (WWTF) from 2.75 million gallons per day (MGD) to 3.3 MGD. The WWTF provides wastewater treatment capacity for residential and commercial properties in the Village of Essex Junction, the Town of Essex, and the Town of Williston.

The WWTF upgrade and expansion was planned in two phases. Phase One consisted of the addition of flow equalization at the WWTF and increased the design flow of the WWTF to 3.1 MGD. Phase II consisted of sludge thickening improvements and increased the design flow of the WWTF to 3.3 MGD.

In March 2001, the Department was notified that Phase I of the upgrade and expansion was complete. Therefore on March 26, 2001, the Department authorized the first phase of expansion of the WWTF and increased the permitted flow from the WWTF to 3.1 MGD. Phase II of the WWTF upgrade and expansion is pending.

On December 29, 2003 the Village and Towns submitted an application for renewal of their discharge permit. 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.

Effluent Limitations

Flow

This permit includes a current flow limitation of 3.1 MGD, annual average, based on the design capacity of the facility. Upon completion of Phase II of the WWTF upgrade and expansion (sludge thickening improvements), the flow limitation will increase to 3.3 MGD, annual average, based on the design capacity of the facility. These limitations are unchanged from the previous permit. Flow monitoring is required daily. This facility maintains a continuous discharge.

Total Phosphorus

This draft discharge permit contains a phosphorus effluent concentration limit of 0.8 mg/l, a monthly average and a mass effluent limit of 5663 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 2.569 metric tons per year or 5663 pounds per year to the Essex Junction WWTF and this allocation is being incorporated into the draft permit. This annual pounds limit replaces the 18.4 lbs/day, monthly average, 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 each year.

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

Ultimate Oxygen Demand (UOD) and Total Kjeldhal Nitrogen (TKN)

The UOD mass limitation is 1820 lbs/day, maximum day, and is effective from June 1st through October 31st of each year. This limitation is based on the Lower Winooski River Waste Load Allocation Order. The limit is specified as a maximum day limitation to correct an error in previous permits. Previous permits had specified UOD as a "monthly average" limitation which did not correctly reflect the requirements of the Lower Winooski River Waste Load Allocation Order. During this permit renewal process, the Agency noted the discrepancy and is correcting it. A review of the monitoring data reported during the past two years indicates that the facility has reliably met this limitation.

Sampling is required once per week from the period of June 1st through October 31st. TKN sampling is also required weekly during the period in which the UOD limit is in effect. These sampling frequencies are unchanged from the current permit

UOD is dependent on the quantity of biochemical oxygen demand (BOD₅) and total kjeldahl nitrogen (TKN) in a discharge, as specified in the following equation:

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

Since receiving waters are the most sensitive to oxygen depleting wastes during periods of high water temperature and low flow, the UOD limitation is in effect from June 1 - October 31 of each year. The UOD limitation ensures compliance with the dissolved oxygen criteria during this time period as specified in the Vermont Water Quality Standards effective July 2, 2000. During the other months of the year, the Biological Oxygen Demand limitation is adequate to ensure compliance with the dissolved oxygen criteria.

Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS)

The BOD and TSS mass limitations are 688 lbs/day, monthly average, and 1032 lbs/day, weekly average, and are unchanged from the previous permit. These mass limitations are based on concentration limitations and the previously permitted flow of 2.75 MGD. The BOD and 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. The permit requires the permittee to meet the BOD and TSS concentration limitations or the BOD and TSS mass limitations whichever is more restrictive.

In addition, the permit contains a 50 mg/l, maximum day, BOD and 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 BOD and TSS is once per week and is unchanged from the previous permit.

The permit also requires that during the period of June 1st through October 31st, the permittee must control the discharge such that the maximum day UOD limitation is not exceeded or the BOD concentration or the mass BOD limitations are not exceeded, whichever is more restrictive.

Total Residual Chlorine

The Total Residual Chlorine limitation is 0.1 mg/l and based on maintaining the instream water quality criteria of chlorine of 0.019 mg/l, (acute) and 0.011 mg/l (chronic) of the Vermont Water Quality Standards effective July 2, 2000. Since this facility utilizes dechlorination and has a dilution of greater than 9:1, this limitation will be met. This limitation is unchanged from the previous permit. Total residual chlorine sampling is required once per day and is unchanged from the previous permit.

Escherichia coli bacteria

The *E. coli* limitation is 77/100ml, instantaneous maximum and is based on Section 3-04.B.3 of the Vermont Water Quality Standards effective July 2, 2000. 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 effective July 2, 2000. This limitation is unchanged from the previous permit. Sampling is required once per day and is unchanged from the previous permit.

pH

The pH limitation of 6.5 to 8.5 SU, daily maximum is based on Section 3-01.B.9 of the Vermont Water Quality Standards effective July 2, 2000. This limitation is unchanged from the previous permit. Sampling is required once per day and is unchanged from the previous permit.

Waste Management Zone

The previous permit established a waste management zone in the Winooski River beginning at the outfall of the Village of Essex Junction WWTF and extending downstream for 1.0 mile. The draft permit will maintain this waste management zone.

Additional Conditions

Since the Towns of Essex and Williston own a significant portion of the collection system that contributes influent to the Village of Essex Junction WWTF, the Towns are identified as copermittees on the draft permit. Several permit conditions define the responsibilities of the Towns as copermittees. Specifically Conditions I.A.3., I.I., II.A.1,2,3,6, and 9, and II.B.1 and 2, reference the responsibilities of the Towns.

Toxicity Testing

Based on the results of the Whole Effluent Toxicity (WET) tests and chemical analyses conducted on this discharge, the Department has determined that this discharge does not have a reasonable potential to cause an instream toxic impact.

However to ensure compliance with 40 CFR 122.21.j, at the time of permit renewal, a requirement (Condition I.E) to conduct WET testing has been included in the draft permit. This Condition requires a single species acute WET test to be done in 2005, 2006, 2007, and 2008. The species to be tested will alternate each year between fathead minnow and daphnia and the time of year the test will be conducted will alternate between winter and late summer to ensure representative sampling is done.

In addition, this Condition I.E also requires the effluent to be analyzed for selected heavy metals and toxic organic pollutants once per year in 2005, 2006, and 2007 to ensure compliance with 40 CFR 122.21.j at the time of permit renewal.

Total Copper and Total Zinc

In order to gather data on the discharge of copper and zinc into the lower Winooski River, a "monitor only" requirement has been included in the draft permit. Sampling for total copper and total zinc is required quarterly, specifically during the months on September, December, March and June.

VI. Procedures for Formulation of Final Determinations

The public comment period for receiving comments on this draft permit is from February 9, 2004 through March 10, 2004 during that 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 4:00 pm, Monday through Friday.