

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
(JULY 2016)

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

PERMIT NO: 3-1197
PIN: BR95-0045
NPDES NO: VT0100943

NAME AND ADDRESS OF APPLICANT:

Town of Chelsea
P.O. Box 266
Chelsea, VT 05038

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Chelsea Wastewater Treatment Facility
234 VT Route 110
Chelsea, Vermont

RECEIVING WATER: First Branch of the White River

CLASSIFICATION: Class B with a waste management zone. Class B waters are suitable for swimming and other forms of water-based recreation, and irrigation of crops and other agricultural uses without treatment; good aesthetic value; aquatic biota and wildlife sustained by high quality aquatic habitat; suitable for boating, fishing, and other recreational uses; acceptable for 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 Vermont Agency of Natural Resources (Agency) received a renewal application for the permit to discharge into the designated receiving water from the above-named applicant on September 24, 2009. At this time the Agency has made a tentative decision to reissue the discharge permit. The facility is engaged in the treatment of municipal wastewater. The discharge is from the outfall of the Chelsea Wastewater Treatment Facility to the First Branch of the White River.

II. Description of Discharge

A quantitative description of the discharge in terms of significant effluent parameters is based on state and federal laws and regulations, the discharge permit application, and the recent self-monitoring data.

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. Receiving Water

The receiving water for this discharge is the First Branch of the White River, a designated Cold Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 19 square miles. The summer 7Q10 flow of the river is 1.36 cubic feet per second (CFS) and the summer Low Median Monthly flow is 6.62 CFS. The instream waste concentration at the summer 7Q10 flow is 0.059 and the instream waste concentration at the summer Low Median Monthly flow is 0.013.

V. Permit Basis and Explanation of Effluent Limitation Derivation

History and Summary:

The Town of Chelsea owns and operates the Chelsea Wastewater Treatment Facility which was constructed in 1974. The facility consists of an in-plant pump station, an oxidation ditch, two clarifiers, chlorination for disinfection, and dechlorination before being discharged to the First Branch of the White River. Biosolids generated from the wastewater treatment process are temporarily stored in the aerated biosolids storage tanks and dewatered when appropriate by using two sand drying beds. Biosolids are managed via a contractual agreement with an independent hauler.

Flow - The effluent flow limitation remains at 0.055 MGD, annual average, based on the facility's design flow. The facility maintains a continuous discharge.

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 CFR Part 133.102. In addition, the permit contains a 50 mg/L, maximum day, BOD₅ limitation. This is the Agency standard applied to all such discharges pursuant to 13.4 c. of the Vermont Water Pollution Control Permit Regulations. The Agency implements the limit to supplement the federal technology-based limitations to prevent a gross one-day permit effluent violation to be offset by multiple weekly and monthly sampling events which would enable a discharger to comply with the weekly average and monthly average permit limitations. Mass limits (13.8 lbs/day, monthly average and 20.6lbs/day, weekly average) are derived by multiplying the concentration limits by the permitted flow. The BOD₅ monthly monitoring requirement is unchanged from the current permit.

Total Suspended Solids (TSS) - The effluent limitations for TSS remain unchanged from the current permit. The monthly average (30 mg/L) and weekly average (45 mg/L) reflect the minimum level of effluent quality specified for secondary treatment in 40 CFR Part 133.102. In addition, the permit contains a 50 mg/L, maximum day, TSS limitation. This is the Agency standard applied to all such discharges pursuant to 13.4 c. of the Vermont Water Pollution Control Permit Regulations. The Agency implements the limit to supplement the federal technology-based limitations to prevent a gross one-day permit effluent violation to be offset by multiple weekly and monthly sampling events which would enable a discharger to comply with the weekly average and monthly average permit limitations. Mass limits (13.8 lbs/day, monthly and 20.6 lbs/day, weekly average) are derived by multiplying the concentration limits by the permitted flow. The TSS monthly monitoring requirements are unchanged from the current permit.

Total Phosphorus (TP) – Numeric water quality criteria for phosphorus were adopted in the revised Vermont Water Quality Standards (effective October 30, 2014); for future permit reissuance, the criteria will be used to determine the potential of discharges to cause or contribute to eutrophication and/or to adversely impact the aquatic biota downstream of the discharge. The Agency is including *monitory only* requirements in discharge permits for discharges of TP. The Permittee shall monitor the discharge for TP once per month to be consistent with wastewater treatment facilities of similar size in Vermont.

Total Nitrogen (TN) – On November 10, 2011, a letter from the EPA (Region I) to the Vermont Agency of Natural Resources indicated that Vermont must establish TN limitations in permits such that the TN load from all facilities in the Connecticut River watershed is consistent with the requirements of the Long Island Sound Total Maximum Daily Load (TMDL).

Section I.B in this permit requires the Permittee have a qualified consultant develop and submit a Nitrogen Removal Optimization Plan by December 31, 2016. The plan shall be provided to the Agency before implementation. Additionally, an annual report will be due to the Agency documenting the pounds of TN discharged as well as removal optimization and efficiencies; the first annual report shall be submitted by January 15, 2018, as an attachment to the December 2017 DMR WR-43 report. Finally, this Condition contains as clause that allows the Agency to reopen the permit to include a wasteload allocation for this facility based on the LIS TMDL.

TN is a calculated value based on Total Kjeldahl Nitrogen (TKN) and Nitrate/Nitrite (NO_x) Nitrogen. Monthly monitoring will be required for TKN and NO_x. The sum of TKN and NO_x shall be used to derive TN.

Settleable Solids - The limitation of 1.0 mL/L instantaneous maximum and daily monitoring remain unchanged from the current permit. This numeric limit was established in support of the narrative standard in Section 3-01 B.5 of the Vermont Water Quality Standards.

Escherichia coli - The *E. coli* limitation is 77 colonies/100 mL as specified in Section 3-04 B.3, Vermont Water Quality Standards. Monthly monitoring remains the same as in the current permit.

Seasonal disinfection, meaning the required use of chlorine or another disinfection method to kill effluent bacteria between the period of April 1 through October 31 only, is authorized for this

discharge, per agreement with the Vermont Department of Health. As a result, the bacteria monitoring and effluent limitation do not apply for the period of November 1 through March 31.

Total Residual Chlorine – The Total Residual Chlorine limit of 0.1 mg/L is based on meeting the instream water quality acute and chronic chlorine criteria (0.019 mg/L and 0.011 mg/L respectively) in the Vermont Water Quality Standards, effective February 9, 2006, for the protection of aquatic biota. Monitoring requirement remains daily when chlorination is occurring.

pH - The pH limitation remains at 6.5 - 8.5 Standard Units as specified in Section 3-01 B.9 in the Vermont Water Quality Standards. Monitoring remains at daily.

Whole Effluent Toxicity (WET) 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. The draft permit includes a requirement to conduct a two-species WET test in August of September of 2017. If the results of this test indicate a reasonable potential to cause an instream toxic impact, the Agency may require additional WET testing, establish a WET limit, or require a Toxicity Reduction Evaluation.

Waste Management Zone - As defined under 10 V.S.A. §1251(16), 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. Throughout the receiving waters, water quality criteria must be achieved but increased health risks exist due to the authorized discharge”.

The draft permit retains the existing waste management zone that extends downstream from the outfall for approximately 1 mile in the First Branch of the White River.

Operation, Management, and Emergency Response Plans - 10 V.S.A. Section 1278 requires the Permittee to prepare and implement an Operation, Management and Emergency Response Plan for the wastewater treatment facility, sewage pump/ejector stations, stream crossings, and collection systems. A revised Operation, Management and Emergency Response Plan for all elements was received by the Agency on March 4, 2010. The Agency reviewed and returned the Plan for revision on March 8, 2010. Section I.I requires that the Permittee shall update to address the Agency’s comments and to reflect any changes to the equipment or operation of the facility, and implement the plan for the facility, pump stations, stream crossings and collection system.

Engineering Evaluation – Since this wastewater treatment facility last underwent an engineering evaluation in 1996, an updated engineering evaluation condition is included in this permit. This condition requires the Permittee to conduct an in-depth inspection and report of the treatment facility to identify and repair equipment, processes, and other possible deficiencies which may adversely affect effluent quality or proper operation.

Electric Power Failure - Within 30 days of the effective date of the permit, the Permittee must submit to the Agency updated documentation addressing how the discharge will be handled in the event of an electric power outage. The effluent must receive a minimum of primary treatment (or

in the case of ultraviolet light disinfection systems, not less than secondary treatment) plus disinfection and dechlorination.

VI. Procedures for Formulation of Final Determinations

*The public comment period for receiving comments on the draft permit was from **May 30 through June 30, 2016**. The Agency received no comments from the public concerning the draft permit.*