

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
ONE CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023**

FACT SHEET

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

NPDES PERMIT NO: **MA0101818**

NAME AND ADDRESS OF APPLICANT:

**City of Northampton
Board of Public Works**

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

**Northampton Wastewater Treatment Plant
33 Hockanum Road
Northampton, MA 01060**

RECEIVING WATER: **Connecticut River (Connecticut River Watershed-MA34-04E)
Old Mill River to the Connecticut River**

CLASSIFICATION: **Class B - Warm Water Fishery**

I. PROPOSED ACTION

The above named applicant has applied to the U.S. Environmental Protection Agency for the re-issuance of its National Pollutant Discharge Elimination System (NPDES) permit to discharge into the designated receiving water. The current permit was signed on May 23, 2002 and became effective on July 23, 2002. The permit expired September 30, 2005. A re-application was received March 2, 2005. EPA intends to issue this permit with a term of five years, which will begin on the permit effective date

The Town of Williamsburg is a co-permittee for Part 1.B., Unauthorized Discharges, and Part 1.C., Operation and Maintenance of the Sewer System, which includes conditions pertaining to the collection system owned and operated by Williamsburg. The responsible Town authority is:

**Williamsburg Water and Sewer Commission
P. O. Box 447/141 Main St.
Haydenville, MA 01039**

II. TYPE OF FACILITY AND DISCHARGE LOCATION

The facility is an 8.65 million gallon per day (mgd) secondary wastewater treatment facility, which discharges to the Connecticut River in the Connecticut River Watershed.

III. DESCRIPTION OF DISCHARGE

Quantitative descriptions of the discharge in terms of significant effluent parameters based on recent discharge monitoring reports (DMRs) for July 2006 through August, 2007 may be found in Fact Sheet Attachment A.

IV. LIMITATIONS AND CONDITIONS

The effluent limitations and monitoring requirements may be found in the draft NPDES permit.

V. PERMIT BASIS AND EXPLANATION OF EFFLUENT LIMITATION DERIVATION

A. PROCESS DESCRIPTION

The Northampton Wastewater Treatment Plant is a secondary treatment facility with a design capacity of 8.65 million gallons per day (mgd) which treats domestic and industrial wastewater. See the attached Map (Figure 1) and the attached Layout Plan of the WWTP (Figure 2).

The treatment plant, serves approximately 29,300 people in Northampton and 2,496 people in the Town of Williamsburg. In addition, there are six non-categorical, significant industrial users (SIU's) in the sewerred community. The WWTP consists of the following treatment units:

- * preliminary treatment:
 - > pre-chlorination
 - > bar rack
 - > grit tank
 - > comminutor
 - > Parshall flume
- * primary treatment:
 - > primary clarifiers (3)
 - > lift pumps (4)
- * secondary treatment:
 - > aeration tanks with diffused air (8)
 - > secondary clarifiers (3)
- * disinfection
 - > chlorination with chlorine gas (flow paced)
 - > chlorine contact tank

* outflow

- > effluent pumps (3)
- > discharge to Connecticut River via outfall pipe (outfall 001) or Mill River bed (outfall 002) during high Connecticut River flows

* sludge treatment

- > sludge holding tanks
- > sludge thickeners
- > gravity belt thickening
- > filter press
- > sludge cake is transported offsite to We Care in Weedsport New York.

All effluent is typically discharged through outfall 001 to the Connecticut River. However, during one or two days per year when the Connecticut River is at a high flow stage and the plant is receiving high wastewater flows, the pump capacity of outfall 001 is exceeded and flow is discharged to the Mill River bed canal through outfall 002 (the flow in the Mill River bed canal, which consists of wastewater and storm water runoff is subsequently pumped to the Connecticut River by a flood control pumping station). The City is considering adding additional effluent pump capacity to enable all flows to be discharged through Outfall 001. See Section B.2 of this fact sheet for further discussion.

B. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. General Regulatory Background

Congress enacted the Clean Water Act (CWA), “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 CWA, one of which is Section 402. See CWA §§ 301(a), 402(a). Section 402(a) establishes one of the CWA’s principal permitting programs, the National Pollutant Discharge Elimination System (NPDES). Under this section of the CWA, EPA may “issue a permit for the discharge of any pollutant, or combination of pollutants” in accordance with certain conditions. See CWA § 402(a). NPDES permits generally contain discharge limitations and establish related monitoring and reporting requirements. See 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. See CWA §§ 301, 304(b); 40 C.F.R. 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. See CWA § 301(b). As a class, POTW’s must meet performance-based requirements based on available wastewater treatment technology. CWA § 301(b)(1)(B). The performance level for POTWs 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 are designed to ensure that State water quality standards are met regardless of the decision made with respect to technology and economics in establishing technology-based limitations. In particular, Section 301(b)(1)(C) requires achievement of, “any more stringent limitation, including those necessary to meet water quality standards...established pursuant to any State law or regulation...” See 40 C.F.R. §§ 122.4(d), 122.44(d)(1) (providing that a permit must contain effluent limits as necessary to protect State water quality standards, “including State narrative criteria for water quality”) (emphasis added) and 122.44(d)(5) (providing in part that a permit incorporate any more stringent limits required by Section 301(b)(1)(C) of the CWA).

The CWA requires that States 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 numeric 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 limits and conditions of the permit reflect the goal of the CWA and EPA to achieve and then to maintain water quality standards.

Receiving stream requirements are established according to numeric 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 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).

All statutory deadlines for meeting various treatment technology-based effluent limitations established pursuant to the CWA have expired. When technology-based effluent limits are included in a permit, compliance with those limitations is from the date the issued permit becomes effective. See 40 C.F.R. § 125.3(a)(1). Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by an NPDES permit. The regulations governing EPA’s NPDES permit program are generally found in 40 C.F.R. Parts 122, 124, 125, and 136.

The permit must limit any 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 criterion, see 40 C.F.R. §122.44(d)(1)(i). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion.

Reasonable Potential

In determining reasonable potential, EPA considers: 1) existing controls on point and non-point sources of pollution; 2) pollutant concentration and variability in the effluent and receiving water as determined from the permit’s reissuance application, DMRs, and State and Federal Water Quality Reports; 3) sensitivity of the species to toxicity testing; 4) the statistical approach outlined in *Technical Support Document for Water Quality-Based Toxics Control*, March 1991, EPA/502/2-90-001 in Section 3; and, where appropriate, 5) dilution of the effluent in the receiving water.

Anti-Backsliding

Section 402(o) of the CWA generally provides that the 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 requirements are met, the limits and conditions in the reissued permit must be at least as stringent as those in the previous permit.

State Certification

Section 401(a)(1) of the CWA requires all NPDES permit applicants to obtain a certification from the appropriate state agency stating that the permit will comply with all applicable federal effluent limitations and State water quality standards. See CWA § 4012(a)(1). The regulatory provisions pertaining to State certification provide that EPA may not issue a permit until a certification is granted or waived by the state in which the discharge originates. 40 C.F.R. § 124.53(a). The regulations further provide that, “when certification is required...no final permit shall be issued...unless the final permit incorporates the requirements specified in the certification under § 124.53(e).” 40 C.F.R. § 124.55(a)(2). Section 124.53(e) in turn provides that the State certification shall include “any conditions more stringent than those in the draft permit which the State finds necessary” to assure compliance with, among other things, State water quality standards, see 40 C.F.R. § 124.53(e)(2), and shall also include “[a] statement of the extent to which each conditions of the draft permit can be made less stringent without violating the requirements of State law, including water quality standards”, see 40 C.F.R. § 124.53(e)(3).

However, when EPA reasonably believes that a State water quality standard requires a more stringent permit limitation than that reflected in a state certification, it has an independent duty under CWA § 301(b)(1)(C) to include more stringent permit limitations. See 40 C.F.R. §§ 122.44(d)(1) and (5).

It should be noted that under CWA § 401, EPA's duty to defer to considerations of state law is intended to prevent EPA from relaxing any requirements, limitations, or conditions imposed by State law.

Therefore, “[a] State may not condition or deny a certification on the grounds that State law allows a less stringent permit condition.” 40 C.F.R. § 124.55(c). In such an instance, the regulation provides that, “The Regional Administrator shall disregard any such certification conditions or denials as waivers of certification.” *Id.* EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 C.F.R. § 122.4(d) and 40 C.F.R. § 122.44(d).

2. Water Quality Standards and Designated Uses

The Connecticut River segment receiving the discharge, and the Mill River have been designated as Class B warm water fisheries. The Massachusetts Surface Water Quality Standards, 314 Code of Massachusetts Regulations (“CMR”) 4.05(3) (b) states that Class B waters are designated as habitat for fish, other aquatic life and wildlife, and for primary and secondary contact recreation. They shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. The waters should have consistently good aesthetic value.

A warm water fishery is defined in the Massachusetts Surface Water Quality Standards (314 CMR 4.02) as waters in which the maximum mean monthly temperature generally exceeds 20° Celsius during the summer months and are not capable of supporting a year-round population of cold water stenothermal aquatic life.

The objective of the Federal Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. To meet this goal the CWA requires states to develop information on the quality of their water resources and report this information to the U.S. Environmental Protection Agency (EPA), the U.S. Congress, and the public. To this end the EPA released guidance on November 19, 2001, for the preparation of an integrated “List of Waters” that could combine reporting elements of both §305 (b) and 303(d) of the CWA. The integrated list format allows the states to provide the status of all their assessed waters in one list. States choosing this option must list each water body or segment in one of the following five categories:

- 1) Unimpaired and not threatened for all designated uses; 2) Unimpaired waters for some uses and not assessed for others; 3) Insufficient information to make assessments for any uses; 4) Impaired or threatened for one or more uses but not requiring the calculation of a Total Maximum Daily Load (TMDL); and 5) impaired or threatened for one or more uses and requiring a TMDL.

The 34.1 mile segment of the Connecticut River (*Confluence with Deerfield River, Greenfield/Montague/Deerfield to Holyoke Dam, Holyoke/South Hadley.*) that receives the Northampton discharge is classified in the State's 2006 Integrated List of Waters as Category 5, as not in attainment and requiring a TMDL. The listed impairments for this segment are priority organics, and pathogens.

The MassDEP 1998 Water Quality Assessment Report for the Connecticut River, which is the basis for the 303(d) list, stated that the aquatic life use is assessed as "supported" for the upper 28.5 miles based on the instream water chemistry and toxicity data. The lower 5.7-mile reach (from Mt. Tom Power Station to the end of the segment at the Holyoke Dam) is not assessed due to discharges from multiple CSOs and power plants. There is a fish advisory for much of the Connecticut River, including this segment, for polychlorinated biphenyl (PCB) contamination.

The Massachusetts Department of Public Health (MA DPH) issued a fish consumption advisory for the Connecticut River (all towns between Northfield and Longmeadow), recommending that "Children younger than 12 years, pregnant women, and nursing mothers should not eat any fish from the Connecticut River and the general public should not consume channel catfish, white catfish, American eel, or yellow perch because of elevated levels of PCB [Polychlorinated biphenyls] (MA DPH 1999).

PCBs are concentrated in sludge. EPA reviewed sludge sample results from the Northampton POTW to determine if significant quantities would be present in the influent. All sample results were below detection. Based on these results, it does not appear that the effluent is contributing to the non-attainment of water quality standards for PCBs.

The Mill River, which historically ran through the center of Northampton, was prone to severe flooding, especially during periods when the Connecticut River was also at flood stage. The U.S. Army Corps of Engineers diverted the river around downtown Northampton in 1939-40.

A dike just downstream from the West Street Bridge at the Smith College power plant (formerly the site of MacAllum's Hosiery) diverted the river from a southeasterly to a westerly direction. The stream was redirected through a newly dug channel to connect at the Old Oxbow with its old bed. It flows southerly through the Pynchon Meadows and empties into the Manhan River. As part of this same flood control project, across town near the southeasterly meadows, the Army Corps constructed a pump station off Hockanum Road (near where the sewage treatment plant is now) and a 4,800 -foot dike that runs from the south end of Pomeroy Terrace south and then west, crossing Route 5, to Lyman Road. Redevelopment Plan Historic Mill River, Office of Planning and Development, City of Northampton, Massachusetts, June 2002, Technical Revisions May 2005

When the Connecticut River is in flood stage it backs up the historic Old Mill River bed to the dike at the southern end of the wastewater treatment plant. There are a few events each year where there is insufficient pump capacity at the WWTP to get all effluent flows out the main (001) outfall to the Connecticut River. Excess effluent flows are diverted to the relatively empty historic Mill River bed to the North of the Hockanum Road Pump Station (at the WWTP).

The effluent is pumped over the dike by the Hockanum Road Pump Station into the flooded Old Mill River on the other side of the dike. The flow travels to the Connecticut River below the Outfall 001 discharge.

Discharges to Outfall 002 by Year		
Year	Total Number/Year	Discharge Dates
2007	3	April 16, 17, and 18
2006	1	January 19
2005	8	April 3 and 4
2005		October 8, 9, and 10
2005		October 15, and 16
2005		October 26

Available Dilution

Water quality based limits are established with the use of a calculated dilution factor. Title 314 CMR 4.03(3)(a) requires that effluent dilution be calculated based on the receiving water 7Q10. The 7Q10 is the lowest observed mean river flow for 7 consecutive days, occurring over a 10-year recurrence interval. Additionally, the facility design flow is used to calculate available effluent dilution (40 CFR §122.45(b)(i)).

The facility design flow is 8.65 million gallons per day or 13.4 cubic feet per second (cfs). The nearest United States Geological Survey (USGS) stream flow gage to the discharge point is located at Montague City, MA..

From 11/06/01 fact sheet	Drainage area at plant	= 8150 m ²
USGS Gage # 01170500	Drainage area at Montague	= 7860 m ²
8150 m ² /7860 m ²	Drainage area ratio	= 1.04
USGS Gage # 01170500	7Q10 at Montague	= 1750 cfs*
(7Q10 at Montague)(Drainage area ratio)	(1.04)(1750 Cfs)	= 1820 cfs
(Plant Q 8.65 mgd)(1.55 converts to cfs)		= 13.4 cfs
<u>(7Q10) + (Plant Q) = Dilution Factor =</u>	<u>(1820 cfs) + (13.4 cfs)</u>	= 139 DF
(Plant Q)	(13.4 cfs)	

* 7Q10 established using DFLOW 3.1 (released March 2006) with Montague gage data from years: 1906-2007

Flow - The flow limit of 8.65 mgd is based on the annual average design flow of the treatment plant. Federal regulations found at 40 CFR §122.45(b)(i) require that effluent limitations be calculated based on design flow, which is found in the Permit Application Form 2A, Part A, Section a.6. Continuous flow measurement is required. The permittee shall report the annual average monthly flow using the annual rolling average method (See Permit Footnote 1). The average monthly and maximum daily flow for each month shall also be reported.

OUTFALL 001 - CONVENTIONAL POLLUTANTS

Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS) - Publicly Owned Treatment Works (POTWs) are subject to the secondary treatment requirements set forth at 40 CFR 133. The secondary treatment limitations at 40 CFR 102 (a and b)(1), (2) include average monthly BOD₅ and TSS concentrations of 30 mg/l and average weekly concentrations of 45 mg/l. The provisions of 40 CFR §133.102(a)(3) and (b)(3) require that the 30 day average percent removal for BOD₅ and TSS be not less than 85%. These concentration and percent removal limitations are included in the draft permit and are the same as those in the current permit. The maximum daily concentrations for BOD and TSS shall continue to be reported.

Average monthly and average weekly BOD₅ and TSS mass (lbs per day) limits are included pursuant to 40 CFR 122.45(f) and are maintained in this draft permit. The mass limitations for BOD₅ and TSS are based on the design flow.

Calculations of maximum allowable loads for average monthly BOD₅ and TSS are based on the following equation:

$L = C \times DF \times 8.34$ or $L = C \times DF \times 3.79$ where:

L = Maximum allowable load in lbs/day.

C = Maximum allowable effluent concentration for reporting period in mg/l.
Reporting periods are average monthly and weekly and daily maximum.

DF = Design flow of facility in mgd.

8.34 = Factor to convert effluent concentration in mg/l and design flow in MGD to lbs/day.

3.79 = Factor to convert effluent concentration in mg/l and design flow in MGD to kgs/day.

BOD₅ and TSS Mass Loading Calculations:

(Concentration limit) [45] X 8.34 (Constant) X 8.6 (design flow) = 3228 lbs/day

(Concentration limit) [45] X 3.79 (Constant) X 8.6 (design flow) = 1467 kgs/day

(Concentration limit) [30] X 8.34 (Constant) X 8.6 (design flow) = 2152 lbs/day

(Concentration limit) [30] X 3.79 (Constant) X 8.6 (design flow) = 978 kgs/day

pH - The draft permit includes pH limitations which are required by state water quality standards, and are protective of pH standards set forth at Title 314 CMR 4.05(b)(3), for Class B waters. The pH requirements are more stringent than those required under 40 C.F.R. §133.102(c). The minimum pH limit of 6.5 su is lowered to 6.0 su in this draft permit based on the low pH of the plant influent. The City's drinking water is buffered to raise the pH to 7.0-7.5 su and still the pH of the plant influent is very low.

The Massachusetts Water Quality Standards allow pH effluent limits to be lowered to 6.0 SU with approval by the MassDEP. The outfall is equipped with a diffuser which for rapid mixing of the effluent with receiving water which will quickly allow the effluent to match the background pH. The pH monitoring frequency of once (1) per day is carried forward from the current permit.

Escherichia coli Bacteria -The Escherichia coli (*E. coli*) limits for Outfall #s 001 and 002 are based on state water quality standards for Class B waters (314 CMR 4.05(b)(4)). The State of Massachusetts recently (December 29, 2006) promulgated new bacteria criteria in the Surface Water Quality Standards (314 CMR 4.00). Fecal coliform bacteria have been replaced by *E. coli* in those standards. These new bacteria criteria were approved by EPA on September 19, 2007. Consequently, the draft permit contains *E. coli* limits that will become effective one year after the effective date of the permit. For the first year, there is a *report-only* requirement for *E. coli* as an adjustment period for the facility. The draft permit contains a fecal coliform limit as an interim limit during that first year, after which it will expire.

The effluent limits for Outfall # 001 are 126 cfu/100 ml geometric monthly mean and 409 cfu/100 ml maximum daily value (this is the 90% distribution of the geometric mean of 126 cfu/100 ml). These limits are seasonal from April 1 to October 31. The draft permit includes a requirement that the *E. coli* samples should be taken at the same time as the daily total chlorine residual sample is collected. Twice per week sampling is required.

Fecal Coliform Bacteria

As discussed above, new bacteria criteria have been adopted by MassDEP. EPA and MassDEP believe that a one year compliance schedule for achieving the new *E. coli* limits is reasonable. Therefore, the existing fecal coliform limits are carried forward in the draft permit for one year, whereupon the new *E. coli* limits will go into effect. These limits are seasonal from April 1 to October 31. Twice per week sampling is required.

OUTFALL 001 - NON-CONVENTIONAL POLLUTANTS

Total Residual Chlorine - (TRC) Chlorine and chlorine compounds produced by the chlorination of wastewater can be extremely toxic to aquatic life. In its water quality standards, MassDEP has adopted the numeric criteria for chlorine that are recommended by EPA in *National Recommended Water Quality Criteria: 2002* published by EPA pursuant to Section 304(a) of the Clean Water Act (see 314 CMR 4.05(5)(e)). The numeric aquatic life criteria for total residual chlorine are 11ug/l (chronic) and 19 ug/l (acute). The following are calculations of water quality based chlorine limits:

Acute Chlorine WQC = 19 ug/l

Chronic Chlorine WQC = 11 ug/l

Total Residual Chlorine Limitations:

(acute criteria * dilution factor) = Acute (Maximum Daily)
 $19 \text{ ug/l} \times 139 = 2641 \text{ ug/l} / 1000 = 2.64 \text{ mg/l}$ Maximum Daily.

(chronic criteria * dilution factor) = Chronic (Average Monthly)
 $11 \text{ ug/l} \times 139 = 1529 \text{ ug/l} / 1000 = 1.53 \text{ mg/l}$ Average Monthly

The draft permit has a more protective TRC limit of 1.0 mg/l based on the Massachusetts Water Quality Standards Implementation Policy For The Control Of Toxic Pollutants In Surface Waters, February 23, 1990. The Implementation Policy states that: "Waters shall be protected from unnecessary discharges of excess chlorine. The maximum daily and average monthly TRC limit of 1.0 mg/l will be carried forward from the current permit.

Whole Effluent Toxicity (WET) - Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The Massachusetts Surface Water Quality Standards at 314 CMR 4.05(5)(e) include the following narrative criteria: "All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife."

National studies conducted by the EPA have demonstrated that domestic sources contribute toxic constituents. These constituents include metals, chlorinated solvents, aromatic hydrocarbons and others. The Region's current policy is to include toxicity testing requirements in all permits, while Section 101(a) (3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts.

Based on the potential for toxicity resulting from domestic sewage, in accordance with EPA national and regional policy, and in accordance with MassDEP policy, the draft permit includes acute toxicity limitations and monitoring requirements. (See Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants, 50 Fed. Reg. 30,784 (July 24, 1985); EPA's Technical Support Document for Water Quality-Based Toxics Control", September, 1991; and MassDEP's Implementation Policy for the Control of Toxic Pollutants in Surface Waters (February 23, 1990).

Pursuant to EPA, Region I and MassDEP policy, discharges having a dilution factor greater than 100 (139 for this discharge) require acute toxicity testing and an acute LC₅₀ limit of 50%. The draft permit requires the permittee to conduct two acute WET tests per year. Tests are to be conducted using the species, Ceriodaphnia dubia, and are to be conducted in accordance with the EPA Region I Toxicity protocol found in the draft permit Attachment A. The effluent limitation, required test species, and testing frequency are the same as in the existing permit.

Nitrogen Monitoring

In December 2000, the Connecticut Department of Environmental Protection (CT DEP) completed a Total Maximum Daily Load (TMDL) for addressing nitrogen-driven eutrophication impacts in Long Island Sound. The TMDL included a Waste Load Allocation (WLA) for point sources and a Load Allocation (LA) for non-point sources.

The point source WLA for out-of-basin sources (Massachusetts, New Hampshire and Vermont wastewater facilities discharging to the Connecticut, Housatonic and Thames River watersheds) requires an aggregate 25% reduction from the baseline total nitrogen loading estimated in the TMDL.

The baseline total nitrogen point source loadings estimated for the Connecticut, Housatonic, and Thames River watersheds were 21,672 lbs/day, 3,286 lbs/day, and 1,253 lbs/day respectively (see table below). The estimated current point source total nitrogen loadings for the Connecticut, Housatonic, and Thames Rivers respectively are 13,836 lbs/day, 2,151 lbs/day, and 1,015 lbs/day, based on recent information and including all POTWs in the watershed. The following table summarizes the estimated baseline loadings, TMDL target loadings, and estimated current loadings:

Basin	Baseline Loading ¹ lbs/day	TMDL Target ² lbs/day	Current Loading ³ lbs/day
Connecticut River	21,672	16,254	13,836
Housatonic River	3,286	2,464	2,151
Thames River	1,253	939	1,015
Totals	26,211	19,657	17,002

1. Estimated loading from TMDL, (see Appendix 3 to CT DEP “Report on Nitrogen Loads to Long Island Sound”, April 1998)
2. Reduction of 25% from baseline loading
3. Estimated current loading from 2004 – 2005 DMR data – detailed summary attached as Exhibit A.

The TMDL target of a 25 percent aggregate reduction from baseline loadings is currently being met, and the overall loading from MA, NH and VT wastewater treatment plants discharging to the Connecticut River watershed has been reduced by about 36 percent.

In order to ensure that the aggregate nitrogen loading from out-of-basin point sources does not exceed the TMDL target of a 25 percent reduction over baseline loadings, EPA intends to include a permit condition for all existing treatment facilities in Massachusetts and New Hampshire that discharge to the Connecticut, Housatonic and Thames River watersheds, requiring the permittees to evaluate alternative methods of operating their treatment plants to optimize the removal of nitrogen, and to describe previous and ongoing optimization efforts. Facilities not currently engaged in optimization efforts will also be required to implement optimization measures sufficient to ensure that their nitrogen loads do not increase, and that the aggregate 25 % reduction is maintained. Such a requirement has been included in this permit. We also intend to work with the State of Vermont to ensure that similar requirements are included in its discharge permits. This permit requires the POTW to operated minimize the discharge of total nitrogen to the Connecticut River and monitor for nitrogen species.

Total Phosphorus Monitoring

The permittee has been monitoring total phosphorus quarterly for more than 5 years. River Reach, MA34-04E, is not listed as impaired for nutrients. If a TMDL is established for total phosphorus for this river reach, there is ample historical data to establish the POTW's phosphorus contribution. The dilution factor of 139 and historical effluent data do not indicate a need for a phosphorus limit at this time. Total phosphorus monitoring is discontinued in this draft permit.

VI. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

The permit standard conditions for "Proper Operation and Maintenance" are found at 40 CFR 122.41(e). These require proper operation and maintenance of permitted wastewater systems and related facilities to achieve permit conditions. Similarly, the permittee has a "duty to mitigate" as stated in 40 CFR §122.41(d). This requires the permittee to take all reasonable steps to minimize or prevent any discharge in violation of the permit which has the reasonable likelihood of adversely affecting human health or the environment. EPA and MassDEP maintain that these programs are an integral component of ensuring permit compliance under both of these provisions

The draft permit includes requirements for the permittees to control infiltration and inflow (I/I). Infiltration is groundwater that enters the collection system through physical defects such as cracked pipes, or deteriorated joints. Inflow is extraneous flow entering the collection system through point sources such as roof leaders, yard and area drains, sump pumps, manhole covers, tide gates, and cross connections from storm water systems. The MassDEP, 1998 Water Quality Assessment Report for the Connecticut River, states that: "The Inflow and infiltration problems should be addressed."

Significant I/I in a collection system may displace sanitary flow reducing the capacity and the efficiency of the treatment works and may cause bypasses to secondary treatment. It greatly increases the potential for sanitary sewer overflows (SSO) in separate systems.

I/I in the collection system is significant in the spring causing plant flows to almost double. Northampton has an ongoing I/I removal program. Williamsburg will need to similarly address I/I in the collection system.

The permittees shall maintain I/I removal programs for sewers commensurate with the severity of the I/I in the collection system. Where portions of the collection system have little I/I, the control program will logically be scaled down.

This requires the permittees to take all reasonable steps to minimize or prevent any discharge in violation of the permit which has a reasonable likelihood of adversely affecting human health or the environment. EPA and MassDEP maintain that an I/I removal program is an integral component to insuring permit compliance under both of these provisions.

The MassDEP has stated that inclusion of the I/I conditions in the draft permit shall be a standard State Certification requirement under Section 401 of the Clean Water Act and 40 CFR §124.55(b).

VII. Pretreatment Requirements

The facility accepts industrial wastewater from nine significant industrial users (SIUs) including (amount of process flow and main product{s} from 2000 permit application):

- > The Minute Maid Company (40,000 gpd: fruit juice)
- > Cooley-Dickinson Hospital 10,000 gpd: hospital wastes)
- > Kollmorgen Corporation, Electro-Optical Division (0-50,000 gpd: submarine periscopes)
- > Packaging Corporation of America (3,000 gpd: manufacturing and printing of corrugated containers)
- > Perstorp Compounds, Inc. (500 gpd: urea and melanine molding compounds)
- > Pro-Corporation- PMC (1,800 gpd-sanitary only: injection molding)
- > Saint Gobain/Norton Company (100 gpd: pumice slurry)
- > Techalloy Co./Northampton Wire Plant (1,400 gpd- sanitary only: stainless steel wire)
- > Department of Veterans Affairs Medical Center (65,000gpd: lab wastes)

The permittee is required to administer a pretreatment program based on the authority granted under 40 CFR 122.44(j), 40 CFR Part 403 and Section 307 of the Act. The Permittee's pretreatment program received EPA approval on September 30, 1985 and, as a result, appropriate pretreatment program requirements were incorporated into the previous permit which was consistent with that approval and federal pretreatment regulations in effect when the permit was issued.

The Federal Pretreatment Regulations in 40 CFR Part 403 were amended in October 1988, and again in July 1990. Those amendments established new requirements for implementation of pretreatment programs. Upon reissuance of an NPDES permit, the permittee is obligated to modify its pretreatment program to be consistent with current Federal Regulations. Those activities that the permittee must address include, but are not limited to, the following: (1) develop and enforce EPA approved specific effluent limits (technically-based local limits); (2) revise the local sewer-use ordinance or regulation, as appropriate, to be consistent with Federal Regulations; (3) develop an enforcement response plan; (4) implement a slug control evaluation program; (5) track significant noncompliance for industrial users; and (6) establish a definition of and track significant industrial users.

These requirements are necessary to ensure continued compliance with the POTW's NPDES permit and its sludge use or disposal practices.

In addition to the requirements described above, the draft permit requires the permittee to submit to EPA in writing, within 180 days of the permit's effective date, a description of proposed changes, if applicable, to the permittee's pretreatment program deemed necessary to assure conformity with current federal pretreatment regulations. These requirements are included in the draft permit to ensure that the pretreatment program is consistent and up-to-date with all pretreatment requirements in effect.

Lastly, the permittee must continue to submit, annually on March 1, a pretreatment report detailing the activities of the program for the twelve month period ending 60 days prior to the due date.

The Permit requires the permittee to submit to EPA, within 90 days of the permit's effective date, all required modifications of the Streamlining Rule in order to be consistent with the provisions of the newly promulgated rule. To the extent the permittee's legal authority is not consistent with the required changes; they must be revised and submitted to EPA for review.

VIII. SLUDGE INFORMATION AND REQUIREMENTS

The Northampton WWTP produces approximately 1,018 metric tons of sludge each year. Section 405(d) of the Clean Water Act requires that sludge conditions be included in all POTW permits. Sludge cake from the Northampton WWTF is removed by truck to the We Care facility in Weedsport, NY. If the ultimate sludge disposal method changes, the permittee must notify EPA and MassDEP and the requirements pertaining to sludge monitoring and other conditions would change accordingly (See Attached Sludge Guidance document).

IX. ESSENTIAL FISH HABITAT

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §1801 et seq. (1998)), EPA is required to consult with the National Fisheries Services (NOAA Fisheries) if EPA's action or proposed action that it funds, permits, or undertakes, may adversely impact any essential fish habitat (EFH). The Amendments broadly define essential fish habitat as: waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 U.S.C. § 1802 (10)). Adversely impact means any impact which reduces the quality and/or quantity of EFH (50 C.F.R. § 600.910 (a)). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Essential fish habitat is only designated for species for which federal fisheries management plans exist (16 U.S.C. § 1855 (b) (1)(A)). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

Anadromous Atlantic salmon (*Salmo salar*) is the only managed species believed to be present during one or more lifestages within the area which encompasses the discharge site. No "habitat areas of particular concern", as defined under §600.815(a)(9) of the Magnuson-Stevens Act, have been designated for this site. This section of the Connecticut River is classified by the State as a warm water fishery. While river conditions may not be suitable as juvenile salmon habitat, the area does serve as a corridor for Atlantic salmon transiting to and from spawning and juvenile rearing habitats located in upstream tributaries.

EPA has concluded that the limits and conditions contained in this draft permit minimize adverse effects to Atlantic salmon EFH for the following reasons:

- The technology-based limits for chlorine, which are used in this permit, are more

stringent and protective of aquatic organisms than those based on EPA water quality criteria;

- Acute whole effluent toxicity tests will continue to be conducted on *Ceriodaphnia dubia*. Current results of the toxicity tests are in compliance with the permit limits;
- The permit will prohibit violations of the state water quality standards.

EPA believes that the draft permit limits adequately protect Atlantic salmon EFH, and therefore additional mitigation is not warranted. If adverse impacts to EFH are detected as a result of this permit action, or if new information is received that changes the basis for our conclusion, NOAA Fisheries will be notified and an EFH consultation will be reinitiated.

X. ENDANGERED SPECIES ACT (ESA)

Under Section 7 of the Endangered Species Act, federal agencies are required to ensure that any action they conduct, authorize, or fund is not likely to jeopardize the continued existence of a federally-listed species, or result in the adverse modification of critical habitat. EPA has initiated informal consultation with both NOAA Fisheries and the United States Fish and Wildlife Service (USFWS) concerning listed species under their purviews. Listed species in this general area include shortnose sturgeon (*Acipenser brevirostrum*) for NOAA Fisheries.

EPA believes the authorized discharge from this facility is not likely to adversely affect any federally-listed species, or their habitats. This preliminary determination is based on the location of the outfall, and the reasons provided in the EFH discussion (Section VI of this Fact Sheet). EPA is seeking concurrence with this opinion from NOAA Fisheries and USFWS through the ESA consultation process.

XI. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfall(s) listed in Part I A.1. of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by the permit and shall be reported in accordance with Section D.1.e. (1) of the General Requirements of the permit (Twenty-four hour reporting).

Notification of SSOs to MassDEP shall be made on its SSO Reporting Form (which includes DEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at <http://www.mass.gov/dep/water/approvals/surffms.htm#sso>.

XII. MONITORING AND REPORTING

The permittee is to monitor and report sampling results to EPA and the MassDEP within the time specified in the permit. The effluent monitoring requirements have been established to yield data representative of the discharge by the authority under Section 308(a) of the CWA in accordance with 40 CFR, 122.44, and 122.48.

XIII. STATE PERMIT CONDITIONS

The NPDES Permit is issued jointly by the U. S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection under federal and state law, respectively. As such, all the terms and conditions of the permit are, therefore, incorporated into and constitute a discharge permit issued by the MassDEP Commissioner.

XIV. GENERAL CONDITIONS

The general conditions of the permit are based primarily on the NPDES regulations 40 CFR 122 through 125 and consist primarily of management requirements common to all permits.

XV. STATE CERTIFICATION REQUIREMENTS

EPA may not issue a permit unless the Massachusetts Department of Environmental Protection with jurisdiction over the receiving waters certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of the Massachusetts Department of Environmental Protection has reviewed the draft permit. EPA has requested permit certification by the state pursuant to 40 CFR 124.53 and expects that the draft permit will be certified.

XVI. COMMENT PERIOD, HEARING REQUESTS, and PROCEDURES FOR FINAL DECISIONS

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to Doug Corb, U.S. EPA, Office of Ecosystem Protection, Municipal Permits Branch, 1 Congress Street, Suite 1100, Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a request in writing for a public hearing to consider the Draft Permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing.

A public hearing may be held if the criteria stated in 40 C.F.R. § 124.12 are met. In reaching a final decision on the Draft Permit, the EPA will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after any public hearings, if such hearings are held, the EPA will issue a Final Permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the Final Permit decision, any interested person may submit a petition for review of the permit to EPA's Environmental Appeals Board consistent with 40 C.F.R. § 124.19.

XVII. EPA CONTACT

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

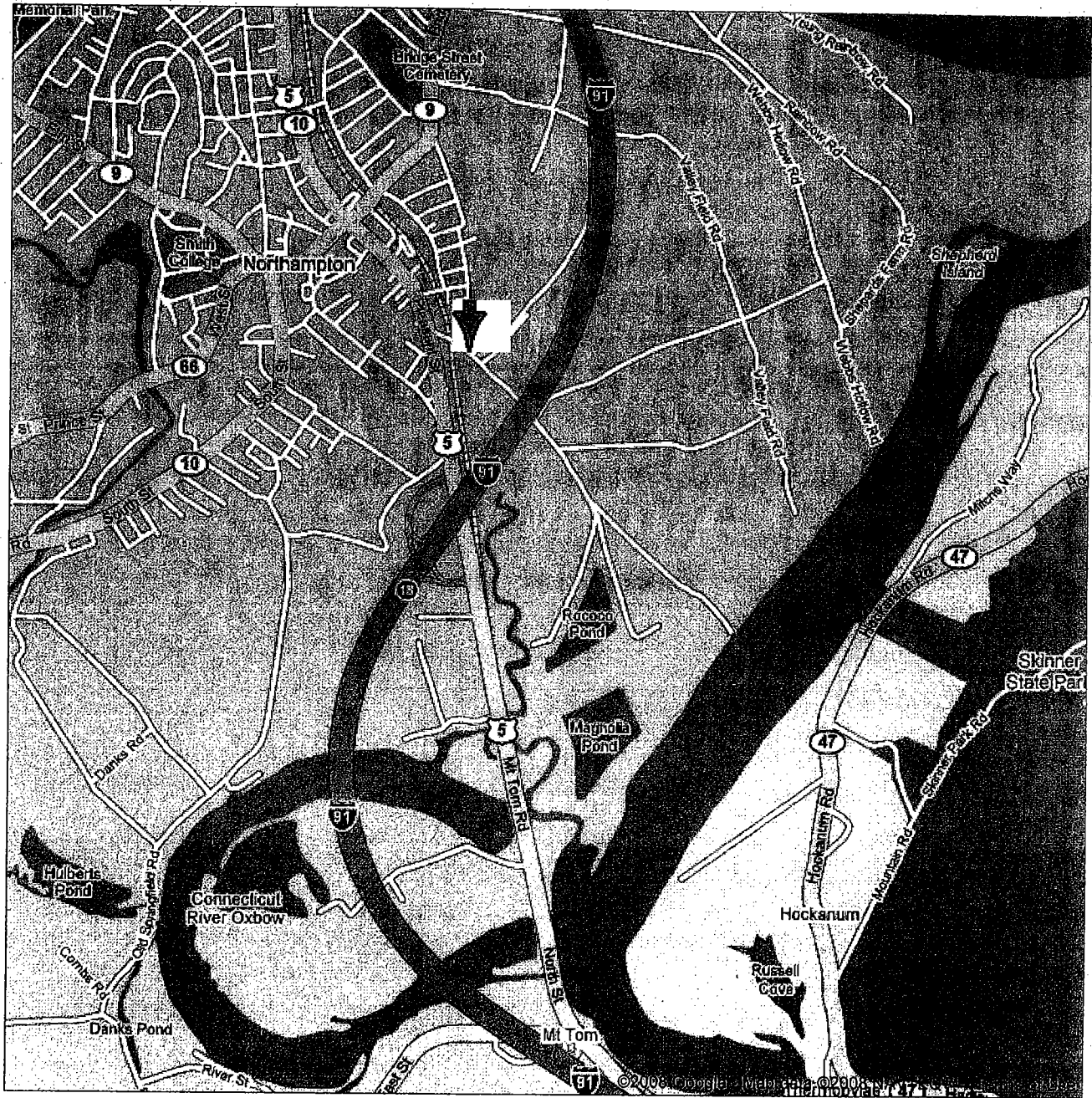
Doug Corb
Office of Ecosystem Protection
U.S. Environmental Protection Agency
One Congress Street,
Suite-1100 (CMP)
Boston, MA 02114-2023
Telephone: (617) 918-1565
Fax: (617) 918-0565
corb.doug@epa.gov

Paul Hogan
MA Department of Environmental Protection
Division of Watershed Management
627 Main Street, 2nd floor
Worcester, MA 01608
Telephone: (508) 767-2796
Fax: (508) 791-4131
paul.hogan@state.ma.us

Date: March 19, 2008

Stephen S. Perkins, Director*
Office of Ecosystem Protection
U.S. Environmental Protection Agency

* Please address all comments to Doug Corb and Paul Hogan at the addresses above



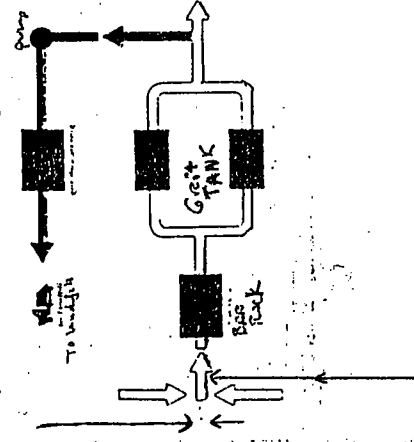
**Northampton Location Map
Fact Sheet Figure 1**



Wastewater Treatment Facility
 Hockanum Road
 Northampton, MA 01060

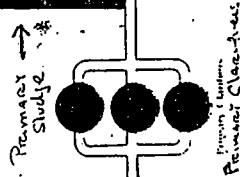
SEWER FLOW
 MAX 20
 AVG 4.4
 MIN 1.4
 INTO PLANT

Centrifugal Pumping



Prechlorination

Primary Sludge
 can be
 Chlorinated

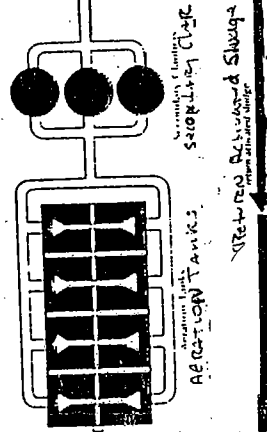


Commonion

Gravity Belt Thickener Bldg
 Thickened Sludge off
 Gravity Belt Thickener Pumped
 to Thickened Sludge Holding Tanks
 then pumped to Sludge Tanker
 trucks supplied by private
 contractor.

Waste Activated Sludge
 can be
 Chlorinated

Sludge pumped from 1st & 2nd Clarifiers
 to Sludge Concentration in Gravity
 Thickener Bldg then pumped to
 Tanker and then to landfill.

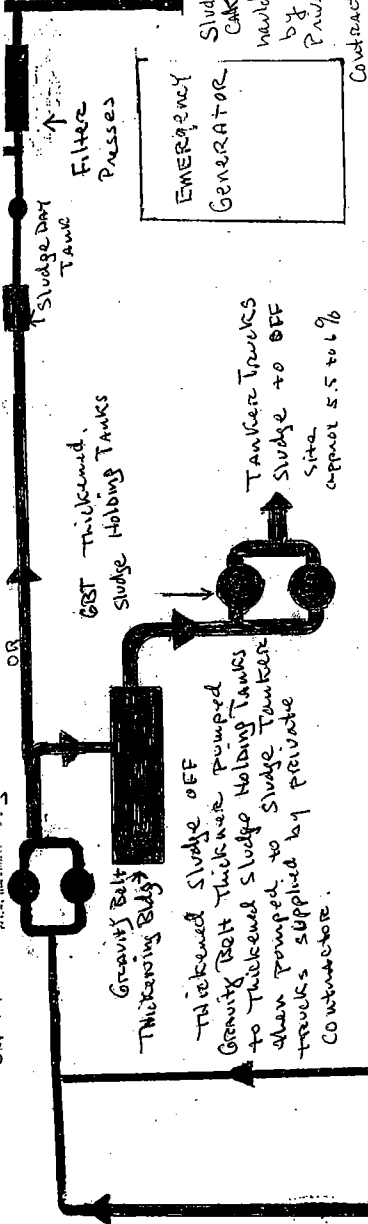


2.5 MGD OF RETURN SLUDGE PUMPED
 TO AERATION TANK FROM SECONDARY
 CLARIFIERS PER DAY

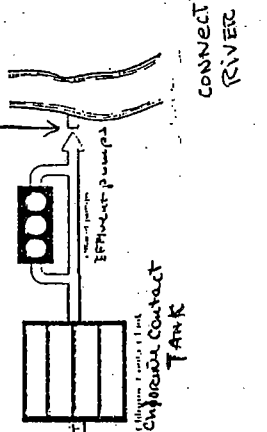
80,000 Gal of waste activated sludge pumped
 to gravity thickener from secondary
 clarifier PER DAY

600,000 Gal of Primary Sludge pumped to Gravity
 Thickener from primary clarifiers PER DAY

Figure 2



Q
 MAX 20 TREATED
 AVG 4.4 SEWAGE
 MIN 1.4 DISCHARGE
 FROM PLANT



Return Activated Sludge
 CAN BE CHLORINATED

JAN. 1, 2005

Exhibit A
Nitrogen Loads

NH, VT, MA Discharges to Connecticut River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD) ¹	AVERAGE FLOW (MGD) ²	TOTAL NITROGEN (mg/l) ³	TOTAL NITROGEN - Existing Flow(lbs/day) ⁴
NEW HAMPSHIRE					
Bethlehem Village District	NH0100501	0.340	0.220	19.600	35.962
Charlestown WWTF	NH0100765	1.100	0.360	19.600	58.847
Claremont WWTF	NH0101257	3.890	1.610	14.060	188.789
Colebrook WWTF	NH0100315	0.450	0.230	19.600	37.597
Groveton WWTF	NH0100226	0.370	0.290	19.600	47.405
Hanover WWTF	NH0100099	2.300	1.440	30.000	360.288
Hinsdale WWTF	NH0100382	0.300	0.300	19.600	49.039
Keene WWTF	NH0100790	6.000	3.910	12.700	414.139
Lancaster POTW	NH0100145	1.200	1.080	8.860	79.804
Lebanon WWTF	NH0100366	3.180	1.980	19.060	314.742
Lisbon WWTF	NH0100421	0.320	0.146	19.600	23.866
Littleton WWTF	NH0100153	1.500	0.880	10.060	73.832
Newport WWTF	NH0100200	1.300	0.700	19.600	114.425
Northumberland Village WPCF	NH0101206	0.060	0.060	19.600	9.808
Sunapee WPCF	NH0100544	0.640	0.380	15.500	49.123
Swanzey WWTP	NH0101150	0.167	0.090	19.600	14.712
Troy WWTF	NH0101052	0.265	0.060	19.600	9.808
Wasau Paper (industrial facility)	NH0001562		5.300	4.400	194.489
Whitefield WWTF	NH0100510	0.185	0.140	19.600	22.885
Winchester WWTP	NH0100404	0.280	0.240	19.600	39.231
Woodsville Fire District	NH0100978	0.330	0.230	16.060	30.806
New Hampshire Total		24.177	19.646		2169.596

VERMONT					
Bellows Falls	VT0100013	1.405	0.610	21.060	107.141
Bethel	VT0100048	0.125	0.120	19.600	19.616
Bradford	VT0100803	0.145	0.140	19.600	22.885
Brattleboro	VT0100064	3.005	1.640	20.060	274.373
Bridgewater	VT0100846	0.045	0.040	19.600	6.539
Canaan	VT0100625	0.185	0.180	19.600	29.424
Cavendish	VT0100862	0.155	0.150	19.600	24.520
Chelsea	VT0100943	0.065	0.060	19.600	9.808
Chester	VT0100081	0.185	0.180	19.600	29.424
Danville	VT0100633	0.065	0.060	19.600	9.808
Lunenburg	VT0101061	0.085	0.080	19.600	13.077
Hartford	VT0100978	0.305	0.300	19.600	49.039
Ludlow	VT0100145	0.705	0.360	15.500	46.537
Lyndon	VT0100595	0.755	0.750	19.600	122.598
Putney	VT0100277	0.085	0.080	19.600	13.077
Randolph	VT0100285	0.405	0.400	19.600	65.386
Readsboro	VT0100731	0.755	0.750	19.600	122.598
Royalton	VT0100854	0.075	0.070	19.600	11.442

St. Johnsbury	VT0100579	1.600	1.140	12.060	114.662
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NH, VT, MA Discharges to Connecticut River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD) ¹	AVERAGE FLOW (MGD) ²	TOTAL NITROGEN (mg/l) ³	TOTAL NITROGEN - Existing Flow(lbs/day) ⁴
Saxtons River	VT0100609	0.105	0.100	19.600	16.346
Sherburne Fire Dist.	VT0101141	0.305	0.300	19.600	49.039
Woodstock WWTP	VT0100749	0.055	0.050	19.600	8.173
Springfield	VT0100374	2.200	1.250	12.060	125.726
Hartford	VT0101010	1.225	0.970	30.060	243.179
Whitingham	VT0101109	0.015	0.010	19.600	1.635
Whitingham Jacksonville	VT0101044	0.055	0.050	19.600	8.173
Cold Brook Fire Dist.	VT0101214	0.055	0.050	19.600	8.173
Wilmington	VT0100706	0.145	0.140	19.600	22.885
Windsor	VT0100919	1.135	0.450	19.600	73.559
Windsor-Weston	VT0100447	0.025	0.020	19.600	3.269
Woodstock WTP	VT0100757	0.455	0.450	19.600	73.559
Woodstock-Taftsville	VT0100765	0.015	0.010	19.600	1.635
Vermont Totals		15.940	10.960		1727.302

MASSACHUSETTS					
Amherst	MA0100218	7.100	4.280	14.100	503.302
Athol	MA0100005	1.750	1.390	17.200	199.393
Barre	MA0103152	0.300	0.290	26.400	63.851
Belchertown	MA0102148	1.000	0.410	12.700	43.426
Charlemont	MA0103101	0.050	0.030	19.600	4.904
Chicopee	MA0101508	15.500	10.000	19.400	1617.960
Easthampton	MA0101478	3.800	3.020	19.600	493.661
Erving #1	MA0101516	1.020	0.320	29.300	78.196
Erving #2	MA0101052	2.700	1.800	3.200	48.038
Erving #3	MA0102776	0.010	0.010	19.600	1.635
Gardner	MA0100994	5.000	3.700	14.600	450.527
Greenfield	MA0101214	3.200	3.770	13.600	427.608
Hadley	MA0100099	0.540	0.320	25.900	69.122
Hardwick G	MA0100102	0.230	0.140	14.600	17.047
Hardwick W	MA0102431	0.040	0.010	12.300	1.026
Hatfield	MA0101290	0.500	0.220	15.600	28.623
Holyoke	MA0101630	17.500	9.700	8.600	695.723
Huntington	MA0101265	0.200	0.120	19.600	19.616
Monroe	MA0100188	0.020	0.010	19.600	1.635
Montague	MA0100137	1.830	1.600	12.900	172.138
N Brookfield	MA0101061	0.760	0.620	23.100	119.445
Northampton	MA0101818	8.600	4.400	22.100	810.982
Northfield	MA0100200	0.280	0.240	16.800	33.627
Northfield School	MA0032573	0.450	0.100	19.600	16.346
Old Deerfield	MA0101940	0.250	0.180	9.200	13.811
Orange	MA0101257	1.100	1.200	8.600	86.069
Palmer	MA0101168	5.600	2.400	18.800	376.301
Royalston	MA0100161	0.040	0.070	19.600	11.442
Russell	MA0100960	0.240	0.160	19.600	26.154
Shelburne Falls	MA0101044	0.250	0.220	16.900	31.008
South Deerfield	MA0101648	0.850	0.700	7.900	46.120
South Hadley	MA0100455	4.200	3.300	28.800	792.634
Spencer	MA0100919	1.080	0.560	13.600	63.517
Springfield	MA0103331	67.000	45.400	4.300	1628.135

Sunderland	MA0101079	0.500	0.190	8.700	13.786
Templeton	MA0100340	2.800	0.400	26.400	88.070

NH, VT, MA Discharges to Connecticut River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD) ¹	AVERAGE FLOW (MGD) ²	TOTAL NITROGEN (mg/l) ³	TOTAL NITROGEN - Existing Flow(lbs/day) ⁴
Ware	MA0100889	1.000	0.740	9.400	58.013
Warren	MA0101567	1.500	0.530	14.100	62.325
Westfield	MA0101800	6.100	3.780	20.400	643.114
Winchendon	MA0100862	1.100	0.610	15.500	78.855
Woronoco Village	MA0103233	0.020	0.010	19.600	1.635
Massachusetts Totals		166.010	106.950		9938.820

1. Design flow – typically included as a permit limit in MA and VT but not in NH.
2. Average discharge flow for 2004 – 2005. If no data in PCS, average flow was assumed to equal design flow.
3. Total nitrogen value based on effluent monitoring data. If no effluent monitoring data, total nitrogen value assumed to equal average of MA secondary treatment facilities (19.6 mg/l), average of MA seasonal nitrification facilities (15.5 mg/l), or average of MA year round nitrification facilities (12.7 mg/l). Average total nitrogen values based on a review of 27 MA facilities with effluent monitoring data. Facility is assumed to be a secondary treatment facility unless ammonia data is available and indicates some level of nitrification.
4. Current total nitrogen load.

Total Nitrogen Load = 13,836 lbs/day

MA (41 facilities) = 9,939 lbs/day (72%)

VT (32 facilities) = 1,727 lbs/day (12%)

NH (21 facilities) = 2170 lbs/day (16%)

TMDL Baseline Load = 21,672 lbs/day

TMDL Allocation = 16,254 lbs/day (25% reduction)

MA Discharges to Housatonic River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD) ¹	AVERAGE FLOW (MGD) ²	TOTAL NITROGEN (mg/l) ³	TOTAL NITROGEN - Existing Flow(lbs/day) ⁴
MASSACHUSETTS					
Crane	MA0000671		3.100	8.200	212.003
Great Barrington	MA0101524	3.200	2.600	17.000	368.628
Lee	MA0100153	1.000	0.870	14.500	105.209
Lenox	MA0100935	1.190	0.790	11.800	77.745
Mead Laurel Mill	MA0001716		1.500	6.400	80.064
Mead Willow Mill	MA0001848		1.100	4.600	42.200
Pittsfield	MA0101681	17.000	12.000	12.400	1240.992
Stockbridge	MA0101087	0.300	0.240	11.100	22.218
West Stockbridge	MA0103110	0.076	0.018	15.500	2.327
Massachusetts Totals			22.218		2151.386

1. Design flow – typically included as a permit limit in MA and VT but not in NH.
2. Average discharge flow for 2004 – 2005. If no data in PCS, average flow was assumed to equal design flow.
3. Total nitrogen value based on effluent monitoring data. If no effluent monitoring data, total nitrogen value assumed to equal average of MA secondary treatment facilities (19.6 mg/l), average of MA seasonal nitrification facilities (15.5 mg/l), or average of MA year round nitrification facilities (12.7 mg/l). Average total nitrogen values based on a review of 27 MA facilities with effluent monitoring data. Facility is assumed to be a secondary treatment facility unless ammonia data is available and indicates some level of nitrification.
4. Current total nitrogen load.

Total Nitrogen Load = 2151.386 lbs/day

TMDL Baseline Load = 3,286 lbs/day

TMDL Allocation = 2,464 lbs/day (25% reduction)

MA Discharges to Thames River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD) ¹	AVERAGE FLOW (MGD) ²	TOTAL NITROGEN (mg/l) ³	TOTAL NITROGEN - Existing Flow(lbs/day) ⁴
MASSACHUSETTS					
Charlton	MA0101141	0.450	0.200	12.700	21.184
Leicester	MA0101796	0.350	0.290	15.500	37.488
Oxford	MA0100170	0.500	0.230	15.500	29.732
Southbridge	MA0100901	3.770	2.900	15.500	374.883
Sturbridge	MA0100421	0.750	0.600	10.400	52.042
Webster	MA0100439	6.000	3.440	17.400	499.199
Massachusetts Totals		11.820	7.660		1014.528

1. Design flow – typically included as a permit limit in MA and VT but not in NH.
2. Average discharge flow for 2004 – 2005. If no data in PCS, average flow was assumed to equal design flow.
3. Total nitrogen value based on effluent monitoring data. If no effluent monitoring data, total nitrogen value assumed to equal average of MA secondary treatment facilities (19.6 mg/l), average of MA seasonal nitrification facilities (15.5 mg/l), or average of MA year round nitrification facilities (12.7 mg/l). Average total nitrogen values based on a review of 27 MA facilities with effluent monitoring data. Facility is assumed to be a secondary treatment facility unless ammonia data is available and indicates some level of nitrification.
4. Current total nitrogen load.

Total Nitrogen Load = 1014.528 lbs/day

TMDL Baseline Load = 1,253 lbs/day

TMDL Allocation = 939 lbs/day (25% reduction)