

## RESPONSE TO COMMENTS

### **NPDES PERMIT No. MA0101478 City of Easthampton Wastewater Treatment Plant**

On August 1, 2007, the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) released for public notice and comment a draft National Pollutant Discharge Elimination System (NPDES) permit for the City of Easthampton Wastewater Treatment Plant in Easthampton, Massachusetts. The draft permit was developed pursuant to an application from the City of Easthampton for the reissuance of its permit to discharge wastewater to the designated receiving waters, the Connecticut River and the Manhan River. The public comment period for this draft permit expired on August 30, 2007. Comments were received from:

- A. Mary A. Colligan of the National Oceanic and Atmospheric Administration-National Marine Fisheries Service in a letter dated August 9, 2007**
  
- B. Andrea F. Donlon of the Connecticut River Watershed Council in a letter dated August 29, 2007**
  
- C. Paul E. Stacey of the State of Connecticut Department of Environmental Protection in a letter dated August 30, 2007**

After a review of the comments received, EPA has made a final decision to issue the permit authorizing this discharge. The following are the comments and EPA's response to those comments, including any changes that have been made to the final permit from the draft as a result of the comments. The comment letters are part of the administrative record and replicated herein. A copy of the final permit may be obtained by writing or by calling Mark Malone, EPA Municipal Permits Branch (CMP), 1 Congress Street, Suite 1100, Boston, MA 02114-2023; telephone: (617) 918-1619.

Please note that monthly reporting requirements for Total Nitrogen and Total Ammonia Nitrogen have been added to the final permit in order to provide data on the Easthampton WWTP discharge nitrogen loadings.

#### **Changes Made to the Final Permit**

1. Part I.A.1, page 2: BOD and TSS monitoring have been increased to twice per week.
2. Part 1.A.1, page 2: bacteria limits and total chlorine residual limits have been extended from October 31 to November 30.
3. Part 1.A.1, page 2: Reporting requirements for Total Nitrogen and Ammonia have been added.
4. Part 1.A.1, page 2: total phosphorus monitoring has been changed to year-round.
5. Part I.A.2, page 3: BOD and TSS monitoring have been increased to twice per week.
6. Part 1.A.2, page 3: bacteria limits and total chlorine residual limits have been extended from October 31 to November 30.

7. Part 1.A.2, page 3: Reporting requirements for Total Nitrogen and Ammonia have been added.
8. Part 1.A.2, page 3: total phosphorus monitoring has been extended to year-round.
9. Footnote 12, page 6 has been added referencing the nitrogen removal report.
10. Part I.A.3.g, page 6: has been added to reflect a possible permit modification based upon final comments from the National Marine Fisheries Service.
11. Part I.F.3, page 13: has been added, requiring the facility to evaluate and maintain nitrogen loadings.

Comments received from Ms. Mary Colligan, Assistant Regional Administrator for Protected Resources, of the National Marine Fisheries Service in a letter dated August 9, 2007.

**Comment A.1:**

*This is in response to Public Notice MA-027-07 dated August 1, 2007 regarding a proposed National Pollutant Discharge Elimination System (NPDES) permit for the Easthampton Wastewater Treatment Facility in Easthampton, Massachusetts. The receiving waters for the discharge are the Connecticut River and the Manhan River. These comments are offered by the Protected Resources Division of NOAA's National Marine Fisheries Service (NMFS PRD).*

*The Easthampton Wastewater Treatment Plant (WWTP) is a 3.8 million gallon per day (MGD) secondary wastewater treatment plant receiving wastewater from three cities. In addition, there is one categorical industrial user and three non-categorical, significant industrial users. The main effluent pipe (001) discharges to the Connecticut River, just downstream of the confluence of the Connecticut and Manhan Rivers. During periods when discharge flows exceed the capacity of Outfall 001, flow is diverted to the Manhan River through Outfall 002.*

*A population of the federally endangered shortnose sturgeon (*Acipenser brevirostrum*) is known to exist in the Connecticut River. The Holyoke Dam separates shortnose sturgeon in the Connecticut River into an upriver group (above Holyoke Dam) and a lower river group that occurs below the Holyoke Dam to Long Island Sound. The abundance of the upriver group has been estimated by mark-recapture techniques using Carlin tagging (Taubert 1980) and PIT tagging (Kynard unpublished data). Estimates of total adult abundance calculated in the early 1980s range from 297 to 516 in the upriver population to 800 in the lower river population. Population estimates conducted in the 1990's indicated populations in the same range. The total upriver population estimates ranged from 297 to 714 adult shortnose sturgeon, and the size of the spawning population was estimated at 47 and 98 for the years 1992 and 1993 respectively. The lower Connecticut River population estimate for sturgeon >50 cm TL was based on a Carlin and PIT tag study from 1991 to 1993. A mean value of 875 adult shortnose sturgeon was estimated by these studies. Savoy (in press) estimates that the lower river population may be as high as 1000 individuals, based upon tagging studies from 1988-2002. It has been cautioned that these numbers may overestimate the abundance of the lower river group because the sampled area is not completely closed to downstream migration of upriver fish (Kynard 1997). Other estimates of the total adult population in the Connecticut River have reached 1200 (Kynard 1998) and based upon Savoy's recent numbers the total population may be as high as 1400 fish.*

*Several areas of the river have been identified as concentration areas. In the downriver segment, a concentration area is located in Agawam which is thought to provide summer feeding and over-wintering habitat. Other concentration areas for foraging and over-wintering are located in Hartford, Connecticut, at the Head of Tide (Buckley and Kynard 1985) and in the vicinity of Portland, Connecticut (CTDEP 1992). Shortnose sturgeon also make seasonal movements into the estuary, presumably to forage (Buckley and Kynard 1985; Savoy in press). Above the dam, there are also several concentration areas. During summer, shortnose sturgeon congregate near Deerfield. Many over-winter at Whitmore. Successful spawning has been documented at two sites in Montague and this is thought to be the primary spawning site for shortnose sturgeon in the Connecticut River.*

*Upon review of the draft Permit and the accompanying Fact Sheet, NMFS is concerned about the demonstration of effluent toxicity discussed on page 15 of the Fact Sheet. The Fact Sheet also indicates the EPA has entered into consultation with NMFS regarding the reissuance of this permit. To date, the NMFS has not received a request for consultation regarding this permit. NMFS expects that Section 7 consultation would be completed before a final permit action is made.*

*As listed species are present in the waters where pollutants will be discharged, the EPA is responsible for determining whether the proposed action is likely to affect any listed species. NMFS requests that EPA address the concerns outlined above and provide a complete assessment of the potential effects of discharges to be authorized by this permit on shortnose sturgeon. EPA should also provide a summary of any violations during the previous permit period (i.e. 2000 – present). EPA should submit their determination of effects along with a request for concurrence, to the attention of Endangered Species Coordinator, NMFS Northeast Regional Office, Protected Resources Division, One Blackburn Drive, Gloucester, MA 01930. After reviewing this information, NMFS would then be able to conduct a consultation under section 7 of the ESA. Should you have any questions about these comments or about the section 7 consultation process in general, please contact Julie Crocker at (978)281-9328 ext. 6530.*

#### **Response A.1:**

The commenter is correct that the Section 7 consultation was not initiated prior to the issuance of the draft permit. We have since initiated that process. All information used in EPA's assessment will be provided to the NMFS during the consultation process.

Regarding the specific concern about whole effluent toxicity, the data shown in Attachment 1 of the fact sheet include the results of six acute toxicity LC<sub>50</sub> tests with results ranging from 69.8 percent to >100 percent effluent. Four of the six test results were >100 percent effluent. The WET limits in the prior permit for both outfall 001 and 002 are 100 percent effluent, so the two reported values less than 100 percent effluent are violations of the prior permit limit. It was determined in the reissuance process that because of the large amount of dilution available in the Connecticut River (dilution factor = 308), the LC<sub>50</sub> limit on outfall 001 was more stringent than necessary to achieve water quality standards and more stringent than required by the MassDEP Implementation Policy for the Control of Toxic Pollutants in Surface Waters (February 23, 1990), so the draft and final permits include an LC<sub>50</sub> limit of 50 percent for outfall 001. The data

show that the facility has consistently complied with this limit. The acute WET limit for outfall 002 of 100 percent effluent has been retained and a chronic NOEC reporting requirement has been added based on the limited dilution available in the Manhan River.

We believe that the effluent discharged to the Connecticut River, as limited by the final permit, does not have the potential to adversely affect the shortnose sturgeon based on the WET test results and the large dilution provided by the Connecticut River. The WET test results do show that the limits for the discharge to the Manhan River were violated on two occasions. However, these violations would have, at most, caused water quality violations in the immediate vicinity of the Manhan outfall and would not have caused an acute toxicity impact on the Connecticut River, given the approximately 1.5 mile distance between the Manhan outfall and the Connecticut River and the dilutive effect of the Connecticut River on the Manhan River flow. The dilution factor for the Outfall 002 discharge in the Connecticut River is estimated to be approximately 647.

Section 7 (d) of the Endangered Species Act (ESA) prohibits an agency action that has the effect of foreclosing the formulation or implementation of alternatives which would not violate section 7(a)(2) of the ESA. In general, the reissuance of an NPDES permit is neither irreversible nor irretrievable because of EPA's authority to modify, terminate, and revoke and reissue permits during their term. Moreover, EPA has the ability to reopen and modify permits based on new information. This would include a biological opinion or other information generated from the consultation regarding the effect of the discharge on listed species or habitats (See 40 CFR §122.62(a)(2)). In order to emphasize this authority, the final permit includes the following reopener clause, "This permit may be modified or revoked and reissued based on the results of ESA section 7 consultation with the National Marine Fisheries Service," in PART I.A.3.g.

Because EPA believes that the discharge authorized by the permit will not adversely affect the shortnose sturgeon and because of EPA's aforementioned ability to reopen and modify permits, the final permit will be reissued while the Section 7 consultation is ongoing.

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Comments received from Andrea F. Donlon of the Connecticut River Watershed Council in a letter dated August 29, 2007.

**Comment B:**

*I am submitting comments on the draft National Pollutant Discharge elimination System (NPDES) permit for the Easthampton Wastewater Treatment Plant (WWTP) on behalf the Connecticut River Watershed Council (CRWC). The Connecticut River upstream of the Holyoke Dam is listed on the Massachusetts Integrated List as an impaired water body due to priority organics and pathogens; the Manhan River is unassessed. The Oxbow is listed as impaired due to turbidity. It is also known that the Oxbow contains exotic invasive aquatic plants including water chestnut and Eurasian milfoil. We are particularly interested in improving water quality in the Connecticut River such that it can one day meet Class B water quality standards. We have also been working with the City of Easthampton to establish fish passage upstream of the first dam on the Manhan River at the Route 10 bridge. The water quality of the Manhan River for fish habitat is therefore of interest to us. Our comments are below.*

(Note: the numbering used below does not match the numbering in the comment letter; the change was made to incorporate the comments into the numbering system used in the overall response to comments.)

**Comment B.1:**

*The existing permit expired in 2000. EPA and DEP have therefore missed an entire 5-year cycle by waiting until the middle of 2007 to draft an updated permit. This is very unfortunate because we could at this point have a better understanding of this facility's nutrient loading if nitrogen and phosphorus sampling had been required in 2000. That said, the new draft permit includes many good changes, especially in the regulation of discharges from outfall 002. But, the Manhan River, Oxbow, and the Connecticut River would have benefited if these changes were made seven years ago.*

**Response B.1:**

EPA acknowledges that the reissuance of this permit is well overdue. The updated permit should provide increased protection to the water quality of the Manhan and Connecticut Rivers. EPA notes that as part of the Connecticut River Nitrogen Project conducted by several agencies as a follow-up to the Long Island Sound TMDL program, the nitrogen loadings to the river were evaluated. Many wastewater treatment facilities were monitored to determine the effluent nitrogen load. The Easthampton WWTP discharge was not monitored. However, estimates of the nitrogen load were made by comparison with other similar wastewater treatment facilities (see comments from the State of Connecticut in Comment C-1). The estimated total nitrogen concentration from the Easthampton WWTP is 19.6 mg/l, which is the average concentration found in similar secondary treatment facilities. The final permit contains total nitrogen monitoring requirements, thus the real-time load will be established through this monitoring program. The final permit will also include year-round total phosphorus monthly monitoring requirements.

**Comment B.2:**

*The Oxbow section of the Connecticut River is heavily used by several recreational groups. The Oxbow marina is a commercial marina for motor boats. The Northampton crew team operates a row house on the Oxbow, and has community rowing programs. A water ski jump ramp lies in the Oxbow and professional water skiing teams perform in front of an audience in bleachers near the Northampton rowing building. In fact, a photo in the Springfield Republican from an oddly warm day in December of 2006 showed water skiers out on the Oxbow in December. Therefore, it is evident that primary contact recreation can occur here during perhaps 8-9 months of the year. The Easthampton Rod & Gun Club has a building on the banks of the Oxbow, and they have motor boats docked there.*

**Response B.2:**

The Massachusetts Surface Water Quality Standards at 314 CMR 4.05(3)(b)(4) allow for the establishment of seasonal bacteria limits at the discretion of MassDEP, and MassDEP has exercised its discretion not to require bacteria limits during the winter season. At the same time, EPA acknowledges the extensive use of the Connecticut River and the "Oxbow" systems by the public. Due to these widespread recreational activities, the bacteria limits in the final permit have

been extended from October 31 to November 30. Recreational use during the period of December through March is likely to be limited.

**Comment B.3:**

*The Connecticut River in the section of outfall 001 is also heavily used for recreation. A busy state-owned boat launch is located on the Oxbow near Easthampton's outfall 001. Across from where the Oxbow connects with the River is a state-owned beach called Hockanum Beach (formerly called Tent City). This beach has a rope swing and a sandy area that attracts swimmers and boaters. The section upstream of the Holyoke dam is very heavily used by all kinds of motor boaters (including jet skis).*

**Response B.3:**

EPA acknowledges the comment and recognizes the heavy recreational use of the Connecticut River and the Oxbow. (see also Response B.2. above)

**Comment B.4:**

*Please change the minimum pH at Outfall 001 to 6.5 to reflect the Massachusetts water quality standards. South Hadley's permit was recently changed to incorporate this standard; why not Easthampton?*

**Response B.4:**

The receiving water pH range is 6.5-8.3 [314 CMR 4.05(3)(b)(3)]. The pH range for the effluent in the final permit is 6.0-8.3. The lower limit of 6.0 is acceptable due to the large amount of dilution (308:1) in the Connecticut River. Note that the pH for the discharge from outfall 002 to the Manhan River is 6.5-8.3. The lower limit is set at 6.5 due to the lower stream flow in the Manhan River and thus less available dilution. The pH during the treatment operation can be reduced to the 6.0 S.U. range due to nitrification that takes place within the treatment process. The oxidation of ammonia-nitrogen to nitrite-nitrate nitrogen produces hydrogen ions, thus lowering the pH. EPA does not feel that adding caustic to raise the pH is necessary due to the dilution available.

**Comment B.5:**

*The existing permit for Easthampton requires **twice** weekly sampling for BOD and TSS. The draft permit calls for **once** weekly sampling of BOD and TSS. No justification or explanation is given for this easing of the sampling frequency. In looking at the EnviroFacts database, there are several months between 1998 and now that showed violations of the daily maximum of 50 mg/L for BOD and TSS. South Hadley's permit call for twice weekly sampling of BOD and TSS, and the facility is a similar size. We think that reducing the sampling frequency is not consistent with anti-backsliding regulations, and twice weekly sampling should be maintained.*

**Response B.5:**

EPA agrees with the need for more frequent monitoring for BOD and TSS than what was required in the draft permit due to the past data record and the discharge during storm events to the Manhan River. The final permit will require twice weekly sampling for BOD and TSS.

**Comment B.6:**

*The existing permit for Easthampton has a maximum daily BOD and TSS effluent limit for outfall 001 of 50 mg/L. The draft permit contains no limit, ostensibly because the sampling frequency has been dropped to once a week and there is a limit on the weekly average (which would be just a single number). Dropping a daily maximum effluent limit is also not consistent with anti-backsliding provisions.*

**Response B.6:**

The definition of secondary treatment is presented in 40 CFR 133.102(a)(1) and (2) and (b)(1) and (2). It defines secondary treatment as 30 mg/l monthly average and 45 mg/l weekly average for both BOD and TSS. The federal regulations do not provide a limit for maximum daily values. The previous permit contained a 50 mg/l maximum daily limit as a state certification requirement. The maximum daily limit is no longer part of the state certification requirement. This is new information that justifies a less stringent limit consistent with the Clean Water Act anti-backsliding requirements in Section 402(o). Note that effluent monitoring requirements have been increased from once per week to twice per week for BOD and TSS (see Response B.5. above).

**Comment B.7:**

*Page 10 of the Fact Sheet shows the calculations for BOD and TSS mass limits using the total flow for outfalls 001 and 002 combined. When you look at the draft permit, you see that the average monthly and average weekly limits for BOD and TSS in lbs/day for outfall 001 use those numbers calculated for the combined outfalls. This is not appropriate because it makes the lbs/day limit for outfall 001 alone too high. Even though the discharge flow at 002 is not entirely known (see page 3 of the Fact Sheet), one could make an educated guess, and then recalculate the BOD and TSS mass loading limits at least for outfall 001, if not both.*

**Response B.7:**

The mass limitations for BOD and TSS are technology-based and were calculated using the secondary treatment limits for concentration and the facility design flow of 3.8 MGD. The total allowable loads of BOD and TSS for both outfalls combined are therefore 951 lbs/day average monthly and 1426 lbs/day average weekly. This is designated by Footnote 5a in the final permit. Thus, if there is only flow from outfall 001, these limits apply. If there is flow from both outfalls 001 and 002, the same mass limits apply. The total load is limited to the total effluent load allowed from the facility due to the nature of the variable flows from each outfall.

**Comment B.8:**

*The outfall 001 discharge is impacting a section of the Connecticut River that is an impoundment behind the Holyoke Dam. The Oxbow is weed-choked in the summer and contains invasive water chestnuts that the USFWS Conte Refuge and volunteers remove every summer. Consequently, total phosphorus should be sampled year-round, and ortho-phosphorus sampling should be added for the period of November- March each year.*

**Response B.8:**

EPA agrees with the need to increase total phosphorus monitoring. The final permit will include year-round total phosphorus monthly monitoring requirements. Ortho-phosphorus monitoring will not be included as the total phosphorus load is the key data in assessing phosphorus loading.

**Comment B.9:**

*The existing permit for Easthampton has a WET limit of  $LC_{50} \geq 100\%$  for outfall 001. The draft permit has a WET limit of  $LC_{50} \geq 50\%$ . Given that the Fact Sheet on page 15 acknowledges that WET testing from 2005 and 2006 demonstrated some degree of effluent toxicity, we think the limit should be kept at 100% in order to be consistent with anti-backsliding regulations. In fact, given the industrial contributors and the contribution of artist studios in old mill buildings in Easthampton, we request EPA to require WET testing on a quarterly basis as opposed to twice a year.*

**Response B.9:**

The existing permit (issued September 29, 1995) has an LC50 limit of 100%. This limit is incorrect for Outfall 001 according to the MassDEP Implementation Policy for the Control of Toxic Pollutants in Surface Waters (February 23, 1990) which designates a LC50 limit of  $\geq 50\%$  for discharges with a dilution factor of 100:1 or greater. The anti-backsliding requirement is found in Section 402(o) of the Clean Water Act. Section 402(o) generally prohibits reissuance of NPDES permits to contain effluent limits which are less stringent than the previous permit except in limited circumstances. Water quality-based limitations may be made less stringent if section 303(d)(4) of the Act is satisfied. Section 303(d)(4) states that for waters in attainment of water quality standards, effluent limitations may be revised only if such revision is consistent with the state's antidegradation policy (the Connecticut River is not listed on the MA 303(d) list for toxicity, thus is in attainment of water quality standards for this pollutant). Because of the large available dilution, EPA and MassDEP believe there will be no degradation of water quality resulting from this revision and that water quality standards for toxicity will be met.

EPA notes that there have been occasional acute toxicity conditions in the effluent. The prior permit requires WET testing twice per year to be conducted on Outfall 001 or Outfall 002, but not both. This final permit requires WET testing twice per year for each outfall. The testing schedule for the outfalls is such that a WET test is performed each quarter. This will assess the toxicity conditions from the entire facility (all wastewater goes through the same treatment system) and provide additional assessment of the toxicity conditions during periods of storm related flow increases.

**Comment B.10:**

*As stated earlier, we are very supportive of the new effluent limits for outfall 002.*

**Response B.10:**

EPA acknowledges the support of the requirements associated with outfall 002.

**Comment B.11:**

*We are also supportive of twice weekly fecal coliform and E. coli sampling at outfalls 001 and 002, and the frequency of nutrient sampling at both outfalls.*

**Response B.11:**

EPA acknowledges the support for the sampling requirements for fecal coliform, *E. coli* and nutrients.

**Comment B.12:**

*Table 1 in the Fact Sheet shows that Easthampton exceeded its monthly average flow limit during the months of January 2006, October 2005 (a flood event occurred that month), and April 2004. It appears that the facility is operating at its capacity, and this may partially be because of Infiltration and Inflow issues. However, an article from the March 30, 2007 Republican titled "Sewer upgrade discussed," stated that approximately 260 homes with septic systems need to be put on sewer service because these homes sit on the drinking water aquifer for Easthampton. We are concerned about adding these homes to an already-stressed system. The EPA and DEP should consider making sure Easthampton address its I/I problems before adding to its phenomenal housing growth during the last 5 years, or connecting the Plains section to the public sewer system.*

**Response B.12:**

The City may tie in additional flow to its system (subject to MassDEP approval) if it determines that the additional flows will not cause it to violate its permit conditions. The final permit includes several conditions which require the City to maintain flows to the treatment plant within its design capacity. Specifically, Part I.D.3. requires the City to develop and implement an inflow/infiltration (I/I) program to control I/I within the sewer collection system sufficiently to prevent effluent violations and overflows. Also, Part I.A.3.f requires a plan describing flow increases and plans for maintaining compliance with permit conditions if the annual average flow at the facility exceeds 80 percent of its design capacity in any calendar year.

If violations of the permit occur and it is determined by EPA or MassDEP that the violations were caused by excessive flow, an enforcement action could be initiated to require that further controls be implemented and/or impose a moratorium on further connections.

**Comment B.13:**

*Part F of the permit is a special condition asking the permittee to submit a report to EPA in two years that discusses hydraulic capacities of outfall 001 and 002 and the feasibility of eliminating flows to outfall 002. This study will likely use results from the I/I study (done in one year), but the deadline period is too long.*

**Response B.13:**

EPA feels that two years is an acceptable time frame to submit the hydraulic analysis report. Funding to conduct the study will need to be appropriated, a contractor hired, field and mathematical evaluations conducted, and a final report including financial impacts will need to be prepared. The final permit will retain the two-year submittal deadline.

**Comment B.14:**

*We are supportive of the requirement in Part I.F.2 that the permittee install new and improved effluent flow meters at outfalls 001 and 002.*

**Response B.14:**

EPA acknowledges the support for the upgrade and installation of the flow meters. This will provide a much more defined database of the flow dynamics at the facility and will present a more definitive evaluation of flows through outfall 002 to the Manhan River.

***Comment B.15 (number B.14 in the letter):***

*We aren't sure why the 7Q10 for Turners Falls is so much higher than the 7Q10 for the Connecticut River at Holyoke (see page 6 of the Fact sheet). Intuition would say that the river 35 miles downstream of Turners Falls, with lots of tributaries flowing into the Connecticut River in between, would have more water in it, not less. Something seems off.*

**Response B. 15:**

The USGS gauge in Holyoke was moved in 2002, as the previous location did not account for the flow diverted through the Holyoke Power Canal, thus it appeared that the river was “losing” water, which was not the case. A review of the USGS records of Water Year 2003-2005 (<http://web10capp.er.usgs.gov/imf/sites/adr/pdfs/01172010.2005.pdf> and [/01170500.2005.pdf](http://web10capp.er.usgs.gov/imf/sites/adr/pdfs/01170500.2005.pdf)) showed an annual mean flow at the relocated Holyoke gauge of 15,550 cubic feet per second (cfs) while the annual mean flow at the Montague gauge was 13,980 cfs. The relocated gauge now measures all the base flow in the Connecticut River including water that is diverted through the Holyoke Power Canal. The overall trend at the two gauges shows increased flow at the Holyoke gauge. There are however, occasions when flows at the Holyoke gauge are lower than at the Montague gauge, which is a reflection of the complicated dynamics of the very large Connecticut River watershed.

*Thank you for an opportunity to comment on this draft permit for the Easthampton Wastewater Treatment Facility.*

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Comments received from Paul E. Stacey of the State of Connecticut Department of Environmental Protection in letter dated August 30, 2007:

**Comment C. 1:**

*We have recently reviewed the draft permit for the City of Easthampton Board of Public Works, Permit No. MA0101478. Thank you for the opportunity to comment on the draft permit per Public Notice Number MA-037-07*

*Our primary concern is that the draft permit does not include a limit for nitrogen loading. We therefore request that a nitrogen limit consistent with the 2000 Total Maximum Daily load (TMDL) analysis for dissolved oxygen be included. The Fact Sheet on the draft permit correctly identifies nitrogen-driven hypoxia in Long Island Sound as a significant water quality problem related to excessive nitrogen loading (pg. 16 Nitrogen). While the fact sheet goes on to say that monitoring of nitrogen will provide a basis for future decision making on the need to limit nitrogen at the facility, it is our position that these evaluations have been ongoing for several years and the 2000 TMDL charts a strategy for incorporating nitrogen limits that can, and should begin today.*

*In fact, through the EPA's Long Island Sound Study (LISS) and with the coordination of the New England Interstate Water Pollution Control Commission (NEIWPCC), there have been several years of nitrogen evaluations through an EPA supported work group of the Upper Connecticut River. The role of nitrogen in Long Island Sound hypoxia is well known through modeling efforts and a dissolved oxygen TMDL analysis approved by EPA in 2001, currently being implemented by the states of Connecticut and New York (Attachment 1). The TMDL identifies the importance of managing nitrogen loads from sources beyond the borders of CT and NY if water quality criteria are to be attained in Long Island Sound. In more recent years, as you are likely aware, the LISS has supported additional modeling evaluations that not only reinforce the need to manage nitrogen from out-of-state sources, but indicated that more aggressive reductions from all sources will be necessary if dissolved oxygen criteria are to be attained in the Sound.*

*The NEIWPCC work group for the upper Connecticut River has been evaluating nitrogen loads and discussing management options for over five years (<http://www.neiwpcc.org/ctrivernitrogenproject.asp>), with strong technical support provided by the U.S. Geological Survey available in authoritative publications (<http://pubs.usgs.gov/sir/2006/5144/>; <http://pubs.usgs.gov/sir/2004/5012/>; and <http://ct.water.usgs.gov/pubs/LISbook.pdf>). Nitrogen contributions from the upper Connecticut River are well studied, with reasonable consistency among estimates of nitrogen loads passing through the Thompsonville gauge at the border of Connecticut and Massachusetts, including the 2000 TMDL estimate. The loads from the various sources are also normalized based on relative effect on oxygen levels in the Sound using attenuation factors published in the TMDL. Based on EPA estimates of nitrogen loads from MA treatment plants, the contribution from MA facilities in the Connecticut River basin have approximately the same relative impact on dissolved oxygen as those plants discharging in Nassau County, NY and are higher than many of the areas currently identified in the TMDL wasteload allocation (WLA), where management is ongoing (Attachment 2).*

*According to limited data provided by EPA (Attachment 3), the Easthampton facility was discharging 3.02 MGD and, applying an estimated total nitrogen concentration of 19.6 mg/L, had an annual total nitrogen load of 493.7 lbs/day in 2005. This represents about 5% of the total*

*load from Massachusetts in the Connecticut River Basin- a significant contribution and effect comparable to and higher than many facilities currently managing nitrogen in Connecticut and New York. As you know, we also submitted similar comments on the draft permit for the Holyoke facility (July 12, 2007 letter to M. Malone and P. Hogan from B. Wingfield), which contributes an estimated 7% of the Massachusetts nitrogen load the Connecticut River. The combined 12% from Holyoke and Easthampton represent an opportunity to address a significant nitrogen contribution that should not be ignored for another five years. Available data need to be more rigorously reviewed to determine whether the 2005 flow and concentrations are typical, and an appropriate permit limit determined and incorporated into this permit renewal, consistent with the reduction schedule in the TMDL.*

*While these data suggest that Easthampton contributes a significant load of nitrogen, the variable flow from the facility is complicated by use of a second discharge outfall to the Manhan River during wet periods. The analysis of Easthampton's nitrogen contribution needs to account for this complication by assuring adequate monitoring and evaluation of both outfalls under the range of operational conditions. The 2005 data reflect an average flow of 3.02 MGD for a facility with proposed average monthly permit limit of 3.8 MGD on an annual rolling average basis. According to data provided with the draft permit for 2004-2006, maximum daily influent flows occasionally exceed 3.8 MGD and are sometimes in the range of 6-7.5 MGD. Much of this excess effluent is apparently diverted to the Manhan River outfall. Implications for annual nitrogen loads are unclear, and the utility of the 19.6 mg/L nitrogen concentration questionable. EPA is remiss in not requiring nitrogen monitoring prior to this renewal, but can still establish reasonable permit limits for nitrogen, consistent with the TMDL, based upon available data and current understanding of nitrogen contributions provided by the NEIWPC effort.*

*Connecticut and New York have invested significant resources in evaluating and managing nitrogen loads from publicly owned treatment works (POTW) and Connecticut currently requires participation in nitrogen management efforts from 79 POTWs located throughout the state and is compliant with the TMDL requirements. The mandated reduction schedule has set a final reduction goal of 58.5% from baseline by the year 2014 with steps down in 2004 (23.4% reduction from baseline) and 2009 (43.9% reduction from baseline). Connecticut has elected to use a watershed trading approach to meet its commitment under the TMDL and is currently about two-thirds of the way towards its final nitrogen load target for POTWs on an equivalent load basis. Since the Easthampton permit will expire before the 2014 target year for meeting the TMDL WLA, the nitrogen permit limit should reflect a consistency with the TMDL WLA and attain at least a 43.9% reduction from baseline during this cycle.*

*With the efforts of the NEIWPC Connecticut River work group, and the EPA LISS, the direction and needs are very clear for nitrogen removal in the Connecticut River. The Hartford Metropolitan District Commission (MDC) recently gained referendum approval from its member towns to institute the first \$800 million of \$1.6 billion of estimated work to resolve CSO, I/I and nitrogen removal needs among the five facilities it operates, all of which discharge to the Connecticut River. If as a region we are going to resolve the water quality issues in both the Connecticut River, and in Long Island Sound, more progressive actions need to be taken at the Massachusetts facilities. To do otherwise would be wasteful of the large efforts being undertaken by Connecticut and New York.*

*We appreciate the expanding cooperative effort with our neighboring states to resolve the nitrogen-loading problem that Long Island Sound endures and thank you for your attention to these needs. We look forward to EPA's leadership on this important regional water quality issue.*

**Response C.1:**

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.<sup>1</sup> CT DEP's comments assert that in order to be consistent with the TMDL, Easthampton's permit should include nitrogen limits that would attain at least a 43.9% reduction over baseline. This comment incorrectly refers to the level of reduction by 2009 that applies to in-basin point sources (i.e., those within Connecticut and New York). As noted above, the correct reduction for the aggregate of out-of-basin point sources is 25%.

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. (Please note that EPA's current estimate of loadings to the Connecticut River is slightly greater than the estimates shown in Attachment 2 and 3 of CT DEP's comments, but is based on more recent information and includes all POTWs in the watershed). The following table summarizes the estimated baseline loadings, TMDL target loadings, and estimated current loadings:

Basin	Baseline Loading <sup>1</sup> lbs/day	TMDL Target <sup>2</sup> lbs/day	Current Loading <sup>3</sup> 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.

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<sup>1</sup>In its approval of the TMDL, EPA explained that it was not approving the out-of-basin nitrogen reductions as formal allocations but rather as reasonable assumptions on which the in-basin reductions were based. EPA committed to exercise its NPDES authorities in order to achieve the overall 25 percent reduction level.

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.

Specifically, Easthampton's permit requires an evaluation of alternative methods of operating the existing wastewater treatment facility in order to control total nitrogen levels, including, but not limited to, operational changes designed to enhance nitrification (seasonal and year round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management.

The permit requires that the evaluation of alternative methods of operating the existing wastewater treatment facility be completed and submitted to EPA and MassDEP within one year of the effective date of the permit, along with a description of past and ongoing optimization efforts. The permit also requires Easthampton to implement optimization methods sufficient to ensure that there is no increase in total nitrogen compared to the existing average daily load. The average total nitrogen load from this facility (2004 – 2005) is estimated to be 494 lbs/day, based on concentrations measured at similar POTWs. However, for the purpose of ensuring no increase in total nitrogen, the existing average daily load will be determined by the actual levels of total nitrogen monitored in the discharge. For permittees with no previous monitoring of nitrogen, such as Easthampton, the baseline load will be determined by the levels monitored over the first year of the permit term. The permit requires annual reports to be submitted that summarize progress and activities related to optimizing nitrogen removal efficiencies, document the annual nitrogen discharge load from the facility, and track trends relative to previous years.

As noted by CT DEP, Easthampton's prior permit had been expired for an extended period of time (since October 29, 2000) and did not include monitoring requirements for total nitrogen. The final permit requires routine monitoring of nitrogen from both treatment plant outfalls, so future estimates of annual loading from the facility will be much more accurate. The agencies will annually update the estimate of all out-of-basin total nitrogen loads and may incorporate total nitrogen limits in future permit modifications or reissuances as may be necessary to address increases in discharge loads, a revised TMDL, or other new information that may warrant the incorporation of numeric permit limits.

Finally, although not a permit requirement, it is strongly recommended that any facilities planning that might be conducted for this facility should consider alternatives for further enhancing nitrogen reduction.

As CT DEP notes in its comments, there have been significant efforts by the New England Interstate Water Pollution Control Commission (NEIWPCC) work group and others since completion of the 2000 TMDL, which are anticipated to result in revised wasteload allocations for in-basin and out-of-basin facilities. It is expected that the NEIWPCC work group will produce its final recommendations in 2008, and that these recommendations may form the basis for a revised TMDL, which would be a basis for reopening and modifying permits for the affected facilities, including Easthampton's POTW.