

## **RESPONSE TO COMMENTS**

### **NPDES PERMIT No. MA0100064 Town of Pepperell, Massachusetts**

On September 16, 2005, the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) released for public notice and comment a draft National Pollutant Discharge Elimination System (NPDES) permit developed pursuant to an application from the Town of Pepperell, Massachusetts for the reissuance of its permit to discharge wastewater to the designated receiving water, the Nashua River. The public comment period for this draft permit expired on October 16, 2005. Comments were received from Ms. Cindy Delpapa, Stream Ecologist, Mass Riverways Program in a letter dated October 12, 2005, Ms. Elisabeth Ainsley Campbell, Executive Director, and Ms. Martha S. Morgan, Water Resources Advisor, of the Nashua River Watershed Association in a letter dated October 14, 2005.

Comments on a preliminary draft permit were also received from Mr. Mark A. Richardson, Superintendent, and Mr. Carmen DeFillippo, Chief Operator, from the Town of Pepperell in a letter dated September 8, 2005, just prior to the beginning of the public comment period. Although these comments are also addressed here, the comments were not raised during the public comment period, so these comments were not required to be addressed in the response to comments (see 40 CFR Part 124.17), nor is the Town considered as having filed comments pursuant to 40 CFR Part 124.19, which means that the Town can petition the EAB for review of the permit decision only to the extent of the changes from the draft to the final permit decision.

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 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 are paraphrased herein. A copy of the final permit may be obtained by writing or by calling Mark Malone, EPA NPDES Permits Program (CMP), 1 Congress Street, Suite 1100, Boston, MA 02114-2023; telephone: (617) 918-1619.

Note that the draft permit incorrectly specified weekly pH monitoring instead of daily monitoring as in the current permit. The final permit corrects this.

Comments received from Ms. Cindy Delpapa, Stream Ecologist, of the Mass Riverways Program:

#### *Comment 1*

*The Draft Permit is proposing a significant increase in monthly flow. The need for this increased discharge to an impaired water body is not fully justified in the Fact Sheet. Has the Town reduced Infiltration/Inflow, investigated water conservation measures, and alternative decentralized disposal methods in order to obviate the need for increased capacity at the treatment plant? Has the Town considered the higher costs associated with the expanded infrastructure, the potential loss in groundwater recharge, and other potential impacts? We*

*recommend that no flow increase be granted in the permit unless and until all alternatives have been vetted and the Town has completed a comprehensive water resources plan and there is a demonstrated and urgent need.*

#### Response 1

In support of the need and environmental impacts of the treatment facility expansion, the Town submitted an Environmental Notification Form dated February 28, 2003, to the Massachusetts Executive Office of Environmental Affairs (EOEA). On April 7, 2003, the EOEA issued a Certificate of the Secretary of Environmental Affairs on the Environmental Notification Form, noting the positive impact on the Nashua River and that the preparation of an Environmental Impact Report is not warranted. Federal approval is not necessary in order to increase treatment capacity, and federal regulations found at 40 CFR § 122.45 (b) (1) require that for POTWs permit effluent limitations shall be calculated based upon design flow.

However, EPA is required to ensure that limits and conditions in NPDES permits ensure that the discharge of pollutants will not cause or contribute to violations of water quality standards, including the state's antidegradation policy. As required by water quality considerations, the draft permit established more stringent limitations on BOD, TSS, and chlorine, and included effluent limitations for the first time on ammonia, copper, and phosphorus. We believe these limitations are protective of water quality. If a TMDL, new water quality criteria, or new water quality information should show the need for more stringent water quality-based limits, this permit may be reopened and modified.

#### Comment 2

*The Draft Permit includes a phosphorus limit for the first time. Since the river is impaired by excessive nutrients, it is unreasonable to establish a permit limit based upon a background phosphorus concentration of 0 mg/l as assumed by the Fact Sheet calculations.*

#### Response 2

As you point out, the river is listed on the 303(d) list for impairment due to nutrients, among other pollutants. There are no numeric criteria for phosphorus in the Massachusetts Water Quality Standards, and no TMDL has been completed to determine maximum daily loads of pollutants from this discharge or the other upstream point source discharges. The current permit does not contain phosphorus limits. In order to get a rough assessment of the reasonable potential of this discharge to cause a violation of water quality standards, the low flow dilution factor and a range of EPA-recommended criteria were used. This exercise showed, that at an effluent concentration phosphorus concentration of 1 mg/l will, when discharging at design flow under 7Q10 low flow conditions, the discharge would result in an instream concentration of about 37 ug/l, which would achieve the Gold Book recommended criteria, but not the more restrictive Ecoregion criteria. This was determined to be protective of water quality standards. Background phosphorus was not considered because there is no current data, and also because EPA and MassDEP anticipate requiring stringent phosphorus limitations on upstream POTWs, and the effect this will have on instream phosphorus concentrations at Pepperell cannot be reasonably estimated at this time. We would note that the dilution calculations used for the analyses assume critical low flow conditions and facility design flow, which does provide a

measure of conservatism as compared to using average summer stream flow and treatment plant flow conditions.

EPA and MassDEP believe that the limit in the permit is protective of water quality standards. However, if a TMDL is completed, numeric water quality criteria are adopted, or new water quality information shows that a more stringent limit is necessary, the permit may be reopened and modified.

#### *Comment 3*

*Without State water quality numerical standards for nutrients or a completed Total Maximum Daily Loading (TMDL), we would like to advocate assigning a best technically available / achievable concentration (0.2 mg/l) as a phosphorus limit. The Permittee has been aware of the impending phosphorus limits and has recently upgraded the facility. The lower concentration of 0.2 mg/l should be achievable using the technology currently available. This can be an interim limit until specific loading allocations can be calculated in a TMDL.*

#### Response 3

While the MassDEP has not yet adopted numerical criteria for phosphorus, 314 §405 (5)(c) Nutrients of the state water quality standards requires that nutrients “Shall not exceed the site-specific limits necessary to control accelerated or cultural eutrophication...”. As stated in the Fact Sheet, EPA originally published recommended national total phosphorus criteria in the *Quality Criteria for Water 1986* (the “Gold Book”) for the control of eutrophication. EPA later refined the recommended criteria for individual ecoregions within the country. EPA cites these national recommended criteria as appropriate to interpret and meet the State narrative criteria.

As noted in the Fact Sheet, the range of phosphorus limits calculated using EPA’s *Quality Criteria for Water 1986* (the Gold Book) and the ecoregion recommended criteria would be 2.7 mg/l to 0.65 mg/l, respectively. Both limits are above the commentor’s suggested limit of 0.2 mg/l. Attempting to anticipate numerical criteria adopted by the State or the allocation resulting from a TMDL could result in the construction of inadequate or unnecessary facilities.

Consequently, the draft permit established 1.0 mg/l as the phosphorus limit, well below the calculated Gold Book limit, as meeting the water quality standards. If numerical criteria are adopted or a TMDL is completed, the permit will be reopened and modified to incorporate the more stringent limit. Consequently, 1.0 mg/l phosphorus will remain in the final permit.

#### *Comment 4*

*In support of the TMDL process we recommend that the facility monitor total phosphorus all year, including the colder months. It would also be a boon to have information on the soluble, reactive phosphorus concentrations and loads, sampling twice per week, and begin the seasonal limitation start one month earlier in recognition of the growing season.*

#### Response 4

We agree that phosphorus monitoring should continue in the colder months because phosphorus deposited in sediments at impoundments can be used by algae to grow in the warmer months.

Consequently, a requirement to also monitor for total phosphorus and dissolved orthophosphorus in the colder months has been added so that settleable fraction of the total phosphorus can be determined. Presently, weekly monitoring is adequate to address the discharge of nutrients to the Nashua River. We also do agree that the seasonal limitation should begin one month earlier. Consequently, the final permit now has a seasonal limit from April 1 to October 31 and total phosphorus and dissolved orthophosphorus reporting requirements for the rest of the year.

*Comment 5*

*Since the Nashua River ultimately empties into Plum Island Sound via the Merrimack River, reporting TKN nitrogen and nitrate-nitrite nitrogen would provide valuable information regarding the nutrient loadings to the Merrimack River estuary, Plum Island Sound, and the Gulf of Maine.*

Response 5

Nutrient loadings to the Merrimack River estuary, Plum Island Sound, and the Gulf of Maine have not been identified as a concern due to the natural flushing characteristics of these bodies of water. Therefore, no TKN or nitrate-nitrite nitrogen reporting is included in the final permit.

*Comment 6*

*The Town has installed UV disinfection but according to the Fact Sheet intends to chlorinate the plant water with chlorine tablets. Given the toxicity of chlorine and the modest dilution factor, we would like to see more frequent sampling of chlorine whenever used by the facility.*

Response 6

See Comment 13 below.

*Comment 7*

*Because of the increase in flow and the resulting reduction in dilution factor of close to 20, we would like to make a case for increasing the whole effluent toxicity testing frequency to once per quarter and to adding a chronic test requirement and limit.*

Response 7

We agree that due to the increase in design flow the testing frequency should be increased to quarterly pending demonstration of successful test results in accordance with current policy. The additional testing would be minimal if in compliance with the WET limits. Consequently, the final permit initiates quarterly WET testing whenever the actual average monthly flow exceeds the former design capacity 0.705 mgd for three months in a row. However, even with the increase of flow, the dilution factor of 27 does not warrant the inclusion of a chronic test under current policy.

Comments received from Ms. Elizabeth Ainsley Campbell, Executive Director, and Martha S. Morgan, Water Resources Advisor, of the Nashua River Watershed Association (NWRA):

*Comment 8*

*The NWRA believes the permit limit for phosphorus should be set at 0.2 mg/l. An interim limit should be set to optimize phosphorus removal. An optimization study for what the practical, achievable limits are under most conditions should be required. A final limit should be set at 0.2 mg/l to be met within the life of this permit.*

Response 8

See Response 3 above.

*Comment 9*

*The 1.0 mg/l total phosphorus limit will not meet state water quality standards. The permit should require 0.2 mg/l, the state's current definition of "highest and best treatment" for control of eutrophication. The 2001 Fact Sheet states that it is expected that "...future limits will be likely lower than this permit's 1.0 mg/l level and will be based on either technology requirements (highest and best practical treatment, or HBPT) or based on a TMDL" and "...it is likely that this discharge will ultimately require limits based on ...(HBPT)...in accordance with 314 CMR 4.04 (5) when the next permit is issued." The 2001 Fact Sheet further states the "Section F of the draft permit also requires the permittee to evaluate the treatment plant upgrades necessary to achieve average effluent concentrations of 0.5 mg/l and 0.2 mg/l and lower."*

Response 9

EPA and MassDEP believe that the 1.0 mg/l phosphorus limit is protective of water quality standards (See Response 3 above). The current permit does not have a phosphorus limit; it does require monitoring. The 2001 Fact Sheet does state that phosphorus limits are "likely" to be lower (a 1.0 mg/l limit was proposed in the 2001 draft permit) and will "ultimately" be based on HBPT or a TMDL. Section F of the Final Permit discusses **Monitoring and Reporting**. Section E of the Final Permit which discusses the **Phosphorus Loading Evaluation and Reduction Program** does not contain any numerical criteria but rather discusses maximizing removal and minimizing loadings.

*Comment 10*

*The 1.0 mg/l total phosphorus is an "interim step", yet is not identified as such. The draft permit does not contain a "final" phosphorus limit that will achieve water quality standards.*

Response 10

See Response 3 above. The word "interim" as used in the fact sheet is not used in reference to an already determined more stringent final limit, but instead refers to the period of time until either a TMDL is completed or numeric water quality criteria are established.

*Comment 11*

*Total phosphorus testing should occur all year long and twice per week.*

Response 11

See Response 4 above.

*Comment 12*

*Total Phosphorus removal should begin April 1.*

Response 12

See Response 4 above.

Comments received from Mr. Mark A. Richards, Superintendent, and Mr. Carmen DeFillippo, Chief Operator, from the Town of Pepperell:

*Comment 13*

*The draft permit requires the facility to continually monitor for total chlorine residual whenever the plant water is chlorinated. The existing chlorine monitoring system has been partially eliminated. Therefore, we do not intend to modify the plant water system to accept chlorine addition and have discontinued the use of any type of chlorine within the plant. Therefore, we would like any requirement for chlorine testing be removed from the new permit.*

Response 13

Because the Town no longer intends to chlorinate the plant water system, the Total Residual Chlorine limit has been removed from the final permit. In addition, permit condition Part 1.A.1.e. has been modified to prohibit the use of chlorine.

*Comment 14*

*We would like reconsideration of the copper monitoring requirement as past results indicated only two test results above the proposed limits and these occurred prior to the town implementing corrosion control measures.*

Response 14

We do not have information regarding the allocation of the increased plant design capacity between the Town of Pepperell and the Town of Groton, the Town of Groton's water supply, or the anticipated wastewater characteristics of the increased flows, i.e. domestic, commercial, etc. In addition, monthly sampling for copper is not considered a significant financial burden. Therefore, the copper limit remains the same in the final permit.

*Comment 15*

*We would like reconsideration of the ammonia monitoring as past results show an average concentration of 5.9 mg/l and at no time did any samples exceed the proposed weekly maximum limit of 20 mg/l. Discussions with EPA and the DEP did not suggest that ammonia removal would be required. The facilities are not designed to remove ammonia and the laboratory is not currently equipped to conduct the tests according to EPA test methods. This requirement being added at the end of the upgrade will have a negative financial impact on the community, more so if additional treatment is required.*

Response 15

As stated in the Fact Sheet, the Massachusetts Antidegradation Provisions (Title 314 CMR 4.04) do not allow for the lowering of water quality. The additional ammonia loading associated with the increased flow from the plant will exert an increase in oxygen demand in the receiving water during low flow periods and must therefore be maintained at current levels. The limited data provided by the chemical analysis during WET testing of the older facility's discharge is insufficient to draw conclusions about the new facility's performance. Consequently, the ammonia permit limits remain in the final permit.

*Comment 16*

*We would like to request that consideration be given to a seasonal disinfection limit due partly to the size and flow characteristics of the Nashua River and the location of the downstream communities' water supplies. The disinfection limit had been seasonal in the past.*

Response 16

The disinfection period is determined by the Mass DEP which requires year-round disinfection for all WWTPs upstream of surface water intakes regardless of distance. This applies to all WWTPs which discharge to rivers tributary to the Concord and Merrimack Rivers.