

RESPONSE TO PUBLIC COMMENTS

From June 2, 2006 to July 1, 2006, the United States Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) solicited Public Comments on a draft NPDES permit modification. The conditions in the draft permit modification were negotiated with the City of Newburyport, an appellant of the permit issued to the City of Newburyport for the Newburyport Wastewater Treatment Facility. Upon final issuance of the draft permit modification, the City of Newburyport, has agreed to withdraw its appeal, whereupon the permit modification will go into effect.

After a review of the comments received, EPA has made a final decision to issue the permit modification authorizing the discharge. The following response to comments describes the changes that have been made to this permit modification from the draft, the reasons for these changes and briefly describes and responds to the comments on the draft permit during the public comment period. A copy of the final permit may be obtained by writing or calling Michele Barden, United States Environmental Protection Agency, 1 Congress Street, Suite 1100 (CMP), Boston, Massachusetts 02114-2023; Telephone (617) 918-1539.

A) Comments submitted by Christine Tabak, Acting Executive Director, Merrimack River Watershed Council, Inc., dated June 29, 2006.

Comment #1: *We fully support the installation of the continuous TRC analyzers at pre-dechlorination and post-dechlorination of the effluent as well as a low TRC alarm on the pre-dechlorination TRC analyzer. Though these measures are welcome, we still feel that grab samples give the most reliable analytical data. The frequency in the existing permit of four (4) grab sample daily, two(2) prior to dechlorination and two (2) post-chlorination, will serve better for QA/QC purposes as they will give more representative readings than the proposed modification of two (2) grab sample daily, one (1) prior to dechlorination and one (1) post-chlorination. These requirements should be maintained for one year and depending on the results obtained; these results can be used as the basis for the future frequency modification.*

Response: Both the Statement of Basis and the Permit Modification explain that permit compliance will be based on the results of the grab samples (See Permit Modification, Part I.A.1 Total Residual Chlorine and footnotes 7 and 8).

EPA believes the reduction in sampling frequency for TRC from four samples (2 pre-dechlorination and 2 post-dechlorination) to two samples (1 pre-dechlorination and 1 post-dechlorination) is appropriate given the improvements at the facility. The four samples per day requirement was proposed several years ago when there were questions regarding quality of TRC data being reported by the permittee in DMRs. However, since that time, the permittee has addressed EPA concerns and has proceeded to install the equipment and establish the operating procedures necessary to meet the enhanced requirements of the appealed permit.

It should also be noted that the analytical results from the daily grab samples will be compared with data from the continuous analyzers. The permittee is required to submit weekly recording charts from the continuous analyzers with their monthly DMRs. In the

period since the existing permit (signed May 3, 2004) was issued, the permittee has met the limits for TRC with the exception one month, even though the limits were appealed; and therefore, are not currently in effect.

Comment # 2: *It is apparent that the existing influent and effluent flow meters do not give the correct flow measurements. The importance of correct flow measurement cannot be emphasized and the requirement in the existing permit of monthly calibration of flow meters and an annual volumetric calibration should be maintained until such a time that consistent readings are obtained and/or a more reliable flow meters are installed. Modifying this requirement now without any justifiable cause such as the flow meters giving correct flow readings does not seem appropriate at this time.*

Response: In 2002, both the influent and effluent meters were tested and calibrated. A meter calibration and a volumetric calibration were conducted on the influent meter. The test showed that the influent meter was accurate to within 1%. The effluent meter, however, showed a higher error of +13% when compared with the influent meter. Since that time, the influent meter has been used for NPDES reporting.

The permittee has continued to make additional efforts to gain a better understanding of the metering situation and assure that the influent meter is properly calibrated. It should be noted that the issue of meter discrepancy is unusual, since, it is not typical for a facility to have both influent and effluent meters. The permittee has conducted three additional volumetric calibrations on the influent meter since 2004. The 2004 test was within +0.06%. The 2005 test was within $\pm 2.03\%$. The preliminary results of the 2006 test showed the meter was within $\pm 2.69\%$ of the actual flow. These errors are minimal when compared with industry wide expectations. It should also be noted that this permit requirement was appealed by the City, and therefore, has not currently been in effect.

The permit modification still requires the permittee to conduct an annual volumetric calibration and that the permit does not permit any further reduction in frequency unless new meters are installed. The permit modification does reduce the frequency of equipment calibration from monthly to quarterly. EPA, however, believes that this requirement continues to be very conservative. It should be noted that this requirement has not been made of any other POTW in Massachusetts.

Comment #3: *There is always the potential of a disinfection failure or TRC concentrations exceeding the permit limit. This is one of the main reasons why continuous TRC analyzers and daily grab samples are necessary. In case of this happening, it would be important to notify the Division of Marine Fisheries as these events will have adverse effects on the marine life. An immediate warning system developed in conjunction with Massachusetts Division of Marine Fisheries as required in the existing permit is important.*

Response: EPA acknowledges the comment.

B) Comments submitted by Paul Diodati, Director, Commonwealth of Massachusetts, Division of Marine Fisheries, dated June 27, 2006.

Comment #1: *The Division of Marine Fisheries (MarineFisheries) has reviewed the draft modification to the discharge permit that allows the City of Newburyport to discharge secondary treated sewage effluent to the receiving waters of the Merrimack River (MA-84A-06) which are classified SB by the Massachusetts Department of Environmental Protection. MarineFisheries believes the effluent limitation in the permit modification, including enhanced monitoring of the chlorination process for the effluent, will serve to better protect anadromous and marine fishery resources in the designated receiving waters. We acknowledge the continuing cooperation of the permittee which supports our efforts to manage shellfish resources in the receiving waters.*

Response: EPA acknowledges the comment.

Other Issues: As previously noted, the existing permit (issued in 2004) was appealed to the Environmental Appeals Board (EAB) by the City of Newburyport and the Island Futures Group (IFG), an environmental advocacy group “dedicated to the restoration and protection of the Merrimack River Estuary and its coastal environs.” One of the issues argued by IFG was that the Region’s effluent limitation for total residual chlorine was not consistent with national criteria. This comment was not made by IFG during the comment period but by another commenter, who is also a member of IFG, David McFarlane. The EAB concluded that the Region did not clearly and appropriately respond to Mr. McFarlane’s comment. The EAB remanded the permit on this issue so that the Region could respond to the permit “in a fashion that is sufficiently clear and adequately encompasses the issues raised.” The Region’s response to Mr. McFarlane’s comment is found below:

Comment submitted by David McFarlane, dated July 27, 2003.

Concerns remain about the actual levels of TRC being discharged to the estuary as estimates are based on uncertainty in the effluent metering, past repetitive DMR reports containing the maximum level in the existing permit of 0.3 mg/l, uncertainty in the diffuser condition and dilution, the 30 percent increase in a maximum value and the actual acute and chronic criteria specified in the draft permit.

Notwithstanding the dilution factor, measurement and flow uncertainties, the TRC acute criteria are listed as maximum daily in the draft permit and the chronic criteria is listed as a monthly average. EPA gold books list the chronic criteria level used as a 1-hour average not to be exceeded more than once every three years on average, and the chronic criteria level used as a four day average not to be exceeded more than once every three years on average. These gold book levels seem more stringent than those included in the draft permit primarily due to the 1 hour and four day average as opposed to a maximum daily and monthly average. It is unclear how, the Gold Book standards for TRC will be calculated and reported if they are the appropriate criteria.

Questions: Are TRC values listed appropriately in the draft permit as average monthly values and maximum daily values? How does this relate to the Gold Book criteria? How

will these levels be calculated and reported and how will they be calculated and reported if they are as defined in the EPA gold book for marine waters?

Response:

It is true that the Gold Book guidance specifies the criteria as 4-day and 1-hour averages, they are ambient water quality criteria and not necessarily adopted directly as limits. As stated in the Technical Support Document for Water Quality-based Toxics Control (“TSD”) EPA/505/2-90-001, March 1991(Ex. 32, A.R. V.2), “EPA’s water quality criteria are not threshold values above which definite measurable environmental impacts are expected. Rather, the criteria embody conservative assumptions such that small excursions above the criteria should not result in measurable environmental impacts upon the biota.” *See Id.* at p. 2, Section 1.21.

Section 5.2.3 of the TSD (page 96) notes that the NPDES regulations at 40 CFR 122.45(d) require that all permit limits must be expressed, unless impracticable, as both average monthly and maximum daily values for all discharges other than POTWs and as average weekly and average monthly limits for POTWs. The TSD goes on to state that “EPA believes that a maximum daily permit limit can be directly used to express an effluent limit for all toxic pollutants or pollutant parameters except chronic whole effluent toxicity”, and further states that “...in lieu of an average weekly limit for POTWs, EPA recommends establishing a maximum daily limit for toxic pollutant and pollutant parameters in water quality permitting.” *See Id.* at p. 96 (Ex. 32, A.R. V.2). The TSD also states that a “maximum daily limit, which is measured by a grab sample, would be toxicologically protective of potential acute toxicity impacts” *See Id.* at p. 96 (Ex. 32, A.R. V.2). The TSD therefore recommends the use of maximum daily limits in lieu of weekly average limits for POTWs and acknowledges the regulatory requirements for monthly average limits. For that reason, the Region developed average monthly and maximum daily TRC effluent limitations. EPA applied the procedures specified in the TSD to establish effluent limitation that “derive from and comply with” the applicable water quality standards pursuant to 40 C.F.R. 122.44(d)(1)(vii)(A).

In using the criteria to calculate limits, the TSD identifies a number of considerations which should be made and outlines a number of different methods for calculating limits. Among these considerations are an appropriately conservative dilution factor, considerations of background quantities of the pollutant, and variability of the pollutant discharge.

In calculating the TRC effluent limits, EPA applied the criteria for a discharge to salt water as set forth in the TSD, that is, a criteria maximum concentration (CMC) of 13 ug/l and a criteria continuous concentration (CCC) of 7.5 ug/l, and used the appropriate steady state modeling guidance in the TSD. *See TSD*, p. 97-98 (Ex. 32, A.R. V.2); Fact Sheet, p. 8 (Ex. 7, A.R. I.9). Following the TSD, EPA modeled critical low flow dilution at low slack water at spring tide. *See TSD*, p. 74 (Ex. 32, A.R. V.2); Fact Sheet, p. 8 (Ex. 7, A.R. I.9). The Region’s calculations used a dilution of 30:1 at the edge of the ZID.

This dilution is lower than the 39:1 dilution used in the 1998 NPDES permit. Therefore water quality-based dilution-based permit limits, including TRC, are more stringent than

those in the 1998 NPDES permit. The dilution of 30:1 is consistent with the hydrographic studies of May 20 and June 11, 1997 at mouth of the Merrimack River published by the Department of Health and Human Services. *See* Draft 1997 Hydrographic Study (Ex. 34, A.R. V.9).

Regarding background concentration, the Region notes that according to the Massachusetts Department of Environmental Protection's Merrimack River Basin: 1999 Water Quality Assessment Report (Ex. 24, A.R. V.6) instream TRC concentration in this segment (MA84A-06) were all below the quantification level (MDL) of 0.05 mg/l, meaning that TRC was not detected either from other sources or from the Newburyport WWTF.

In sum, the Region was proper in establishing appropriate water quality-based effluent limits for TRC in the permit that "derive from and comply with" the applicable water quality standards pursuant to 40 C.F.R. 122.44(d)(1)(vii)(A) and expressing these limits as both an average monthly limit and a maximum daily limit pursuant to 40 C.F.R. 122.45(d). In establishing the monthly average and maximum daily effluent limits, the Region properly applied appropriately protective assumptions regarding dilution in establishing those limits.