

**BEFORE THE
ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.**

In re: City of Marlborough Westerly
Wastewater Treatment Facility

NPDES Appeal No. _____

NPDES Permit No. MA0100480

PETITION FOR REVIEW

FROM

THE ORGANIZATION FOR THE ASSABET RIVER

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INTRODUCTION

Pursuant to 40 CFR § 124.19, the Organization for the Assabet (“OAR”) hereby petitions the Environmental Appeals Board (“EAB”) for review of the Modification of NPDES Permit No. MA0100480 (“Permit Modification”), which was issued to the City of Marlborough, Massachusetts (“Permittee”) on November 16, 2009, jointly by the United States Environmental Protection Agency Region 1 (“EPA” or “the Region”) and the Massachusetts Department of Environmental Protection (“DEP”) (attached hereto as Exhibit A).

OAR asserts that the Permit modification violates the applicable requirements of the Federal Clean Water Act, 33 U.S.C. § 1251 *et seq.* (“CWA”), the Massachusetts Clean Water Act, M.G.L.c.21, § 26 *et seq.* (“Act”), and the regulations promulgated thereunder. These conditions pertain primarily to the discharge of phosphorus, ammonia and metals from the Marlborough Westerly Wastewater Treatment (“the Facility”) that will result from an increase in permitted discharge flow by 44%. As shown in detail below, the Permit allows the Permittee to continue discharging phosphorus, ammonia and

metals to the Assabet River in amounts that violate federal and state water quality standards, including federal and state Antidegradation Provisions, *see* 40 CFR Section 131.12 and 314 CMR 4.04.

* * *

FACTUAL AND STATUTORY BACKGROUND

The Organization for the Assabet River (OAR)

OAR is a private non-profit watershed organization established in 1986 to protect, preserve, and enhance the natural and recreational features of the Assabet River and its tributaries and watershed. OAR currently has over 800 members and operates a successful EPA-approved volunteer water quality and stream flow monitoring program, a large-scale volunteer annual river clean-up, and a variety of educational workshops, stakeholder consultations, canoe trips and other activities designed to foster enjoyment and good stewardship of the river. More information about the organization may be found on OAR's website at www.assabriver.org.

The Assabet River

The Assabet River begins in Westborough and flows northeast for 31 miles through the City of Marlborough and the towns of Northborough, Berlin, Hudson, Stow, Maynard, Acton and Concord before joining the Sudbury River to form the Concord River, which empties into the Merrimack River and, eventually, the Atlantic Ocean. *See* map in Exhibit B. The Assabet drains a 178-square mile watershed, which is home to over 177,000 residents. It provides nearly 40% of the flow of the Concord River during low-flow periods. The Concord River is the sole public drinking water supply of the

Town of Billerica, Massachusetts. The Assabet River is part of the larger Concord River Watershed, comprising the Assabet, Sudbury, and Concord rivers.

After decades of neglect, the Assabet began to come back to life in the late 1980s when wastewater treatment facilities stopped discharging raw sewage into the river. Residents have since discovered the river's recreational potential, and in 1999 the Assabet, along with the Sudbury and Concord Rivers, was added to the nation's federal Wild and Scenic River system. In 2000, the U.S. Army transferred 2,230 acres to the U.S. Fish and Wildlife Service to create the Assabet River National Wildlife Refuge, which encompasses 3.5 square miles located within the towns of Hudson, Maynard, Stow and Sudbury. The refuge borders the Assabet River. (*See* map in Exhibit B.) As the river's popularity as a recreational resource has grown, area residents have become increasingly active in its stewardship, as evidenced by the sustained participation in OAR's annual river cleanup every year which has attracted up to 260 participants in one day. A fruitful collaboration among OAR, volunteers and municipal staff from Westborough, Marlborough, Northborough, and Hudson has produced the Upper Assabet Riverway Plan, a habitat study of the Upper Assabet, and a popular pocket recreation guide to the Assabet River. In 2008-09 OAR convened eight focus groups (with 63 Assabet River stakeholders participating), and held two workshops on the science of river restoration, including benefits and costs of dam removal (with 100 attendees). In addition, well-used public boat launches built over the past decade in Marlborough, Northborough, and Acton attest to the river's value to these communities as a recreational resource. *See* photo in Exhibit C.

Yet much of the Assabet still suffers each summer and early fall from severe eutrophication – excessive nuisance plant growth, offensive odors from rotting aquatic

vegetation, and degraded wildlife habitat and recreation – as a result of an overload of nutrients from the wastewater treatment plants that discharge to the river. *See* recent photographs in Exhibit C. In addition, Assabet River sediments are contaminated with metals and other priority pollutants including polycyclic aromatic hydrocarbons (PAHs).¹ The Assabet does not meet applicable state water quality standards and the river segment to which the Marlborough Westerly plant discharges is listed as a Category 5 Water (i.e., a water requiring a TMDL) on the Massachusetts 2008 Integrated List of Waters for Metals, Nutrients, Organic Enrichment/Low Dissolved Oxygen, Pathogens and Noxious Aquatic Plants.²

The ongoing cultural eutrophication of the River – and its causes – are well documented in the *Assabet River Total Maximum Daily Load for Phosphorus, Report No. MA82B-01-2004-01* (“TMDL”).³ Exhibit D. The study includes the following:

The river has been listed since 1998 on the Massachusetts 303d list and the Massachusetts 2002 Integrated List of Waters as impaired primarily for Nutrients and for Organic Enrichment/Low Dissolved Oxygen. These pollutants and stressors are indicators of a nutrient enriched, or eutrophied

¹ *Sediment Studies in the Assabet River, Central Massachusetts, 2003*, USGS, Scientific Investigations Report 2005-5131, 2005. The study Abstract states, “Potentially toxic metals, including arsenic, cadmium, chromium, copper, nickel, lead, and zinc were frequently measured at concentrations that exceeded U.S. Environmental Protection Agency sediment-quality guidelines for the protection of aquatic life and that occasionally exceeded Massachusetts Department of Environmental Protection guidelines governing landfill disposal (reuse). ... Concentrations of polycyclic aromatic hydrocarbons, both individually and total, frequently were greater than guideline concentrations. ... When the sediment analytes from surface samples are considered together to compare their potential toxicity to aquatic organisms, it is clear that sediment exposure is likely to have harmful effects.” Available at <http://pubs.usgs.gov/sir/2005/5131/>.

² Exhibit K. The Massachusetts 2008 Integrated Waters List is available at www.mass.gov/dep/water/resources/08list2.pdf

³ The TMDL is required by the Federal Clean Water Act, 33 U.S.C. 1251 et seq., in order to implement the applicable water quality standard. The Act requires states to identify impaired waters (Sec. 303(d)(1)(A)). The Assabet River is on the Massachusetts List of Impaired Waters (Category 5: “Waters Requiring a TMDL.” The Act further requires each state to: “establish for the waters identified in paragraph (1)(A) of this subsection, and in accordance with the priority ranking, the total maximum daily load [i.e., the TMDL], for those pollutants which the Administrator identifies under section 304(a)(2) as suitable for such calculation. Such load shall be established at a level necessary to implement the applicable water quality standards.” (Sec. 303(d)(1)(C)) See also 40 CFR 130.7(c): “Development of TMDLs and individual water quality based effluent limitations.” Assabet River TMDL is available at: www.mass.gov/dep/water/resources/tmdl.htm#suasco.

system. In freshwater, the primary nutrient known to accelerate eutrophication is phosphorous.

TMDL, p. 15.

The field investigation confirmed that the Assabet River receives an excess of the nutrients phosphorus and nitrogen, resulting in nutrient saturation and excessive growth of aquatic vegetation.

TMDL, p. 15.

Due to the high phosphorus loading from the four major POTWs [publicly-owned wastewater treatment works] and the effects of the impoundments, the Assabet River is experiencing abundant rooted macrophyte growth and frequent excessive accumulations of Lemna species (duckweed) which often cover the river's surface, particularly in the slow moving reaches, embayments, and impoundments. Decay of dying duckweed causes odors and violations of dissolved oxygen standards. Excessive growths of both floating and rooted macrophytes are detrimental to primary and secondary contact recreation.

TMDL, pp. 15-16.

The most consistent sources of phosphorus loading to the Assabet River are the four major POTWs in Westborough, Marlborough, Hudson and Maynard.

TMDL, p. 19.

To achieve the water quality goals embodied in this TMDL, stringent control of point source discharges of phosphorus from POTWs which discharge to the Assabet River will be needed in combination with a 90% reduction of sediment phosphorus loads.

TMDL, p. 7.

Phase 1 will establish POTW effluent limits of 0.1 mg/L at all major POTWs discharging to the Assabet River and allow the communities sufficient time to fund and implement a detailed evaluation of impoundment sediment as a potential alternative to lower permit limits.

TMDL, p. 8.

Phase 2 limitations will be established in permits to be reissued in 2009 if sediment remediation, based upon the results of the sediment/dam evaluation, is not pursued, and/or new phosphorus criteria that may be developed in the interim by DEP and USEPA are applicable.... If the communities chose not to pursue sediment remediation alternatives they

will be required to complete phase 2 improvements during the second 5-year permit cycle and begin operating by April 2013 and achieve the new limits by April 2014.

TMDL, p. 9.

The TMDL calculations are based on the permitted design flows of each of the four publicly-owned wastewater treatment facilities (“WWTFs” or Publicly Owned Treatment Works—“POTWs”) at the time of the study. These flow limits have been held constant until the issuance of the Permit Modification for the Marlborough Westerly facility that is the subject of this Petition for Review.

Implementation of the Assabet Phosphorus TMDL since 2004

EPA and DEP jointly issued NPDES discharge permits in 2005 to the four publicly-owned WWTFs on the Assabet River to implement the phosphorus TMDL.⁴ The 2005 permits, or “Phase 1” permits, attempted to address the existing and future eutrophication problem using a phased approach by providing “interim” limits, as follows: The permits contained the same Phase 1 phosphorus concentration limits, but no mass limits, at all four facilities based on an interim Waste Load Allocation (WLA) for the river determined by the TMDL. The permits required that, for the April-October season, the permittees meet a 0.1 mg/L total phosphorous limit no later than fifty-four months from the date of issuance (approximately April 2010); from November through March, the limit was 1.0 mg/L total phosphorus and was to be met within one year of the date of the permit, or approximately November 2006.

Three of the four permits were appealed, including the permit for the Marlborough Westerly Facility, the subject of this Petition for Review. Settlements were

⁴ The 2005 NPDES permit for the Marlborough Westerly Facility is available at: <http://www.epa.gov/NE/npdes/permits/ma0100480permit.pdf>

subsequently reached and the appeals were withdrawn. Immediately following the withdrawal of appeals, EPA and DEP sent letters dated April 28, 2006 to the four municipal permittees informing them that, “[c]onsistent with the TMDL implementation schedule, EPA and DEP will initiate development of Phase 2 permits in Spring 2008. If we determine that sediment remediation is unlikely to achieve necessary phosphorus reductions based upon the information available at that time, the agencies will establish new Phase 2 phosphorus effluent limits designed to ensure compliance with water quality standards.” (EPA/DEP Letter, Exhibit E) “[S]ediment remediation” in the 4/28/06 letter refers to dam removal and/or sediment dredging that **might** obviate the need for more stringent phosphorous discharge limits in the Phase 2 permits than those in the 2005 (Phase 1) permits.

New Information about Sediment Flux, Dam Removal and Dredging published in June 2008 CDM Modeling Report for the ACOE Assabet River Sediment and Dam Removal Study

As is noted above, the TMDL concluded that the only way to meet Water Quality Standards in the Assabet River was by further reducing phosphorous discharges from the WWTPs – to levels below those allowed by the 2005 Phase 1 permits – or, possibly, by holding the WWTPs to the 2005 discharge levels in the 2009 (Phase 2) permits **and** removing **90%** of the “sediment phosphorous flux” in the river.⁵ Accordingly, the TMDL recommended that there be a study to assess the feasibility of removing 90% of sediment phosphorus flux (i.e., phosphorus in sediment which is re-circulated in the water column) in the river. Such a study was carried out by the Army Corps of Engineers for DEP to determine the feasibility of removing sediment and/or dams to reduce the

⁵ This 90% removal goal is derived from the TMDL study, which indicates that a 0.1 mg/l phosphorus discharge limit (equivalent to a 2.4 lbs/day growing season load) **combined with** 90% removal of phosphorus flux will achieve water quality standards.

sediment phosphorus flux (*Assabet River Sediment and Dam Removal Feasibility Study, Draft, September 2009*, (“ACOE Study”). Exhibit F.

In June 2008, Camp Dresser & McKee (“CDM”) completed the cornerstone of the ACOE study, the “*Assabet River Sediment and Dam Removal Study, Modeling Report, June 2008*” (“CDM Report”).⁶ Exhibit G. The CDM Report concluded that:

Of the alternatives evaluated in this study, no alternative or combination of alternatives is projected to result in a 90 percent reduction in phosphorus flux.

CDM Report, at ES-2.⁷

Moreover,

[t]his study also resulted in significant findings regarding the seasonality of sediment phosphorus flux. An additional consideration to meet the TMDL target of 90% reduction in sediment phosphorus flux is winter phosphorus discharge limits for at [sic] WWTFs. *Based on results of this modeling effort, it was concluded that winter limits for the WWTFs, below the current planned limit of 1 mg/L would contribute significantly to the reduction in sediment phosphorus flux.*

If no other improvements were implemented, further reductions in summer P discharge limits, below 0.1 mg/L, would not contribute significantly to further reduction in sediment phosphorus flux. *This is because the winter instream phosphorus concentration has such a strong effect on the P flux the following summer.*

CDM Report at 6-7 (Emphasis added.)

New information about the Ben Smith Dam

The ACOE Study found that “The removal of Ben Smith dam is a key component to achieving water quality goals through reductions in sediment-phosphorus flux.” (at 13) (See photo of “Ben Smith Impoundment” and “Crow Island Area” in Exhibit C) But it is now clear that it is extremely unlikely that the Ben Smith Dam will be removed in the

⁶ The CDM Report was completed in 2008 and will be included unchanged in the final ACOE Study.

⁷ The Report concluded that the reduced loading of phosphorus in the 2005 permits would result in reductions in the phosphorus flux from the sediments downstream but that these reductions would not be sufficient to achieve water quality standards.

foreseeable future. In Massachusetts, dams can be removed by the owner, or the Commissioner of the Department of Conservation and Recreation can compel an owner to repair or mitigate an unsafe condition if the dam is structurally deficient, *see* MGL Ch. 253 Sec. 47. The Ben Smith Dam is in good condition.⁸ The owner of the dam, Wellesley Rosewood Maynard Mills, plans to use the dam in a hydropower installation for which it received a state construction grant of \$565,000 in 2006 from the Massachusetts Technology Collaborative. The hydroelectric project feasibility study has already been completed and a Preliminary Permit for the project was issued by the Federal Energy Regulatory Commission on October 24, 2008. Exhibit H. Indeed, Joseph Mullin of Wellesley Rosewood Maynard Mills LP, the owners of the dam, stated in an email dated November 20, 2009, that he will not remove it. (Exhibit H)

The Permit Modification

On October 18, 2007 Marlborough requested a modification of its 2005 permit to allow a 44% increase in its permitted discharge, from 2.89 million gallons per day (mgd) to 4.15 mgd.⁹ In spite of the conclusions of the state and federally-funded CDM Report, the new evidence that the Ben Smith dam will not be removed, and Marlboro's permit non-compliance at the time, EPA and DEP issued the Permit Modification and the state issued its Water Quality Certification to the City of Marlborough on Nov. 16, 2009.

The Permit Modification's new mass limits of 24 lbs/day loading of Total Phosphorus (November 1-March 31) ("winter") and 2.4 lbs/day load of Total Phosphorus

⁸ ACOE Study (at 19, Table 3)

⁹ Since the appeals of the 2005 permits were withdrawn, Marlborough had fallen out of compliance with the schedule established in its permit for improving the quality of the discharge from the Facility. Indeed, since receiving its final permit, Marlboro has concentrated on seeking to have the permit modified so as to permit a greater volume of discharge – and has not proceeded with facility upgrades that would enable it to meet the terms of the 2005 permit.

(April-October 31) (“growing season”) are based on the assumption that dam removal and/or dredging can and will be used to achieve the 90% reduction of sediment phosphorus flux goal. But the CDM Report established that the 90% sediment phosphorus flux reduction **cannot** be achieved through dam removal and/or dredging. Instead, the study shows that the sediment flux can be most effectively reduced through further reductions in phosphorus loads from the wastewater treatment plants, particularly the wintertime loads.

The Permit Modification also contains new mass limits for ammonia-nitrogen (72.3 lbs/day daily maximum from June 1-October 31 and 241 lbs/day average monthly from Nov. 1-May 31) and four metals: aluminum (5.3 lbs/day average monthly year round), copper (0.31 lbs/day maximum day), nickel (2.18 lbs/day average monthly year round), and silver (0.24 lbs/day maximum daily year round), as well as new concentration limits for aluminum (152 mg/L average monthly year round), copper (13 ug/l maximum daily year round), nickel (63 ug/L average monthly year round) and silver (7 ug/l maximum daily year round). With the exception of the nickel limits, these new mass and concentration limits do not take into account any upstream and background sources of these pollutants as required by 314 CMR 4.03(1) and therefore have the potential to cause or contribute to an exceedance of water quality standards in violations of 40 CFR Section 122.44(d). The nickel and copper limits also do not account for the potential deposition and accumulation of nickel and copper downstream from the Marlborough Westerly plant where the United States Geological Survey (USGS) has measured toxic concentrations of both metals in the four downstream impoundments – concentrations that exceed aquatic-

life guidelines.¹⁰ Failure to evaluate possible deposition and accumulation of toxic metals in the river violates 314 CMR 4.05(5)(e)(3) and 314 CMR 4.05(5)(b).

Despite the fact that the river segment to which Marlborough discharges is listed on the 2008 Integrated Waters List as being impaired by metals, EPA and the state have treated this part of the Assabet River as a Tier 2 “high quality water” for nickel and silver pursuant to 314 CMR 4.01 and permitted an increase in loading of each metal that is equal to 10% of the calculated assimilative capacity for these pollutants. EPA erred in allocating 10% of the receiving water assimilative capacity for nickel and silver and deeming these increases were “insignificant” pursuant to 314 CMR 4.04 since the state’s antidegradation policy requires that for a load increase to be “insignificant,” it must be *less than* 10% of the remaining assimilative capacity for a pollutant. Moreover, there is reasonable potential for these increased loads to result in exceedences of water quality standards given that EPA did not account for deposition and accumulation of nickel downstream, background and upstream sources of silver, and the listing of the river as impaired by metals on the MA 2008 Integrated Waters List when calculating nickel and silver limits for the Permit Modification.

EPA also did not conduct an antidegradation analysis for the new phosphorus limits, nor comply with the requirements in both state and federal antidegradation provisions found at 314 CMR 4.04(1) and 40 CFR Section 131.12(a)(1) respectively, that these new phosphorus limits protect existing uses and the water quality necessary to maintain and protect existing uses. The Assabet River’s existing uses include recreation, specifically boating, fishing, swimming, and aquatic habitat for fish, macroinvertebrates, reptiles, amphibians, mammals and birds. As documented by the Phosphorus TMDL and

¹⁰ *Sediment Studies*, USGS, Scientific Investigations Report 2005-5131, 2005. Page 40, Table 10.)

photos taken over the years by OAR staff and volunteers (Exhibit C), accelerated cultural eutrophication of the Assabet River continues to prevent or limit these existing uses during the growing season, particularly during the summer and late fall. As described previously in this Petition, the Phosphorus TMDL and the 2008 CDM Report clearly establish that the Permittee's new phosphorus limits will not protect existing uses or maintain and protect existing uses.

An NPDES permit must be accompanied by a State Water Quality Certification, *see* Clean Water Act, Section 401(a), 33 U.S.C. § 1341(a), and in this case the Region purports to rely on a November 12, 2009 letter from DEP, a copy of which is attached in Exhibit A, to satisfy this requirement. It is now clear that 90% flux reduction will **not** be attained through sediment remediation or dam removal. For this reason, the Water Quality Certification is clearly inadequate to support the Region's decision.

JURISDICTIONAL BASIS FOR PETITION

OAR submitted comments on the Draft Permit Modification prepared by OAR staff ("OAR Comments") in a letter dated August 8, 2008. OAR's comments are attached as Exhibit I, and are incorporated by reference herein. OAR has also served as a DEP-appointed member of the Study Coordination Team for the ACOE Study and submitted comments on drafts of the CDM Report and ACOE Study. OAR has also commented extensively on the Comprehensive Wastewater Management Plans for the City of Marlborough and Town of Northborough through the Massachusetts Environmental Policy Act ("MEPA") review process.

In addition, the following parties submitted comments during the public comment period on the draft Permit Modification: the Town of Stow Board of Selectmen, in a letter

dated August 7, 2008, the United States Department of the Interior (National Park Service) in a letter dated August 16, 2008, United States Department of the Interior (Fish and Wildlife Service) in a letter dated August 13, 2008, the Conservation Law Foundation in a letter dated August 12, 2008, and 18 organizations representing environmental interests in the Commonwealth of Massachusetts in a letter dated August 13, 2008. Exhibit J. OAR's comments, along with comments from the parties identified above, collectively raise and support the issues presented in this Petition. Therefore, OAR complies with the requirement that the issues raised in the petition for review were raised in accordance with 40 CFR § 124.19(a).

OAR and its members are aggrieved by the Permit Modification because the Permit Modification directly conflicts with OAR's primary goal of a clean and healthy Assabet River.¹¹ The increased wastewater discharge allowed by this Permit Modification will result in continued eutrophication and metals contamination of the river, and OAR and its members will be deprived of the recreational and other amenities that a clean and healthy river which meets the river's designated Class B standard would provide, such as boating and fishing. This deprivation causes an actual and concrete injury to OAR and its members. The injury is causally connected to the Permit Modification and the Water Quality Certification because a lawful Permit Modification would have more stringent phosphorus, ammonia, aluminum, copper, nickel and silver limits that would meet water quality standards, including antidegradation provisions. The injury is also within the scope of the Massachusetts Clean Water Act, which is intended to ensure that Massachusetts citizens enjoy the recreational and other benefits of clean rivers. OAR qualifies for representational standing, because it is an organization dedicated to this river

¹¹ OAR's Mission Statement: "The Organization for the Assabet River (OAR) is a 501(c)(3) non-profit organization whose mission is to protect, preserve, and enhance the natural and recreational features of the Assabet River, its tributaries, and the watershed." (See www.assabetriver.org)

and can adequately represent the interests of its members. In addition, OAR requests this review in order to prevent damage to the environment from excessive phosphorus, ammonia, aluminum and silver loadings into the River.

ISSUES PRESENTED FOR REVIEW

OAR will demonstrate below that the Permit Modification contains findings of fact or conclusions of law that are clearly erroneous, and include an exercise of discretion or important policy implementation which the EAB should review. 40 CFR § 124.19(a). Specifically, OAR will demonstrate the following:

1. The record conclusively establishes that the Assabet River currently fails to meet the narrative state water quality standards (*Massachusetts Year 2008 Integrated List of Waters*, at 110, Exhibit K; Permit Modification Fact Sheet, at 4.).
2. EPA is required by Section 302(a) of the Clean Water Act, 33 U.S.C. § 1312(a) to impose effluent limitations “which can reasonably be expected to contribute to the attainment of . . . water quality [standards].” The Permit Modification does not comply with this requirement because the new 24 lbs/day total phosphorus load (November 1-March 31) and the new 2.4 lbs/day total phosphorus load and the new 0.07 mg/l total phosphorus concentration limit (April-October 31) cannot reasonably be expected to meet water quality standards.
3. New information in the June 2008 CDM Report demonstrates that 90% phosphorus flux reduction cannot be achieved with the currently permitted discharge level of phosphorus. The Response to Comments errs in asserting that “the studies relied upon by the commenter are still underway.” (at 10, FN

- 28) The “sediment phosphorus flux study” referred to by DEP and EPA is the CDM Report, which was completed in June 2008.
4. The CDM Report “concluded that winter limits for the WWTFs, below the current planned limit of 1 mg/L would contribute significantly to the reduction in sediment phosphorus flux.” Thus the winter loading of 24 lbs/day specified in the Permit Modification is not supported.
 5. The Response to Comments errs in suggesting that the removal of two dams in Northborough and one in Hudson (the smallest dams on the river) would provide significant reductions in phosphorus flux (at 10).
 6. In the Response to Comments the agencies state that “EPA no longer believes there is a concern relative to achieving lower [phosphorus] limits that may be necessary in the future and hence did not believe a permit condition pertaining to this issue was necessary.” (at 12) This “belief” is unsupported. If the Permittee pursues an approach now that can meet the 0.07 mg/L limit but can do no better than that, there will be a substantial “sunk cost” in the installed technology that will make meeting more stringent Phase 2 limits extremely difficult.
 7. The winter Total Phosphorus limit should be 0.2 mg/L, DEP’s official “highest and best practicable treatment” standard, as required by 314 CMR 3.11(5)(c). The Permittee has not demonstrated that the phosphorus-removal technology proposed for the Facility (Blue PRO) is capable of consistently meeting a 0.2 TP permit limit under winter conditions. The Response to Comments instead relies on analogies to technologies which are different from the one being utilized in the subject Facility.

8. Allowing an increased discharge of wastewater to the Assabet River which is “severely over allocated” is not consistent with achieving the magnitude, duration and frequency components of the minimum water quality criteria or for protecting designated uses of the Assabet River. This is an improper exercise of discretion by the Region that warrants review.
9. The Response to Comments incorrectly asserts that phosphorous loads will be reduced more than the TMDL model predicts. (at 10, FN 28) EPA has erred in claiming that based on CDM’s phosphorus flux data, the TMDL model overestimated phosphorus flux from the free-flowing river reaches and underestimated sediment flux reductions that would result from decreased phosphorus loads from treatment plants. The CDM phosphorus flux data is inconclusive.
10. The Permit Modification failed to consider and properly account for background concentrations and upstream sources of aluminum, copper, silver, total phenolic compounds and ammonia nitrogen as required by 314 CMR 4.03(1). The Response to Comments “assumes” a receiving water concentration of zero (at 27) for these pollutants; this is an erroneous assumption because 90% of the receiving water consists of effluent from the Westborough WWTF upstream (under 7Q10 conditions) (Fact Sheet, at 4).
11. The Permit Modification’s assertion that the majority of the metals are “less likely to settle” due to being in a dissolved form (Response to Comments, at 21) inadequately answers the comment regarding the fate of specific metals in the Assabet River. Dissolved metals can enter river sediments through uptake by aquatic plants and algae that die, decompose and settle on the river bottom,

or chemically adsorb to bottom sediments. EPA wrongly assumes that dissolved metals will not settle and accumulate in Assabet River, or further downstream in the Concord River sediments,¹² which violates 314 CMR 4.05(5)(e), 4.05(5)(b), and 314 CMR 4.03(1)(a).

12. EPA and DEP did not conduct an inadequate antidegradation review of the new phosphorus limits in the permit modification as required by State Antidegradation Provisions 314 CMR 4.04 (1). EPA did acknowledge in the Response to Comments (at 18) that "...the Assabet River is not a High Quality Water within the meaning of 4.02(2) for some of the permitted pollutants (e.g., phosphorus)." However, EPA ignored information in the Phosphorus TMDL and new findings in the 2008 CDM Report, which establish that the new phosphorus limits will not support existing uses of the river and water quality standards will not be met. As a result, EPA wrongfully issued the permit modification in violation of 314 CMR 4.04(1)(4).
13. The Water Quality Certification is defective for the same reasons as the Permit Modification. Contrary to its findings, the Permit Modification conditions are not sufficient to comply with state water quality standards. EPA erred in accepting the Water Quality Certification of the state.

By virtue of these defects with the Permit Modification, the Assabet River will continue to violate water quality standards and suffer from severe eutrophication due to

¹² Barry T. Hart (1982). "Uptake of trace metals by sediments and suspended particulates: a review." *Hydrobiologia* 91, 299-313. Xianghua Wen, Qing Du, and Hongxiao Tang (1998) "Surface Complexation Model for the Heavy Metal Adsorption on Natural Sediment." *Environmental Science Technology* 1998, 32, 870-875. T.C. Wang, J.C. Weissman, G. Ramsh, R Varadarajan, J.R. Benemann. (1996) "Parameters for Removal of Toxic Heavy Metals by Water Milfoil (*Myriophyllum spicatum*)." *Environmental Contamination and Toxicology* 57:779-786.

the wastewater discharges by this Permittee. Consequently, the outcome of this appeal will have significant and direct impact on the habitat, smell, human enjoyment, and economic benefits of the Assabet River, a river which is home to the Assabet National Wildlife Refuge and whose last four miles were designated by Congress in 1999 as “Wild and Scenic” but whose water quality has been degraded for decades. See letter from U.S. Department of the Interior to EPA Region 1 in Exhibit L regarding many of the same concerns. The appeal involves not only clear errors of fact and law, but important matters of agency discretionary policy, including EPA’s decision to require new total phosphorus effluent limits in the Permit Modification based on the erroneous assumption that sediment phosphorus flux can be reduced by 90%.

ARGUMENT

The Final Permit does not comply with the Clean Water Act

- A. The Permit Modification’s new growing season limits of 2.4 lbs/day total phosphorus and 0.07 mg/l total phosphorus, and new winter loading limit of 24 lbs/day total phosphorus, are not stringent enough to meet water quality standards. The Region erred by disregarding new information showing that future reductions in sediment phosphorus flux will not occur without further reductions in winter limits (and likely lower growing season limits) or removal of the Ben Smith Dam in Maynard, which is highly unlikely.**

The Permit Modification violates the regulatory prohibition on issuing a permit “when imposition of conditions cannot ensure compliance with the applicable water quality requirements.” 40 C.F.R. §122.44(d). The Permit Modification does not comply with this requirement because the new 24 lbs/day phosphorus load (November 1-March 31) (“winter”), the new 2.4 lbs/day load of total phosphorus (April-October 31) (“growing season”), and new 0.07mg/l total phosphorus (growing season) will not meet the water

quality standards. These new limits are calculated from the concentration-based limits of the 2005 permit upon which the Modification is based, which are derived from the TMDL for phosphorus. The TMDL explicitly states that this Phase 1, growing season 0.1 mg/l total phosphorus concentration limit will not by itself achieve water quality standards, as discussed further below.

Applicable water quality requirements (*see* 314 CMR 4.05(5)(a)) state that “All surface waters shall be free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum, or other matter to form nuisances; produce objectionable odor, color, taste, or turbidity; or produce undesirable or nuisance species of aquatic life.” Those same requirements establish standards for dissolved oxygen.¹³ (*See* 314 CMR 4.05(3)(b)(1).) And, regarding bottom pollutants or alterations, they require that, “All surface water shall be free from pollutants in concentrations or combinations or from alterations that adversely affect the physical or chemical nature of the bottom...” (See 314 CMR 4.05(5)(b).)

The CWA and legal decisions pursuant to the CWA are clear on this point: “In establishing effluent limits in an EPA-issued permit, the permitting authority is required to ensure compliance with the water quality standards of the state where the discharge originates. *See* CWA § 401(a)(1), 33 U.S.C. § 1341(a)(1).”¹⁴ Further, there must be certainty that the limitations will ensure compliance. In remanding the Permit for the City of Marlborough’s Easterly Facility, the EAB noted: “With regard to the likelihood that imposition of the 0.1 mg/l phosphorus limitation will be sufficient to meet water quality standards, the Region states that such a result may be possible, but a mere possibility of

¹³ Dissolved oxygen levels are affected by instream ammonia levels.

¹⁴ *In re City of Attleboro, MA, Wastewater Treatment Plant*, NPDES Appeal No. 08-08 (EAB, Sept. 15, 2009), 13 E.A.D. ____ (at p. 9).

compliance does not ‘ensure’ compliance.”¹⁵ Case law also makes this point clearly: “Thus, we hold that [§301(b)(1)(C)] requires the Administrator to include in . . . permits whatever effluent limitations it determines are necessary to achieve the state water quality standards”. *Trustees for Alaska v. Environmental Protection Agency*, 749 F.2d 549 at 557 (9th Cir. 1984).

Where necessary to achieve and maintain such standards, §301(b)(1)(C) requires limits more stringent than technology-based limits, and cost and technological considerations may not be considered in setting such water quality-based effluent limitations to meet the Commonwealth’s water quality standards, including its numeric and narrative criteria for water quality. *In re Westborough and Westborough Treatment Plant Board*, 10 E.A.D. 297 at 312 (2002), and cases cited therein. Section 401(a) of the CWA in turn requires that the Commonwealth certify that the discharge, as so limited, “will comply” with §301(b)(1)(C), and the EPA may not issue a permit without such certificate.

The relevant state water quality standards are as follows. 314 CMR 4.05(5)(a) states that “All surface waters shall be free from pollutants in concentrations that settle to form objectionable deposits; float as debris, scum, or other matter to form nuisances, produce objectionable odor, color, taste, or turbidity, or produce undesirable or nuisance species of aquatic life.” Similarly, 314 CMR 4.05(5)(c) provides that “nutrients shall not exceed site-specific limits necessary to control accelerated or cultural eutrophication.” 314 CMR 4.05(3)(b)(1)a. and b. establishes criteria for dissolved oxygen and 314 CMR 4.05(5)(b) addresses bottom pollutants or alterations requiring that, “all surface water

¹⁵ *In re City of Marlborough, Massachusetts Easterly Wastewater Treatment Facility*, NPDES Appeal No. 04-13, EAB August 11, 2005, 12 E.A.D. __ (at p. 250).

shall be free from pollutants...or from alterations that adversely affect the physical or chemical nature of the bottom.”

The TMDL study excerpts quoted above in the Background, make clear that the River does not meet these water quality standards due to the phosphorus discharges by the Facility and the three other POTWs discharging to the river. The Facility is the second-largest POTW discharging to the river. The 44% increase in discharge permitted by the Permit Modification (1.26 mgd) is nearly as much as the entire permitted discharge of the Maynard facility downstream (1.45 mgd). In addition, the Facility’s discharge is upstream of—and therefore impacts—the most impaired and severely eutrophic segments of the river, including the location of the Assabet River National Wildlife Refuge.¹⁶ (See map in Exhibit B)

The Administrative Record is also clear that the 2005 Permit’s April – October 0.1 mg/l total phosphorus effluent limit, upon which the Permit Modification’s limits are based, is not sufficiently stringent to meet these water quality standards, and that this limit will only achieve compliance if it is accompanied by a 90% reduction in phosphorus flux from sediments. Without a 90% reduction in sediment phosphorus flux, the Facility’s compliance with the 0.1 mg/l effluent limit would improve the river’s water quality, but would not allow it to achieve applicable water quality standards. Specifically, the TMDL modeling analysis¹⁷ predicts that without the 90% flux reduction, when the POTWs meet the 0.1 mg/l limit, the Assabet River would still suffer violations of the state’s minimum dissolved oxygen criterion, biomass would be reduced in all reaches by 11.3% instead of 54.9% under the TMDL (which assumes a 90% flux reduction), and the river’s average ambient total phosphorus concentration (0.049 mg/l)

¹⁶ Segment MA82B-05_2008. Massachusetts Year 2008 Integrated List of Waters, Dec. 2008, at 110. Exhibit K.

¹⁷ *Assabet River TMDL*, page 29, Table 4, Model Run #3, Exhibit D.

would be double the concentration characteristic of minimally impaired, (i.e., healthy) rivers and streams in New England.¹⁸

The TMDL stipulates that if sediment studies demonstrate that sediment remediation to reduce sediment phosphorus flux by 90% is not a feasible and/or cost-effective alternative, or if the POTWs choose not to pursue sediment remediation, the four POTWs will be required to meet more stringent total phosphorus effluent limits by April 2014.¹⁹ Yet, as noted above, the Permit Modification does not follow the TMDL because it does not include these more stringent limits.

This Permit Modification's over-reliance on a technically unsupported and non-binding 90% sediment flux reduction is strikingly similar to the permit reversed and remanded by the EAB in *Government of the District of Columbia, Municipal Separate Stormwater System*, NPDES Permit No. DC 0000221, (EAB, February 20, 2002), 2002 WL 257698. In that case, an EPA Region issued an NPDES permit that required the use of "best management practices" which the permit writer believed would be "reasonably capable of achieving water quality standards." The EAB rejected this approach for two reasons, both of which apply here:

"We have two concerns regarding the manner in which the Region has addressed the question of the Permit's meeting water quality standards. First, it is not clear that the Region's determination that the BMPs required under the Permit are 'reasonably capable' of achieving water quality standards fully comports with the regulatory prohibition on issuing a permit 'when imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected states.' 40 C.F.R. § 122.44(d) (2001) (emphasis added). Simply stated, the 'reasonably capable' formulation, accepting as it is of the potential that the Permit will not, in fact, attain water quality standards, does not appear to be entirely comparable to the concept of ensuring compliance. [FN20]

Second, and more importantly, even accepting the Region's suggestion that

¹⁸ *Ambient Water Quality Criteria Recommendations: Information Supporting the Development of State and Tribal Nutrient Criteria; Rivers and Streams in Nutrient Ecoregion XIV*, US EPA, Office of Water, EPA 822-B-00-022, December 2000; and "Collection and Evaluation of Ambient Nutrient Data for Rivers and Streams in New England, Data Synthesis Report, Final Report", NEIWPCC, September 2003.

¹⁹ *Assabet River TMDL*, Exhibit D, at 8-9.

ensuring compliance was what the permit writer had in mind, we find nothing in the record, apart from District's section 401 certification, [FN21] that supports the conclusion that the Permit would, in fact, achieve water quality standards.”

2002 WL 257698, p. 14.

This Permit Modification has the same defects. As in the District of Columbia case, the drafters of this Permit Modification maintain the assumption, used in the 2005 Permit for the Facility, that they are “reasonably assure[d] that significant (90%) sediment phosphorus reductions will occur.”²⁰ They err in ignoring the completed CDM Report’s conclusions that show that there is no basis for this assumption; that, to the contrary, data show that the 90% flux reduction *cannot* be met. In dismissing the Commenter’s concerns that the limits in the 2005 permit are inadequate, the Response to Comments errs in stating: “The Agencies, however, feel it should be underscored that the studies relied on the by commenter are still underway.” (at p. 10, FN 28) The phosphorus flux study referred to by the commenter, the CDM Report, was completed and released in 2008 and is by no means “underway.” Further, the public comment period on the ACOE Draft *Sediment and Dam Removal Feasibility Study* has closed and no further study is being undertaken by the Corps. OAR is not aware of any funding or institution that has been identified to undertake further study of the issues raised by the study in the foreseeable future.

The Permit Modification’s undue reliance on sediment flux reduction also violates another provision of the Clean Water Act. 40 CFR § 122.44(d)(1) requires that the permit itself “achieve water quality standards ... including state narrative criteria for water quality.” The Permit Modification on its face does not. Instead, at best, a mechanism outside the Permit (dam removal) is being relied upon to achieve water

²⁰ EPA Response to Comments, May 2005, at 2.

quality compliance. The Response to Comments errs in implying that dam removal will (1) take place; and (2) make significant progress towards achieving 90% flux reduction, as follows.

The *Assabet River Sediment and Dam Removal Feasibility Study* was carried out by the Army Corps of Engineers for DEP to determine the feasibility of removing sediment and/or dams to reduce sediment phosphorus flux. The Draft was released for public comment in September 2009. Exhibit F. By June of 2008, Camp Dresser & McKee (“CDM”) had completed the cornerstone of the ACOE study, the *Assabet River Sediment and Dam Removal Study, Modeling Report, June 2008* (“CDM Report”).²¹ (Exhibit G) The CDM Report, among other things, modeled the dynamics of phosphorus flux between the water column and the sediment, under both winter and summer conditions, and with various combinations of the 6 mill dams on the river removed. It determined that sediment remediation alone was not an effective option, and thus focused on dam removal. Overall it concluded that:

Of the alternatives evaluated in this study, no alternative or combination of alternatives is projected to result in a 90 percent reduction in phosphorus flux.

CDM Report, p. ES-2, Exhibit G.

The ACOE Study found that the planned improvements in phosphorus removal required by the 2005 NPDES permits for the four WWTFs would result in a 60% decrease in phosphorus flux from the sediments. Dam removal would produce only 20% additional reduction. Most of this would be achieved through removing the largest dam, the Ben Smith Dam: “The removal of Ben Smith dam is a key component to achieving water quality goals through reductions in sediment-phosphorus flux.” (p. 13)

²¹ The CDM Report was completed in 2008 and will be included unchanged in the final ACOE Study.

But it is now clear that it is extremely unlikely that the Ben Smith Dam will be removed in the foreseeable future. In Massachusetts, dams can be removed by the owner, or the Commissioner of the Department of Conservation and Recreation can compel an owner to repair or mitigate an unsafe condition if the dam is structurally deficient, *see* MGL Ch. 253 Sec. 47. The Ben Smith Dam is in good condition.²² An owner of the Ben Smith Dam, Joseph Mullin of Wellesley Rosewood Maynard Mills LP, stated in an email dated November 20, 2009, that he will not remove the dam. Indeed, Wellesley Rosewood Maynard Mills plans to use the dam in a hydropower installation for which it received a feasibility study and construction grant of \$565,000 in 2006 from the Massachusetts Technology Collaborative. The hydroelectric project feasibility study has already been completed and a Preliminary Permit for the project was issued by the Federal Energy Regulatory Commission on October 24, 2008. Exhibit H. Hence all evidence points to the conclusion that the Ben Smith Dam will not be removed, and it is only by removing the Ben Smith Dam that any significant reduction in sediment flux can be achieved. The dam downstream from the Ben Smith already has an operational hydroelectric facility installed and the owner has no interest in removing the dam. In the Response to Comments the Region clearly errs in implying that the removal of two dams in Northborough and one in Hudson (the smallest dams on the river) would provide significant reductions in phosphorus flux (p. 10). In fact, the ACOE Study, drawing on the CDM Report, concludes that only removing the three largest dams would provide a significant benefit. It points out that: “Removal of the two most upstream dams in this study [in Northborough] ... would have minimal effects on downstream water quality.” As noted above, the study concludes that removing the largest dam on the river “is a key

²² ACOE Study (at 19, Table 3)

component to achieving water quality goals through reductions in sediment-phosphorus flux.” (ACOE Study, at 13)

The Response to Comments also errs in alleging that “the analysis significantly underestimates the benefits of dam removal, due to simplifying assumptions made in the TMDL water quality model used for the analysis. Specifically the model assumes the same phosphorus flux rate in free-flowing sections of the river as it does in sections of the river impounded by dams.” (at 10 & 11, FN 28) This is incorrect; the model used different rates for different sections of the river. The Phosphorus TMDL model developed by ENSR for the state applied two different sediment flux rates to the river segments in the model, 0.9 mg/m² *hour and 0.5 mg/m² *hour. The rates were applied depending on the location of the river segment – whether upstream or downstream of the Ben Smith Impoundment – and not whether the river segment was in an impounded or free-flowing part of the river. However, according to the model, the free flowing segments did generate slightly less phosphorus than the impounded segments, 13.9 lbs versus 14.1 lbs.²³ Regarding the sediment phosphorus flux measurements made by CDM to support their modeling work, they concluded that: “Although some difference in P flux values was observed between samples collected from impoundments versus riverine locations, only four riverine location were sampled, therefore not enough samples to determine significance.” (at 3-7 & 3-8, CDM Report.) For this reason, EPA has erred in claiming that based on CDM’s phosphorus flux data, the TMDL model overestimated phosphorus flux from the free-flowing river reaches and underestimated sediment flux reductions that would result from reductions of phosphorus loads from treatment plants. The CDM phosphorus flux data is inconclusive on this point.

²³ Email dated Mon, 2 Aug 2004 from Brian Friedmann, MA DEP to Sue Beede, OAR

The Region also errs in asserting that that because the TMDL model did not account for feedback, the 60% reduction in flux due to WWTF improvements is an underestimate. (at 11) This problem with the TMDL model was addressed in the CDM modeling, which was a far more complex and refined modeling effort. The CDM Report confirmed that lower limits are necessary. Again, the Response to Comments errs in stating that “the Agencies reiterate that no firm conclusions can be drawn until completion of the sediment phosphorus flux study, which the Agencies expect will underlie the Phase 2 permits.” (at 11) By incorrectly raising doubts about the validity of the study and its completion, the Region avoids the conclusion that the information should be used in their permitting decision-making.

If sediment flux cannot be adequately reduced, what is the alternative? First, make winter limits on phosphorus more stringent. Second, make growing season limits on phosphorus more stringent. According to the CDM Report: “winter limits for the WWTFs, below the current planned limit of 1 mg/L *would contribute significantly* to the reduction in sediment phosphorus flux.”²⁴ Also, according to the TMDL study, there are other combinations of point source controls and sediment flux reductions that would have produced the same water quality results as the TMDL allocation, but with less reliance on sediment flux reductions. Specifically, growing season effluent limits of 0.05 mg/l or 0.025 mg/l total phosphorus would also allow the river to attain standards, but in combination with a 75%, instead of a 90% sediment flux reduction.²⁵

It is important to recognize that at 7Q10 flow, the river was 80% effluent at the time of the TMDL study²⁶ and is “expected to approach 100%” effluent at design

²⁴ CDM Report p. 6-6, Table 6-2. Exhibit G. Emphasis added.

²⁵ *Assabet River TMDL*, page 29, Table 4, Model Runs #19, #22, & #23 and page 32. Exhibit D.

²⁶ *Assabet River TMDL*, page 13. Exhibit D

discharge flows..²⁷ A recent- USGS study calculated that wastewater effluent currently comprises 93% of the Assabet River under *average September non-storm streamflows* (flows that do not includes stormwater runoff) immediately downstream of the Westborough POTW.²⁸

Because the four POTWs serve as the Assabet’s major tributaries under critical lowflow (7Q10) conditions and discharge directly into or upstream of impoundments, the Phase 2 effluent limits for total phosphorus should not exceed EPA’s applicable Gold Book criterion of 0.05 mg/l.²⁹ If the higher flow of 4.15 mgd were permitted, maintaining the same load would translate to a concentration of 0.034 mg/l total phosphorus. Indeed, the Phase 2 effluent should be comparable to background concentrations found in New England’s healthy rivers and streams in the range of 0.020 mg/l to 0.024 mg/l phosphorus.³⁰

In response to these suggested limits, the Response to Comments states that “there is no reason to expect that future discharge limits would need to be as low as 0.02 mg/l as suggested by the commenter.” (at 12) There is no evidence provided to support this

²⁷ Response No. 1 at 30, EPA Response to Comments on the four draft Permits, May 2005.

²⁸ DeSimone, L.A. *Simulation of Ground-Water Flow and Evaluation of Water-Management Alternatives in the Assabet River Basin, Eastern Massachusetts*, USGS, Scientific Investigations Report 2004-5114, 2004. Available at <http://pubs.usgs.gov/sir/2004/5114/>.

²⁹ EPA’s 1986 Gold Book criteria for phosphate phosphorus states, “To prevent development of biological nuisances and to control accelerated or cultural eutrophication, total phosphates as phosphorus (P) should not exceed 50 ug/L (0.050 mg/l) in any stream at the point where it enters any lake or reservoir, nor 25 ug/L (0.025 mg/l) within the lake or reservoir”.²⁹ All of the Assabet POTWs discharge directly into or upstream of impoundments (referred to as “reservoirs” in the Gold Book).

³⁰ EPA’s 2000 recommended nutrient criteria or “reference conditions” for river and streams located in Ecoregion XIV, which includes Level III sub-ecoregion 59, also known as the Northeastern Coastal Zone, encompasses the Assabet River watershed. Op cit., US EPA, 2000. The recommended total phosphorus criterion for this Level III sub-ecoregion is 0.02375 mg/l (hereafter rounded to 0.024 mg/l). This criterion was empirically derived to represent conditions of surface waters that are minimally impacted by human activities and protective of aquatic life and recreational uses. In 2003, the New England Interstate Water Pollution Control Commission published a study of instream nutrient data for New England rivers and streams. Op cit. NEIWPC, 2003. This EPA-funded report confirmed the earlier recommendations of EPA’s 2000 guidance document. Specifically, the more comprehensive phosphorus data set analyzed by ENSR for the Northeastern Coastal Zone (EPA sub-region 59) showed that in minimally impacted rivers and streams, the expected total phosphorus concentration would be in the range of 0.020 mg/l – 0.022 mg/l, slightly less than the 0.024 mg/l total phosphorus criterion recommended in EPA’s 2000 guidance document.

assertion, which disregards the model runs carried out in the TMDL study cited above which showed that effluent limits of 0.05 mg/l or 0.025 mg/l total phosphorus would allow the river to attain standards but with less reliance on sediment flux reduction--a more likely scenario. Hence this response inadequately responds to the commenter's concerns.

The Region's decision to allow a 44% increase in discharge by the Facility is likely to make compliance with Phase 2 limits difficult, if not impossible. EPA and DEP in 2006 wrote to the municipalities with WWTFs: "If we determine that sediment remediation is unlikely to achieve necessary phosphorus reductions based upon the information available at that time, the agencies will establish new Phase 2 phosphorus effluent limits designed to ensure compliance with water quality standards.... As Phase 2 phosphorus limits may be lower than the limits in the current permits, we once again strongly recommend that you give serious consideration to phosphorus removal technologies compatible with achieving phosphorus effluent limits lower than 0.1 mg/l." Exhibit E. Since the record now contains evidence that the 90% reduction cannot be achieved, EPA must include requirements in the Permit Modification to comply with lower (no greater than 0.05 mg/l) phosphorus limits by 2014.

This, however, may prove difficult to comply with if the Facility is granted a flow increase to 4.15 mgd. Since existing phosphorus loads must be reduced due to the anticipated sediment flux reductions provide only 60% of the required 90% reduction, as argued above a limit of 0.05mg/l or lower may be required. To maintain existing phosphorus loading the Permit Modification requires a 0.07 mg/l total phosphorus concentration for flows between 2.89 mgd and 4.15 mgd (the new permit limit). If the Facility were discharging at the increased flow level of 4.15 mgd and it was found

necessary to reduce the phosphorus load the Facility will need to meet a concentration of 0.034 mg/l or rounded, 0.03 mg/l. The Response to Comments states: “EPA no longer believes there is a concern relative to achieving lower limits that may be necessary in the future and hence did not believe a permit condition pertaining to this issue was necessary.” (at 12) The Response to Comments continues that BluePRO, the phosphorus removal technology to be used at the Facility, has “demonstrated the ability to achieve effluent phosphorus levels below 0.05 mg/l.” (at 12) The pilot of the BluePRO technology selected for the Facility conducted in 2007 was only able to meet roughly a 0.05 mg/l removal rate on a consistent basis, not lower.³¹ Thus the Permittee has not demonstrated that the phosphorus-removal technology proposed for the Facility (Blue PRO) is capable of consistently meeting a limit stricter than 0.05 mg/l, nor that such a limit can be met during the winter. The Response to Comments unconvincingly argues by analogy, that “current technology can readily and consistently achieve phosphorus concentrations below 0.05 mg/l and that many facilities are consistently achieving lower results.” (at 12) What matters is that the technology at **this** facility can meet such limits, and there is no proof of that.

The Region’s decision to permit an increased discharge prior to Phase 2 permits being issued, or even Phase 1 limits being met, is also of concern because the Assabet has a long history of delayed action. In recent years, even with significantly increased and helpful attention from DEP and EPA, it took six years to complete the phosphorus TMDL, 12 years to issue Westborough’s NPDES permit (the 1993 permit, instead of the more protective 2000 permit, was still in effect in 2005) and five years instead of three to issue the current Final Permits to the other Permittees (Marlborough, Hudson and

³¹ Marlborough, Massachusetts: Phosphorus Removal Pilot Study, Sept. 2007, Draft Report (CDM) p. 3-7. Exhibit M.

Maynard). Unfortunately this trend is continuing. As stated in the letter to the permittee from the EPA and DEP in 2006: “Consistent with the TMDL implementation schedule, EPA and DEP will initiate development of Phase 2 permits in Spring 2008.” Exhibit E. It is now 2010 and the process of developing those permits has only just begun, reflecting a two-year delay in preparing Phase 2 permits.

B. The Permit Modification’s winter loading limit of 24 lbs/day total phosphorus is not supported. The Region erred by disregarding new information showing that winter limits below 1.0 mg/l would contribute significantly to reducing sediment phosphorus flux. The winter Total Phosphorus limit should be no higher than 0.2 mg/l, DEP’s official “highest and best practicable treatment” standard.

The Permit maintains a winter total phosphorus limit of 1.0 mg/l and loading derived from this concentration of 24 lbs/day total phosphorus. This limit violates the state’s requirement for Highest and Best Practical Treatment, a technology-based limit currently defined by the state as 0.2 mg/l total phosphorus, as required by 314 CMR 3.11(5)(c). The state has assumed, but not supported by analysis in the TMDL or the permit fact sheets, that the 1.0 mg/l winter limit will meet water quality standards.

EPA justifies the 1.0 mg/l total phosphorus winter limit in the permit fact sheet based on the assumption that “the vast majority of the phosphorus discharged will be in the dissolved fraction and that dissolved phosphorus will pass through the system given the short detention time of the impoundments and the lack of plant growth during the winter period.”³² While the TMDL documented that most of the phosphorus discharged from the POTWs is in fact dissolved phosphorus, EPA acknowledged that the TMDL analysis did not evaluate, through monitoring or modeling, the water quality impact of

³² Assabet Permit Fact Sheet dated June 14, 2004 for NPDES PermitMA0100480 at 5.

winter phosphorus loadings.³³ Thus, when issuing the 2005 permit the agencies could only guess at the fate and effects of the total phosphorus, particulate or dissolved, discharged by the POTWs during the winter. However, by 2009, prior to the Permit Modification being issued, the agencies had in hand the CDM Report which did assess the fate and effects of phosphorus discharged during the winter. The CDM Report states:

This study also resulted in significant findings regarding the seasonality of sediment phosphorus flux. An additional consideration to meet the TMDL target of 90% reduction in sediment phosphorus flux is winter phosphorus discharge limits for at [sic] WWTFs. Based on results of this modeling effort, it was concluded that winter limits for the WWTFs, below the current planned limit of 1 mg/L *would contribute significantly* to the reduction in sediment phosphorus flux.

If no other improvements were implemented, further reductions in summer P discharge limits, below 0.1 mg/L, would not contribute significantly to further reduction in sediment phosphorus flux. *This is because the winter instream phosphorus concentration has such a strong effect on the P flux the following summer.*

CDM Report 6-7, Exhibit G. (Emphasis added.)

The Response to Comments again clearly erred in disregarding the CDM Report and implying that studies are “ongoing” and results are yet to be received. The recent Permit Modification issued to the town of Wayland WWTF which discharges into the Sudbury River, which is part of the same Sudbury, Assabet and Concord Wild and Scenic River system, provides a *year-round* total phosphorus limit of 0.1 mg/l.³⁴ This is a precedent for stringent winter limits which should guide the permit-writing for the Assabet River.

Until a water quality-based limit is established for the winter period, EPA and the state should at least require the 0.2 mg/l highest and best practicable treatment phosphorus limit. Otherwise, the significant reductions achieved by the growing season

³³ *Assabet River TMDL*, , Response to Comments at 65.

³⁴ Modification of NPDES permit no. MA 0039853 issued Oct. 9, 2009 to the Town of Wayland, Mass, available at <http://www.epa.gov/NE/npdes/permits/2009/finalma0039853permitmod.pdf>

phosphorus limits could be severely undermined by the ten-fold higher winter limits. Under the total phosphorus effluent limits of 0.1 mg/l (April - October) and 1.0 mg/l (November - March) required by the Permit Modification, the total annual load of total phosphorus to the river from the Facility at the original design flow (2.89 mgd) would be 21,609 pounds. The annual growing-season load would be 2,682 pounds or 12% of the total annual POTW load. The annual winter load would be 18,927 pounds or 88% of the total annual POTW load. Thus the winter load is substantial and unnecessarily high due to continuing reliance on disproven assumptions and violations of existing state regulations (314 CMR 4.04(5)).

- C. The Permit Modification’s new growing season phosphorus limits of 0.07 mg/l total phosphorus and 2.4 lbs/day total phosphorus (April – October) and winter limit of 24 lbs/day total phosphorus (November – March) do not comply with the state’s Antidegradation Provisions at 314 CMR 4.04(1) Tier 1 – Protection of Existing Uses and Federal Antidegradation Policy at 40 CFR Section 131.12(a)(1). EPA violated both state and federal antidegradation provisions when they issued the permit modification because existing uses are not supported by the new phosphorus limits.**

The state’s water quality standards at 314 CMR 4.04(1) and federal regulations at 40 CFR Section 131.12(a)(1) provide that in all cases, existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected (314 CMR 4.04). If the state determines, in accordance with its antidegradation provision, that existing uses would not be protected, then the review stops and the state proceeds with permit denial pursuant to 314 CMR 4.04(4) and in accordance with procedures in 314 CMR 2.00.³⁵ As explained previously in this Petition, the new phosphorus limits, 0.07 mg/l total phosphorus and 2.4 lbs/day total phosphorus (April - October) and 24 lbs/day

³⁵ “Implementation Procedures for the Antidegradation Provision of the Massachusetts Surface Water Quality Standards, 314 CMR 4.00”, Exhibit N.

total phosphorus (November - March), by themselves do not protect existing uses which include recreation--specifically boating, fishing, and swimming--and aquatic habitat for fish, macroinvertebrates, reptiles, amphibians, mammals and birds. As documented by the Phosphorus TMDL and photos taken over the years (Exhibit C) accelerated cultural eutrophication of the Assabet River prevents or limits these existing uses during the growing season, particularly during the summer and late fall. As described previously in this Petition, the Phosphorus TMDL and the 2008 CDM Report clearly establish that Marlborough's new phosphorus limits, by themselves, will not reduce noxious plant and algal growth and restore healthy dissolved oxygen concentrations such that existing uses will be maintained and protected. To reiterate, EPA and the state have violated the state and federal Antidegradation Provisions at 314 CMR 4.04(1) Tier 1 and Federal Antidegradation Policy 40 CFR Section 131.12(a)(1), respectively, by issuing the Permit Modification with new phosphorus limits that would not support existing uses of the Assabet River.

D. The Permit Modification failed to consider and account for background concentrations and upstream discharges of aluminum, copper, silver, total phenolic compounds and ammonia nitrogen as required by 314 CMR 4.03(1) and EPA has conducted an improper antidegradation review of nickel and silver as required by 40 CFR Section 131.12 and 314 CMR 4.04(2).

The Permit Modification and Response to Comments show that the new effluent limits for aluminum, copper, silver, and ammonia nitrogen were calculated without accounting for background concentrations and upstream discharges of those pollutants in violation of 318 CMR 4.03(1). EPA also evaluated whether to establish a limit for total phenolic compounds. In the case of silver and total phenolic compounds, EPA stated in the Response to Comments (at 27 & 28) that no upstream or background receiving water

data were available for these two pollutants, despite EPA's authority under Section 308 of the Clean Water Act to require these data from the Permittee or to collect these data themselves. Assuming *zero* background concentrations for both pollutants, EPA determined that no effluent limit was needed for total phenolic compounds and established concentration and mass limits for silver that used up 10% of the "assimilative capacity" for silver contrary to the requirements of both 314 CMR 4.03(1) and 314 CMR 4.04(2)(b). State antidegradation provisions stipulate that a pollutant increase is "insignificant" only if it is less than (not equal to) 10% of the remaining assimilative capacity in a Tier 2 "high quality water" per 314 CMR 4.04(2). As a result, EPA claimed erroneously in the Response to Comments (at 27 & 28) that the increase in silver is "insignificant" pursuant to state antidegradation provisions.

EPA also assumes zero background concentrations and loads of aluminum and copper in its calculations of new mass limits for these pollutants, despite that fact the Westborough Plant, the largest on the river, discharges approximately 5 miles upstream of the Marlborough plant and has a concentration limit (but not a mass limit) for copper and requirements to measure and report concentrations of aluminum, lead and zinc. Given that Westborough's effluent discharge makes up over 90% of Marlborough's receiving water under low flow 7Q10 conditions³⁶ it is very likely that some amount of Westborough's aluminum and copper is present in the river at the point of Marlborough's discharge. The Westborough plant discharges and has concentration limits (but not mass limits) for ammonia-nitrogen limits as well.

EPA's failure to account for background concentrations and existing upstream discharges of aluminum, copper, silver, total phenolic compounds and ammonia nitrogen

³⁶ Op cit. DeSimone, 2004. *Simulation of Ground-Water Flow*.

undermines EPA's claim, made in several places in the Response to Comments (e.g., at 28), that these calculations demonstrate that the increased discharge does not have reasonable potential to cause or contribute to an exceedance of water quality standards. Specifically, the lack of background concentrations and existing upstream discharges data for these pollutants has the following deleterious consequences:

- EPA violates the State's surface water quality standard at 314 CMR 4.03(1), which requires "...in establishing water quality based effluent limitations the Department shall take into consideration background condition and existing discharges."
- EPA cannot determine if there is remaining assimilative capacity in the river for the increased concentration and/or mass loading of a pollutant, which makes it impossible to tell if an acute or chronic water quality criterion is likely to be exceeded. In addition, not knowing if the river has remaining assimilative capacity for these pollutants makes it impossible for EPA and DEP to determine whether or not the river is a Tier 2 "high quality water" or Tier 1 for these pollutants per the state's Antidegradation Provisions at 314 CMR 4.00. By contrast, EPA did use upstream concentration data for Cadmium, Nickel, Lead and Zinc to calculate the river's assimilative capacity and downstream concentrations as part of its antidegradation review for these pollutants.³⁷ Clearly EPA understood that it needed to account for background concentrations and existing upstream discharges of pollutants but failed to do so in the case of aluminum, copper, silver, total phenolic compounds and ammonia nitrogen. Yet even when evaluating Cadmium, Copper, Nickel and Zinc loads to the river, EPA

³⁷ See Attachment 1 of the Response to Comments titled "Antidegradation Calculations."

did not consider the toxic concentrations of these metals in the sediments of the four river impoundments downstream of Marlborough's discharge and the possibility that some of the metals discharged would settle and accumulate in the already contaminated sediment, which exceed aquatic life guidelines and threaten the health of aquatic life.³⁸ EPA also did not account for the fact that the segment into which the Marlborough plant discharges is listed on the Massachusetts Year 2008 Integrated List of Waters as a Category 5 Water (i.e., water requiring a TMDL) for *metals as well as nutrients, organic enrichment/low DO, pathogens and noxious aquatic plants*. (Exhibit K)

- Without analyzing background concentrations, upstream sources, downstream sediment contamination, and conducting an analysis of the fate and transport of these metals in the river, EPA cannot claim that Marlborough's discharge of aluminum, copper, or silver will meet state water quality standards, or that they won't settle and accumulate in the river sediments in violation of State Surface Water Quality Standard 314 CMR 4.05(5)(b) and 4.05(5)(e)(3). EPA incorrectly implies on page 21 of the Response to Comments that because the majority of the total metal discharged is in the dissolved form, it is unlikely to settle and cause or contribute to contamination of river sediments. In fact, the dissolved fraction of a metal such as copper can enter the river sediments through uptake by plants and algae, which then die, settle, decompose and become part of the river sediments, and by direct adsorption onto river sediments.³⁹ Given that concentrations of Cadmium, Copper, Nickel and Zinc in the sediments of the four impoundments

³⁸ *Sediment Studies*, USGS, Scientific Investigations Report 2005-5131, 2005.

³⁹ Wen, Xianghua, et al. "Surface Complexation Model for the Heavy Metal Adsorption on Natural Sediment." *Environ. Sci. Technol.* 1998, 32, 870-875; and Wang, T.C., et al. "Parameters for Removal of Toxic Heavy Metals by Water Milfoil (*Myriophyllum spicatum*)." *Bull. Environ. Contam. Toxicol.* (1996) 57:779-786.

below Marlborough's discharge already exceed aquatic life guidelines, EPA erred when it asserted in the Response to Comments (at 21) that "...the Agencies expect that the increase in flow will not have the potential to impair any existing or designated water use and will not adversely affect the physical or chemical nature of the bottom."

Failure to comply with Antidegradation Provisions

Regarding EPA's compliance with state and federal antidegradation provisions and policies, EPA assumes that the segment of the Assabet River into which Marlborough discharges is a "high quality water" per 314 CMR 4.04(2) for nickel and silver. However, as noted previously, EPA cannot determine if there is assimilative capacity for an increased pollutant discharge if background concentrations and upstream discharges are not taken into account in the antidegradation analysis. Not knowing if the river has remaining assimilative capacity for these pollutants makes it impossible for EPA and the State to determine whether or not the river is a Tier 2 "high quality water" for these pollutants per the state's Antidegradation Provisions at 314 CMR 4.00. In addition, this river segment is listed on the Massachusetts Year 2008 Integrated List of Waters as Category 5 Water (i.e., water requiring a TMDL) as impaired by metals. EPA may have erroneously classified the affected receiving waters as "high quality waters" pursuant to 314 CMR 4.00 as a result of its flawed antidegradation review. In addition to EPA's likely error in treating the affected river segment as a Tier 2 "high quality water" for metals instead of an impaired Category 5 Tier 1 segment, EPA's concentration and mass limits for Nickel and Silver give Marlborough the full 10%, not *less than* 10%, of the remaining calculated assimilative capacity (although both were erroneously

calculated – see previous comments) and therefore, contrary to EPA’s assertions, the increased discharges of these pollutants do not meet the state’s insignificance criteria found at 314CMR 4.04(2)(b).⁴⁰

E. The Region errs in asserting that the commenter cannot dispute limits on phosphorous derived from those contained in the 2005 Permit.

In an attempt to prevent review of the terms of the Permit Modification, the Response to Comments asserts that “only those conditions to be modified are reopened when a new draft permit modification is prepared.” (at 8)⁴¹ Whatever the validity of that assertion as a general matter, it does not apply here in the way the Region claims.⁴²

First, the relevant terms of the Permit Modification are not the same as those in the original permit. The Region errs in asserting that the addition of phosphorous mass loads in the Permit Modification “follows as an arithmetic consequence of the flow increase and did not reopen the logically distinct issue of whether 1.0 mg/l phosphorus limit was sufficient to ensure compliance with water quality standards...” (at 9) (*See n.* 41) This argument cannot hold, as the Response to Comments correctly points out in

⁴⁰ State antidegradation policy stipulates: a new or increased loading to a high quality water that uses *less than* 10% of the available assimilative capacity of the receiving water for that pollutant is deemed to be “insignificant” and may be permitted. Exhibit N, Implementation Procedures for Antidegradation Provisions.

⁴¹The Response to Comments elaborates the point this way: “In challenging the adequacy of the 0.1 mg/l phosphorus limitation and the underlying WLA, the commenter ventures far beyond the limited confines of this modification. The imposition of mass limitations flowed as an arithmetic consequence of the flow increase and did not reopen the logically distinct issue of whether the 0.1 mg/l phosphorus limit was sufficient to ensure compliance with water quality standards, or whether the 0.1 mg/l limit was properly translated from the underlying WLA, or whether the WLA was still scientifically and technically valid. Challenges to these aspects of the permit were lodged in the original permit determination and were resolved as a result of litigation over the originally issued permit.” (Response to Comments at 9)

⁴² The Region also points to the appeal of the 2005 permit having been dismissed “with prejudice.” (at 9, FN 26) First, that is a separate matter from whether certain terms in the Permit Modification are “the same” as terms that were in the original permit. But more important, OAR withdrew its appeal of the 2005 permit voluntarily, before there had been any adjudication of issues relating to the terms of the permit. While the dismissal means that OAR may not bring a new challenge to the 2005 permit, it says nothing about the validity of a challenge to the Permit Modification.

Response G7: “As the commenter is aware, concentration limitations and mass limitations have distinct environmental functions.” (at 49) The Permit Modification contains new Mass Load limits for CBOD, TSS, Ammonia Nitrogen, Aluminum, Copper, Silver, and Nickel, where before there were none. Furthermore, new total phosphorus concentrations were added for flows between 2.89 mgd and 4.15 mgd (0.7 mg/l winter and 0.07 mg/l growing season), in addition to new concentration limits for CBOD, TSS, Total Residual Chlorine, Ammonia Nitrogen, Aluminum, Copper, Silver, and Nickel. By adding a mass load limit the Region is adding a **new** limit which, as the Response notes, provides a “ceiling on the total amount of a pollutant that can be discharged from a facility.” (Response to Comments at 49) The Region also errs in characterizing phosphorus loading and calculations based on the WLA as “permit terms that are unaffected by the proposed modifications,” given that new information was available at the time of the writing of the Permit Modification that bears directly on the phosphorus WLA and loading calculations. For these Reasons, OAR’s challenge of new conditions contained in the Permit Modification should hold.

Second, even if the relevant parameters were the same, there is substantial new information available that demonstrates that the terms of the Permit Modification will not assure that water quality standards will be met. The Region’s decision essentially to ignore this information in issuing the Permit Modification raises an important matter of policy and exercise of discretion that warrants review by the EAB. In considering the Permittee’s “need” for the modification, the Region considers what has changed since 2005. *See* Response to Comments at 13 (Request for flow increase should be evaluated “in light of information available at the time of the decision.”) In considering the requirements of the Clean Water Act, however, the Region takes refuge in the unknowns

and uncertainties that existed when the original permit was issued but that have largely been resolved since then – in ways that make it clear that allowing the discharge that the Permittee has requested will not ensure compliance with applicable water quality standards. The final CDM Report was issued in June 2008, and the results of the modeling were known well before that date. The phosphorus loads and concentrations included in the Permit Modification were based on assumptions disproved in the CDM Report. OAR asserts that since new information was available at the time of drafting the Permit Modification, the Region erred in not using that information in determining discharge limits.

Further, to permit a change in so central a parameter as flow discharge – which affects nearly all pollutant loading calculations and impacts – in the middle of a two-phase process which has not yet achieved water quality standards, undermines the interests of the Clean Water Act and the utilization of the “adaptive management” approach adopted by the Region. The Region has used the “adaptive management” approach in other cases, including the Marlborough Easterly Facility’s discharge to Hop Brook.⁴³ Thus the Region’s action in this case has broader policy implications in permitting decisions affecting other facilities.

Lastly, in the words of the Region: “Municipal wastewater discharges into the Assabet River are severely over allocated and further increases in permitted wastewater volumes would almost certainly increase both the frequency and duration of when wastewater dominates the flow in the river. This is not consistent with achieving the magnitude, duration and frequency components of the minimum water quality criteria or

⁴³ *In re City of Marlborough, Massachusetts Easterly Wastewater Treatment Facility*, NPDES Appeal No. 04-13, EAB August 11, 2005, 12 E.A.D. __ (at p. 248).

for protecting designated uses of the Assabet River.”⁴⁴ As noted earlier, “as the POTWs approach design flows, the percent of the 7Q10 flow that is comprised of wastewater effluent is expected to approach 100%.”⁴⁵ The Region clearly shares OAR’s concerns that a flow increase poses a risk: “the Agencies concur that it would be advisable to minimize and delay to the extent reasonably possible the introduction of any further environmental uncertainties (and *potential* adverse impacts) that might accompany an alteration of the river’s flow regime in this particular case.” (Response to Comments at 34) Were the precedent established by this Permit Modification to be applied by the other POTWs on the river, as some have a clear intention of doing,⁴⁶ the cumulative effects for the river would be to exacerbate the over-allocation to extreme levels. A recently-completed USGS study calculated that in wastewater effluent currently comprises 93% of the Assabet River under average September non-storm streamflows (flows that do not include stormwater runoff) immediately downstream of the Westborough POTW.⁴⁷ This concern about overallocation was inadequately addressed by the Region in its Response that “future requests for flow increases...will be assessed on their own merits and in light of information available at the time of the decision.” (at 13) In the Response to Comments the Region states that “EPA deliberately structured the permit so to provide an incentive for the City to remain below the 2.89 MGD for as long as possible. EPA fashioned this break point in the permit to address concerns over effluent dominance.” (at

⁴⁴ EPA, Region 1, June 12, 2007 letter on the DEIR under MEPA for the CWMP for Assabet communities to Ian Bowles, Secretary of Energy and Environmental Affairs, Exhibit O.

⁴⁵ EPA Response to Comments on draft NPDES Permits, May 2005, page 29, Response No. 25.

⁴⁶ See OAR Comments on Draft Permit Modification, Response to Comments p.12. The town of Shrewsbury, which discharges via the Westborough WWTP at the Assabet headwaters, stated its intention to request an increase in effluent flow if the Marlborough request is successful: “The Town of Shrewsbury reserves its right to conduct a similar [antidegradation] study in the future concerning the impact of adding flows beyond the current flow limit of 7.68 mgd at the Westborough WWTP. Indeed, the Town of Shrewsbury might have undertaken such a study during the previous phase of this CWMP/EIR (Phase III) had it known that this option was available at the outset...” Shrewsbury CWMP/FEIR, 2007, p. 2-15.

⁴⁷ Op cit. DeSimone, 2004. *Simulation of Ground-Water Flow*.

24, FN 57) The Region errs in using an unrealistic time frame for the utilization of the additional flow: “it is expected to be many years before the discharge flow approaches 4.15 MGD. ...by the time the city reaches its permitted flow, the decreases in sediment phosphorus flux rates resulting from the external load reductions and /or successful dam removal will have occurred...” (at 34) This assertion has no basis in fact, since the City already is close to its permit limit as stated in its Claim for Adjudicatory Appeal to the DEP: “The City is approaching this flow and an inordinately wet year could result in this permit becoming effective much sooner than later.”⁴⁸ Thus the Region’s effort to temporally minimize the overallocation of wastewater is ineffective and is an inadequate response to the concerns of the commenter.⁴⁹ In conclusion, the decision to permit an increase in wastewater flows to a severely overallocated river represents an improper exercise of discretion by the Region. Since the “adaptive management” approach is being applied by the Region in other cases, including the Hop Brook Marlborough Easterly POTW discharge (which is in the same watershed as the Assabet River), there are policy implications that deserve review by the EAB.

In its Response to Comments regarding OAR’s concern that the Permit Modification would exacerbate the water imbalance and effluent dominance in the watershed, the Region stated:

“In deciding whether to proceed with the flow increase in this case, the Agencies balanced concerns over effluent dominance, emerging contaminants and phosphorus ...against other factors militating in favor of the increase.” (at 33) What were those other factors? “In arriving at its determination, the Agencies considered the period over which

⁴⁸ Notice of Claim for Adjudicatory Appeal of the City of Marlborough Modification of NPDES Permit No. MA0100480, Marlborough Westerly Wastewater Treatment Plant,” December 18, 2009, at 5.

⁴⁹ The Region also errs in stating that the “wastewater planning projections underlying the flow increase request were made over a thirty-five year period. (Response to Comments, at 34). In fact, the design period extends to 2030, which is now 20 years hence, not 35. CWMP/ EIR, Final Report, Oct. 2007, p. 3-30.

the flow increases would in actuality occur at the facility. In this particular case, the impacts of the permitted flow increase will be felt over an extremely protracted period, which will encompass as many as seven permit cycles.” (at 34) (See n. 49) As noted above, this is extremely unlikely as the Facility is already nearing capacity. “Second, by the time the city reaches its permitted flow, the decreases in sediment flux rates resulting from the external load reductions and/or successful dam removal will have occurred...” (at 34) As we have shown above, this is also extremely unlikely. “Third, it is likely that over this period the wastewater treatment plants will have been upgraded, if not effectively rebuilt, with corresponding improvements in effluent quality reflecting technological advances.” (at 34) The point made here is unclear—upgrades will be made to meet permit conditions and cannot be expected to exceed those conditions. This is no justification for allowing an increase in flow. Hence these three reasons cited by the Region to justify the flow increase are either fallacious or irrelevant.

Finally, the Region supports its decision to allow a flow increase by citing the “extended and in-depth public process that accompanied the CWMP and influence the city’s decision to seek authorization to discharge additional effluent into the river as opposed to the other alternatives under consideration.” (at 36) In a lengthy footnote, the Region describes the CWMP process and MEPA review. This conveys the impression that the requested flow increase and the analysis of alternatives has the approval of both the State’s environmental review process and the public. This is not the case. There were serious objections to the CWMP studies conducted by Marlborough and Northborough lodged by OAR and other parties, including the Town of Stow, throughout the CWMP/EIR process. And the Certificate issued by the Massachusetts Secretary of

Energy and Environmental Affairs shared these concerns, specifically regarding proposed wastewater flows:

Reductions in wastewater discharges to the Assabet River will also play a significant role in achieving the low discharge limits of total phosphorous to the Assabet River. Reduction of wastewater flows can be achieved by utilizing in-basin groundwater discharges sites, reducing infiltration/inflow (I/I) levels, increasing wastewater reuse (for example, for irrigation purposes), and implementing aggressive water conservation programs for each Consortium community. (at 5)

Many commenters on the FEIR have continued to express significant concern with the City of Marlborough's and the Town of Northborough's recommended plans, and their potential impacts to the water quality standards established for the Assabet River, and the restoration of streamflow and water balance in the watershed... I have also received numerous comments on the FEIR again indicating that along with the City of Marlborough's proposed increased wastewater discharge flows, the Town of Northborough's extensive sewer expansion plans and proposed reactivation of its local municipal water supply wells will result in serious streamflow deficits and water quality impacts to the sub-watersheds and tributaries to the Assabet River including Cold Harbor Brook, Howard Brook and Hop Brook. (at 9)

According to EPA, the City of Marlborough will need to file an NPDES Permit Modification with EPA and MassDEP and will need to provide sufficient information and analysis to successfully demonstrate compliance with the Federal Clean Water Act and the Massachusetts Surface Water Quality Standards. As part of the NPDES Permit Modification review process, the City of Marlborough will also be required to satisfactorily demonstrate to EPA and MassDEP that the proposed increase of the City's discharge flow limits would be in compliance with applicable water quality requirements for the Assabet River, would not cause or contribute to a violation of water quality standards, and that *no feasible alternatives exist to the City's proposed wastewater flow increase*, as described in the FEIR. In consultation with the MEPA Office, EPA has indicated that EPA's NPDES Permit Modification review process will require *additional analysis of the City of Marlborough's proposed increase of the City's discharge flow limits and its potential impacts to the water quality standards and designated uses established for the Assabet River and its tributaries; to stream flows and watershed imbalances to the Assabet River and its tributaries; and to the Concord River, a designated Wild and Scenic River.*⁵⁰ (at 9) (emphasis added)

⁵⁰ Certificate of Secretary of Energy and Environmental Affairs, the Special Procedure: Phase IV – Final Recommended CWMP, Dec. 3, 2007. At www.env.state.ma.us/mepa/pdf/certificates/120307/12348feir.pdf.

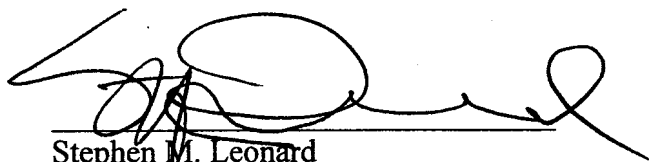
Despite the Region's assurances to the Secretary, the Region did not require additional analysis of any of the above impacts of the proposed flow increase, nor did it require an alternatives analysis, beyond what had already been provided at the time the Secretary stated that EPA would provide additional analysis in the permit modification proceeding. Hence the analysis promised to the Secretary (and the public) was not carried out.

RELIEF REQUESTED

For all of the foregoing reasons, OAR requests that the EAB direct EPA Region 1 to withdraw the Permit Modification.

THE ORGANIZATION FOR THE ASSABET RIVER

By its Attorney,

A handwritten signature in black ink, appearing to read 'S. Leonard', written over a horizontal line.

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List of Exhibits

- A. Permit Modification and Water Quality Certification
- B. Map of Assabet River
- C. Photos showing recreation and eutrophication
- D. *Assabet River TMDL for Phosphorus Report No: MA82B-01-2004-01*, pp. 1-46 (excluding appendices)
- E. EPA/DEP letter, April 28, 2006
- F. ACOE Study, 2009, *Assabet River Sediment and Dam Removal Feasibility Study, Draft, September 2009*. Executive Summary.
- G. CDM Report, 2008, *Assabet River Sediment and Dam Removal Study, Modeling Report, June 2008*
- H. MTC Grant Award; Pers. Comm. Joe Mullin; FERC Preliminary Permit
- I. OAR Comments on Draft Permit Modification
- J. Comment letters from: Town of Stow, U.S. Department of the Interior (National Park Service), U.S. Department of the Interior (Fish and Wildlife Service), Conservation Law Foundation, and 18 environmental organizations
- K. Massachusetts Year 2008 Integrated List of Waters
- L. Letter from US Department of the Interior to EPA, Region 1, January 12, 2010
- M. Marlborough, Massachusetts: Phosphorus Removal Pilot Study, Oct. 2007, Draft Report (CDM), Figure 12, p. 3-7
- N. Implementation Procedures for the Antidegradation provision of the Massachusetts Surface Water Quality Standards, 314 CMR 4.00
- O. EPA comment Letter on CWMP Draft Environmental Impact Report, 2007

CERTIFICATE OF SERVICE

I certify that I caused to be served by overnight delivery a copy of the Petition for Review and Exhibits to:

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Dated: January 13, 2010



Stephen M. Leonard