

discharges to the area of the Bay where the greatest impairments have been measured.²⁵ Rhode Island also has issued permits with a nitrogen limit of 8.0 mg/l for four other facilities – East Providence, Cranston, Warwick and West Warwick. These facilities have relatively smaller permitted design flow (and corresponding nitrogen load) – ranging from 8 MGD to 20 MGD – and they discharge further downstream in the Providence River. In Massachusetts, EPA has issued final permits with total nitrogen limits of 8.0 mg/l to Attleboro and North Attleborough. While these two facilities discharge to a freshwater river that flows to areas of the Upper Bay where the greatest impairments have been measured, they also have much smaller permitted flows and corresponding nitrogen loadings than UBWPAD. Attleboro has a design flow of 9 MGD and North Attleborough has a design flow of 5 MGD. There are several smaller facilities in both Rhode Island and Massachusetts and Rhode Island that discharge to freshwater rivers that flow to the Upper Bay. The CWA requires that Rhode Island and EPA assess whether these discharges require water quality based effluent limits, including any limits for nitrogen, in subsequent permit reissuances.

As Massachusetts facilities are not being treated more stringently than Rhode Island facilities, there is no need to reach the commenter’s contention that Rhode Island has violated the Commerce Clause of the United States Constitution. Further, to the extent that UBWPAD is challenging the constitutionality of the CWA and/or its implementing regulations, such a challenge is not appropriately raised in these administrative permitting proceedings. *See, e.g., In re: City of Marlborough, Massachusetts*, NPDES Appeal No.04-12 at n.19 (EAB March 11, 2005); *In re: City of Port St. Joe and Florida Coast Paper Co.*, 7 EAD 275 at n.58 (July 30, 1997). In any event, a Commerce Clause claim alleging that one State is attempting to secure an economic advantage over another State should be directed at the allegedly offending State, not the federal government. *See, e.g., City of Philadelphia v. New Jersey*, 437 U.S. 617 (1978). EPA, not Rhode Island, is the permitting authority in this matter.

Comment #F47(b)(iv): Due process violations. Massachusetts facilities, ratepayers, and taxpayers have not had an adequate opportunity to be informed of, and to participate in the Rhode Island rulemaking process for the out-of-state, narrative water quality standards upon which the total nitrogen limits are based. This deprives the District, other Massachusetts POTWs, and their impacted ratepayers of their fundamental rights to public notice, review and comment on such important matters, thus depriving them of due process under the federal and state constitutions.

Response #F47(b)(iv): Section 401(a)(2) of the CWA and 40 CFR § 122.44(d)(4) require EPA to condition NPDES permits in a manner that will ensure compliance with the applicable water quality standards (including narrative criteria) of a “downstream affected state,” in this case Rhode Island. To the extent the comment challenges the constitutionality of this statutory and regulatory framework, it is not appropriately raised

²⁵ In resolution of an appeal of this permit, Woonsocket recently entered into a Consent Agreement that the facility will meet a nitrogen limit of 3.0 mg/l. *See* Consent Agreement, In re: AAD No. 05-004/WRA dated June 27, 2008.

as part of these administrative permitting proceedings. *See, e.g., In re: City of Marlborough, Massachusetts*, NPDES Appeal No. 04-12 at n.19 (EAB March 11, 2005); *In re: City of Port St. Joe and Florida Coast Paper Co.*, 7 EAD 275 at n.58 (July 30, 1997).

In any event, the procedures governing this permit issuance satisfy any due process concerns. UBWPAD, co-permittees and members of the public have had the opportunity to participate in these permitting proceedings through the notice and comment process. As part of that process, EPA has received written comments from numerous organizations, public entities and individuals, including substantial comments from UBWPAD, its technical consultants and attorneys. EPA also held a public hearing at which 23 persons provided comment on the draft permit. Accordingly, UBWPAD has had full opportunity to comment on EPA's interpretation and application of the relevant Rhode Island water quality standards.

Moreover, in its comment above, UBWPAD simply raises broad due process concerns without articulating any specific concerns with Rhode Island's narrative nutrient criteria. Indeed, it is difficult to imagine what possible concerns with the criteria UBWPAD could forward. The CWA requires States to adopt water quality criteria sufficient to protect designated and existing uses of each water body. *See* 33 U.S.C. §§1313(a)-(c). *See also* 40 CFR §131.11(a). These criteria may be numeric or narrative. Rhode Island has adopted (and EPA has approved) the following narrative criteria applicable to the nitrogen limit:

“At a minimum, all waters shall be free of pollutants in concentrations or combinations or from anthropogenic activities subject to these regulations that:

- i. Adversely affect the composition of fish and wildlife;
- ii. Adversely affect the physical, chemical, or biological integrity of the habitat;
- iii. Interfere with the propagation of fish and wildlife;
- iv. Adversely alter the life cycle functions, uses, processes and activities of fish and wildlife....” Rule 8.D.(1).

There shall be no nutrients “in such concentration that would impair any usages specifically assigned to said Class, or cause undesirable or nuisance aquatic species associated with cultural eutrophication.” Table 2, Rule 8.D.(3)10; see also Rule 8.D.(1)(d).

Additional relevant regulations include Rule 9.A. and B., which prohibit discharges of pollutants which alone or in combination will likely result in violation of any water quality criterion or interfere with one or more existing or designated uses, and prohibit discharges that will further degrade waters which are already below the applicable water quality standards.

In short, Rhode Island's criteria prohibit discharges of nutrients that would impair or interfere with uses. Nowhere in its comments does UBWPAD challenge that these criteria are somehow flawed, do not appropriately protect uses or otherwise contravene the requirements of Section 303(a)-(c) of the CWA. Nor does UBWPAD offer what possible commentary or concerns it would have raised during the development of such narrative criteria by Rhode Island. The more specific objections UBWPAD has raised elsewhere in its comments relate to EPA's application of these criteria in establishment of the nitrogen effluent limit. And, as is detailed above, UBWPAD and other interested persons have had full opportunity through this permitting proceeding to comment on the Region's interpretation of and application of Rhode Island's narrative criteria.

Comment #F48: Phosphorus. For several reasons (explained below), the Draft Permit's phosphorus limits should be stricken and the determination of such limits should be deferred/postponed to the future completion of a TMDL. The limit set in the existing Permit should remain in effect.

There is no adequate technical and legal basis for imposing the reduced phosphorus limits proposed in the Draft Permit. The new phosphorus limits are based on outdated and irrelevant assessments. The manner in which the modified limits were developed is too simplistic, and does not reflect real world conditions. EPA has erroneously concluded that compliance with the proposed limits will have an affect on the cultural eutrophication of the Blackstone River.

Notwithstanding the extensive upgrades and phosphorus limit adjustments to several plants discharging into the Blackstone River, and the improved water quality associated with or expected from those upgrades and permit adjustments, EPA, without any assessment of the beneficial effect of these upgrades and adjustments for phosphorus, issued a Draft Permit to the District containing phosphorus limits that are significantly more stringent than the limits in its 2001 Permit. As discussed in CDM's technical comments, the phosphorus levels that allegedly led to the water quality conditions described in the Draft Permit's Fact Sheet are not the same conditions that will exist after completion of the ongoing upgrades/improvements, but rather reflect the same loadings that compelled the implementation of the 0.75 mg/l phosphorus limitation. EPA should look to its wasteload allocation studies to determine if there is evidence of cultural eutrophication once the dischargers have complied with the limits in the modified 1999 permits.

The United States Geological Survey (USGS) and the District have undertaken development of hydrologic and water quality models suggested by the EPA's Science Advisory Board and the Watershed Action Plan.²⁶ The USGS is undertaking the hydrologic simulation model in concert with the Rhode Island Water Resources Boards,

²⁶ See EPA-SAB-EPEC-98-001, Evaluation of the Blackstone River Initiative, p. 2; and 2004 Blackstone River Watershed Five-Year Action Plan.

and with the cooperation and sponsorship of the District. The District is undertaking the development of the HSPF water quality model (building on the HSPF quantity model developed by USGS), including additional wet and dry weather sampling, the installation of continuous recording analytical devices and the integration of the extensive volunteer data sets into the program. Significant outputs from the USGS and District models are expected in November/December 2007. Until the release of this modeling information and the associated understanding it should provide with respect to the affect of the various plant upgrades and permit adjustments on the water quality of the Blackstone River, there remains an inadequate and unreliable factual basis for imposing stricter phosphorus limits.

In the absence of a TMDL, EPA appears to rely solely on a purely mechanical application of national guidance that is outdated [namely, the 1986 Quality Criteria of Water, otherwise known as the Gold Book] and has no relation to site specific facts or the environmental impacts of the District's wastewater discharge. The existing limit, which was based on a water quality model previously embraced by the Region, should not be replaced with an unproven, speculative method [the Gold Book] that would necessitate a multi-million dollar renovation.

In addition, EPA considered an incorrect interpretation of the current Massachusetts Surface Water Quality Standards ("WQS") when it set the Draft Permit's phosphorus limit. Consequently, any reliance on the misinterpreted WQS is erroneous as a matter of law.

The Draft Permit Fact Sheet (pg. 3, footnote 1) states that the 1996 version of the Massachusetts WQS is applicable to this Draft Permit as the DEP's January 2007 revisions are not yet approved by EPA. The applicable Massachusetts WQS do not contain a numerical criteria for total phosphorus; instead, a narrative criterion at 314 CMR 4.05(5)(c) provides that nutrients "[s]hall not exceed the site specific limits necessary to control accelerated or cultural eutrophication."

In the Draft Permit's Fact Sheet (pg. 8), EPA asserts that the Commonwealth's WQS, at 314 CMR 4.04, require the imposition of "highest and best practical treatment" for phosphorus for all discharges, not just discharges to lakes and ponds as justification for the increase. This strained interpretation completely ignores the plain meaning of the language in the applicable WQS which states, in relevant part:

(5) Control of Eutrophication. From and after the date 314 CMR 4.00 become effective there shall be no new or increased point source discharge of nutrients, primarily phosphorus and nitrogen, **directly to lakes and pond**. There shall be no new or increased point source discharge to **tributaries of lakes or ponds** that would encourage cultural Eutrophication or the growth of weeds or algae in these lakes or ponds. *Any existing point source discharge containing nutrients in concentrations which encourage eutrophication or growth of weeds or algae shall be provided with the highest and best practical treatment to remove such*

nutrients. Activities which result in the non-point source discharge of nutrients **to lakes and ponds** shall be provided with all reasonable best management practices for non-point source control. 314CMR 4.04(5) (emphasis added).

The applicable [1996] Massachusetts regulations relied upon by EPA do not apply to the District given that they are clearly intended to control eutrophication in lakes and ponds and their tributaries, and there is no language to suggest that it was intended to apply to rivers and streams – other than tributaries to lakes and ponds. Critically, the District does not discharge to a lake, pond or tributary to the same.

The DEP has acknowledged that the 1996 regulatory language only applies to lakes, ponds and their tributaries by publishing, in January 2007, new proposed water quality standards, which are not yet adopted and approved by EPA, and which insert new language that states the “resulting provision is *expanded* to ensure that all surface waters, not just lakes and ponds, are protected from excessive nutrients. See DEP, *Summary of Proposed Revisions to 314 CMR 4.00 Water Quality Standards, Appendix, Tab B-4*].

The few publicly-operated POTWs across the country that have been required to meet phosphorus limits of 0.1 mg/l or lower [less than 0.18 percent of the 17,000 POTWs in the nation] are mainly facilities that discharge to lakes or ponds.

Regardless of which version [1996 or 2007] of the Massachusetts Water Quality Standards (314 CMR 4.00) is applied here, the District’s technical experts have shown the 0.75 mg/l phosphorus limit to be appropriate and adequate. The existing QUAL2E model has indicated that at extreme low flow conditions (as compared to seasonal average values) with the existing phosphorus limit of 0.75 mg/l and with 25 percent reduction in sediment phosphorus flux, that chlorophyll *a* levels would be reduced substantially from 66 ug/l to 22 ug/l. The increased seasonal average flow [seasonal chlorophyll *a* was directly used in the Charles River as a measure of cultural eutrophication] would undoubtedly have mitigated algal growth further (e.g., dilution and reduced residence time) resulting in even lower chlorophyll *a* levels.

Response #F48: In the expired permit, EPA established a phosphorus limit of 0.75 mg/l based on a waste load allocation for achieving minimum dissolved oxygen criteria [Blackstone River Watershed Dissolved Oxygen Waste Load Allocation for Massachusetts and Rhode Island (November 1997)]. That permit issuance made clear that the 0.75 mg/l total phosphorus limit was based on meeting dissolved oxygen criteria in the Blackstone River only and did not address eutrophication related impairments in either the Blackstone River or Narragansett Bay. EPA specifically cautioned that future permit limits might include more stringent phosphorus limits if warranted by eutrophication impacts. See Response #F5 for a description of the development of the limit in the expired permit and the Agency’s increased awareness of nutrient-related impairments.

As outlined in the Fact Sheet and as described below, EPA has determined that the discharge of phosphorus allowed under the expired permit causes or has the reasonable potential to cause or contribute to excursions above Massachusetts' narrative water quality criteria for cultural eutrophication. The 0.75 mg/l limit does not ensure that eutrophication related criteria will be met in the Blackstone River. *See* Fact Sheet at pages 8-9 and Response #F9.

Under undisturbed natural conditions, phosphorus concentrations are very low in most aquatic ecosystems. Excessive nutrient levels can result in increases in algae and other primary producers, which may prevent streams from meeting their designated uses. Typically, elevated levels of nutrients such as phosphorus will cause excessive algal and/or plant growth. Phosphorous and other nutrients (*i.e.*, nitrogen) promote the growth of nuisance levels of algae, such as phytoplankton (free floating algae) and periphyton (attached algae), filamentous algae such as moss and pond scum, and rooted aquatic plants, referred to generally as macrophytes.

Noxious aquatic plant growth degrades aesthetic and recreational uses in a variety of ways. Unsightly algal growth is unappealing to swimmers and other stream users and reduces water clarity. Heavy growths of algae on rocks can make streambeds slippery and difficult or dangerous to walk on. Algae and macrophytes can interfere with angling by fouling fishing lures and equipment. Boat propellers and oars may also get tangled by aquatic vegetation. Excessive plant growth can also result in a loss of diversity and other changes in the aquatic plant, invertebrate, and fish community structure and habitat.

Through respiration, and the decomposition of dead plant matter, excessive algae and plant growth can reduce in-stream dissolved oxygen concentrations to levels that could negatively impact aquatic life. During the day, primary producers (*e.g.*, algae, plants) provide oxygen to the water as a by-product of photosynthesis. At night, however, when photosynthesis ceases but respiration continues, dissolved oxygen concentrations decline. Furthermore, as primary producers die, they are decomposed by bacteria that consume oxygen, and large populations of decomposers can consume large amounts of dissolved oxygen. Many aquatic insects, fish, and other organisms become stressed and may even die when dissolved oxygen levels drop below a particular threshold level.

Decomposing plant matter also produces unpleasant sights and strong odors, again negatively impacting recreational and aesthetic uses. Nutrient-laden plant detritus can also settle to bottom of a stream bed. In addition to physically altering the benthic environment and aquatic habitat, organic materials in the sediments can become available for future uptake, further perpetuating and potentially intensifying the eutrophic cycle.

As a Class B water, the Blackstone River has been designated by Massachusetts as a habitat for fish, other aquatic life and wildlife and for primary (*e.g.* swimming) and secondary (*e.g.* fishing and boating) contact recreation. *See* 314 C.M.R. §§ 4.06 (Table 12) and 4.05(3)(b). Such waters must have consistently good aesthetic value and, where designated, must be suitable as a source of public water supply with appropriate

treatment, as well as for irrigation and other agricultural uses. *See* 314 C.M.R. § 4.05(3)(b). Class B waters must also be free of floating, suspended or settleable solids that are aesthetically objectionable or could impair uses. *Id.* at § 4.05(3)(b)(5). Changes to color or turbidity of the waters that are aesthetically objectionable or use-impairing are also prohibited. *Id.* at § 4.05(3)(b)(6).

Numeric criteria for Class B waters include limits on dissolved oxygen (not less than 5.0 mg/l) and pH (6.5-8.3 s.u. and not more than 0.5 units outside the background range). *Id.* at §§ 4.05(3)(b)(1) and (3). In addition to criteria specific to Class B waters, Massachusetts imposes minimum narrative criteria applicable to all surface waters, including aesthetics (“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”), bottom pollutants and alterations (“free from pollutants in concentrations or combinations or from alterations that adversely affect the physical or chemical nature of the bottom, interfere with the propagation of fish or shellfish, or adversely affect populations of non-mobile or sessile benthic organisms.”), and nutrients. *See* 314 C.M.R. § 4.05(5)(a),(b) and (c). Pursuant to C.M.R. § 4.05(5)(c), Massachusetts water quality standards require that “unless naturally occurring, all surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses...” Massachusetts standards do not include a numeric criterion for total phosphorus.²⁷

The Blackstone River is listed on the *Massachusetts Year 2004 Integrated List of Waters* (which incorporates the CWA § 303(d) list) as a water that is impaired (not meeting water quality standards) and requires one or more Total Maximum Daily Loads (TMDLs) to be prepared to reduce pollutant loadings into the River so that it can attain water quality standards. The Blackstone River is listed as impaired for unknown toxicity, priority organics, metals, ammonia, chlorine, nutrients, organic enrichment/low dissolved oxygen (DO), flow alterations and other habitat alterations, pathogens, suspended solids, turbidity, and objectionable deposits.

In the absence of a numeric criterion for phosphorus, EPA looks to nationally recommended criteria, supplemented by other relevant materials, such as EPA technical guidance and information published under Section 304(a) of the CWA, peer-reviewed scientific literature and site-specific surveys and data. *See* 40 C.F.R. § 122.44(d)(1)(vi)(B). EPA also relies on 40 C.F.R. § 122.44(d)(1)(vi)(A) when interpreting a state narrative criterion and deriving a limit that will achieve uses.

EPA explained in the Fact Sheet that it used a variety of Section 304(a) information and recommended criteria as *guidance* to interpret the States’ narrative criterion for nutrients and not as substitutes for state water quality criteria. *See also* Response #F10. In addition to the 1986 Quality Criteria of Water (“Gold Book”), EPA also looked to

²⁷ Massachusetts has established site-specific criteria for numerous lakes and ponds pursuant to TMDLs. The criteria range from 0.0051 mg/l to 0.0455mg/l (see 314 C.M.R. 4.06, Table 28).

Ambient Water Quality Criteria Recommendations: Information Supporting the Development of State and Tribal Nutrient Criteria and the Nutrient Criteria Technical Guidance Manual. In these guidance documents, EPA has set forth total ambient phosphorus concentrations that are sufficiently stringent to control cultural eutrophication and other adverse nutrient-related impacts.

The Region's use of the Gold Book and ecoregional criteria published under Section 304(a) to develop a numeric phosphorus limit sufficiently stringent to achieve the narrative nutrient criterion is expressly contemplated by applicable NPDES regulations. When deriving a numeric limit to implement a narrative water quality criterion, EPA is authorized to:

Establish effluent limits on a case-by-case basis, using EPA's water quality criteria, published under Section 304(a) of the CWA, supplemented where necessary by other relevant information.

40 C.F.R. § 122.44(d)(1)(vi).

The guidance documents produced by EPA present protective in-stream phosphorus concentrations based on two different analytical approaches. An effects-based approach provides a threshold value above which adverse effects (*i.e.*, water quality impairments) are likely to occur. It applies empirical observations of a causal variable (*i.e.*, phosphorus) and a response variable (*i.e.*, chlorophyll *a*) associated with designated use impairments. Alternatively, reference-based values are statistically derived from a comparison within a population of rivers in the same eco-region class. They are a quantitative set of river characteristics (physical, chemical and biological) that represent conditions in waters in that ecoregion that are minimally impacted by human activities (*i.e.*, reference conditions), and thus by definition representative of water without cultural eutrophication. While reference conditions, which reflect minimally disturbed conditions, will meet the requirements necessary to support designated uses, they may also exceed the water quality necessary to support such requirements.

The Gold Book follows an effects-based approach. It sets forth maximum threshold concentrations that are designed to prevent or control adverse nutrient-related impacts from occurring. Specifically, the Gold Book recommends in-stream phosphorus concentrations of no greater than 0.05 mg/l in any stream entering a lake or reservoir, 0.1 mg/l for any stream not discharging directly to lakes or impoundments, and 0.025 mg/l within the lake or reservoir. A more recent technical guidance manual, the Nutrient Criteria Technical Guidance Manual: Rivers and Streams (EPA 2000) ("Nutrient Criteria Technical Guidance Manual"), cites to a range of ambient concentrations drawn from the peer-reviewed scientific literature that are sufficiently stringent to control periphyton and plankton (two types of aquatic plant growth commonly associated with eutrophication). This guidance indicates in-stream phosphorus concentrations between 0.01 mg/l and 0.09 mg/l will be sufficient to control periphyton growth and concentrations between 0.035 mg/l and 0.070 mg/l will be sufficient to control plankton (Table 1 shows the range of

literature values cited in the Nutrient Criteria Technical Manual, and Table 2 shows a range of phosphorus criteria established by various states).

While the various recommended values for phosphorus contained in the materials cited above – e.g., 24 ug/l (Ecoregional Nutrient Criteria) to 100 ug/l (Gold Book Criteria) – were not specifically developed by or for Massachusetts, these values do reflect a range of ambient phosphorus concentrations that are sufficiently low to prevent cultural eutrophication. The Region opted for an in-stream phosphorus target approximating the Gold Book value rather than the more stringent Ecoregional criterion. EPA opted for the effects-based approach in this permitting proceeding because it is often more directly associated with an impairment to a designated use (i.e., fishing, swimming). The effects-based approach provides a threshold value above which adverse effects (i.e., water quality impairments) are likely to occur. Reference-based values are statistically derived from a comparison within a population of rivers in the same eco-region class. Specifically, reference conditions presented are based on the 25th percentiles of all nutrient data, including a comparison of reference conditions for the aggregate ecoregion versus subcoregions. *See* Ecoregional Nutrient Criteria at vii. Thus, while reference conditions, which reflect minimally disturbed conditions, may meet the requirements necessary to support designated uses, they may also exceed the water quality necessary to support such uses.

Based on these materials, EPA determined that an ambient phosphorus concentration of 0.1 mg/l would be necessary to control the effects of cultural eutrophication and to ensure compliance with applicable nutrient criteria in Massachusetts. The expired permit has a monthly average limit of **0.75 mg/l** from April 1 to October 31. Effluent data from DMRs for the period January 2004 through December 2006 show a range of 0.9 to 2.4 mg/l of total phosphorus. There is no significant dilution in the receiving stream under 7Q10 conditions. (*See* Att. B to Fact Sheet). Further, UBWPAD is the dominant source of phosphorus loadings to the Blackstone River (*see* Response #F7). With reference to the commenter's suggestion that EPA failed to consider upgrades at other facilities in establishing the limit, the phosphorus limit is necessary to ensure compliance with Massachusetts' water quality standards downstream of the discharge and before other dischargers. *See also* Response #F9 for detail on the data set collected by MassDEP on August 28, 2003.

The phosphorus limit is intended to ensure compliance with and is based on interpretation of the Commonwealth's narrative criterion related to nutrients – not on the provisions in the standards related to “highest and best practicable treatment.” The Commonwealth's 1996 water quality standards include a narrative criterion which provides that nutrients “shall not exceed the site specific limits necessary to control accelerated or cultural eutrophication.” 314 CMR 4.05(5)(c). The antidegradation provisions of Massachusetts' 1996 standards also include a requirement that “any existing point source discharges containing nutrients in concentrations which encourage eutrophication or growth of weeds or algae shall be provided with the highest and best practicable treatment to remove such nutrients.” 314 CMR 4.04.

Massachusetts revised its standards in 2007, and EPA approved changes to the narrative nutrient criteria by letter dated September 19, 2007. The 2007 standards include a narrative criterion for nutrients at 314 CMR 4.05(5)(c) which prohibits nutrients in amounts “in concentrations that would cause or contribute to impairment of existing or designated uses,” and addresses the role of TMDLs and site specific criteria. In addition, it includes the nutrient-related provisions for existing point and non-point sources that had previously been in the antidegradation section of the water quality standards at 314 CMR 4.04(5). It specifies that existing point sources of nutrients in concentrations that would cause or contribute to cultural eutrophication shall be provided with “the most appropriate treatment,” which can include certain specified levels of technology (“BAT” and “HBPT” for non-POTWs and POTWs, respectively), and non-point sources are to be provided with “cost effective and reasonable” BMPs. In a letter to EPA dated January 2, 2007, and as reflected in EPA’s September 9, 2007 approval letter, these later provisions do not interpret, modify or supersede the general prohibition against nutrients at levels that would impair uses, but rather inform the regulated community of requirements that will generally be imposed where nutrients are a concern.

The 2007 standards apply to the final permit issuance in this matter. In any event, the applicable narrative criterion in both the 1996 and 2007 version remains the same: there is a general prohibition against nutrient levels that would impair uses. In the Fact Sheet, EPA referenced the “highest and best practicable treatment requirement” (included in the antidegradation provisions of MassDEP’s 1996 standards) because in some other permitting decisions, MassDEP had interpreted the requirement to require an effluent limit of 0.2 mg/l for phosphorus; EPA wished to make clear that such a limit would not ensure compliance with the narrative criterion for nutrients in this matter.

With regard to QUAL2E, as explained in previous responses, in light of changes in the system (i.e., macrophyte growth immediately downstream of the discharge), the model was determined to be an insufficient tool for establishing a limit in the new permit that will ensure attainment of standards. See Response #F13. Additionally, the Charles River system is a very different from the Blackstone River in that the lower Charles is more similar to a lake. The in-stream phosphorus target established for the Charles River was 28 ug/l as opposed to 100 ug/l for the Blackstone River. See Response #F12.

Comment #F49: Year-Round Disinfection. Since the proposed year-round disinfection condition is based solely on the Rhode Island water quality standards, the same interstate legal and policy issues raised in the District’s comments on the proposed nitrogen limits apply here as well. In addition, as discussed in the technical comments and below, and as a matter of law, policy and fairness, the District questions the need to disinfect year-round or at all.

Pursuant to 40 C.F.R. §122.44(d)(i), a water quality-based permit requirement is justified only if it is determined that the discharge will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard. Further, Massachusetts permits must ensure compliance with the applicable water quality requirements of all affected States. 40 C.F.R. §122.4(d). Rhode Island water quality

standards governing fecal coliform are designed to protect bathing waters from bacterial contamination. There is no evidence, however, that the District's discharge adversely affects water quality in Rhode Island during the non-swimming season. In fact, there are no designated bathing waters on the Blackstone River in Rhode Island. In the absence of evidence that the District's discharge has a reasonable potential to exceed Rhode Island water quality standards, the CWA does not authorize the imposition of water quality-based effluent limits based on those standards.

Further, even if reasonable potential were demonstrated, it is not appropriate to regulate the District's fecal coliform discharges through a year-round disinfection requirement. Rhode Island has adopted water quality standards governing fecal coliform and, in addition, has chosen to impose technology-based requirements in municipal permits that include year-round disinfection. Those technology-based requirements, however, are not water quality standards. As a result, EPA has no authority to impose such requirements on Massachusetts dischargers, even if water quality-based limitations are required to ensure compliance with the Rhode Island water quality standards. EPA has no authority to impose such a requirement on the District's discharge.

Response #F49: The Blackstone River in Rhode Island is designated by the Rhode Island Water Quality Standards as a Class B1 water from the MA/RI border to the Slaters Mill Dam at the confluence with the Seekonk River. Under Rhode Island's Water Quality Standards, Class B1 waters are designated for, among other things, "primary and secondary contact recreational activities."

For fresh waters that are designated for primary contact recreation, Rhode Island's Water Quality Standards specify that fecal coliform bacteria shall not exceed a geometric mean value of 200 MPN/100 ml and that no more than 20% of instream samples shall exceed 500 MPN/100ml. These bacteria criteria apply year round, including during non-bathing season. These are EPA-approved water quality standards (not technology requirements) and are applicable to Massachusetts dischargers to the extent such discharges affect Rhode Island waters.

EPA has determined that in the absence of year round fecal coliform limits, the District's discharge – the dominant point source on the Blackstone River – does have a reasonable potential to cause or contribute to a violation of Rhode Island's fecal coliform criteria. The basis for this determination is detailed in the Fact Sheet and in Response #F25 and includes analysis of water quality sampling.

Please note that we have modified the final limit to account for bacteria die off during the travel time from the point of discharge to the state line. *See* Response #F25.

Comment #F50: Sampling and Monitoring. The District objects to Part 1.A.I (f) of the Draft Permit (one sentence on page 8). This provision infers that the District is required to report the results of all testing regardless of whether or not the results are representative of the activity being monitored or don't conform to EPA test protocols. This provision conflicts or is inconsistent with Part II.C. (Monitoring Requirements; page

6 of 25) which requires that all monitoring results be conducted according to approved test protocols, unless other test procedures have been specified in the permit. The requirements of Part I.A.1 (f) are analogous to requiring drivers of motor vehicles to report their speed every time they look at their speedometer. This provision is burdensome and should be stricken or clarified because it restricts operator flexibility and will increase paperwork, impacting plant performance by taking personnel away from other more important work.

Response # F50: The permittee should report all monitoring performed in accordance with EPA approved methods and monitoring requirements of the permit. *See* 40 CFR Part 122.41 (1)(4)(ii). *See also* Response #F36.

Comment #F51: Environmental Justice. In issuing the Draft Permit, EPA failed to account for disproportionate impacts on minority and low-income populations. The Agency is required to do so under Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations* (February 11, 1994). That Executive Order provides, in part, that the “EPA will . . . review the environmental effects of major Federal actions significantly affecting the quality of the human environment. For such actions, EPA reviewers will focus on the spatial distribution of human health, social and economic effects to ensure that the agency decision makers are aware of the extent to which those impacts fall disproportionately on covered communities.” (Emphasis added). In addition, EPA's website notes that the “EPA's Environmental Justice mandate extends to all of the agency's work, including setting standards, permitting facilities, awarding grants, issuing licenses and regulations in reviewing proposed actions by Federal agencies.” (Emphasis added).

As explained elsewhere in this set of comments, the estimated cost to meet the proposed limits for nutrients approaches \$200 million. The cost for required facility upgrades would be borne by the users. Because the City of Worcester contributes approximately 90% of the flow to the District's POTW, the City's ratepayers are responsible for approximately 90% of the District's costs.

The current upgrade project has resulted in Worcester's sewer rates doubling in the last four years. Sewer rates will necessarily increase to complete the current upgrade project and carry out operation and maintenance activities. The burden of further capital investment and operation and maintenance costs required to meet the proposed permit limits would result in additional rate increases to rate payers.

The median household income in Massachusetts is \$57,000.00. The median household income in Worcester, however, is \$37,000.00. Because half of the households in Worcester make less than \$37,000.00 per year, approximately 30% less than the Massachusetts median, the burden of paying additional sewer rates on Worcester's rate payers is extraordinary.

The Massachusetts Executive Office of Energy and Environmental Affairs (“EOEEA”) has identified a significant portion of the City of Worcester as an Environmental Justice

("EJ") area. Specifically, Mass GIS has prepared maps showing approximately 45% of Worcester consists of EJ Populations. An EJ Population is identified as those segments of the population that EOEEA has determined to be most at risk of being unaware of, or unable to participate in, environmental decision-making or to gain access to state environmental resources. These are neighborhoods (based on US Census Bureau block groups) that meet one or more of the following criteria: (1) median annual household income is at or below 65% of the statewide median income for Massachusetts; or (2) 25% of the residents are minority; or (3) 25% of the residents are foreign born; or (4) 25% of the residents are lacking English language proficiency. (EOEEA Environmental Justice Policy dated October 9, 2002).

The Draft Permit would cause Worcester's EJ Population to bear a disproportionate share of the consequences of an EPA-issued permit. Worcester's EJ Population would bear this extraordinary cost. EPA has not recognized this impact or thought about ways to avoid it. Consequently, the requirements set by the Draft Permit are inconsistent with the EPA's Environmental Justice Policy. In addition, and contrary to the EPA's Environmental Justice Policy, the EPA has failed to allow for meaningful involvement of the EJ Population affected by the Draft Permit. The EPA New England's Environmental Justice Council's Environmental Justice Action Plan for fiscal years 2006 and 2007 (dated December 16, 2005), calls for the issuance of "environmentally significant [NPDES] permits, ensuring community input from potential EJ areas of concern is sought, where appropriate," (EJ Action Plan FY2006-FY2007, page 6 of 31). By failing to ensure community input from Worcester's EJ Population, EPA has ignored its own action plan. Before proceeding further with this permit, EPA needs to assess the social and economic effects on minority and low-income populations that will result from the requirements in the permit, and then review options, for avoiding or minimizing those impacts. That is called for by the Agency's own policies and by fundamental considerations of equity and fairness.

Response #F51: EPA is aware of the Environmental Justice populations in both Massachusetts and Rhode Island that are impacted by UBWPAD's discharge and this permit issuance. See Response #F2. A central tenet of Environmental Justice is ensuring that all people can enjoy the same level of water quality and environmental protection. EPA's Environmental Justice webpage (cited above by UBWPAD), explains that the goal of Environmental Justice "will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work." UBWPAD's facility discharges to the Blackstone River in Worcester. The flow travels downstream through Environmental Justice communities in the Worcester area and also in the area of Pawtucket. While we must be mindful of cost impacts to communities in the UBWPAD sewer area, we also have a responsibility to abate impacts to those downstream populations that are adversely impacted by the discharge. Excess levels of nutrients have resulted in impaired water quality and have interfered with such designated uses as swimming and fishing. The nutrient loading reductions in this permit represents a significant reduction and reflects an appropriate and reasonable determination of water quality-based limits necessary to achieve applicable water quality standards in

Massachusetts and Rhode Island. The nitrogen reductions required through this permit will have substantial environmental benefits, including significant reductions in algal growth and associated dissolved oxygen impairments that have severely impaired the marine fish community and recreational use of Narragansett Bay. The phosphorus reductions will also have substantial environmental benefits, including significant reductions in algal growth and associated odors that have severely impaired the aquatic community and recreational uses of the Blackstone River.

EPA cannot evaluate UBWPAD's unsubstantiated cost estimates – which have varied in oral and written comments from \$100 to \$200 million – because the basis for those estimates has not been provided. In addition, as noted above, UBWPAD can conduct an analysis of affordability issues for the purposes of determining whether a designated use cannot be obtained or for obtaining a variance. Should UBWPAD choose to pursue a demonstration that such relief is appropriate, the affordability analysis prepared for the required use attainability analysis (UAA) would include evaluation of the social and economic impacts on the communities in the UBWPAD service area, including the Environmental Justice communities. *See* Response #F2.

EPA further notes that in light of the substantial interest in this permit issuance throughout the Worcester area, EPA held a public hearing at a community college in Worcester and extended the public comment period.

Comment #F52: Sustainability. Any permit limits imposed by EPA should promote basic concepts of sustainability, and should be consistent with the Agency's own sustainability policies and efforts. The requirements of the Draft Permit do not achieve either of these goals.

EPA defines “sustainability” as “balancing a growing economy, protection for the environment, and social responsibility, so they together lead to an improved quality of life for ourselves and future generations.” The Agency further states that “sustainability is the ability to achieve continuing economic prosperity while protecting the natural systems of the planet and providing a high quality of life for its people.”²⁸ To this end, the Agency has published several policy-driven tools to help decision-makers evaluate risks to watersheds and other ecosystems. The Agency's sustainability policy is designed to promote sustainable watershed management through pollution prevention and other strategies, enforce federal clean water and safe drinking water laws, and support sustainable wastewater infrastructure.

Under EPA's policy for Sustainable Infrastructure for Water and Wastewater, EPA sets forth its commitment to promoting sustainable practices that will help to reduce the potential gap between funding needs and spending at the local and national level. The Sustainable Infrastructure Initiative reportedly guides EPA efforts in changing how the nation views, values, manages, and invests in its water and wastewater infrastructure.

²⁸ See <http://www.epa.gov/sustainability/basicinfo.htm#What>.

Under this policy, EPA's "Watershed Approach" encourages the merger of watershed management principles into utility management, so that key decision makers consider watershed-based, cost-effective alternatives alongside the traditional treatment technology investments. For example EPA programs that are focused on wastewater utility management principles include:

Watershed Based NPDES Permitting. This approach, aimed at achieving new efficiencies and environmental results, provides a process for considering all stressors within a hydrologically defined drainage basin or other geographic area, rather than address individual pollutant sources on a discharge-by-discharge basis (EPA 833-B-03-004).²⁹ Managing for Excellence: Utility Management System Initiatives. As part of EPA's overall effort in collaboration with industry to ensure that the Nation's water and wastewater infrastructure is sustainable through more effective utility management, EPA's Office of Water recently profiled eight leading utilities to document and promote sustainable management approaches by utilities including the consideration of life-cycle costing and benefits to ensure decisions regarding projects and programs are evaluated over the lifetime of the project/program. EPA has documented that today's utilities are focusing on environmental performance that positions them as stewards of water and other natural resources with environmental management systems that include holistic water resources management, water conservation, solids and effluent reuse, materials recycling, and energy efficiency. Managing for Excellence: Analysis of Water and Wastewater Utility Management Systems, EPA-W-04-023 (August 2005).

In issuing the Draft Permit, EPA has not taken into account these policy considerations. For example, in order to achieve the proposed permit limits of 5 mg/l total nitrogen and 0.1 mg/l total phosphorus, significant modifications and additions to the current facility under construction would have to be implemented at a capital cost of \$150,000,000 in today's dollars. The increase in operation and maintenance costs to achieve the limits is expected to approach \$3,700,000 per year. Imposition of these costs on the ratepayers will have substantial social and economic effects. While those effects could be justified if there were significant environmental benefits, that is not the case here. The benefits to the receiving waters realized from achieving these limits are uncertain. In addition, as explained below, compliance with these limits would itself result in significant additional sludge production, chemicals use and energy consumption, with resulting increases in greenhouse gas emissions. Viewed from a sustainability perspective, then, the limits in the Draft Permit are not justified.

In order to achieve a total phosphorus limit of 0.1 mg/l [a limit which is currently required at less than 30 of the 17,000 publicly owned treatment works (POTWs) in the nation] and a total nitrogen limit of 5 mg/l for the entire flow reaching the treatment facility, additional aeration tankage would be required, and the tankage currently under construction would have to be modified to implement the modified Bardenpho process. Storage and feed facilities to accommodate the addition of 800 gallons per day of methanol or a similar energy source, would be required for nitrogen removal. (Note,

²⁹ See <http://www.eoa.gov/waterinfrastructure/watershedapproaches.html>

significant care must be taken in the design and operation of this chemical storage facility, since methanol is an explosive substance.) Use of such energy sources will produce additional carbon dioxide (a notorious greenhouse gas); and will reduce the amount of the alternative energy available for other purposes while consuming the parent agricultural material needed as a food supply.

Subsequent to final clarification, the entire flow would have to be pumped to an add-on filtration or high rate settling process to achieve the phosphorus limits. Multipoint chemical addition (likely ferric chloride) would be required at a rate of 8,500 gallons per day. The chemical addition will increase sludge production at the facility by an estimated 35%. The sludge generated by the District is currently thickened, dewatered and incinerated on-site in multiple hearth furnaces. The chemical sludge produced in order to achieve the proposed phosphorus limit will be more difficult to dewater and incinerate. It is likely that the dewatered sludge will have a lower percent solids and it will be more inert due to the high fraction of chemicals in the sludge. Additional energy required to dewater and incinerate the sludge is expected to be significant. Lastly, additional ash will be produced, again due to the inert chemical addition, which will more readily consume the finite ash landfill capacity on the District's property. The combined electrical energy required to achieve these nutrient limits is expected to be on the order of 3,000,000 kW-hr/yr, nearly 20% above current usage, resulting in a commensurate increase in greenhouse gas emissions.

Before requiring any facility to expend this much energy, consume significant amounts of chemicals and generate significantly more sludge to be processed and disposed of, EPA should determine that there are substantial water quality benefits that will result from achieving the proposed limits. In this situation, the opposite is the case: viewed as a whole, achieving these limits would have more detrimental environmental impact than any benefits realized in the receiving waters, EPA should reconsider the requirements in the Draft Permit.

Response #F52: Water infrastructure sustainability is an approach that UBWPAD should most assuredly embrace – not simply in evaluation of treatment to meet the new limits, but also across management and operations of the entire District. These considerations, however, are not part of the statutory and regulatory requirements for **setting** water quality-based effluent limitations. *See Responses #A9 and #F8.*

Through their water quality standards, states determine the level of protection needed for receiving waters. Where EPA (or other permitting authorities) conclude there is a reasonable potential that a discharge will cause or contribute to a violation of the standards, EPA then must set an effluent limit necessary to ensure the standards are met. *See 40 CFR §122.44(d)(1)(i).* Costs and technical considerations are not considered at this point in the process of establishing water quality-based effluent limits. Once these limits are established and set forth in a final permit, however, the regulations include a mechanism to allow relief from meeting the limits where they are demonstrated to be unaffordable. *See Response #F1.*

With regard to watershed permitting approaches and addressing other stressors to the receiving waters, efforts to reduce non-point sources and to address such issues as the impacts of dams will have beneficial effects. That being said, point sources are the dominant source of the nutrient load to the receiving waters and must be reduced in order to achieve water quality standards. *See* Response #B1, #C1 and #F40 relative to the need for point source controls notwithstanding significant reductions of other sources. In light of the severe existing nitrogen-driven cultural eutrophication in the receiving waters and the tendency for nitrogen to not only exacerbate existing water quality impairments but to persist in the environment in a way that contributes to future water quality problems, it is appropriate to move forward now with permit limits on UBWPAD and other point sources. *See also* Responses #F6, #F9, #F18A, #F48 and #F51 relative to need for and benefits from nutrient limits.

The Region is very supportive of UBWPAD's efforts to plan and design the most environmentally sustainable treatment processes necessary to meet the new effluent limits, as well as of any efforts to examine sustainability across all operations. The age of infrastructure, and the fact that UBWPAD has only recently undertaken significant upgrades to its facility, present both challenges and opportunities in this regard.

Two key components of our Regional Sustainable Infrastructure Initiative are optimized utility management and energy and water efficiency. A commitment to effective management and energy efficiency by utility leadership is the hallmark of a sustainable, environmentally progressive utility. These efforts should enhance sustainability and reduce the direct and indirect energy footprint no matter what level of treatment is employed.

With regard to utility management, EPA and six national water and wastewater associations are working collaboratively to identify the characteristics of sustainable utilities and to promote effective utility management. EPA and its partners formed a steering committee comprised of leading utility managers from around the country. The committee identified *Ten Attributes of Effectively Managed Utilities; Keys to Management Success* and was pivotal in the production of a primer for water and wastewater utilities titled *Effective Utility Management*, referenced in the comment above. These documents and additional tools and information can be found on EPA's website at <http://www.epa.gov/waterinfrastructure/watereum.html>. These tools seek to promote institutionalization of management systems and other innovative approaches that improve performance across utility operations at reduced cost. They do not, however, guide EPA's establishment of water quality-based effluent limits.

With reference to efficiency, water and energy efficiency are inextricably linked. By employing practices such as water conservation, leak detection, inflow/infiltration correction and the use of green infrastructure to capture and treat storm water, the amount of energy required to provide drinking water and collect and treat wastewater can be significantly diminished. Using a local example, through a leak detection grant program funded through the Drinking Water State Revolving Fund, the City of Holyoke eliminated the leakage of 127 million gallons per year of treated, potable water (and

North Attleboro 118 million gallons). Likewise, the Town of Cohasset recently employed a variety of green infrastructure technologies to the first 0.9 inches of rainfall keeping it out of traditional collection infrastructure.

Through an energy management plan that sets goals for energy efficiency and optimizes the use of renewable sources of energy, the impacts of conventional energy use can be mitigated. A holistic plan could consider equipment choices, HVAC, lighting, vehicle use, methane capture, energy generation from microturbines, wind or solar, and the purchase of energy from renewable sources. To address this issue, EPA New England has produced an energy management workbook to help utilities set measurable energy goals, manage energy issues and reduce consumption. *See also* Response #F8 relative to energy efficiency and opportunities for UBWPAD.

PART G.

Additional comments were received from: New England Plating Co., Inc., Town of Holden, City of Worcester (City Manager), Town of West Boylston, Worcester Regional Chamber of Commerce, City of Worcester (DPW), UBWPAD Board of Directors, Town of Leicester, Pepe & Hazard.

Comment #G1: Several expressed concerns about requiring an expenditure of substantial sums without clear evidence that water quality would improve. Rate payers would be affected without proper modeling (Town of Holden, City of Worcester (City Manager), Town of West Boylston, City of Worcester (DPW), UBWPAD Board of Directors, Town of Leicester).

Response #G1: *See* Responses #F1, #F2, #F4, #F5, #F6, #F9, #F17, #F18 and #F51.

Comment #G2: Several commented that the current upgrades are not considered and the upgrades should be allowed to be completed and results monitored before imposing new permit limits (New England Plating Co., Inc., Town of Holden, City of Worcester (City Manager), Town of West Boylston, City of Worcester (DPW), UBWPAD Board of Directors, Town of Leicester).

Response #G2: *See* Responses #F5, #F6, #F7, and #F9.

Comment #G3: A few commented that no affordability analysis or cost benefit analysis has been completed (Town of Holden, Town of West Boylston, City of Worcester (DPW)).

Response #G3: *See* responses #A9, #F1, #F2, and #F4.

Comment #G4: Several commented that the cost increase will hamper business growth and expansion, economic development, affordable housing and smart growth initiatives (New England Plating Co., Inc., Worcester Regional Chamber of Commerce, City of Worcester (DPW), UBWPAD Board of Directors).

Response #G4: As detailed in previous responses, cost is not an appropriate consideration in the process to establish water quality-based effluent limitations. EPA does, however, have a mechanism to evaluate whether relief is warranted from public entities seeking relief from meeting water quality standard requirements. *See* Response #F1. If UBWPAD seeks to undertake this demonstration, it involves evaluation of financial impacts to the public entity and current socioeconomic conditions of the community.

We know that Worcester has been a leader in encouraging smart growth redevelopment of the urban core, and do not intend to hamper those efforts. We recognize that the cost of wastewater treatment can be a burden for some businesses and residents, but clean water also is an economic asset to the communities in the UBWPAD service area. Boston is a good example of this; although it has been costly to clean up Boston Harbor, the waterfront has turned into an economic engine that is driving business growth and expansion.

Comment #G5: The City of Worcester (DPW) commented that the impact of nutrients is site specific and that dissolved oxygen in the Blackstone River is not low.

Response #G5: *See* Responses #F9, #F10, and #F13. Additionally, the Corps of Engineers data cited in Response #F13 indicated that dissolved oxygen concentrations below the UBWPAD discharge did not meet the water quality standards.

Comment #G6: The City of Worcester (DPW) commented that it is not clear what is causing cultural eutrophication in Narragansett Bay and that the 5.0 mg/l total nitrogen limit is not supported.

Response #G6: *See* Responses #F6 and #F18.

Comment #G7: The City of Worcester (DPW) commented that the need for year round TRC limits is not justified and that there are many other sources of bacteria.

Response #G7: Bacteria criteria are required to be met year round by RIDEM water quality standards, and RI requires its facilities to disinfect year round. We agree that there are many other sources of bacteria and therefore believe it is inappropriate to allow for dilution. However, we believe it is appropriate to base the fecal coliform limits on an assumed die off rate that will occur. *See* Response #F25.

Comment #G8: Several commented that we should wait for the new model and the MassDEP attenuation work (New England Plating Co., Inc., Town of Holden, City of Worcester (City Manager), Town of West Boylston, City of Worcester (DPW), UBWPAD Board of Directors).

Response #G8: *See* Responses #A2, #F5, #F7, and #F17.

Comment #G9: The City of Worcester (DPW) commented that the 7Q10 flow and the design flow do not occur at the same time and we should use minimum average daily plant flow.

Response #G9: Federal regulations, 40 C.F.R. §122.45(b), require that permit limits and conditions be based on the design flow. The 56 MGD flow is the design flow identified in the permit application and represents an annual average value. We note that flows will often be much higher than 56 MGD and at times may be as high as 180 MGD.

Comment #G10: A few commenters raised concerns with the legal and administrative burden of the UBWPAD relative to managing co-permittees and questioned whether the UBWPAD has the authority (Town of Holden, Town of West Boylston, UBWPAD Board of Directors).

Response #G10: See Responses #F3 and #F45.

Comment #G11: The UBWPAD Board of Directors commented that the river model previously used for the dissolved oxygen WLA is the only scientific basis for effluent limits today and the model resulted in limits that were needed to improve conditions and to benefit Narragansett Bay. Further, the UBWPAD will achieve a 40-50% summer reduction of total nitrogen by 2009.

Response G11: See Responses #F2, #F5, #F6, #F9, #F10, #F13, and #F18.

Comment #G12: New England Plating asked “how clean is clean” and that current water quality may be good enough. Does it make sense to regulate to non-detect levels such as is the case for cadmium?

Response #G12: The Clean Water Act requires states to adopt water quality standards that, at a minimum, provide for the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water, through the establishment of designated uses and criteria to protect those uses. NPDES permits must ensure that discharges do not cause or contribute to violations of applicable state water quality standards. EPA does not have the authority to impose less protective limits except in the narrow circumstances where a variance is justified or the water quality standards are amended. As documented in the Fact Sheet, water quality in both the Blackstone River and Narragansett Bay does not meet state water quality standards and more pollutant reductions are needed.

The cadmium limit is based on the applicable Massachusetts water quality criteria value for protection of aquatic life. The limitation on how low cadmium can be detected is specific to measuring cadmium in waste water. As new analytical methods are developed and approved by EPA the ability to detect lower levels will enhance our ability to ensure that aquatic life are protected.

Comment #G13: Pepe and Hazard commented that there are 33 industrial users and not over 200 as referenced in the Fact Sheet.

Response #G13: There are more than 200 industrial users discharging to municipal sewer systems that send waste to the UBWPAD. Among these, there are 33 industrial users who meet the definition of Significant Industrial User at 40 CFR §403.3(v) and, therefore, must be regulated under the federal Industrial Pretreatment Program.

Comment #G14: Pepe and Hazard commented that since the permit prevents the introduction of pollutants from industrial sources that would pass through the POTW, the nutrients that now pass through the POTW must come from its domestic influent. The draft permit, however, is silent on requiring UBWPAD and the co-permittee communities to develop and implement programs which would reduce, let alone prevent, the introduction and pass through of domestic nutrients to the treatment works.

Response #G14: The federal pretreatment program addresses only non-domestic wastewater, and therefore the permit's requirement related to pass through and interference is appropriately applicable only to industrial users. *See* 40 C.F.R. Part 403.

The permit does not specifically require the permittee or co-permittees to pursue source reduction and EPA does not believe that this alternative alone would result in attainment of the effluent limitations. However, such reductions may be beneficial in decreasing capital cost and operation and maintenance costs of treatment, including reducing energy use, chemical use, and sludge production. We note that these appear to be priority issues for the UBWPAD and as such we expect that source reduction alternatives will be thoroughly evaluated. *See* Response #B1.

Comment #G15: Pepe and Hazard commented that it is inconceivable that waste water treatment facilities dominate the nitrogen load to Narragansett Bay since there are many other sources and no basis is cited for this conclusion. Part C (5) of the permit should include requirements for non-point source controls.

Response #G15: *See* Responses #B1 and #C1.

Comment #G16: Part C(5) currently requires UBWPAD to submit proposals for local law and other changes six months after the new permit is issued and in effect. The issuance of the new permit will trigger UBWPAD's extraordinary expenditure on treatment works improvements. Instead, the Draft Permit should be modified so that UBWPAD should have to comply with the amended requirements of Part C(5) *before* it goes forward with contracting for the capital improvements to treatment technology currently required by the Draft Permit. The Draft Permit should make provision for possible implementation of non-point source and domestic flow controls in lieu of the capital improvements if EPA finds that they would attain the desired reductions in nutrient loading. This would position the Draft Permit to be in better compliance with the objectives of 403.2, would achieve a superior environmental result, and may reduce the need for expensive, additional capital improvements and increase operation and maintenance costs at UBWPAD. These costs are presently proposed to be unfairly borne by the industrial users who do not create the problem discharges. In the case of domestic

flows, the enactment of prohibitions on certain nutrients as a method of pretreatment would be consistent with 40 CFR 403.5.

Pepe and Hazard commented that there is no public documentation of how fees are set and industrial facilities are not responsible for upgrades necessary to address nutrients.

Response #G16: Section C(5) of the permit requires the permittee, within six months of the effective date of the permit, to modify its pretreatment program in order to conform with all changes in the federal requirements related to the federal industrial pretreatment program. This provision has nothing to do with the revised nutrient limits established by the permit. Since industrial sources of nutrients are minor compared to domestic sources, implementation of the requirements in Section C(5) will have little, if any, effect on the capital improvements needed to meet the effluent limitations.

While non-point source controls would be beneficial, they are insufficient for meeting water quality standards. *See Responses #B1, #C1 and #F40.* Similarly, wastewater source reductions alone will not be sufficient to achieve the permit limits. *See Response #B1.*

EPA does not regulate how sewer use fees are established. Documentation of how fees are set should be requested from the UBWPAD and from the member communities.