

Summary of Legal and Policy Issues/Comments (cont.)

Draft NPDES Permit No. MA012369; Public Notice No. MA-016-07

Upper Blackstone Water Pollution Abatement District

May 25, 2007

Page 13 of 19

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.<sup>10</sup> The USGS is undertaking the hydrologic simulation model in concert with the Rhode Island Water Resources Board, 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In the absence of a TMDL, EPA appears to rely solely on a purely mechanical application of national guidance that is outdated [namely, the 1986 Quality Criteria of Water, otherwise known as the Gold Book] and has no relation to site specific facts or the environmental impacts of the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.

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<sup>10</sup> See EPA-SAB-EPEC-98-001, Evaluation of the Blackstone River Initiative, p. 2; and 2004 Blackstone River Watershed Five-Year Action Plan.

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 ponds*. 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 nonpoint source discharge of nutrients *to lakes and ponds* shall be provided with all reasonable best management practices for nonpoint source control. 314 CMR 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

Summary of Legal and Policy Issues/Comments (cont.)

Draft NPDES Permit No. MA012369; Public Notice No. MA-016-07

Upper Blackstone Water Pollution Abatement District

May 25, 2007

Page 15 of 19

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.

**E. 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)(1), 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.

**F. SAMPLING/MONITORING**

The District objects to Part 1.A.1 (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.

**G. 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 rate payers 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

Summary of Legal and Policy Issues/Comments (cont.)

Draft NPDES Permit No. MA012369; Public Notice No. MA-016-07

Upper Blackstone Water Pollution Abatement District

May 25, 2007

Page 17 of 19

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.

#### **H. 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."<sup>11</sup> 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.

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<sup>11</sup> See <http://www.epa.gov/sustainability/basicinfo.htm#what>.

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. 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 addressing individual pollutant sources on a discharge-by-discharge basis (EPA 833-B-03-004).<sup>12</sup>
- 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,

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<sup>12</sup> See <http://www.epa.gov/waterinfrastructure/watershedapproaches.html>

**Summary of Legal and Policy Issues/Comments (cont.)**

**Draft NPDES Permit No. MA012369; Public Notice No. MA-016-07**

**Upper Blackstone Water Pollution Abatement District**

**May 25, 2007**

**Page 19 of 19**

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, 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.





**Appendix B1**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 1  
1 Congress Street, Suite 1100  
BOSTON, MA 02114-2023

May 23, 2007

Thomas K. Walsh, P.E.  
Engineer Director/Treasurer  
Upper Blackstone Water Pollution Abatement District  
50 Route 20  
Millbury, MA 01527 - 2199

Re: Request for Extension to Public Comment Period

Dear Mr. Walsh:

We are in receipt of your letter dated May 18, 2007 in which you request an extension of the public comment period to December 31, 2007, in connection with the draft permit for the Upper Blackstone Water Pollution Abatement District (District). In the letter, you indicate that the basis of the extension is to allow the District to complete its own modeling effort of the Blackstone River. Your letter further states that the modeling would provide a "more robust basis for developing an estimate of the fate of nitrogen discharge in the Blackstone watershed than is currently being used...." See Letter at 2. Based on the request and for the reasons detailed below, EPA does not believe an extension of the comment period is warranted.

EPA has already established a public comment period for this NPDES permit longer than the typical 30 days. EPA issued the draft permit on March 23, 2007, and established an initial comment period until May 16, 2007. EPA held both a public informational session and a public hearing during this time period. At the public hearing, EPA extended the comment period an additional seven business days, until May 25, 2007. We believe this is a sufficient and reasonable amount of time for the District and other interested parties to raise issues and submit available arguments supporting their positions regarding the draft permit to EPA.


Further, EPA is not authorized to delay establishment of water quality-based effluent limits pending completion of the District's modeling efforts. To the contrary, the relevant regulations require that EPA include an effluent limit for any pollutant which EPA determines "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." 40 CFR §122.44(d)(1)(f). In light of the significant ongoing impairments in this matter, we believe it imperative that the primary sources of the impairments be addressed as expeditiously as possible.

With regard to the scientific and technical basis of the nitrogen limits in the draft permit, the District and other interested parties may submit relevant comments on this issue to EPA during the public comment period. We believe that the public comment process is the appropriate forum for EPA to evaluate and respond to the views of all interested parties on this and other issues related to the draft permit.

Finally, we note that the District's request does not include any discussion as to how, or even if, its model could be used to establish point source permit limits that, consistent with the requirements of the Clean Water Act, will ensure attainment of water quality standards in the Blackstone River and in Narragansett Bay. In the event this modeling effort yields information indicating that any final effluent limit is more or less stringent than necessary to attain water quality standards, a permit modification can be pursued. See 40 CFR § 122.62.

Accordingly, EPA denies your May 18, 2007 request for an extension of the comment period. Please call Roger Janson at 617-918-1621 if you have questions.

Sincerely,

  
Stephen S. Perkins, Director  
Office of Ecosystem Protection

Cc: Glenn Haas - MassDEP

