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FEDERAL APPEALS BOARD

September 27, 2007

VIA FEDERAL EXPRESS

U.S. Environmental Protection Agency
Clerk of the Board, Environmental
Appeal Board
Colorado Building
1341 G Street, N.W., Suite 600
Washington, D.C. 20005

Re: **City of Keene, NPDES Permit NH010079**

Dear Sir or Madam:

Enclosed please find an original and five copies of a Petition for Review of Contested Permit Conditions in the matter involving the City of Keene's NPDES Permit NH0100790. We have also included three sets of the Exhibits referenced in our filing, which consist of documents submitted by the City during the Public Comment Period. We have also enclosed letters from the Town of Swanzey and Town of Marlboro supporting this Petition. Please feel free to contact the undersigned should you have any questions regarding this filing.

Very truly yours,

Andrew W. Serell

AWS/djk
Enclosure

cc: Samir Bukhari, Esquire

COUNSELLORS AT LAW

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PETITION FOR REVIEW OF CONTESTED PERMIT CONDITIONS:
CITY OF KEENE, NPDES PERMIT NH0100790

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INTRODUCTION

The City of Keene hereby appeals certain provisions of its Final NPDES Permit dated August 24, 2007. Specifically, the City appeals the following provisions in its Permit:

1. The total phosphorus limit of 0.2 mg/L (April 1 – October 31) and 1.0 mg/L (November 1 – March 31).
2. The Permit limits for total recoverable copper (5.9 ug/L average monthly and 7.9 ug/L maximum daily), total recoverable lead (1.1 ug/L average monthly) and total recoverable zinc (77 ug/L average monthly and maximum daily).

The City requests that the Environmental Appeals Board review the aforementioned effluent limits pursuant to 40 C.F.R. § 124.19(a)(1) and (2) because, in both instances, the proposed limits are based upon findings of fact that are clearly erroneous and, in the case of the proposed phosphorus limit, the decision to impose such a limit raises important policy considerations which this Board should, in its discretion, address. The basis of the City's appeal of these Permit conditions is set forth below.

Both of the foregoing issues were raised by the City in its written submission during the Public Comment Period concerning the draft Permit. We have attached to this submission the relevant portions of the City's Public Comments concerning these two issues.

I. PHOSPHORUS LIMITS

A. Background

Since December 1985, the City has been discharging wastewater from its wastewater treatment plant (WWTP) located at 420 Airport Road, Swanzey, New Hampshire pursuant to NPDES Permits issued by the Environmental Protection Agency (EPA). None of the City's prior NPDES Permits contained a phosphorus limit. The August 24, 2007 Permit is the first Permit to contain a phosphorus limit. As explained in greater detail below, this Board should overrule the proposed phosphorus limit and remand the matter to the Agency for further consideration.

EPA has stated that it has established an effluent phosphorus limit because such is necessary to meet State water quality standards. The State of New Hampshire has no numeric water quality standard for phosphorus. Nevertheless, EPA effectively imposed its "Gold Book" phosphorus "recommendation" of 0.1 mg/L as the *de facto* instream criteria, and calculated a phosphorus permit limit by dividing the Gold Book value by the calculated dilution. As explained further below, in doing so EPA effectively imposed its Gold Book criteria as a State water quality standard without following the process mandated by Section 303(b) of the Clean Water Act.

EPA has presented insufficient information to establish that its proposed phosphorus limit is necessary to achieve any relevant State narrative water quality standard. Given the extreme cost of implementing phosphorus removal necessary to achieve EPA's proposed limit, it is imperative that any such limit be technically

defensible and necessary to achieve water quality standards. It has been estimated that the capital costs of constructing a phosphorus removal project necessary to meet the Permit's proposed limit would cost an estimated \$16.2 to \$17.8 million. For the reasons set forth below, EPA's proposed limit is neither technically defensible nor necessary to achieve water quality standards.

As EPA readily acknowledged in its Response to Comments, since there is no State numeric water quality criteria for phosphorus, "the imposition of phosphorus effluent limits is technically complex." (See Response to Comments at p. 41). EPA also acknowledges that the most appropriate method for establishing a water quality criteria for phosphorus would be to conduct a Total Maximum Daily Load (TMDL) analysis:

States are required to prepare Total Maximum Daily Load (TMDL) analyses for receiving waters listed on the [State's] 303(d) list. A TMDL is a planning tool that identifies the amount of pollutant from point, non-point and background sources that may be discharged to a water quality-limited segment.

(See Response to Comments at p. 30)(emphasis added). EPA acknowledges that the State of New Hampshire has begun the sampling necessary to complete a TMDL, but states that the State "does not anticipate completing the TMDL until 2009." (Id.) Upon information and belief, prior to issuing the draft permit in this matter, EPA had never issued to a New Hampshire municipality a permit containing a phosphorus limit in the absence of a properly conducted TMDL. Yet, that is exactly what EPA is proposing in this case.

Furthermore, as explained further below, EPA's approach for developing the Permit's phosphorus limit is directly inconsistent with the State of New Hampshire's Nutrient Policy, which was adopted for the express purpose of protecting State water quality standards. For all these reasons, we would request that the EAB closely scrutinize EPA's proposed Permit limit and the stated basis therefore. We are confident that, when the EAB engages in that analysis, it will determine that the Agency has failed to set forth a technically defensible analysis for its proposed Permit limit.

B. EPA's Findings of Fact Supporting its Proposed Phosphorus Limits are Clearly Erroneous.

1. The State has Not Concluded That the Keene WWTP is Contributing to Cultural Eutrophication.

EPA bases its proposed Permit limit on its conclusion that "cultural eutrophication" is occurring in the relevant portions of the Ashuelot River. (See Fact Sheet at p. 16). However, this conclusion is not shared by the State of New Hampshire. In its "Plan for Adoption of Nutrient Water Quality Criteria" the State of New Hampshire specifically concluded that, "based on . . . reports and professional experience, we believe that there are not many New Hampshire waterbodies for which water quality does not support designated or existing uses (primarily aquatic life and swimming) due to cultural eutrophication enrichment." (See New Hampshire Plan, Attachment A to Public Comments at p. 1). Upon information and belief, the State of New Hampshire has never identified the Ashuelot River as "a waterbody for which water quality does not support designated or existing uses . . . due to cultural nutrient enrichment." The State has listed

the Ashuelot River on its Section 303(d) list of impaired waters for dissolved oxygen saturation. However, the State characterizes the source of dissolved oxygen saturation as “Municipal (Urbanized High Density Area).” (See Exhibit I to Public Comments). In contrast, when the State suspects the source of the problem to be a treatment plant, it specifically says so. (See the listing for the Cocheco River, p. 75 of Exhibit I).

Accordingly, there is no evidence that the State believes that the Keene WWTP is contributing nutrients which cause cultural eutrophication. In fact, the evidence is to the contrary.

2. EPA’S Analysis of Chlorophyll-a Data is Erroneous.

EPA initially attempted to justify its proposed phosphorus limit on the basis of chlorophyll-a data. Specifically, EPA concluded that chlorophyll-a data indicated that “the Ashuelot River would be considered, at a minimum, mesotrophic and, thus at a risk for eutrophication, and eutrophic.” (See Fact Sheet at pp. 18-19). In fact, the evidence is to the contrary.

New Hampshire has established a *de facto* chlorophyll-a criteria of 15 ug/L as part of its development of its impaired waters list. The segments of the Ashuelot River to which Keene discharges, and that are immediately downstream, are shown by the data in EPA’s Fact Sheet to be oligotrophic. Specifically, chlorophyll-a concentrations in these segments as presented in EPA’s Table 3 of its Fact Sheet are less than 4 ug/L, consistent with the character of oligotrophic waters as presented in EPA’s Table 4. (See Fact Sheet

at pp. 17-19). Only below the Swanzey treatment plant do the chlorophyll-a levels rise above the New Hampshire criteria of 15 ug/L.

In addition, more recent data from the State's Ambient River Monitoring Program for the period of 2002 through 2005, which was available to EPA but not included in its Fact Sheet or Response to Comments, supports the classification of the system as oligotrophic. The data for this period is included in Exhibit F of the City's Public Comments. Data from this more recent sampling confirms that these segments of the Ashuelot River are oligotrophic.

In addition, as explained further below, numerous nutrient discharges to the Ashuelot River have been eliminated. Attachment A to the City's Public Comments outlines a number of nutrient-related discharges to the Ashuelot River which have been eliminated in recent years. Moreover, the City has been consistently reducing its effluent phosphorus concentrations, as reflected in the phosphorus data included in Attachment 9 to the City's submission. For all these reasons, it is inappropriate for EPA to rely on stale data in an effort to support its proposed phosphorus limit.

3. EPA'S Dissolved Oxygen Analysis is Flawed.

EPA next attempted to justify its proposed phosphorus limit on the basis of dissolved oxygen data. Specifically, EPA concluded that, "[a]lthough the data are limited, they indicate that supersaturated conditions occur and serve as another indicator of eutrophic conditions in the Ashuelot River." (See Fact Sheet at p. 19).

Again, EPA attempts to support its conclusion with the use of outdated data, specifically by relying on data for the period of 1990 through 1998. EPA ignores DO data collected more recently, including the 2001-2002 TMDL data and the 2002-2005 Volunteer River Monitoring Program data. The latter data, included in Exhibit F to the City's submission, clearly shows that supersaturated conditions exist above the Keene discharge, where phosphorus concentrations are well below EPA's suggested criteria value, which is evidence that these levels of supersaturation are not indicative of a phosphorus-related problem. The more recent data establishes that DO in the Ashuelot River is well within the State's saturation criteria; at most stations, dissolved oxygen varies between 87 and 95 percent saturation. The dissolved oxygen values above the Keene WWTP discharge exhibit the greatest variability, indicating that conditions above the Keene WWTP discharge are having significant impacts on the dissolved oxygen conditions of the River. In fact, EPA states in its Response to Comments: "EPA acknowledges that the recent data provided by the permittee does not indicate violations of the minimum DO saturation criteria." (See Response to Comments at p. 32).¹

EPA's reliance on stale data is made even more problematic by the fact that significant changes have occurred and will be occurring within the relevant watershed which significantly calls into question the reliability of data obtained prior to 2002. As

¹ EPA attempts to discount this data on the grounds that it was "not obtained under low flow summer conditions". However, the City is currently obtaining DO data during low flow conditions and will continue to do so through future low flow conditions. Data developed during the summer of 2007 is consistent with the aforementioned data showing no violations of the minimum DO saturation criteria.

explained in further detail in the City's Public Comments, dams along the Ashuelot River have been a particular focus of natural resource management agencies for some time. Two dams downstream of the WWTP discharge were removed in recent years: the McGoldrick Dam in Hinsdale was removed in 2001, and the Winchester Dam was removed in 2002, eliminating potential water quality degradation in impoundments behind those dams. Moreover, as acknowledged by EPA, the Homestead Mill Dam in West Swanzey "is currently scheduled for removal in 2008" and its removal "will have some beneficial effect on water quality and, in particular will improve aquatic live habitat in certain stretches of the river." (See Response to Comments at p. 52).

C. EPA'S Decision to Ignore the State of New Hampshire Nutrient Policy and Impose a Numeric Water Quality Standard for Phosphorus Constitutes Both a Violation of Relevant Provisions of the Clean Water Act and an Inappropriate Exercise of Discretion Which the Environmental Appeals Board Should Review.

As referenced above, EPA's inclusion of a phosphorus limit is directly at odds with the State of New Hampshire's Nutrient Policy. EPA's November 2001 Nutrient Policy Document directs states to develop nutrient criteria plans using one of three approaches: (1) develop nutrient criteria that develop localized conditions and protects specific designated uses using the process outlined in Technical Guidance Manuals; (2) adopt EPA's recommended numeric criteria or (3) use other scientifically-defensible methods to develop criteria protected of designated uses. (See EPA's Policy Document, included as Attachment 5 to the City's submission, at p. 2). Despite the absence of any State numeric water quality criteria for phosphorus, EPA elected to treat its "Gold Book"

phosphorus recommendation as a numeric criteria and developed a phosphorus effluent limit simply by dividing this Gold Book standard by the calculated dilution. In fact, EPA recognizes that its Gold Book recommendation constitutes an “attempt to characterize reference conditions on a broad ecoregion or sub-ecoregion scales irrespective of designated uses . . . or levels of refinement within the same type of designated use” (Id. at p. 5). Thus, EPA’s Gold Book criteria, upon which EPA ultimately based its proposed Permit limit, is not related to the protection of designated uses in New Hampshire’s Class B streams.

Shortly after EPA published its Nutrient Policy Document, the State of New Hampshire issued its “Plan for Adoption of Nutrient Water Quality Criteria,” included with the City’s submission as Attachment 6. Contrary to EPA’s recommended approach, New Hampshire elected to “develop its own scientifically-defensible approach”, stating that EPA’s recommended static approach did not “relate directly to use support.” Thus, New Hampshire Nutrient Water Quality Plan “proposed to set numeric limits for waterbody type only for chlorophyll-a because that is the parameter that (in almost all cases) actually results in non-attainment of a designated use due to cultural eutrophication, either aquatic life use support or recreation” (See New Hampshire Plan, Attachment 6, at p. 2)(emphasis added).

As discussed above, the available chlorophyll-a data for the Ashuelot River establishes that the relevant portions of the River are not eutrophic, as EPA initially contended, but rather are oligotrophic. EPA acknowledges that the process it undertook

in developing its proposed phosphorus limit is inconsistent with the State's Nutrient Policy. Specifically, EPA, in its Response to Comments, noted its "concerns with the approach reflected in the [State's] draft Nutrient Policy, e.g. over-reliance on chlorophyll-a levels as a single indicator of eutrophication," and further noted that, "EPA is not bound by that document for the purposes of establishing a phosphorus effluent in an NPDES permit." (See Response to Comments at p. 43).

While EPA may indeed be right that it is not legally bound to follow the State's Nutrient Policy in imposing a permit limit, the fact that it is imposing a permit limit in direct contravention to the State's Nutrient Policy warrants enhanced scrutiny by this Board, particularly where the financial consequences of EPA's Permit decision are so severe.²

EPA's use of its "recommended" Gold Book criteria to calculate an effluent phosphorus limit also constitutes an impermissible attempt to establish a State water quality standard. As explained above, despite the absence of a State numeric water quality standard for phosphorus, EPA calculated the Permit's phosphorus limit simply by dividing the recommended Gold Book value of 0.1 mg/L by the calculated dilution. EPA, in effect, treated its Gold Book recommendation as the State water quality standard, since it went through the exact same calculation and developed the exact same Permit

² As set forth in Attachment 4 to the City's submission, the cost of implementing a phosphorus removal project necessary to meet the Permit's proposed limit would cost an estimated \$16.2 to \$17.8 million, including 23 percent for engineering, a 30 percent contingency and adjusted for 4 percent annual inflation.

limit that it would if the Gold Book value had been adopted as the State water quality standard.

The Clean Water Act provides that EPA may “prepare and publish proposed regulations setting forth water quality standards for a state” only if “(A) the state fails to submit water quality standards within the times presented in subsection (a) of this section [or] (B) a water quality standard submitted by such state . . . is determined by the Administrator not to be consistent with the applicable requirements of subsection (a) of this section.” Clean Water Act § 303(b), 33 U.S.C. § 1313(b). EPA has not made any of the findings contemplated by § 303(b)(A) or (B) and has not published proposed regulations pursuant to that statute. It has sought to impose a *de facto* water quality standard for phosphorus without complying with the aforementioned provisions of the Clean Water Act. Thus, its proposed permit limit is inconsistent with the Clean Water Act.

As set forth above, this Permit represents EPA’s first effort to impose a phosphorus limit on a New Hampshire wastewater treatment facility in the absence of a completed TMDL. Because EPA’s approach in developing its Permit limit is directly inconsistent with the Clean Water Act and State’s Nutrient Water Quality Criteria Plan, it involves an exercise of discretion and an important policy consideration which this Board should, in its discretion, review pursuant to 40 C.F.R. § 124.19(a)(2).

II. METAL LIMITS

The City contests the Permit's effluent limits for total recoverable copper, total recoverable lead and total recoverable zinc. The City challenges these limits on the grounds that they are calculated using an inappropriate hardness value. As explained in the City's Comments during the Public Comment Period, the State of New Hampshire's water quality standards for metals are based upon an assumed hardness of 25 mg/l as CaCO₃. EPA developed the Permit's metal limits using the basic water quality standards found in State regulations, without an adjustment for hardness. However, State regulations appropriately allow an adjustment for these water quality standards where hardness varies from 25 mg/l. The City forwarded as Attachment 7 to its submittal copies of Permits for other municipal wastewater treatment facilities where the permitting authority has use hardness values other than 25 mg/l.

Attached as Attachment 8 to the City's Public Comments submittal is hardness data for both the Keene WWTP and the Ashuelot River upstream of the Keene WWTP. Attachment 9 is a report prepared by the City's consultants, Camp, Dresser & McKee (CDM), analyzing hardness data and river flow records, and concluding that estimated total river hardness in receiving water is 48 mg/l. Accordingly, the City's metal limits should be determined using an assumed hardness of 48 mg/l.

In its Response to Comments, EPA acknowledged that the analysis prepared by CDM "would normally be a reasonable approach for approximating hardness immediately downstream of a facility's discharge under 7Q10 conditions and is similar to

the analyses performed in the Massachusetts NPDES permits . . .” (Response to Comments at p. 8). However, EPA rejected the City’s request, concluding that “in-stream hardness data collected downstream of the Keene discharge consistently shows much lower hardness values than the CDM calculation.” (Id.). Specifically, EPA references hardness values obtained downstream of the point where the South Branch of the Ashuelot River joins the Ashuelot River (which is downstream of the Keene WWTP). The problem with EPA’s approach is that it fails to take account of the increased dilution which occurs downstream of this point. Thus, EPA is penalizing the City by calculating metal limits by using a dilution which occurs upstream of the point where the South Branch joins the Ashuelot River but using a hardness value based on data obtained downstream of this point. The Agency should not be entitled to have it both ways.³ If EPA wishes to focus on conditions upstream of the point where the South Branch joins the Ashuelot, then it may rely on the dilution calculated in its Fact Sheet, but also must use the hardness data submitted by the City reflecting conditions upstream of that point. Alternatively, if EPA wishes to focus on conditions downstream of that point, then it must recalculate dilution reflecting the contribution of the South Branch of the Ashuelot.

³ Another example of EPA’s inconsistent position in developing metals limits is the fact that downstream hardness data on which it relies was taken at low flow stream conditions, when the Keene WWTP was discharging at only a fraction of its maximum design flow, yet the metals limits themselves are developed by assuming a maximum plant design flow at the same time the river is at its low flow 7Q10. Given the undisputedly significantly higher hardness in the City’s effluent, EPA should be required to give the City full credit for the contribution of the plant’s design flow and its related hardness in calculating metals limits, as it admittedly did in the case of the Massachusetts NPDES Permits referenced in EPA’s Response to Comments.

CONCLUSION

For the foregoing reasons, the City of Keene requests that this Board grant this Petition for Review and establish a briefing schedule for this Appeal. Relative to this issue, the City would note that the Agency took over one year to develop its 64-page Response to Comments submitted during the Public Comment Period, yet the City is afforded only 30 days to review the Permit, the detailed Response to Comments and develop this Petition. As EPA acknowledged in its Response to Comments, the issues raised herein are sufficiently complex and the consequences to the City are of sufficient magnitude that the City should be afforded an opportunity to develop a brief which fully rebuts the issues raised by the Agency in its Response to Public Comments. The City is prepared to submit such a brief on whatever schedule this Board deems appropriate.

Respectfully submitted,

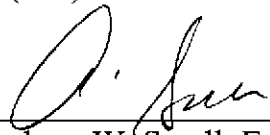
THE CITY OF KEENE

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