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

_____)
In Re:)

Town of Jaffrey, NH)
Public Works Department)
23 Knight Street)
Jaffrey, NH 03452)
NHDES Permit No. NH0100595)
_____)

PETITION FOR REVIEW

I. INTRODUCTION

Pursuant to 40 C.F.R. §124.19(a), the Town of Jaffrey, New Hampshire (“the Town” or “Jaffrey”), through its undersigned representatives, respectfully submits this Petition for Review (“Petition”) of the final National Pollutant Discharge Elimination System (“NPDES”) Permit No. NH0100595 (the “Permit” or the “Final Permit”) dated September 28, 2009 issued by the United States Environmental Protection Agency (“EPA”, “Region I” or “the Region”). A copy of the Final Permit and the cover letter accompanying the same are enclosed as Exhibit A.

Specifically, the Town contests the provisions in the Permit that set or include:

1. The total phosphorus concentration limits of 0.16 mg/l (April 1-October 1) and related mass limits of 3.1 lbs/d (July 1-September 30) and 1.67 lbs/d (October, and April 1-June 30);

2. The aluminum limit of 87 ug/l;
3. The average monthly flow of 0.75 mgd (July 1-September 30); and
4. EPA's calculation of the dilution factor.

For the reasons discussed below, the Town requests that the Environmental Appeals Board (the "Board" or "EAB") review these issues because they are based on clearly erroneous findings of fact or conclusions of law, and/or involve an exercise of discretion or an important policy consideration that the Board should, in its discretion, address.

II. THRESHOLD PROCEDURAL REQUIREMENTS

Jaffrey satisfies the threshold requirements for filing a petition for review under 40 C.F.R. Part 124, as follows:

1. Jaffrey has standing to petition for review of the permit because it submitted comments on the draft permit transmitted to the Town on April 4, 2007 (the "Draft Permit"). 40 C.F.R. §124.19(a).
2. This petition is timely filed. 40 C.F.R. §124.19(a) and 20. The notice of the issuance of the Final Permit is dated September 28, 2009. The thirtieth day after that notice is October 28, 2009. Adding in the three days allowed when service is done by mail leaves October 31 as the filing deadline. That date falls on a weekend, and this petition is filed no later than the first working day after the final day for the time period allowed for petitions for review to be filed.
3. The issues raised by the Town of Jaffrey in this Petition were all raised in comments on the Draft Permit and therefore preserved for review. 40 C.F.R. §124.13. See Exhibit B, the Town of Jaffrey's, Comments on Draft Permit, dated May 21, 2007. The Town indicates below with respect to each issue raised where the issue was addressed in its comments on the Draft Permit. Certain arguments and supporting material are also included that could not have been reasonably ascertained at the time the Town submitted comments on the Draft Permit, on May 31, 2007, either because the issues are raised for the first time in the Response to Comments ("RTC") or the Final Section 401 Water Quality Certification for the Permit Draft, issued by New Hampshire Department of Environmental Services ("NHDES") dated July 27, 2009 ("§401 Certification") (Exhibit C), or because new information has been developed since then.

III. FACTUAL BACKGROUND

Jaffrey operates a municipal wastewater treatment facility known as the Jaffrey Advanced Wastewater Treatment Facility which is located at Old Sharon Road in Jaffrey, New Hampshire (the "Facility" or "WWTF"). The Facility operates under a NPDES Permit issued by the EPA on July 30, 2001. The NPDES Permit authorizes the Town to discharge treated wastewater effluent from the Facility to the Contoocook River. Exhibit A. The Permit expired on October 1, 2006 but was administratively extended upon the Town's timely filing of a renewal application.

Since filing its initial permit application in 2001, the Town has undertaken several significant initiatives to improve water quality in the Upper Contoocook River. These initiatives include the Town's extensive work with the NHDES to develop a Total Maximum Daily Load ("TMDL") study and the construction of a new advanced wastewater treatment plant. Work on the TMDL study has been ongoing since August 1, 2003 when EPA approved the TMDL work plan prepared by NHDES. The Town has been extensively involved in the implementation of the TMDL study, including hiring two outside experts at the Town's expense. This work resulted in a draft TMDL issued by NHDES in May 2006. NHDES subsequently revised the TMDL permit limit following substantial input by the Town and issued what it termed "Final TMDL Permit Limits" on February 23, 2007. Exhibit C, NHDES Final §401 Certification for Jaffrey WWTF ("§401 Certification") at p.9, Table 2-3. Those Final TMDL permit limits set, among other things, a summer (June 1 - Oct. 31) phosphorus limit of 0.5 mg/l and mass limits of 5.2 lbs/d (June and October), 3.1 lbs/d (July 1 - September 30). *Id.* The summer limits were set at implied warm weather flows of 0.75 mgd (July 1 - Sept. 30) and 1.25 mgd (June and October).

Id. NHDES later reaffirmed its final TMDL - derived permit limits in a February 23, 2007 e-mail to the Town. *Id.* at p. 8, par. C-34.

During this same time, the Town began construction of the Jaffrey Advanced Wastewater Treatment Facility. Construction of the facility was initiated on June 25, 2007 and completed on April 20, 2009 at a cost of approximately \$18 million, including improvements to related facilities and associated engineering and other professional services. The new WWTF significantly upgrades the Town's wastewater treatment ability and capacity. The plant is now designed to treat a monthly average flow of 1.25 million gallons per day (mgd) with a peak instantaneous flow of 3.8 mgd. The facility treats commercial and residential flows from the Town of Jaffrey and two significant industrial customers, D.D. Bean and Millipore Corp. The industrial facilities account for 115,000 gpd of the monthly average design flow (9.2%).

The new treatment facility provides enhanced biological and chemical nutrient (nitrogen and phosphorus) treatment in addition to the standard conventional pollutants (*i.e.*, BOD, TSS and pathogens). The facility is designed to meet the following monthly average effluent discharge standards:

- CBOD: 10 mg/l
- TSS: 10 mg/l
- Ammonia - N: 0.61 mg/l (summer)
- Nitrate - N: 5.0 mg/l
- Total P: 0.5 mg/l (with chemical addition)

Actual performance since the facility went on line in April 2009 has substantially exceeded the above design standards. Since the biological process reached equilibrium, the average effluent quality has been as follows:

- CBOD: 3.3 mg/l
- TSS: 3.9 mg/l
- Ammonia - N: 0.22 mg/l (summer)
- Nitrate - N: 2.77 mg/l (median = 0.5 mg/l)

- Total P: 0.17 mg/l (without chemical addition)

The Town also applied for and received American Recovery and Reinvestment Act (ARRA) funding for an estimated \$3.2 million tertiary upgrade to the WWTF. The Town will conduct a Special Town Meeting on November 14, 2009 to vote on a warrant article to approve the tertiary upgrade project. A super majority (two-thirds) of those voting is necessary for approval of the project.

EPA issued a draft NPDES Permit which the Town received on April 4, 2007. The draft permit included water quality based standards at limits substantially lower than those set in the TMDL study. EPA did not provide its reasoning for not relying on the TMDL study until the issuance of the Response to Comments as part of the Final Permit issued on September 28, 2009. Moreover, the Final Permit includes substantial changes from the Draft Permit. These substantial changes included an increase in effluent DO standards from 7.0 mg/l to 8.0 mg/l during months of October through May. EPA added a July, August, and September Flow limit of 0.75 mgd. The draft permit was based on Permit flow of 1.25 mgd at all times. Additionally, the July, August, and September period mass limits for CBOD, TSS, Ammonia, and phosphorus were reduced due to lower permit flow. Summer ammonia limits were reduced from 5.3 mg/l to 1.1 mg/l (with further mass reduction during July through September as mentioned above). It should be noted that the Town's comments included a request to lower the ammonia limit of 2.5 mg/l in order to allow for a higher CBOD/TSS limit that the newly constructed facility could meet (leaving no net oxygen demand change). The TSS limit increased from 7 mg/l to 15 mg/l. Total phosphorus mass limits were added for the first time and aluminum limit increased from 78 ug/l to 87 ug/l.

EPA's stated basis for many of the substantive changes in the Final Permit is the §401 Certification. However, in the §401 Certification, NHDES for the first time indicated that it no longer considered the DES final TMDL limits sufficient to meet water quality standards. The Town was not given a chance to review or comment on the Certification prior to issuance of the Final Permit.¹ Prior to issuance of the Final Permit the NHDES's only public position on the Jaffrey NPDES permit limits relative to phosphorus was that the summer limit should be 0.5 mg/l based on TMDL model. Accordingly, it was not until receiving the Final Permit that the Town had notice that EPA and NHDES were no longer considering the substantial data collected as part of the lengthy TMDL study in determining total phosphorus limits for the Jaffrey WWTF.

One other note in considering the impact on the Town and the community by the requirement to develop new treatment technology to address phosphorus is its environmental impact. As the EAB is aware, treating the effluent for phosphorus discharges to the level that Final Permit requires will result in significant additional chemical use, energy consumption and sludge production. These negative impacts on the community and environment are another factor weighing in the policy judgment on whether the phosphorus limits proposed in the Final Permit or required by the Final Permit are justified.

IV. ISSUES PRESENTED

1. Is it a reasonable exercise of discretion, if not clearly erroneous, for EPA to have established an extremely stringent phosphorus limit for the Jaffrey Permit based upon the generic *Gold Book* instream phosphorus target concentration level when there is no present impairment of the receiving water and recent changes to the Jaffrey Wastewater Treatment Facility discharge have already markedly reduced phosphorus and other discharges?

¹ Although dated July 23, 2009, the Town did not receive a copy of the Final §401 Certification until October 2, 2009, and then only as an attachment to the Final Permit.

2. Did EPA err in misapplying New Hampshire's water quality standard for aluminum by placing an impossible burden on the Town to prove the negative of any anthropogenic source of aluminum?

3. Whether EPA's adoption of the 0.75 mgd summer flow limit is based on an inappropriate condition of the §401 water quality certification from the State of New Hampshire.

4. Did EPA fail to address Jaffrey's comments that would modify the dilution factor utilized for various discharge limits in the Final Permit?

V. **ARGUMENT**

A. **Standard of Review**

In proceedings under 40 C.F.R. §124.19(a), the Board should grant review of Region I's decision on an NPDES Permit when the PFR establishes that the permit conditions in question are based on a clearly erroneous finding of fact or conclusion of law, or involves an exercise of discretion on important policy considerations that the Board determines warrants review. The Town recognizes that it has the burden of demonstrating to the Board that review is warranted. 40 C.F.R. §23.24 That said, however, to the extent that the permit conditions in question are water quality-based requirements, EPA Region I must satisfy the requirement that the discharge from the Jaffrey POTW "will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard." 40 C.F.R. §124.44(d)(i).

B. **EPA's imposition of a 0.16 mg/l summer discharge limit is clearly erroneous and an abuse of discretion.**

Notwithstanding the EAB's recent decision in *In re City of Attleboro, MA*, NPDES Appeal No. 08-08 (EAB, September 15, 2009) ("*Attleboro*"), the Town of Jaffrey raises herein a substantial question as to whether EPA has appropriately supported its permit condition for total phosphorus, and the related issue of the stream flow conditions under which the total phosphorus

is to be measured. Particularly because EPA and NHDES have relied on differing bases for the phosphorus limit, the EAB should grant review of whether the EPA decisions relating to phosphorus are clearly erroneous as a matter of law and fact, or an abuse of discretion. EPA, on one hand, relies principally on a generic *Gold Book* instream phosphorus target level and assigns the target as an instream criterion. EPA then requires that criteria be met under 7Q10 flows. NHDES's support for the phosphorus limit in the Permit, on the other hand, is based on an entirely different analysis -- the effects of phosphorus on the macroinvertebrate population at mean seasonal flows. As will be explained below, NHDES rejects EPA's use of the *Gold Book* approach. In direct contrast, EPA nowhere references the macroinvertebrate effects approach taken by NHDES. Thus, the Town is "squeezed" by the two agencies using two entirely different approaches to determine the phosphorus limit for this Permit.

In establishing water quality-based discharge limits for phosphorus, EPA is guided by the initial dictates of the Clean Water Act that require that the limits must be based on data that confirms that a pollutant is causing a use impairment and that the discharge limit developed must be sufficient to protect designated uses, but also necessary to do so. Section 304(a) of the Clean Water Act, 33 U.S.C. §1314(a); 40 C.F.R. §§131.2 and 131.3(b), (c). EPA's own guidelines for deriving numerical water quality criteria in use since 1985 elaborates on this requirement stating that criteria ensure only a small probability of "considerable overprotection or under-protection," that the data relied on should be based on "all available laboratory and field information", that the criteria be "consistent with sound scientific evidence," and that there be a clear cause and effect relationship between the criterion and use impairments. *Guidelines For Deriving Numerical National Water Quality Criteria For The Protection Of Aquatic Organisms And Their Uses*, USEPA 1985 ("Guidelines").

The NHDES nutrient water quality criterion is a narrative standard: there shall be no nutrients at levels that impair designated uses. Env-Wq 1703.14. There is no numeric standard for phosphorus in the New Hampshire Water Quality Standards. Thus, the focus of the analysis on the appropriate phosphorus limit in the Jaffrey Permit, if any, is on the impacts of the phosphorus discharge on potential use impairment resulting from nuisance levels of algae or other aquatic vegetation that may develop in response to the phosphorus discharge and criteria violations that may result. Phosphorus itself is not a direct cause of any designated use impairment. *Nutrient Criteria Technical Guidance Manual: Rivers And Streams*, EPA-822-B-00-002 (July 2000). (“*Rivers and Streams Document*”). Thus, in setting a phosphorus limit EPA must find that the discharge of that nutrient causes or has the potential to cause a water quality criteria violation or the aquatic life use or recreational use impairment. EPA needs to be able -- but has failed here -- to demonstrate that the limit developed is necessary to prevent use impairments and water quality numeric standard exceedances; not simply to set a particular, arbitrary instream phosphorus concentration.

1. There is no impairment of the Contoocook River due to phosphorus discharges from the Jaffrey WWTF.

[The Town raised this issue in Comment C of its May 21, 2007 comments on the Draft Permit.]

EPA has not set forth a basis to claim that the Contoocook River is impaired for designated use due to phosphorus discharges from the Jaffrey WWTF. The RTC at pg. 25 and the §401 Cert at Par. C31 provide tables of Contoocook River assessment unit (AU) listings excerpted from the NHDES 2008 303 (d) List of Impaired Waters. See Exhibit D for a table highlighting the Contoocook River 303(d) listings of AUs downstream from the Jaffrey discharge location through Powder Mill Pond. A location map of the AUs is also provided for reference as Exhibit E.

The 2008 303(d) list is developed by DES using the Consolidated Assessment and Listing Methodology (CALM). According to the CALM, the following information is included: Use Description, Impairment Name, DES Category, and Source Name. All of the river and impoundment AUs and Powder Mill Pond downstream of Jaffrey that are "listed" are listed as impaired for aquatic life use and primary contact recreation use. The impairment names for aquatic life use listed are dissolved oxygen saturation, dissolved oxygen, total phosphorus and pH. The impairment names for primary contact use are chlorophyll a, total phosphorus and E. Coli. "Total Phosphorus" appears as an impairment name for listings under the use descriptions of aquatic life use and primary contact recreation use, yet the CALM does not include any mention of total phosphorus as an indicator of use impairment. EPA mentions NHDES VRAP guidance (RTC at p. 18) for stream phosphorus levels, but that document does not appear in the CALM either. Exhibit F.

As also indicated in the 303(d) List, the source name for pH and E. coli in all highlighted listings is "source unknown". For the listings of dissolved oxygen saturation, dissolved oxygen, total phosphorus (impairment name for aquatic life use impairment), the sources are municipal point source discharges and unknown. Similarly, municipal point source discharges and unknown are the sources listed for chlorophyll a and total phosphorus. (impairment names for primary contact use impairment). For all of the listings that include phosphorus, the phosphorus, dissolved oxygen saturation, dissolved oxygen (aquatic life) and the phosphorus and chlorophyll a (primary contact) are categorized by DES as 5-Threatened (T). This means that the listing is the result of a mathematical model prediction. The model used by DES for the Contoocook River is the TMDL Model, considered by DES to be calibrated and verified, and an appropriate assessment tool for future conditions. The single exception to the 5-T Category for dissolved

oxygen is assessment unit (NHRIV 70030104-03) that is indicated as impaired due to an actual measurement of dissolved oxygen is in error. The Town was notified by DES on October 29, 2009 by DES that the actual dissolved oxygen impairment is based on measured data in the Gridley River (not affected by the Jaffrey WWTF discharge), not the mainstem of the Contoocook River.²

An examination of the available DES laboratory data and field observation indicates that there is no aquatic life use impairment. Dissolved oxygen and dissolved oxygen saturation data indicate that the river is meeting criteria. In addition, the CALM indicator of benthic invertebrate health, the Index of Biotic Integrity (IBI), has been measured in the river downstream of the Jaffrey discharge. Benthic macroinvertebrates as stated in the §401 Cert Par. at C44 “are sensitive” and should be used to set ambient phosphorus criteria. The IBI of 67 downstream of Jaffrey is well above the “impairment” threshold of 54 developed by DES as indicative of impairment. The data, therefore, show that the Contoocook River is not impaired for aquatic life use. Since there are no impairments, the 303(d) listings for phosphorus as “impairment name” have no basis.

Similarly, an examination of the available data indicates that there is no primary contact recreational use impairment either. The algal chlorophyll a measurements, 2 – 7 ug/l chlorophyll a, are all less than the CALM indicator level of 15 ug/L chlorophyll a. The single exception is a measurement of 16 ug/l, that DES explains as caused by the high level of algae that was being discharged by the old facility 50-150 ug/l chlorophyll a, at the time of the measurements. DES also performed qualitative assessments of the periphyton, attached algae, in the Contoocook

² EPA has stated clearly at several points in the Response to Comments - September 21, 2009 Reissuance of NPDES Permit No. NH0100595 (“RTC”)(Exhibit G) that the NHDES TMDL of the Contoocook River is not an approved TMDL and more importantly, the Contoocook TMDL Model is not a calibrated and verified model. (RTC at pages 4, 10, 13, 16, 19, and 27). In sum, the Contoocook River 303(d) listings for phosphorus are suspect.

expressed as percent periphyton coverage. EPA includes a summary of the DES periphyton coverage data at p. 22 of the RTC. From that EPA extrapolates that there is an impairment based on a single literature citation and a statement about filamentous algal coverage. EPA is wrong if it assumes an impairment because periphyton is present. Mere presence is not an impairment. In fact, periphyton is needed as habitat and food source for benthic invertebrates. As stated in the Town's comments on the Draft Permit, given the clarity of the Contoocook and presence of suitable substrate (rocks, cobble, etc.), the presence of periphyton is normal. DES has specifically stated that the periphyton in the Contoocook are "not filamentous or levels to be considered to be aesthetically objectionable." (Exhibit C, § 401 Certification at p. C-34, p. 14). Data measured in the Contoocook River downstream of Jaffrey in 2006 as reported in *New Hampshire Nutrient Criteria Development, Relationships between Nutrients and Periphyton in Wadeable Streams in New Hampshire*, September 30, 2008 included phosphorus (0.028 – 0.038 mg/l), chlorophyll a, (2-3 ug/l), close to 100 percent periphyton coverage but again no filamentous algae were present. From the available data and qualitative assessments by DES specialists, the conclusion is there is no primary contact use impairment. Since there are no impairments, the 303(d) listings for phosphorus as "impairment name" have no basis.

2. There is use impairment in Powder Mill Pond downstream of Peterborough on the Contoocook River.

The 2008 303(d) listing includes Powder Mill Pond as impaired for aquatic life from low dissolved oxygen and low percent dissolved oxygen percent saturation and for primary contact use impairment from chlorophyll a. These listings are categorized by DES as 5- Poor (P) and 5- Marginal (M), which shows that there are actual measurements to support the listing. There is, however, no mention of phosphorus as an impairment name. The source of impairment is listed as municipal point sources and unknown. Both the Jaffrey and Peterborough wastewater

treatment facilities discharge into the river upstream of Powder Mill Pond, a run of the river lake created behind a dam across the river.

The 2008 condition of Powder Mill Pond is the result of all pollutants that enter the river upstream of the Powder Mill Dam. The Jaffrey WWTF discharge is therefore a contributor to the nutrients that enter the impoundment 10 miles downstream. The Peterborough WWTF and non-point sources from watershed runoff also contribute to the loading. Jaffrey's effluent nutrient loads prior to the new facility coming on line in 2009 included phosphorus concentrations of 2-3 mg/l (21 to 31 lbs/d at 1.25 mgd) and high levels of pond algae measured from 50 to over 150 ug/l chlorophyll a. As stated in the Town's comments in the Draft Permit, the load likely contributed to high chlorophyll a in Powder Mill Pond although it did not impair the Contoocook River as shown above. Dissolved oxygen impairment could also have been caused by algae dying, settling in the Pond and exerting an oxygen demand. Jaffrey's effluent phosphorus may also contributed to excessive algal growth. The impairments in Powder Mill Pond, though, were measured prior to the new Jaffrey facility coming online. A certain amount of phosphorus, of course, is acknowledged to be contributed from elsewhere in the watershed. It is reasonable to conclude that the Jaffrey discharge may have contributed in the past to the violation of water quality criteria (dissolved oxygen) and aesthetic impairments (high chlorophyll a) at Powder Mill Pond, or at the very least had the potential along with the Peterborough and watershed loads to cause impairments.

However, it is not reasonable to assume that phosphorus from the new Jaffrey facility will cause or has the potential to cause violation of DES water quality criteria and/or will cause or have the potential to cause use impairments. Although the new Jaffrey facility, has only been in operation since the late spring, effluent data indicate the plant is reducing phosphorus to levels

well below the 0.5 mg/l design criteria to 0.2 mg/l. At the design flow of 1.25 mgd, this translates to 2.1 lbs/d, a 90 percent reduction from the old plant discharge levels. In addition, there is no longer any algae discharged from the plant. Conventional parameters, such as CBOD, ammonia, total nitrogen and TSS are also being reduced to very low levels in the effluent. The Jaffrey contribution to the nutrient and pollutant load delivered to Powder Mill Pond is now significantly reduced.

EPA has made the assumption that meeting an instream phosphorus criteria of 0.1 mg/l in the Contoocook River downstream of the Peterborough WWTF will protect Powder Mill Pond. It is indisputable, however, that the pond will receive far less phosphorus from the Jaffrey source than was previously the case. The reduction in effluent phosphorus is already so significant that it is unlawful and an abuse of discretion for EPA to impose the 0.16 mg/L effluent limit at this time. A more reasoned approach is to continue to monitor the Contoocook River downstream of Jaffrey and downstream of Peterborough, and to monitor Powder Mill Pond so the effects of the significant load reductions to date can be measured.

3. There is insufficient basis in fact and law for EPA to conclude that there is a reasonable potential for phosphorus discharges above 0.16 mg/l of phosphorus to cause a violation of any state water quality standard.
 - a. Reliance on the generic instream phosphorus concentration target levels is misplaced.

[The Town raised this issue in Comment C of its May 21, 2007 comments on the Draft Permit.]

As it has done in other permits, including the Town of Attleboro's (MA), EPA has relied heavily in this permit on the so-called *Gold Book*, Quality Criteria for Water, 1986 EPA 440/5-86-001. (The section on phosphorus is included herein as Exhibit H.) The *Gold Book* does not, however, establish a 0.1 mg/l total phosphorus in-stream standard. The *Gold Book's* 4 page

“Phosphate Phosphorus” section indicates that control of excessive plant growth/eutrophication is not simply a function of selecting a “one size fits all” numeric phosphorus waterbody concentration. The *Gold Book* states that a desired goal for the prevention of plant nuisances in streams or other flowing waters not discharging directly to lakes or impoundments is 100 ug/total P.” (emphasis added). The *Gold Book* qualifies this instream target value, and describes the complicated nature of nutrients as related to biological responses in natural waters and the need to have site-specific knowledge of the system. “There are natural conditions, also, that would dictate the consideration of either a more or less stringent phosphorus level. Eutrophication problems may occur in waters where the phosphorus concentration is less than that indicated above (100, 50, 25, 10, 30 ug/l, etc.) and, obviously, such waters would need more stringent nutrient limits. Likewise, there are those waters within the Nation where phosphorus is not now a limiting nutrient and where the need for phosphorus limits is substantially diminished.” A “one size fits all” numeric nutrient standard is not appropriate.

The *Gold Book's* concluding sentence of the *Gold Book's* phosphate phosphorus section reads: “No national criterion is presented for phosphate phosphorus for the control of eutrophication.” In that light, the need to move beyond 0.1 mg/l as an in-stream goal to the establishment of numeric nutrient criteria has been the focus of USEPA and the states since 1985. EPA has moved ahead to establish numeric criteria for nutrients and other parameters that are appropriate to protect designated water uses (i.e. aquatic life, water supply, primary contact recreation, etc.) in the region and waterbody approach that was articulated by USEPA in *National Strategy for the Development of Regional Nutrient Criteria*, June 1998. A key concept stated therein is: “In the case, of nutrients, however, there is a great deal of variability in inherent nutrient levels and nutrient responses throughout the country. This natural variability is

due to differences in geology, climate and waterbody type. Because of this variation, EPA's custom of developing scientific information about a pollutant and recommending a single pollutant concentration to support a designated use for nationwide application is not appropriate for nutrients". Indeed, in the RTC EPA cites the Ecoregional Criteria, a product of implementation of the USEPA strategy, the range of targets and/or goals that may be adopted as part of an overall nutrient strategy that is site-specific to the New England Region. Jaffrey agrees that the Ecoregional criteria can exceed needed water quality needs -- as does the automatic region-wide application of the *Gold Book* 0.1 mg/l goal.

EPA's claim that its use of the *Gold Book* goal of 0.1 mg/l as effects-based when applied to the Jaffrey discharge/Contoocook River is inaccurate or overbroad. There is no direct or indirect cause and effect demonstrated by EPA to link Contoocook River designated uses to 0.1 mg/l of phosphorus in the river. The Region has chosen an approach for nutrient management through permit limits on point source dischargers that assigns a total phosphorus numeric stream standard of 0.1 mg/l throughout the region. (e.g., Attleboro (MA), Keene (NH), Peterborough (NH)) Although EPA states in the RTC No. 2 at p. 11-12 that it "used Section 304(a) information and recommended criteria as guidance to interpret the State's narrative criterion for nutrients and not as substitutes for State water quality criteria.", the Region did, in essence, replace the NHDES narrative water quality criteria with a numeric standard.

The Region focuses its approach on establishing a phosphorus discharge limit in the Permit very strongly on the *Gold Book*, along with low flow stream statistics at the Jaffrey discharge location. While EPA states that it relied on "peer reviewed scientific literature pertaining to nutrient impacts on aquatic systems," the real focus is the *Gold Book*. RTC at p. 12. ("The Region's use of the *Gold Book* and other relevant materials published under

§304(a)”), and RTC No. 9 at page 30 (“Based on the current record, EPA has concluded that achievement of the recommended *Gold Book* value instream will be sufficient to ensure compliance with NH Standards ...”) Furthermore, this Board in the *Attleboro* decision also recognized in that proceeding EPA’s principal reliance was on the *Gold Book* approach. *Attleboro*, slip op. at 48-50. The Region does indicate in its RTC that it relies on more than the *Gold Book* in setting the 0.1 mg/l instream criterion. However, in reality, the Region is using across the region, as it did here in Jaffrey’s case, the automatic application of the 0.1 mg/l instream concentration level and simply factoring the discharge and receiving water flow data equation to arrive at what EPA believes to be a necessary discharge limit for phosphorus. The *Gold Book* focus is even more evident in the Fact Sheet. Exhibit I at pp. 15 & 17 (“Fact Sheet”). This heavy reliance on the *Gold Book* criterion alone is, notwithstanding *Attleboro*, clearly erroneous in fact and law, and an abuse of EPA’s discretion in determining necessary permit limits for the Town of Jaffrey.

Phytoplankton (water column algae, typically measured as chlorophyll a concentration, ug/l), periphyton (attached algal growth, typically measured as chlorophyll a per unit area, ug/m²), macrophytes (rooted aquatic plants), benthic invertebrates, and other aquatic life are inter-related to each other. How though separately or collectively they are affected by environmental factors (of which nutrients is only one) is complicated. Arbitrary selection of a numeric stream standard and its wide-spread, if not universal use to impose permit limits cannot be justified unless there is absolutely nothing known about the receiving waters and nothing is known about the discharger. There is, however, site-specific data on the Contoocook River such as stream surveys performed in the Jaffrey stretch of the Contoocook River, and in the Peterborough/Powder Mill Pond section of the river measuring nutrients, algae, etc., qualitative

descriptions of periphyton and macrophytes, historic Jaffrey treatment plant data, data on the new treatment facility and data from special studies of benthic community structure in the Contoocook River. Although EPA stated “reasonably available” data was examined (see RTC No. 2 at p. 5), the 0.1 mg/l numeric stream criterion was assigned to the Contoocook River.

On page 12 of the RTC the Region explained, as it did in the Fact Sheet, that the CWA §304(a) information relied for this Permit was intended as interpretative material in applying the State’s narrative criterion for phosphorus, and not as a substitute for a standard. That notwithstanding, however, NHDES does not share EPA’s confidence in the *Gold Book* approach. Significantly, NHDES in its §401 Certification places no reliance whatsoever on the approach and documentation supporting the approach utilized by EPA in establishing a phosphorus discharge limit based upon an instream numeric phosphorus concentration criterion. NHDES sets forth in detail the history of the development of the Contoocook River TMDL in its §401 Certification and explains that it reached a point where it felt that revised final permit limits could be appropriately established. These NHDES revised final permit limits of February 23, 2007 are set forth on Tables 2 and 3 on page 9 of the §401 Certification. NHDES then explained in par. C-34(b) on pp. 10-13 of the §401 Certification that it conducted additional modeling runs of the calibrated and validated QUAL2E computer model which validated the appropriateness of the 0.5 mg/l discharge limit. It was EPA’s decision not to include that summer phosphorus limit -- and instead impose a much more stringent 0.16 mg/l limit -- that was the focus of comments from the Town on the draft permit.³

³ As for NHDES’s rejection of the *Gold Book* instream target concentration for phosphorus of 0.1 mg/l, NHDES introduces a brand new, not disclosed publicly before, analysis to support its position that a more stringent 0.16 mg/l discharge limit is appropriate. This new approach is explained -- for the first time in this permit process or any other forum -- in paragraph C-44 of the §401 Certification. That approach, too, is significantly flawed, as explained in Section V.B.2(c) below.

In the *Attleboro* decision, the EAB determined that Region I had “provided a sound and reasonable explanation” of its application of the *Gold Book* recommended concentration. The EAB placed emphasis on the *Gold Book*’s guidance that total phosphorus should not exceed .05 mg/l where a stream enters a lake or reservoir. The very next sentence in the *Gold Book*, however, was not highlighted. That sentence states that “a desired goal for the prevention of plant nuisances in streams or other flowing waters not discharging directly to lakes or impoundments is [0.1 mg/l total P.]” *Attleboro* at p. 63. With the significant data indicating that there is no impairment for aquatic life or recreational use in the Contoocook River presently, that the new Jaffrey WWTF very substantially reduces phosphorus discharges, coupled with the *Gold Book*’s recognized lack of guidance on how to apply its recommended values, gives this Board sufficient reason to question the Region’s application of the *Gold Book* generic standard for instream phosphorus concentration in this proceeding. Even recognizing that the Region is owed deference on technical issues, and that the Board depends heavily on EPA’s technical expertise and experience, that is countered by the equally technical expert and experienced NHDES permit reviewers who found no basis for reliance upon the *Gold Book* approach for this permit.

The Town also recognizes that Region 1 is motivated to maintain consistency in its approach, and that its reliance on the *Gold Book* was generally upheld upon review by this Board in the *Attleboro* decision. That said, however, if the Region’s approach is so stringent so as to stretch the bounds of the facts present in a particular permit review, or to abuse the agency’s discretion, such a situation calls for the EAB to undertake careful review of the Region’s application of a numeric phosphorus criterion as the approach to set permit limits for phosphorus. That is the case for the Town of Jaffrey.

In *Attleboro*, the EAB rightly focused on the Region's need only to show that a discharge has a potential to cause violations of a water quality standard. 40 C.F.R. §122.44(d)(1)(i). In that decision, the Board indicated that once EPA had concluded that the 0.1 mg/l instream concentration was the appropriate criterion to follow, the data indicated that that criterion would be exceeded with a discharge at a level higher than the proposed permit limit in that case. *Attleboro*, at p. 65. There is a meaningful distinction in Jaffrey's case from the facts present in the *Attleboro* proceeding. There ambient total phosphorus concentrations in the Seven Mile River below the Attleboro discharge already in excess of the *Gold Book* target 0.1 mg/l. *Id.* at 72. The same cannot be said about ambient conditions in the Contoocook River today. Although there were sampling results in 2004 above the 0.1 mg/l *Gold Book* level, since then the phosphorus levels being discharged from the Jaffrey WWTF have been reduced from as high as 2-3 mg/l to a current level of 0.17 mg/l. Furthermore, the new plant has a design basis to allow sustained phosphorus levels of the less than 0.5 mgd which is greater than a 75% reduction from historical loadings. Although Jaffrey can point to no recent sampling of ambient conditions, it is indisputable that the phosphorus concentration in the river has been reduced dramatically immediately downstream of the Jaffrey discharge due to the construction and operation of the new WWTF.

EPA's reliance on Maine and Vermont's draft criteria for total phosphorus is misplaced. RTC No. 3 at 16. Both are admittedly drafts. Further, the references to other states' numeric criteria and guidelines for total phosphorus is of limited value. RTC at p. 15, Table 2. Several are merely guidelines, as indicated by EPA. *Id.* Further, certain of the criteria do not set maximum limits, but rather provide a starting point in the analysis subject to a demonstration that phosphorus is not a limiting nutrient and will not render the waters unsuitable for designated

uses. (Such as the case in New Jersey. *Id.* Utah's is used as an indicator to warrant further investigation. *Id.*) Even for Vermont, Table 2 on page 15 of the RTC indicates that that state has a maximum limit of .01 mg/l at low median monthly flow, but page 16 of the RTC refers to the Vermont criteria as "draft."⁴

EPA's reliance on the NHDES document interpreting *VRAP Water Quality Monitoring Parameters - Chemical Parameters* (NHDES 2007) (Exhibit F) as support for an instream phosphorus concentration target was of no support. *Id.* This so-called policy document is not one that has been subject to any public review or scrutiny, no formal policy development has occurred with respect to the document (particularly and specifically the total phosphorus section of the document), nor has any formal rule-making been undertaken on the phosphorus discussion. Unlike most of the other physical or chemical parameters discussed in the policy document (e.g., dissolved oxygen, E. coli), there is no numeric standard for phosphorus and translating it to a particular "level of concern" has no regulatory significance.

Last, as the EAB is aware, EPA appointed a Science Advisory Board of experts ("SAB") to review draft guidance on "the use of empirically-derived stressor-response relationships as the basis for developing numeric nutrient endpoints for water quality standards". See Exhibit J, an August 12, 2009 Memorandum from Thomas M. Armitage, Ph.D. to Vanessa Vu, Ph.D., both of the SAB Staff Office. The SAB convened proceedings in September to hear public comment on the SAB review of this nutrient standard-setting approach. See Exhibit K, an Inside EPA article about those proceedings. "SAB Faults EPA's Nutrient Guide, Bolstering Potential Industry Suit", Vol. 26, No. 19, September 23, 2009. The Town has included herein as Exhibit N one of many submittals to the SAB for its September public hearing, an article entitled *Critical*

⁴ Note also that the Vermont regulation only applies to "upland streams" (essentially outstanding resource waters). *Id.*

Evaluation of EPA's Draft Empirical Approaches for National Criteria Derivation, by John C. Hall, Esq., William T. Hall, Dominic Di Tone, and Thomas Gallagher. This article identifies effectively the challenge facing EPA and state environmental agencies in setting nutrient discharge limits. All -- including EPA and DES -- recognize that the nutrients themselves are not toxic, and that it is the combination of nutrients and many other environmental factors present in the rivers and streams that determines the extent of plant growth. Although the SAB has not issued any findings yet, there is every indication that the recommendations will influence EPA's continuing work on its approach to nutrient discharge limits. This current ongoing focus by the SAB is another reason why EPA in its discretion should not have imposed an over-protective phosphorus limit in Jaffrey's Final Permit. And it is a further reason for this Board to find that this is an important discretionary matter that warrants further review by the Board.

EPA is imposing phosphorus limits that are far stricter than other treatment facilities are required to meet because of Jaffrey's headwaters location. Jaffrey recognizes that Region I, in particular, is pushing very aggressively at nutrient reduction, an effort that the Town applauds. However, the use of a 0.1 mg/l instream numeric criterion (again, when presented as a target in the *Gold Book*) is not applicable in the Jaffrey situation compared to the City of Attleboro. Unlike Attleboro, there is no present impairment along any stretch of the river between the Jaffrey and Peterborough Waste Water Treatment Facilities. And, significantly, the \$18 million investment made by the Town of Jaffrey in the last decade has produced a new advanced treatment plant that began operating this summer. The operational success of that facility has markedly reduced the discharges to the Contoocook River from Jaffrey's plant. The chlorophyll a that once flowed from the lagoons at the former plant has ceased. Moreover, the phosphorus loading from the Jaffrey WWTF has been reduced by some 75%. This remarkable success at

reducing phosphorus loadings into a river that shows no impairment and is on the 303(d) List for potential violations of the narrative standards based on an uncalibrated and unverified model.

As the Town indicated when it filed its comments on the Draft Permit, Jaffrey is, and has been, fully committed to taking appropriate steps to protect the Contoocook River while pursuing those improvements that are reasonably achievable. *See* Exhibit B at page 1. In that light, the Town is proud of its having funded and constructed and now operating a new WWTF that has been performing very effectively. The new Permit, by virtue of the phosphorus limit, will impose another capital expense of \$3+ million together with ongoing operational expenses for no environmental benefit. We share the federal and state governments' desire to continue to reduce nutrient discharges to our rivers and streams, and we balk at taking additional measures to reduce the phosphorus limits marginally beyond what the new plant is providing only because of the serious question of the water quality benefit to be derived from that significant expenditure. It is not, then, for lack of trying the Town of Jaffrey objects to the extent to which the final permit requires the Town to go. Jaffrey has taken every reasonable step to prepare for the potentiality of responding to extremely stringent phosphorus limits, but it still needs to ensure that the expenditure of local, state and federal dollars for the continuing refinements of the wastewater treatment facilities in Jaffrey must be carefully watched.

- b. The discharge limit for phosphorus using a instream numeric criterion should not be based on 7Q10 flow levels.

[The Town raised this issue in Comment C of its May 21, 2007 comments on the Draft Permit.]

EPA asserts that 7Q10 "is the hydrologic condition under which NH Standards must be met and water quality-based permit limits calculated. RTC No. 9 at p. 29. There is no New Hampshire statute or regulation that requires that 7Q10 flows be applied in this manner for effects-based analyses for phosphorus impacts on stream biology. Env-Wq 1705.02(d) provides

that “[f]or rivers and streams, the 7Q10 flow shall be used to apply aquatic life criteria and human health criteria for non-carcinogens.” That regulation, notably, does not apply to recreational use impairments, and it is focused on acute type potential impacts to aquatic habitat and human health. It is not intended to apply to nutrients in rivers and streams, which is a potential impairment issue not from an acute sense, but from a buildup over time of one of the factors that could lead to impairment.

Moreover, NHDES’s §401 Certification assumes the opposite. At paragraph C-44 of the §401 Certification, NHDES implies that for analyses of biological responses to phosphorus in streams, it is more appropriate to use mean base flow as opposed to 7Q10 flows. In addition, NHDES notes that it is “EPA’s current practice” (emphasis added) to use the 7Q10 flow as the basis and analysis. §401 Certification at p. 16. Thus, we have EPA saying it is a state requirement and NHDES suggesting it is an EPA practice of using 7Q10 as the hydrologic condition to analyze effects-based permit limits. 7Q10 should not be used as the hydrologic condition for the analysis of the appropriate phosphorus limit for this permit. It is clearly erroneous for EPA to have done so. The Environmental Appeals Board should remand this issue to EPA for a proper determination of what the phosphorus limit should be based upon some mean seasonal flows as opposed to 7Q10.

NHDES refers to *New Hampshire Nutrient Criteria Development, Relationships between Nutrients and Periphyton in Wadeable Streams in New Hampshire* (September 30, 2008) as the basis for future numeric nutrient criteria development. §401 Certification at par. 44. Figure 2 below shows the phosphorus data as the median measured from 5 samples taken over a summer period. Similarly, variables such as flow, canopy cover, algae, periphyton, and macroinvertebrate indices are all averaged from 5 station visits over a summer season for use in the report. In

addition, NHDES describes a future potential methodology for determining compliance with future criteria. It involves averaging nutrients measured 3 times over a summer season (June 1 through September 30) for comparison to a criteria at “mean (average) base flow conditions over the summer period.

Thus, NHDES nutrient criteria are likely to be expressed as an average applied seasonally at seasonally averaged base flow conditions: not as a maximum not to be exceeded (i.e. 0.1 mg/l) at 7Q10. Meeting in-stream criteria at a low flow value is appropriate for DO and toxics, but is not appropriate for nutrients and their biological responses. The NYSDEC work to date is also based on the unproven assumption of impairment at a particular biotic index score threshold. The relationship of biotic score to phosphorus presented is not a demonstration of cause and effect, the requirement for establishing a numeric instream criteria.

- c. Reliance on the just-emerging analysis of macroinvertebrate effects cannot be supported.

[The Town first learned of this issue in the §401 Certification issued by NHDES and received by the Town on October 2, 2009. It could not have been reasonably ascertained at the time the Town filed comments on the Draft Permit on May 21, 2007.]

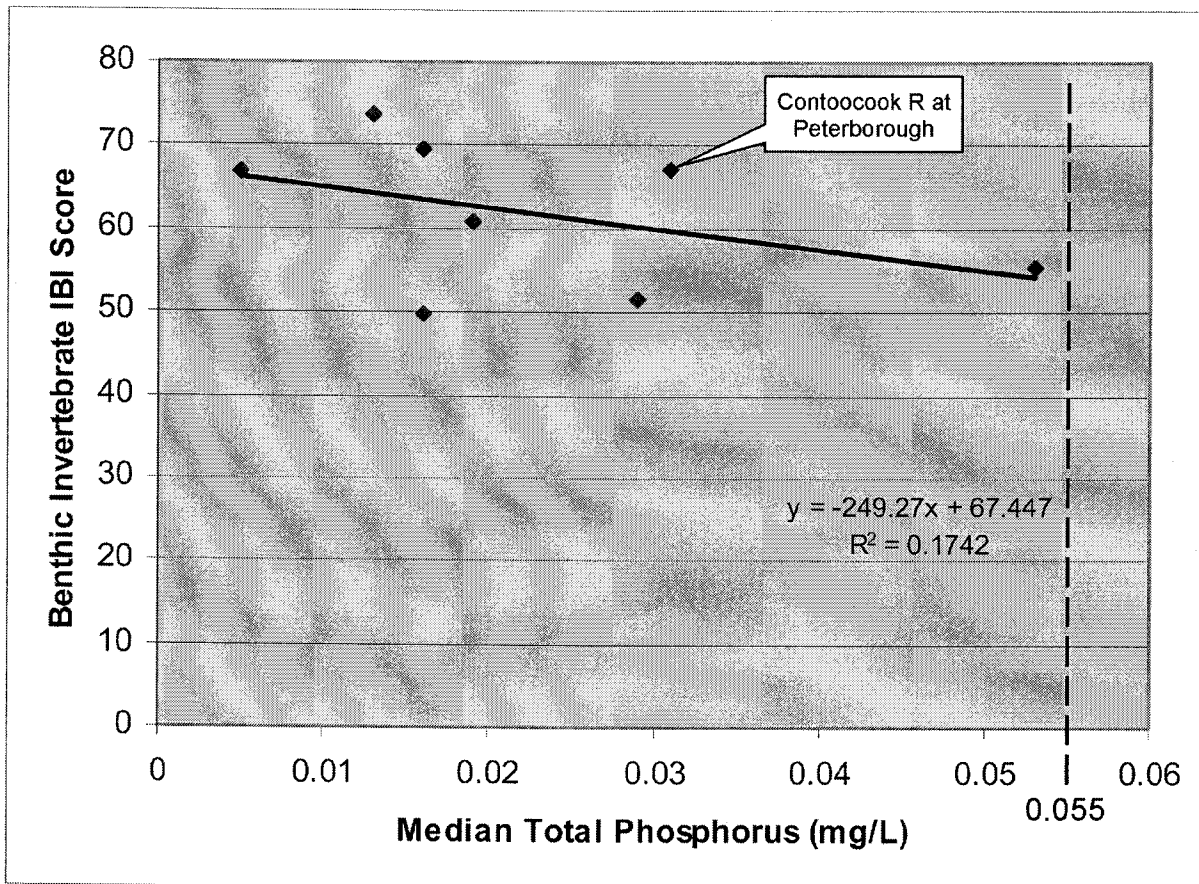
NHDES then goes on to test the EPA’s limit of 0.16 mg/l for Jaffrey using a flow of 0.75 mgd for the months of July through September and a Jaffrey flow of 1.25 mgd for April, May, June and October. The test involved using low stream flows to calculate daily TP downstream of the Jaffrey plant discharge flow. NHDES also relied upon the method to propose a mass limit for total phosphorus even though EPA had not required a mass limit in the draft NPDES permit. However, NHDES admits within the §401 Certification itself that the method upon which it based its determination “is not based on a statistically significant relationship” because of the limited data collected by NHDES to date. *Id.* at p. 17. Moreover, NHDES fully expects the

methodology “will be refined over the next few years as [it] collects more data”. *Id.*

Accordingly, NHDES acted unlawfully in relying on a standard that has not been adopted, proposed, or even yet well-thought out to set phosphorus limits for the Jaffrey WWTF.

The underlying assumption is that the Contoocook River aquatic life use is currently impaired for macroinvertebrates caused in part by phosphorus in the Jaffrey WWTF effluent, and that ambient phosphorus levels need to be reduced to eliminate the impairment. The limited data that are available on the methodology includes macroinvertebrate IBI measured in the Contoocook River at Peterborough of 67, well above 54. By this sparse data set, the Contoocook is not impaired for Aquatic Life Use.

Figure 2: Relationship between total phosphorus and benthic invertebrate IBI score



Source: 401 Cert at C-44 and NHDES, September 30, 2008

NHDES used an overly conservative flow regime to test the Jaffrey flow and TP limit combinations. Selecting 1963 to 1966 flow records because they had some of the lowest average monthly flows from June through September will not result in “median or average” concentration conditions relied on in the §401 Certification. Par C-44, p. 20. For instance, one can assume that “monthly” flow values from 1966 would be in the lowest 2 % of values, a very conservative case.

Following the NHDES methodology and the conservative flow conditions used to calculate compliance with a non-existent stream TP standard to restore a non-existent aquatic life use impairment, the flow limit at less than design flow during July through September, the TP

limit of 0.16 mg/l and the accompanying mass limits are arbitrarily unlawful. They will result in the need for Jaffrey to install an expensive, environmentally damaging, and unnecessary chemical addition/tertiary treatment on a brand new wastewater treatment facility.

It is important to note that NHDES in the §401 Certification did not support the EPA selection of 0.1 mg/l as a stream standard and the resultant 0.16 mg/l effluent limit calculated based on 7Q10 stream flow. By choosing to certify a limit based on the macroinvertebrate approach, even without full development let alone adoption of that approach, NHDES has indicated that the 0.1 mg/l stream standard to be met at 7Q10 is an unacceptable approach. Jaffrey concurs.

NHDES should have relied on the Total Maximum Daily Load ("TMDL") study data for the upper Contoocook River when setting phosphorus limits in the Certification. Although NHDES, EPA and the Town have been working on a TMDL for the upper Contoocook River since 2005, the TMDL has yet to be finalized.. The data underlying the draft TMDL, issued by NHDES in July 2006, supports a summer phosphorus limit of 0.5 mg/l as sufficient to meet water quality standards. NH TMDL Data Report and §401 Certification, par. C-32.

At paragraph C-34, Tables 2 and 3 of the §401 Certification, the effluent limit established by NHDES and agreed to by Jaffrey included a average monthly phosphorus limit of 0.5 mg/l for July 1 to September 31, an average monthly phosphorus limit of 0.5 mg/l for June and October and a winter average monthly phosphorus limit of 1.0 mg/l for November 1 to May 31. The concept of implied flow (not a flow limit) was used to develop the phosphorus loads. The effluent limits on Tables 2 and 3 in total were considered by NHDES to meet to be protective of the Contoocook River and Powder Mill Pond.

NHDES agreed to certify EPA's assignment of a 0.1 mg/l and the accompanying effluent limits calculated at 7Q10, even though the limits are much stricter than necessary to meet NHDES and federal regulations. The reason given by NHDES is not that NHDES believes that the 0.1 mg/l assigned by EPA as an in-stream standard is a supportable criteria. §401 Certification at par. 44. Rather, NHDES stated that the resultant effluent TP concentration limit is stringent enough to match a potential future effluent concentration needed to meet a hypothetical future numeric TP stream criteria at a an estimated flow condition representative of a mean seasonal flow rather than the 7Q10 used by EPA. *Id.* In satisfying these limits, the NHDES "end" (new, stringent Jaffrey effluent TP limit) justifies the EPA "means."

C. **EPA's discharge limit for aluminum of 87 ug/l is an erroneous application of New Hampshire's water quality standards.**

[The Town raised this issue in comment E of its May 21, 2007 comments on the Draft Permit. Exhibit B, p. 9]

The permit limit of 0.087 mg/l for aluminum is clearly erroneous. Such a limit is unlawful where the Town has properly documented that aluminum concentrations in the Contoocook River are naturally occurring as required under New Hampshire water quality rules. Region I appears to acknowledge that the NHDES water quality standard for aluminum (and other toxic pollutants) does not apply where such instream constituents are "naturally occurring". Env-Ws 173.21 (a and b). However, the Region has improperly discounted the Town's documentation for the natural occurrence of aluminum and attempted to set an impossible standard to document naturally occurring water quality exceedances. RTC No. 4 at p. 6.

The NHDES regulations do not provide a standard for documenting naturally occurring exceedances. However, the State of New Hampshire 2008 Section 305(b) and 303(d) Consolidated Assessment and Listing Methodology, dated February, 2008 ("CALM") document

provides some guidance. Exhibit C. Under the CALM methodology, documentation is required to support a determination of a natural occurring exceedance. *See* CALM, p. 10. The level of documentation necessary to determine whether a source is natural is dependent on the individual pollutant. *Id.* However, the CALM itself assumes naturally occurring conditions for “[a]luminum exceedances due to naturally occurring low pH”. *Id.*

Jaffrey has properly documented the natural occurrence of aluminum in the Contoocook River by showing that there are no point source discharges upstream of the Jaffrey WWTP. *See* RTC No. 4 at p. 6. Region I has not questioned this evidence, nor has it provided any contrary data to show that the presence of aluminum at levels above water quality standards is due to anthropogenic sources.⁵ *Id.* at p. 7. Unable to rebut Jaffrey’s data, Region I seeks to raise the standard for documenting naturally occurring conditions to an impossible level. Without providing any contrary data, Region I merely states that “there is insufficient data to support the assertion that “the presence of aluminum must be presumed to be naturally occurring”” because “[i]t is unknown whether there are anthropogenic sources of aluminum to the river (abandoned landfills or junk yards, land clearing operations, etc.)”. *Id.*

It is unreasonable to require Jaffrey to prove that there are no unknown anthropogenic sources of aluminum upstream of the Jaffrey WWTP without providing any data to support the existence of any such source. In doing so, Region I attempts to set a standard for documenting naturally occurring exceedances which cannot be met by any discharger. Moreover, by making such a broad and generic claim, Region I failed to meet its burden of proof. *See, e.g., Hazardous*

⁵ Subsequent to the issuance of the Final NPDES Permit and at the Town’s request, DES representatives met with the Town to discuss the Permit and related §401 Certification. At that meeting, DES indicated to the Town -- for the first time -- that they believe aluminum levels in the Contoocook River are due to atmospheric deposition. DES offered no additional information (time did not allow), and DES has not provided any data to support this position. Moreover, water quality impacts due to atmospheric deposition have not been addressed by EPA in the Draft NPDES Permit, Fact Sheet, Final NPDES Permit, DES Water Quality Certification, Response to Comments, or other permit documents.

Waste Treatment Council v. U.S. E.P.A., 886 F.2d 355, 368 (D.C. Cir. 1989) (once proponent has made a prima facie case, the burden may shift to the adverse party). Jaffrey has made a prima facie showing that the presence of aluminum is naturally occurring. Since Region I failed to provide any actual evidence to rebut that showing, the imposition of an aluminum limit in Jaffrey's permit is clearly erroneous. Accordingly, Jaffrey respectfully reiterates its request that EPA require only monthly monitoring and reporting of aluminum in the effluent.

D. There is no basis in law or fact for the summer flow limit of 0.75 mgd for the summer months

[This issue was raised for the first time in the Final Permit. Thus, it could not have been reasonably ascertained at the time that comments were filed on May 21, 2007.]

DES required a new .75 mgd flow limit (July-September) for the Jaffrey WWTF. §401 Certification, par. C-44 at p. 17, Table 7. That limit is unlawful and arbitrary and capricious in that it applies an overly conservative flow regime to test the Jaffrey flow and total phosphorus limit combinations. DES appears to have selected 1963 to 1966 flow records because they had some of the lowest average monthly flows from June through September. *Id.* at 18. However, those records will not result in "median or average" concentration conditions that DES relies on in the §401 Certification. *Id.* at p. 20. For instance, one can assume that "monthly flow values from 1966 would be in the lowest 2% of values, a very conservative case. The DES test results were apparently used as the basis for certification of a July through September effluent flow limit of 0.75 mgd.⁶ The Town requests that the full design flow of 1.25 mgd for the new Jaffrey facility be used in the Permit.

⁶ DES also informed the Town at a meeting on October 22, 2009 that it set the .75 mgd summer flow limit because it believed the Town had requested such a limit to help meet other discharge limits. Although the Town appreciates DES's consideration on this, this was a misimpression.

E. EPA's calculation of the dilution factor is improper.

[The Town raised this issue in Comment C of its May 21, 2007 comments on the Draft Permit.]

Jaffrey raised several questions about EPA's calculation of the dilution factor in the Draft Permit in its comments on May 23, 2007, among them that Millipore Corporation accounts from some 75,000 gallons per day of the wastewater flow and that its source water is from bedrock wells. In the RTC at p. 2-3, EPA explains that it based the 7Q10 calculations on DES's *Interim Final Policy on 7Q10 and Withdrawals for Freshwater Surface Waters* ("Interim Final Policy") dated June 24, 2002. (Exhibit M). However, in referring to and quoting from this NHDES policy, EPA in the Final Permit -- and NHDES -- did not consider that that policy deducts from the 7Q10 calculation withdrawals from bedrock wells that have no direct hydraulic connection to the surface water in question. Because it did not focus on that exception, the Region did not respond to the Town's contention that the portion of the of WWTF flow that is derived from the Millipore Corporation bedrock well should not have been included in the calculation.

Furthermore, the Town also now understands that it should have been reporting the Millipore design flow capacity rather than current flow, and that it is the design flow of the WWTF that is factored against the river 7Q10 flow (not current WWTF flows). Millipore flows are allocated at 115,000 gpd (0.18 cfs) of the total design flow of 1.25 mgd. Wright-Pierce, Basis of Design Report Wastewater Treatment Facility Upgrade for the Town of Jaffrey, New Hampshire, February 2005. Therefore, using the rationale outlined in the NHDES *Interim Final Policy*, the 7Q10 value for the Jaffrey WWTF (downstream of the discharge) should be 2.07 cfs [3.82 cfs - (1.93 cfs-0.18 cfs)]. The recalculated Dilution Factor for the WWTF permit flow of 1.25 mgd (1.93 cfs) should be 1.87, including the 10% reserve capacity.

A separate dilution factor calculation should be developed for the July - September period when the Permit flow is reduced to 0.75 mgd (1.16 cfs). (Note that the Town argues above in Section V,D that this summer limit is unlawful.). At the reduced design flow the river, 7Q10 flow upstream of the discharge is 2.84 cfs [3.82 cfs - (1.16 cfs - 0.18 cfs)]. As per Attachment C of the Fact Sheet, the recalculated dilution factor is 3.1.

The following concentration and mass permit limits are known to be calculated based on dilution factor, and should, therefore, be recalculated as appropriate: aluminum, copper, lead, phosphorus, silver, zinc, bis (2-ethylhexyl)phthalate, WET C-NOEC (Percent Effluent (when conducted during this time period)).

The Town also believes that the CBOD, TSS and ammonia limits should also be recalculated due to the permit flow reduction, although it is not clear from the NHDES §401 Certification what the basis was for these permit limits. The §401 Certification referenced a Draft DO/Nutrient TMDL model was used to develop these limits at the lower permit flow in the summer months. Par C-34 at 8-14. However, that model also assumed a phosphorus level of 0.5 mg/l, and the model output summarized in Table 4 appears to indicate that the target values were surpassed and potentially less stringent permit limits (or higher permit flow) could still achieve water quality criteria. Specifically the instantaneous minimum dissolved oxygen model output levels were 12.3% higher than the target level.

Furthermore, there is a serious question as to the appropriate manner in which NHDES has applied this interim final policy. It was issued in 2002 and deemed to be interim because “we will be following it only for waters for which Total Maximum Daily Loads (TMDL) are being developed and for new or increased discharges. For all other permits to be issued through 2004 the 7Q10 and dilution factor contained in the previous permit will be used. This is to

prevent delays in EPA's congressionally mandated NPDES permit backlog reduction project that ends in 2004." Notwithstanding the above, 7Q10 and Dilution Factor values are the same regardless of TMDL status of any river or discharge. If NHDES believes the 2002 revised policy is more accurate than historical approaches, then this approach should be applied to all subsequent discharge permits. Conversely, the interim final policy should not be applied here.

The NHDES policy also indicates that the policy will be used for waters for which TMDLs are being developed. The policy seems to also indirectly state that it will be used for all permits issued or reissued after 2004. Jaffrey has reviewed a number of recently re-issued New Hampshire NPDES permits on the EPA website, including Keene, Hinsdale, Littleton, Franklin, Greenville, Berlin, Newport, Sunapee, Peterborough, Lancaster, and Hooksett. These permits were issued since 2007 and in all instances the 7Q10 flow values have been adjusted using the Dingman ratio. However, revision of the 7Q10 value by subtraction of the WWTF flow from the 7Q10 value -- as was done in Jaffrey -- was only done in 5 of 11 permits. The most significant instances where the WWTF was not factored into the 7Q10 flow was the Keene permit (issued 8/24/2007), Greenville (issued 12/8/2008), Newport (issued 4/18/2007), and Sunapee (issued 2/21/2007). All of these permits included relatively low dilution factor and downstream water quality issues (some with TMDLs already being developed or previously completed). NHDES has used the 2002 policy approach in other permits during similar time period in seemingly far less sensitive water sheds such as Lancaster (dilution factor = 200.5), Hooksett (dilution factor = 324.43), Franklin (dilution factor = 24.2). NHDES is not applying the 2002 policy in a consistent manner, or in the manner prescribed by the 2002 interim policy document. It should not be applied here. The subsequent change results in a dilution factor of 1.87 (at 1.25 mgd permit flows) or 3.1 (at 0.75 mgd permit flow).

VI. CONCLUSION

For the foregoing reasons, Town of Jaffrey requests that this Board:

1. Grant this Petition for Review and establish a briefing schedule for this appeal;
2. Provide an opportunity to the Town of Jaffrey to present all argument in this proceeding to assist the Board in resolving the matters in dispute;
3. Remand to Region I for further permitting procedures, requiring that the Region:
 - a. Revise the phosphorus limit for the months of April through October to 0.5 mg/l (and make the corresponding mass limit modification for this time period, as well);
 - b. Amend the discharge limit for aluminum from a limit of 87 ug/l to monthly monitoring and reporting only;
 - c. Modify the 0.75 mgd maximum flows for the months of July through September to 1.25 mgd;
 - d. Apply a modified dilution factor as appropriate to all applicable discharge limits; and
4. Grant such other and further relief as may be proper.

Respectfully submitted,

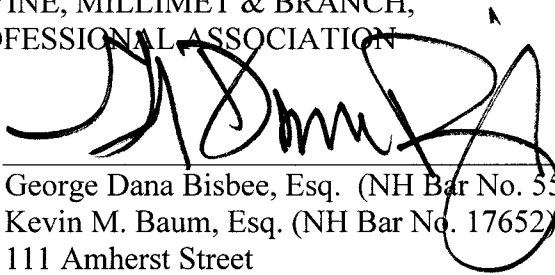
TOWN OF JAFFREY, NEW HAMPSHIRE

By its Attorneys,

DEVINE, MILLIMET & BRANCH,
PROFESSIONAL ASSOCIATION

Dated: October 31, 2009

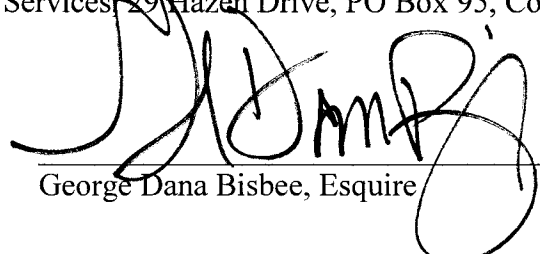
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CERTIFICATE OF SERVICE

I certify that a copy of the foregoing Petition for Review was sent this 31st day of October, 2009, first class mail postage prepaid to Carl Dierker, EPA Regional Counsel, US EPA - Region I, 1 Congress Street, Suite 1100, Mail Code CDW, Boston, Massachusetts 02114-2023, Thomas Burack, Commissioner, and Harry Stewart, P.E., Director, Water Division, State of New Hampshire Department of Environmental Services, 29 Hazen Drive, PO Box 95, Concord, New Hampshire 03302-0095.



George Dana Bisbee, Esquire

List of Exhibits

- Exhibit A** **Authorization to Discharge Under the National Pollutant Discharge Elimination System -- NPDES Permit No. NH0100595, September 28, 2009**
- Exhibit B** **Comments on Draft Permit -Town of Jaffrey Wastewater Treatment Plant -NPDES Reapplication No. NH0100595, May 21, 2007**
- Exhibit C** **New Hampshire Department of Environmental Services -- Final Section 401 Water Quality Certification -- NPDES Permit No. NH0100595, July 29, 2009**
- Exhibit D** **Partial NHDES §303(d) 2008 List of Threatened or Impaired Waters That Require a TMDL, September 10, 2008**
- Exhibit E** **NHDES Map -- "2008 Assessment Unit IDs with Dissolved Oxygen Impairments along the Mainstem Contoocook River, Jaffrey to Antrim", prepared October 28, 2009**
- Exhibit F** **NHDES Interpreting VRAP Water Quality Monitoring Parameters**
- Exhibit G** **Response to Comments -- Reissuance of NPDES Permit No. NH0100595 -- Town of Jaffrey Wastewater Treatment Plant, September 21, 2009**
- Exhibit H** **Sections from EPA "Quality Criteria for Water 1986" [*The Gold Book*] on Phosphate Phosphorus, May 1, 1986**
- Exhibit I** **Fact Sheet -- Draft National Pollutant Discharge Elimination System -- Permit No. NH0100595, issued [April 4, 2007?]**
- Exhibit J** **EPA Memorandum from Thomas M. Armitage, Ph.D to Vanessa Vu, Ph.D re: Formation of Science Advisory Board (SAB) Ecological Processes and Effects Committee Augmented for Review of Nutrient Criteria Guidance, August 12, 2009**
- Exhibit K** **Inside EPA Environmental Policy Alert, "SAB Faults EPA's Nutrient Guide, Bolstering Potential Industry Suit", Vol. 26, No. 19, September 23, 2009.**
- Exhibit L** **State of New Hampshire Department of Environmental Services -- 2008 Section 305(b) and 303(d) -- Consolidated Asset and Listing Methodology, February, 2008**
- Exhibit M** **State of New Hampshire Interim Final Policy on 7Q10 and Withdrawals for Fresh Water Surface Waters**
- Exhibit N** **Critical Evaluation of EPA'S Draft Empirical Approaches for Nutrient Criteria Derivation -- John C. Hall, Esq. (Hall & Associates), William T. Hall, Esq. (Hall & Associates), Dominic Di Toro, PhD, PE (University of Delaware), Thomas Gallagher, PE (HydroQual, Inc.), September 3, 2009**