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ENVR. APPEALS BOARD

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July 8, 2008

**VIA FEDEX**

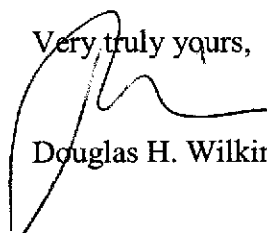
U.S. Environmental Protection Agency  
Clerk of the Board, Environmental Appeals Board  
1341 G Street, N.W., Suite 600  
Washington, DC 20005

**Re: *In re: City of Attleboro, MA Department of  
Wastewater, Government Center,  
77 Park Street, Attleboro, MA 02703  
NPDES Permit No. MA 0100595***

Dear Sir/Madam:

Enclosed for filing in the above matter are the original and five copies of the Petition for Relief and four copies of the Appendix to Petition for Relief.

Very truly yours,

  
Douglas H. Wilkins

DHW:skc  
enclosures

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

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In re: )  
)  
)

City of Attleboro, MA Department of )  
Wastewater, Government Center, )  
77 Park Street, Attleboro, MA 02703 )  
NPDES Permit No. MA 0100595 )

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**PETITION FOR REVIEW**

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July 8, 2008

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## INTRODUCTION

Pursuant to 40 C.F.R. § 124.19(a), the City of Attleboro ("Petitioner," the "City" or "Attleboro") petitions for review of the conditions of NPDES permit No. MA 0100595 (the "Permit"), which was renewed and issued to the City on June 9, 2008 by U.S. Environmental Protection Agency, Region 1 ("Region 1").

Attleboro contends that certain permit conditions are based on (1) a finding of fact or conclusion of law which is clearly erroneous, or (2) an exercise of discretion or an important policy consideration which the Environmental Appeals Board should, in its discretion, review. Specifically, the City challenges the following permit conditions and associated requirements:

1. Nitrogen limit of 8.0 mg/l (April 1 – October 31)
2. Phosphorus limit of 0.1 mg/l (April 1 – October 31) and 1.0 mg/l (November 1 – March 31)
3. Aluminum limit (122 ug/l)
4. Continued requirements for Cadmium limit of 0.4 ug/l , lead (4.5 ug/l) and other metals despite demonstrated compliance
5. Absence of a compliance schedule for the above nutrients and metals.

## FACTUAL AND STATUTORY BACKGROUND

Attleboro operates a municipal wastewater treatment plant known as the City of Attleboro Water Pollution Control Facility at 27 Pond Street in North Attleboro ("Facility" or "WWTP"). It has a National Pollutant Discharge Elimination System ("NPDES") permit issued jointly by EPA and the Massachusetts Department of Environmental Protection ("MADEP") on September 30, 1999. The NPDES permit, with limits and conditions, authorizes the City to discharge treated wastewater effluent from outfall 001 of the Facility to a receiving water named the Ten Mile River. The Ten Mile River then flows into Rhode Island and eventually empties into the Seekonk River, which is a marine water. RTC, p. 6 n.5. The Seekonk River joins the Providence River, which discharges into the Narraganset Bay. Id.

The City timely applied for renewal of the Permit. Region 1 and MADEP jointly issued a proposed permit and fact sheet (Fact Sheet #1) on August 16, 2006 (Tab F), proposing limits under both the Federal Clean Water Act and the Massachusetts Clean Waters Act. Following accepted science, the Massachusetts Department of Environmental Protection ("MADEP") did not impose the total nitrogen limit contained in the proposed permit. See Draft Permit, pp. 2, 4 and n.9 ("This permit limit is a requirement of the U.S. Environmental Protection Agency (EPA) permit and is not a requirement of the Massachusetts Department of Environmental Protection (Mass DEP) permit...."). Attleboro submitted comments through its engineering firm, Camp, Dresser and McKee ("CDM") (Appendix Tab A), its waste water Superintendent (Tab B), and its attorneys, Anderson & Kreiger LLP ("A&K") (Tab C), by the deadline of September 15, 2006. Region 1 received comments from other sources, including the Rhode Island Department of Environmental Management ("RIDEM") (Tab G), which objected to the proposed phosphorus limit of 0.2 mg/l in the draft permit. Fact Sheet #1 had proposed a limit of 0.2 mg/l phosphorus, for the following reason:

A monthly average total phosphorus limit of 0.2 mg/l has been established based on the "highest and best" practical treatment as defined by the MAWQS.... If MassDEP adopts numeric nutrient criteria, a TMDL is completed, or additional water quality information shows that phosphorus limits are not stringent enough to meet water quality standards, more stringent limits may be imposed.

On August 1, 2007, Region 1 and MADEP issued a revised draft permit, which reduced the phosphorus limit to 0.1 mg/l and issued a new fact sheet ("Fact Sheet #2") (Tab H). EPA's proposed 0.1 mg/l monthly phosphorus limit did not reflect a TMDL or any new water quality information, but cited RIDEM's comments. Region 1 again invited comments, limited only to the revised phosphorus number. Fact Sheet #2. The City opposed the change because all of the facts and considerations quoted in Fact Sheet #1 still applied and because it was arbitrary and capricious to change course and impose a putative water quality based limit with no change in

circumstances and no data to back up the decision. Again, the City submitted comments through CDM (Tab D) and A&K (Tab E). RIDEM did not comment. RTC, p. 70 n.23.

On June 9, 2008, Region 1 and MADEP issued a new NPDES permit, to become effective on September 1, 2008. The new permit adopted the 0.1 phosphorus limit, along with the more stringent nitrogen and metals limits proposed in Fact Sheet #1. Region 1 provided a Response to Comments ("RTC"), which set forth a number of new contentions and facts not subjected to public comment. See below, pp. 32-35. MADEP issued a water quality certification pursuant to Section 401(a) of the Act (Tab D), but did not adopt the nitrogen limits, commented that Region 1 erred in applying the Rhode Island rules to the phosphorus limit, proposed a compliance schedule, and pointed out that EPA has "the responsibility to ensure that the downstream standards do not place an unnecessary burden on upstream states." Region 1 rejected MADEP's comments. RTC, pp. 87-91.

#### ISSUES PRESENTED

- (1) May Region 1 impose water-quality based effluent limits ("WQBELs") upon total nitrogen:
  - (a) without scientifically supportable information, data and calculations (such as a watershed analysis in the form of a TDML or otherwise), showing that its nitrogen limits are applicable to the real world ecosystem into which the City's plant discharges,
  - (b) without accounting for facts that it ignores without explanation or assumes away, and
  - (c) without recognizing and exercising EPA's power and discretion to consider factors unique to interstate contexts, including relative responsibility, actual as opposed to nominal RIDEM requirements, equity and other factors that the Response to Comments says EPA can not consider.
- (2) Are the permit's phosphorus WQBELs:
  - (a) based upon a misreading of RIDEM regulations and EPA's own guidance regarding, e.g. what is a pond or when to refer to low or average flow conditions;

(b) arbitrary and capricious because they mix and match seasonal averages with monthly limits, apply low flow conditions inconsistently and lack scientifically reliable information.

- (3) Were the limits for aluminum, cadmium and lead:
  - (a) based upon a misreading of MADEP's regulations incorporating EPA guidance and
  - (b) arbitrary and capricious for failure to consider the facts?
- (4) Should EPA have entertained the City's request for a compliance schedule in the Permit?
- (5) Should Region 1 have provided an opportunity to comment upon new information and analysis that appeared for the first time in the RTC?

In each case, the Permits limit is based on (1) a finding or conclusion of law which is clearly erroneous, or (2) an exercise of discretion or an important policy consideration which the Environmental Appeals Board should, in its discretion, review. 40 CFR 24.19 (a). See also, e.g., In Re: District of Columbia Water and Sewer Authority, 13 E.A.D. \_\_\_\_\_ (NPDES Nos. 05-02, 07-10, 07-11 and 07-12) (March 19, 2008). The EAB will "look to determine whether the record demonstrates that the Region duly considered the issues raised in the comments and whether the approach ultimately adopted by the Region is rational in light of the information in the record." In Re City of Marlborough, 12 E.A.D. 235, 251 (2005), and cases cited.

### **THRESHOLD PROCEDURAL REQUIREMENTS**

The City satisfies the threshold requirements for filing a petition for review under Part 124:

1. It has standing to petition for review of the permit decision because it participated in the public comment period on the permit, see 40 C.F.R. § 124.19(a). It commented in writing on several occasions, and a copy of the comments is attached. There was no public hearing.

2. The issues raised in the City's petition were raised during the public comment period and therefore were preserved for review (Tabs A-D, I) except for those items arising for the first time in the RTC (Argument V, below), which could not have been raised.

### ARGUMENT

I. REGION 1 IGNORED CRUCIAL FACTS AND APPLIED UNREALISTIC SIMPLIFYING ASSUMPTIONS TO ATTLEBORO'S DISCHARGE WITHOUT DEMONSTRATED SCIENTIFIC BASIS FOR THE NITROGEN LIMITS.

A. *Region 1 Failed to Address the Need for Scientifically Reliable Analysis and Data.*

Before a new NPDES permit imposes substantial costs upon ratepayers and citizens, there must be credible science to support a conclusion that real world environmental benefits will result from its NPDES permit conditions. See In re City of Salisbury, 2000 WL 190658 (EPA 2000), looking for guidance from Daubert v. Merrell Down Pharmaceuticals, Inc., 509 U.S. 578, 589 (1993) (requiring "a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology can properly be applied to the facts in issue.").<sup>1</sup> Attleboro commented that: "To accept the Rhode Island Department of Environmental Management's ("RIDEM") rationale in this case would establish an extremely unfortunate precedent for reliance upon unproven 'science' and speculation." RTC, p. 2. Attleboro expressed concern over "the absence of total daily maximum load ('TMDL') calculations or other reliable data supporting the downstream state's position here. EPA's draft permit ultimately rests upon an approach that the Clean Water Act attempted

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<sup>1</sup> See also Sierra Club v. EPA, 167 F.3d 658 (D.C. Cir. 1999) (failure to adequately explain method used to set standards for medical waste incinerators); Columbia Falls Aluminum Co. v. EPA, 139 F.3d 914 (D.C. Cir. 1998) (invalidating standard for manufacturing byproduct); Chemical Mfrs. Ass'n v. EPA, 28 F.3d 1259 (D.C. Cir. 1994) (invalidating rule based on a generic model that bore no reasonable relation to the chemical at issue).



to avoid, that Massachusetts regulators contest, and that science cannot justify.”<sup>2</sup> Id. [emphasis added].

Region 1’s Response only partially addressed this point by discussing whether a TMDL is a prerequisite or whether better data are available for a water-quality based limit. This begs the more basic question whether adequate science exists to support a WQBEL in the first place, as opposed to a highest and best practicable treatment approach. For example, in the NPDES program, EPA and the states have implemented the Clean Water Act<sup>3</sup> by engaging in site-specific inquiry, data and analysis showing the facility’s actual contribution (or lack thereof) to an alleged water quality violation, and an assessment of the total load and the River’s capacity, from which the WWTP’s contribution may be allocated. See Arkansas v. Oklahoma, 503 U.S. 91 (1994); Friends & Fishers of the Edgartown Great Pond, Inc. v. Department of Environmental Protection, 446 Mass. 830, 840-844 (2006); RIDEM Rule 7. Region 1 is quite right that these cases are distinguishable: they uphold decisions that rely upon a **scientifically** supported evaluation of a particular discharger’s contribution to overall water quality. They illustrate what Region 1 should have done here, and the level of demonstrated impact upon water quality that the EAB and EPA should require if a region uses water quality-based calculations to impose

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<sup>2</sup> In a footnote, the City pointed out that: “[r]equiring expenditures by Attleboro based upon this state of scientific knowledge is particularly ironic, where RIDEM has declined to devote resources needed to develop a water quality model and other predictive tools until a technical advisory committee recommends the most promising approach. RIDEM, Nutrient Permit Modifications – Response to Comments, pp. 16, 22, 29, included in Appendix [c], Tab 3.”

<sup>3</sup> The Clean Water Act contemplated solid scientific support for imposing site-specific effluent limits upon publicly owned treatment works, with corresponding burdens upon ratepayers and taxpayers. Section 303(d) (33 U.S.C. § 1313(d)); 40 CFR 130.7. Rhode Island was supposed to establish TMDLs for the receiving waters “at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.” Id. Assuming arguendo that the lack of a TMDL does not automatically bar based upon a relationship between effluent limitations and water quality, the fact remains that Congress expressed an intent that science govern.

stringent and costly limits. Indeed, 40 C.F.R. § 122.44(d)(1)(ii) specifically requires that EPA “account for existing controls on point and nonpoint sources of pollution . . . .”

Put another way, scientific evidence must pass two tests: (1) scientific acceptance of the general principle at issue and (2) scientifically accepted method for applying the general principle to the specific facts. See Salisbury, *supra*. Region 1 failed to address the City’s point regarding the need for reliable data and analysis. See Marlborough, 12 E.A.D. at 245, 251 (remand where region failed to address the issue).

Instead, Region 1 based its permit conditions upon data and analysis that, in important respects, failed to support the need for substantial plant upgrades. It did so because of its contention (actually, a concession) that “[s]everal unsuccessful attempts at dynamically modeling this system have resulted in the conclusion that the system is too complicated to simulate with available mathematical models.” RTC at p. 7. See “Evaluation of Nitrogen Targets and WWTF Load Reductions for the Providence and Seekonk Rivers,” RIDEM, Office of Water Resources, December 2004 (Appendix C, Tab 1) (“RIDEM 2004 Evaluation”), p. 1; RIDEM “2004 CWA § 303(d) List of Impaired Waters” [listing Ten Mile River as group 2: “(TMDL Planned)”; the target date is 2008].

Region 1 stated its position most succinctly in the RTC at pp. 7-8:

When imposing an effluent limit on a particular point source in order to implement a narrative water quality criterion, EPA is not required to have a TMDL, a dynamic water quality model, or comparable analysis that comprehensively allocates loads to all point and nonpoint pollutant sources that are contributing to an impairment. Instead, when calculating a numeric permit limit to achieve a narrative criterion, EPA is directed (in relevant part) to use one or more of the following methodologies:

- (A) Establish effluent limits using a calculated numeric water quality criterion for the pollutant which the permitting authority **demonstrates** will attain and maintain applicable narrative water quality criteria and will fully protect the designated use ...

- (B) Establish effluent limits on a case-by-case basis, using EPA's water quality criteria... [emphasis added].

Yet, Region 1 then proceeds to use the very same Rhode Island studies and data that it claims cannot be incorporated into a model that captures the actual characteristics of the Seekonk and Providence Rivers. RTC at pp. 8-10. The studies add to general scientific knowledge, but fail the requirement that they be scientifically applicable to Attleboro's own discharge. Calling this the "best information reasonably available" does not make it scientifically reliable for the specific purpose, nor does it remedy the shortcomings in applying the data to the real world of the receiving waters.

Not surprisingly, Region 1's larger conceptual error on this point carries over into the specific points disclosed in the section of this petition that follow.

*B. Region 1 Bases Its Nitrogen Limits Upon Statements That the Record Contradicts And That Conflict With the Regulations.*

Central to Region 1's response justifying its "scientific" method are two egregious errors, apparent on the face of the RTC. See Washington Aqueduct Water Supply System, 11 E.A.D. 565, 583 (2004) (although the region indicated that a study "supported its choice of data for the reasonable potential analysis, the evidence presented in that document instead raises questions about that choice.").

First, as grounds for adopting the WQBELs without a wasteland allocation analysis, Region 1 asserts that "[s]everal unsuccessful attempts at dynamically modeling this system have resulted in the conclusion that the system is too complicated to simulate with available mathematical models." RTC at p. 7. Yet, at the bottom of page 29, the RTC cites just such a model of an ecosystem that includes the Providence and Seekonk Rivers – D.R. Kester et al. / *Marine Chemistry* 53 (1996), 131-145, *Modeling, measurements and satellite remote sensing of biologically active constituents in coastal water* ("Kester Model"), Attachment 1 hereto.

Region 1 had not previously cited this model, which therefore has not been subjected to comment. If this model – available for 12 years now – has survived peer review, Region 1 should have used it – or explained why it did not do so beyond citing a discrete point about dissolved oxygen. Using a consistent, valid model would have the important public policy benefit of providing a predictable basis for facilities planning and financing, which is very important to municipalities, despite Region 1’s stated lack of authority to consider any aspect of the costs to the public. Certainly, there is no reason to increase those costs by unnecessarily ignoring potentially valid models.

If the Kester Model is not valid, Region 1 should never have cited and relied upon it at RTC, p. 29. Nor should it have claimed that such models are impossible, when it knows of and cites just such a model. Region 1’s response to the City’s request for modeling or scientific analysis is inadequate, contradicted by the model that Region 1 cites and warrants a remand. See Washington Aqueduct, 11 E.A.D. at 583, 586 and cases cited.

Another similar and serious error concerns flushing and dilution. The City’s comments stressed the significant differences in flushing rates of the Seekonk River, compared to the so-called MERL experiments upon which EPA relied (1.2 days vs. 27 days, respectively). See RTC, p. 35. Flushing rates correlate directly with “dilution of the effluent in the receiving water,” which EPA must consider under the explicit directives of 40 C.F.R. § 122.44(d)(1)(ii). Here Region 1 concedes the City’s general point that “[d]ifferences in flushing rates between the Providence/Seekonk River system” exist and weigh against “more stringent nitrogen load reductions at this time. RTC, p. 35. See also RTC, pp. 11, 36.

Region 1 makes a clear error, however, in focusing (intentionally or not) upon the “Providence River” or the “Providence/Seekonk River system” instead of the Seekonk River.

The Seekonk River, which is the basis for the Permit's nitrogen loadings<sup>4</sup> has a flushing time of 3.5 days with no freshwater inflow, as demonstrated in the studies cited by RIDEM (Asselin). At other times, the flushing times in the Seekonk are far faster.<sup>5</sup> Region 1 was therefore wrong to reject the City's comment about flushing in the Seekonk River by stating that "the flushing time in the Providence River" "would be slower than 3.5 days" during high temperature, low flow, conditions during summer. RTC, p. 35.

C. *Region 1's "Simplifying Assumptions" Do Not Validate An Inapplicable Method And Are Arbitrary and Capricious.*

The foregoing should be enough to vacate the nitrogen limits, but there is more. The crux of the Region 1's discussion of the total nitrogen limit appears in the RTC, pp. 5-15, Response A. 1. It starts with a discussion of the applicable federal and local regulations, which confirm the statutory and regulatory preference for an "available wasteload allocation," contemplate a "wasteload allocation approach" and contain no language excusing the Region from deriving

<sup>4</sup> See pages 21-28 of the 2004 Evaluation. Appendix Tab C, Item 1.

<sup>5</sup> The relevant study graphs the flushing times against the flow as follows:

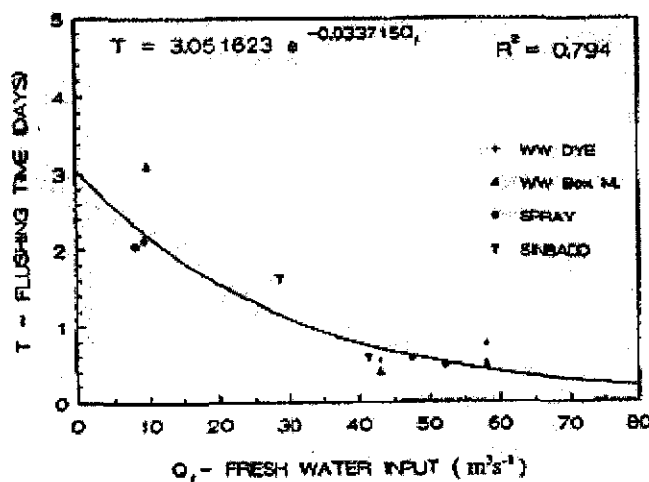


Fig. 7. Freshwater inflow versus flushing time of the Seekonk River from all estimates obtained in this study (WW dye—Wet Weather dye data, WW Box M.—Wet Weather box model, Spray and Sinbadd cruises).

effluent limits that “comply with narrative water quality criteria” without using reliable data and science. RTC, pp. 6-7, quoting 40 C.F.R. § 122.44(d) (1) (vii) (B) and 54 Fed. Reg. 23,868, 23,876 (June 2, 1989). See also RIDEM Rule 7 and RIDEM Comments, p. 3. The RTC continues with observations and findings that the Seekonk River is impaired, but that fact does not, in itself, justify and particular limit. See, e.g. Arkansas, supra, (evaluating actual lack of impact of discharge into an impaired river).

Region 1’s rationale boils down primarily to restating the MERL experiments at length, thereby reprising RIDEM’s choices in the RIDEM 2004 evaluation. RTC, pp. 9-11. That discussion is simply not responsive to the City’s point that the MERL experiments establish general propositions, but provide no reliable basis for application of specific limits to the Facility. On p. 11, the RTC asserts in conclusory fashion that the “basic relationship” in the MERL experiments “corresponds to what is actually occurring in the Providence/Seekonk River system”, but Region 1 is immediately forced to concede that the MERL experiments “cannot completely simulate” what is happening “in a complex, natural setting such as the Providence/Seekonk River system”; does not simulate the influence of stratification on dissolved oxygen, and does not reflect the same “flushing rate” as in the Providence-Seekonk River systems. RTC, p. 35, Response B.2.d. CDM has identified many other reasons why the RIDEM 2004 Evaluation fails to establish a scientific basis for imposing limits upon Attleboro that Massachusetts has not imposed. See Appendix, Tab A. It has also pointed out that there are many potential causes of low dissolved oxygen, beyond wastewater plant effluent. In response, EPA asserts only that it “was required to exercise its technical expertise and scientific judgment” because “the physical model does not generate a definitive level of nitrogen control that can be applied to a real world discharge...”. Id. See also Fact Sheet #1, p. 10.

Region 1's acknowledgement of the MERL data's shortcomings is duly noted, but expertise and "judgment" are no substitute for scientifically reliable data, information or explanation. See Brand v. Miller, 487 F.3d 862, 869 (Fed. Cir. 2007) ("agency expertise cannot substitute for record evidence because '[t]he requirement for administrative decisions based on substantial evidence and reasoned findings-which alone make effective judicial review possible-would become lost in the haze of so-called expertise'"), citing Baltimore & Ohio R.R. Co. v. Aberdeen & Rockfish R.R. Co., 393 U.S. 87, 92 (1968). See Washington Aqueduct, 11 E.A.D. at 583, 586 (remanding where the Region provided an "insufficient justification" for its decision). Otherwise, any and all results can be justified. That is why Congress requires scientific analysis, and why Salisbury looked to Daubert for guidance.

Next, EPA expressly considered the limits assigned by Rhode Island to in-state plants to justify the Attleboro nitrogen limit. RTC, pp. 12-13. Yet, as Attleboro argued, and as Region 1's calculations show, Rhode Island plants, such as Woonsocket, are allowed to contribute more nitrogen loading to the rivers than Attleboro, unless one completely ignores attenuation. RTC, pp. 13-14. There is no basis for ignoring attenuation completely. See above part I.B. To do so is illegal. 40 C.F.R. § 122.44(d)(i)(ii). RIDEM's own documentation assumes 40% attenuation, in calculating in-state permits for plants discharging to the Ten Mile River. Appendix, Tab C, Item 1, pp. 19-20. If the nitrogen limits stated in Woonsocket's permit are permissible contributions to water quality under Rhode Island water quality standards (as the RTC acknowledges is the case), then Attleboro's are stricter than required.

The RTC also attempts to discuss new reports not cited in the Fact Sheets (and therefore not submitted to the City for comment<sup>6</sup>) namely, EPA's Nutrient Criteria Technical Guidance

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<sup>6</sup> The Region's Fact Sheet #1 (Appendix, Tab F, pp. 9-11) relied upon the following source documents for its total nitrogen limit: RIDEM's February 1, 2005 report "Plan for Managing Nutrient Loadings to Rhode Island Waters";

Manual: Estuarine and Coastal marine Waters (EPS, October 2001); Nutrient and Bacteria Pollution Panel – Initial Report (Governor’s Narragansett Bay and Watershed Planning Commission, March 3, 2004) and Massachusetts Estuaries Project – Site-Specific Nitrogen Thresholds for Southeastern Massachusetts Embayments: Critical Indicators, July 21, 2003 as revised. RTC, pp. 8-9.

These reports add little to the discussion of the nitrogen limit. They do highlight an inherent contradiction in the Region’s Responses concerning the treatment of nitrogen and phosphorus. Region 1 states that “limiting phosphorus inputs is the key to controlling cultural eutrophication in fresh water systems.” RTC, p. 38. Response B.2.g, citing *Nutrient Criteria Technical Guidance Manual – Rivers and Streams, USEP, July 2000*. It repeatedly uses this assertion, in combination with anticipated reductions in phosphorus, to reduce or eliminate credits for the amount of nitrogen attenuation through plant growth (eutrophication). *Id.*; see also RTC, pp. 14, 18, 20, 32. Region 1 simply does not have enough information to assume such a simple relationship, given the concession that “[p]hysical conditions such as stratification, temperature, tidal stage, wind induced mixing and re-aeration can affect the system. RTC, p. 29. Region 1’s over-simplification passes the point of speculation.

Region 1 understates Attleboro’s case by framing the issue as reliance “on a physical model in lieu of a mathematical model.” RTC, p. 9. The physical nature of the model would be beside the point if there were solid scientific ground for inferring that the model would predict actual results in this ecosystem.<sup>7</sup> Given the admitted need for “simplifying ground rules and

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RIDEM’s December 2004 Report, “Evaluation of Nitrogen Targets and WWTF Load Reductions for the Providence and Seekonk Rivers”; RIDEM “Response to Comments Received on Proposed Permit Modifications for the Fields Point, Bucklin Point, Woonsocket and East Providence WWTFs.”

<sup>7</sup> RIDEM has used the approach that applies “if there are not adequate data and predictive tools to characterize and analyze the pollution problem....” RIDEM 2004 Evaluation. Appendix, Tab I.



assumptions” of the MERL model, it may be, as a general matter, “that nitrogen criteria are necessary to control enrichment of estuaries.” A “necessary” limit is one that is neither too lax nor too stringent. Whitman v. Am. Trucking Ass’ns., 531 U.S. 457, 121 S.Ct. 903, 149 L.Ed.2d 1 (2001) (must “set air quality standards at the level that is ‘requisite’ – that is, not lower or higher than is necessary – to protect the public health....” The permit has done more than express a general principle; it has imposed unnecessary, severe and costly specific limit for nitrogen.

There is yet another discrepancy affecting nitrogen limits. The permit cannot reasonably base total nitrogen limits upon the MERL experiment, which dealt with dissolved inorganic nitrogen (“DIN”). As CDM explains (Appendix Tab A):

RIDEM also errs when it uses the MERL values, which are based on dissolved inorganic nitrogen (DIN) loadings to compute total nitrogen (TN) limits in the permits. Effluents from wastewater treatment facilities often contain residual, refractory organic nitrogen that is not biologically available, as RIDEM has acknowledged in its response to comments on the Rhode Island Permits (See page 18 of 41). If one accepts the area loading approach, and it is based on data developed around DIN, then the permit values ought to be presented either as DIN, or adjusted to available Total N, in much the same manner that metals limits are adjusted from the biologically available form to total metals for permitting purposes.

In short, Region 1 arrived a solution by adopting “simplifying assumptions” that do produce a number, but only by ignoring factors that undermine that result. It has ignored the requirement that science must justify not only general principles, but also application to the specific case. That approach is neither scientifically nor legally justified. Moreover, ignoring information that contradicts the result is not consistent with administrative law. The substantial evidence test requires this agency to “‘take into account whatever in the record fairly detracts from [the] weight’ of the evidence that supports the finding. Universal Camera Corp. v. NLRB, 340 U.S. 474, 488 (1951). When an agency finds a fact without mentioning or analyzing significant evidence, the agency needs to reconsider its decision.” Palavra v. I.N.S., 287 F.3d 690, 693 (8th Cir. 2002).

*D. Region 1 Unduly Restricted Its Own Power To Consider Interstate Equity And Uniformity Of Treatment In Fact.*

Neither Rhode Island nor Massachusetts has a numerical limit for nitrogen. It is common ground that the permit's nitrogen limits must be justified, if at all, under Section 401(a)(2) [33 U.S.C. 1341(a)(2)] and 40 CFR § 122.44(d), governing conditions in NPDES permits that will ensure compliance with the "applicable water quality requirements" of a "downstream affected state", namely Rhode Island. See RTC, p. 16. EPA must determine what state-law standards are "applicable". See Arkansas v. Oklahoma, 503 U.S. 91, 110 (1992) (downstream state's water quality standard are not applicable where any pollutants in the upstream discharge are not detectable at and within the downstream state's borders).

"[T]reating state standards in interstate controversies as federal law accords with the Act's purpose of authorizing the EPA to create and manage a uniform system of interstate pollution regulation." Id. The Attleboro Permit defeats, rather than promotes uniformity, and allows a downstream state inordinate power over unrepresented dischargers in a least three ways that Region 1 should have counteracted:<sup>8</sup> (a) it places a disproportionate burden upon Attleboro's nitrogen contribution, compared to Rhode Island treatment plants; (b) it applies to Attleboro limits that Rhode Island itself has postponed for its own in-state dischargers; and (c) it ignores the major cause of the impairment (removing the dam), as MADEP stated. These are errors of law and render the Permit arbitrary and capricious.

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<sup>8</sup> Though in a different actual context, the Supreme Court has specifically cautioned against excessive application of the downstream state's regulations:

If every discharge that had some theoretical impact on a downstream state were interpreted as 'degrading' the downstream waters, downstream States might wield an effective veto over upstream discharges.

Arkansas, 503 U.S. at 111. The parallel concern in this case is that, if Rhode Island can require greater dilution within its waters from out-of-state dischargers than from in-state ones, it can shift a disproportionate responsibility and expense of improving its water quality onto those who lack a political voice in Rhode Island's choices.

On the first point, CDM noted that Attleboro's wastewater treatment effluent is only 70% of the total nitrogen load to the Ten Mile River. Region 1's sound-bite that the Facility discharges nitrogen "200 yards from the Rhode Island border" (RTC, p. 18) is a non-sequitur, since nitrogen is not the limiting factor for that freshwater receiving stream. RTC, p. 6 n.5. After attenuation, the proposed 8 mg/limit for nitrogen at the Attleboro plant would only discharge 3.4 mg/l to the Seekonk River (8 x 60% x 70%). Region 1 responds by raising the 70% figure to 90%. RTC, p. 32. Even if Region 1's extreme number is right, the revised calculation for an 8 mg/l limit is 4.32 mg/l. Cf. *id.* (method to calculate "delivery factor"). Either way, requiring an 8 mg/l concentration of nitrogen at the Attleboro WWTF outfall is excessive to achieve an 8 mg/l (or even a 5 mg/l) concentration of nitrogen from the plant in the Seekonk River, which is all that Rhode Island has nominally required of its in-state plants.

The 40% attenuation rate assumed by RIDEM's 2004 Evaluation, pp. 19 and 20 (Appendix, Tab C, Item 1), is the figure applied for the Rhode Island discharges and must, in fairness, be used for these purposes with respect to Attleboro. RTC, pp. 13-14, Attachment 11. The following table compares the nominal limits contained in RIDEM's recent permits to Attleboro's effective 3.4 mg/l discharge limit:

	May-Oct (CDM)	May-Oct (Region 1)
NBC- Bucklin	5.0 mg/l	same
E. Providence	5.0 mg/l	same
NBC- Fields Pt	5.0 mg/l	same
Woonsocket	8.0 mg/l	same
Cranston	8.0 mg/l	same
Warwick	8.0 mg/l	same
West Warwick	8.0 mg/l	same
Attleboro to Seekonk River (and at the outfall)	3.4 mg/l effective (8.0 mg/l nominal)	4.3 mg/l effective

According to this chart, Attleboro's discharge to the affected waters thus has a stricter proposed nitrogen load than all direct dischargers in Rhode Island, regardless of whether CDM or Region 1's calculation is right. Region 1's tinkering with the 70% figure simply fails to address this crucial point.

Region 1's other response on this point was based upon speculation and double-counting. It asserts that the 40% attenuation figure should be adjusted downward by an unspecified and speculative amount ("significantly decrease" RTC, p. 20). There is no basis for assuming zero attenuation, and Region 1 does not claim zero attenuation. Id. Any reduction in attenuation would be overwhelmed by taking account of the fact that WWTP discharges are only 70% of the total nitrogen – or even 90% if Region 1 is right. RTC, p. 32. Such a reduction would discriminate against Attleboro, because no such reduction was applied to the Rhode Island discharges.

Second, RIDEM's nominal permit limits are not "water quality standards" and are not even the actual limits in fact. RIDEM knew that the in-state nitrogen limits would be appealed and settled before the limits would ever be applied:

Upon issuance of the final modifications, it is anticipated that the permittees will appeal the permits and enter a consent agreement with DEM, which will include the December 2008 target date for completion of construction [set forth in RI Gen. Laws § 46-12-2(t)].

RIDEM, Nutrient Permit Modifications – Response to Comments, p. 3, Appendix C, Tab 3.

RIDEM correctly anticipated the appeals and settlements, but did not live up to the promise regarding the December 2008 target date, as evidenced by at least two documents:

Consent Agreement (final) between the Department of Environmental Management and Narragansett Bay Commission for the Fields Point Wastewater Treatment Facility, In Re: AAD No. 05-002/WRA, docket No. RIA-371, Appendix, Tab 6A ["Fields Settlement"].

Consent Agreement (final) between the Department of Environmental Management and Narragansett Bay Commission for the Bucklin Point Wastewater Treatment Facility, In Re: AAD No. 05-001/WRA, docket No. RIA-372, Appendix, Tab 6B [“Bucklin Settlement”].

Both agreements provide NBC with a test period after commissioning of the initial construction to see if the plants can meet the 5 mg/l permit limits. The agreements allow NBC to argue against ever meeting the 5 mg/l limit, not only by their terms, but because the permits will expire and new permits may contain different limits (the anti-backsliding rules being inapplicable because both permits preserve NBC’s challenges to the 2005 permits).<sup>9</sup> Region 1’s response that the permits are still “fully enforceable legal obligations” (RTC, p. 22) elevates form over substance and begs the question, because the enforcement has already occurred and consent decrees now govern the actual levels in the actual discharge, regardless of nominal limits in a permit.

More fundamentally, the nominal limits in RIDEM’s permits, not applied in practice, are not “requirements” of an affected state within the meaning of 40 CFR § 122.4. Region 1 apparently agrees. RTC, p. 23. The proposed limits on Attleboro therefore are not required to meet the actual limits of the downstream state. The RIDEM permit limits therefore should not and must not be applied to Attleboro, much less a limit that achieves approximately 3.4 or 4.3 mg/l at the relevant discharge point.

Finally, as MADEP noted, if Rhode Island can allocate the principal burden of lowering pollution *within its waters* to out-of-state dischargers (without even examining the relative contributions of various sources, including in-state ones), it can shift the responsibility and

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<sup>9</sup> In the Fields Settlement (Tab C, Item 6A, Attachment A), RIDEM has actually agreed to a total nitrogen limit of 18.2 mg/l for the remaining term of the permit and beyond. It also sets forth a construction schedule for new facilities which extends as far as December 1, 2018 before construction must be complete. See Appendix Tab C, Item 7.

expense of improving its water quality onto those who lack a political voice in Rhode Island. As a matter of law, policy and fairness, EPA must not allow that to occur here and therefore must withdraw the total phosphorus permit limits proposed in the Permit. As argued extensively above, it has the power to do so. Attleboro's concern about even-handed treatment is heightened by the level of speculation and scientific uncertainty underlying the proposed limits.

## II. REGION 1'S PHOSPHORUS LIMITS CONTRAVENED THE PLAIN LANGUAGE OF REGULATIONS AND SOURCE DOCUMENTS.

At the outset, Fact Sheet #1 proposed an already substantial reduction in phosphorus limits from 1.0 mg/l to 0.2 mg/l. As CDM commented, the City believed that it could achieve the 0.2 mg/l phosphorus limit. RTC, p. 82. It does not contest a more stringent limit than in the 1999 permit, but it does contest the unnecessary further reduction to 0.1 mg/l (and 1.0 mg/l in "winter"), based upon an erroneous reading of the regulations and unsupported assertions about the "science."

The absence of scientific support led Region 1 to use the very same data to support both a .2 and .1 mg/l phosphorus limit. Region 1 claims (RTC, p. 51) that its original approach on phosphorus limits was an error, but its ultimate approach went beyond correcting an alleged error; it marked a conceptual shift from "highest and best" practical treatment in the original Fact Sheet, to an alleged water-quality based effluent limit that (a) relies upon unsupported interpretations of regulations and (b) would require, but lacks, scientifically-based water quality analysis. In particular, the RTC depends upon asserting that (1) Turner Reservoir is a lake, (2) the limits should be established using 7Q10 data, instead of the seasonal averages contained in EPA's own guidance documents, (3) laboratory results for DIN can be applied to TN in-stream, and (4) the data, including data on dilution, can be ignored. None of these suppositions is correct.

The relevant Rhode Island rule reads:

**Average Total Phosphorus shall not exceed 0.025 mg/l in any lake, pond, kettlehole or reservoir, and average Total P in tributaries at the point where they enter such bodies of water shall not cause exceedance of this phosphorus criteria [sic], except as naturally occurs, unless the Director determines on a site specific basis, that a different value for phosphorus is necessary to prevent cultural eutrophication.**

Table 1.8D. (2) [emphasis added].

*A. Region 1 Misinterprets the Water Quality Standard's Plain Language.*

EPA has now rejected one of RIDEM's misreadings (RTC, pp. 41-42 n.2 [quoting RIDEM comments]) and has agreed that the Rhode Island numeric criterion of 0.025 mg/l does not apply to the stream entering a lake, but only to the lake itself. RTC, pp. 74, 77. It therefore becomes critical to determine whether the artificial impoundment of flowing water, known as the Turner Reservoir, constitutes a lake.

RIDEM's own comments state that a lake must have a "surface area greater than 10 acres and a minimum mean water residence time of 14 days." RTC, p. 42, quoting RIDEM comments. RIDEM relied upon and cited EPA's Nutrient Criteria Technical Guidance Manual: Lakes and Reservoirs, First Edition. The word "mean" signifies "[a] number that typifies a set of numbers, such as a geometric mean or an arithmetic mean" or "the average value of a set of numbers".

The American Heritage College Dictionary (3d Ed. 1993), p. 841. Attleboro applied the governing test according to the common definition of "mean water residence time":

As indicated by RIDEM, [EPA's nutrient management] guidance defines lakes as water bodies with a mean water residence time of 14 days or more. According to studies conducted by the Army Corps of Engineers the reservoir has a volume of 350 million gallons (See Attachment 1 hereto). Using this value, and the flow data from the USGS gauge located immediately downstream of the John V. Turner Reservoir, the mean water residence time of this impoundment is 9.68 days. Thus, the impoundment does not meet the definition of a lake used by RIDEM to distinguish between bodies of water subject to the standard, and those that are not.

Tab 5, p. 1. This calculation stands uncontradicted.

Contravening the plain meaning of “mean,” Region 1 now uses the “7Q10 flow,” which is an extreme low flow (not an average or typical value) and is not set forth in any Regulation, Fact Sheet or comments. Region 1 apparently received this new and contradictory information in undocumented form from RIDEM at some undisclosed point (RTC, p. 75), but did not reveal it until after the comment period expired. Region 1 then asserts that the Reservoir has a retention time of about 42 days based upon 7Q10 flows. RTC, p. 53. But that extreme low flow value is not the reservoir’s “mean water residence time” as a matter of plain English. The words do not change meaning as necessary to produce Region 1’s desired result. Rather, words are intended to provide predictability and even-handed application of the rules – “uniformity” in the words of Congress and the Supreme Court.

Region 1 commits the same error in tying the phosphorus limit to the 7Q10 concentrations in Turner Reservoir. Even in a “lake, pond, or reservoir,” the regulation quoted above expressly calls for “average” concentrations of 0.025 mg/l. Extreme low flow conditions, such as 7Q10 flows, are not by any stretch “average” concentrations.

RIDEM’s TMDLs that EPA has approved for other water bodies conflict with Region 1’s late-breaking claim that RIDEM’s phosphorus rule for lakes is based on 7Q10. RIDEM has done several TMDLs for lakes and ponds calculating residence time based on average annual flow, or necessary phosphorus load reduction based on mean annual loads. See RIDEM web site at <http://www.dem.ri.gov/programs/benviron/water/quality/rest/reports.htm> (Spectacle Pond and Sands Pond), excerpts attached as attachment 2 hereto, esp. pp. 50-54. If RIDEM’s website is correct, EPA must have known about these average-load TMDLs before approving them. Moreover, this is the kind of issue that Region 1 could have sorted out if it had given the City notice of RIDEM’s contention regarding 7Q10 flows in lakes.



Alternatively, Region 1 appears to assert the Rhode Island water quality standards definition of “lake, pond, or reservoir” effectively to apply to “any body of water.” Id. (second full paragraph). For obvious reasons, this is wrong, and not even RIDEM went that far. See RTC, pp. 41-42, quoting RIDEM comments that define acreage and mean residence time. Nor did Region 1 take the extreme view that all water bodies are lakes when agreeing that a stream need not meet criteria for a pond. RTC, p. 74. A stream, river, brook or flowing impoundment is obviously not a “lake, pond, or reservoir,” as RIDEM’s own written comments confirm. The obvious purpose of the phrase “any body of water” is to specify which man-made water bodies (“sedimentation control or stormwater retention/detention basins”) are excluded from the definition, not to open up a flowing body of water to treatment as a lake.

The separate comments of the Massachusetts DEP confirm the impropriety of treating Turner Reservoir as a “lake”, with resulting burdens upon out-of-state parties who are not represented when Rhode Island chooses how it wishes to characterize its own impoundments and to impose burdens. RTC, pp. 87-91. As MADEP says, “[i]n setting the phosphorus limits based on lakes criteria rather than free flowing criteria EPA has chosen to place the entire burden for mitigation of the impairment on upstream communities rather than working with Rhode Island to remove the major cause of the impairment (removing the dam) or working with both states to develop an equitable distribution of costs associated with the mitigation.” This supplements MADEP documentation of the uncertainties and inadequacies of the existing scientific knowledge, if used for permitting purposes. See DEP letters dated February 11, 2004, and February 8, 2005. See Appendix, Tab C, Item 2.

Finally, there is no evidence or argument that the last 200 yards of the Ten Mile River in Massachusetts are affected by the City’s phosphorus discharge, particularly where that discharge

“may be rapidly transported downstream.” RTC, p. 53. Once in Rhode Island, the Ten Mile River is no longer listed for nutrient impairment. RTC, p. 74 n.25. MADEP criticizes Region 1’s phosphorus limit (RTC, p. 87), further undercutting the assertion of the need to protect a short stretch of Massachusetts waters, and calling for an explanation focusing on that stretch. Yet, Region 1 has provided no serious explanation of how the phosphorus limit is necessary to protect Massachusetts waters.

*B. Region 1’s Phosphorus Limits Are Arbitrary and Capricious Because They Rely Upon the Same Errors as the Nitrogen Limits.*

Since Region 1’s Phosphorus limits rely upon the same assumptions regarding dilution, modeling and scientific support as the nitrogen limits, they are arbitrary and capricious for the same reasons. Accordingly, the phosphorus limits should be vacated for all the reasons stated in part I above, which is incorporated by reference.

*C. Region 1 Makes Several Basic Errors.*

*i. Region 1 Improperly Uses Standards Derived for Seasonal Flows to Set Limits for Extreme Low Flows.*

Region 1 asserts that Mass. and RI WQ standards are required to be met under 7Q10 conditions. RTC, p. 65. Granting that point for purposes of this appeal, it follows that Region 1 would use 7Q10 flows as the upstream and downstream flows in its calculations. See RTC pp. 65, 80, 82 (assuming “critical low flows, i.e. 7Q10, when determining available dilution”). What does not follow (and is arbitrary and capricious) is the use of numeric criteria that are more stringent than would be calculated for 7Q10 conditions because the numbers were calculated for conditions *other than 7Q10*.

Region 1 does not dispute that the Gold Book values were calculated based upon seasonal averages, not 7Q10 conditions. See RTC, p. 81. The seasonal average values reflect not only what happened under 7Q10 conditions, but also add in the presumably lower concentrations that

prevail in larger flows. If EPA wanted to use 7Q10 flows as the basis for a monthly average, then it should have found (and converted to a monthly equivalent) an in-stream value for such flows, instead of using one for seasonal averages. There is no scientific basis for taking an average derived from one set of measurements and applying it to a subset of conditions that are known to differ from the average (indeed, the 7Q10 conditions are intended to reflect conditions that are plausible but rare and relatively extreme). The same is true of a monthly limit, when the data reflect not one month, but an entire season.

The claim that “Gold Book values are expressed as values not to be exceeded at any time and not seasonal or annual averages” lacks any citation to, or authority within, the Gold Book itself; it would be ludicrous if true, because an instantaneous exceedance would theoretically violate the standard. Nothing in the Gold Book or in Region 1’s comments suggests that the authors of the Gold Book advocated applying seasonal average data to individual months that (the data show) are likely to be higher or lower than the applicable seasonal averages. Such a procedure would violate basic principles of statistics. Likewise, on page 81 of the RTC, Region 1 acknowledges that the Ecoregion XIV values, were “developed based on the 25<sup>th</sup> percentile of all seasons of data.”

The Fact Sheet #2 (p. 3) quotes EPA’s “Ambient Water Quality Criteria Recommendations: Information Supporting the Development of State and Tribal Nutrient Criteria Lakes and Reservoirs in Nutrient Ecoregion XIV.” That document specifically states:

EPA does not recommend identifying nutrient concentrations that must be met at all times; rather a seasonal or annual averaging period...is considered appropriate.

Far from supporting EPA’s approach, this refutes Region 1’s practice of applying published criteria to 7Q10 flows, which are certainly not seasonal or annual averages. Yet these flows are

in fact the sole basis for setting a 0.1 mg/l limit (apart from the Rhode Island regulations, discussed below):

Given the lack of **effective dilution under 7Q10 flow conditions**, a monthly average phosphorus effluent limit of 0.1 mg/l has been established to ensure that the Gold Book recommended value of 0.1 mg/l[sic] will not be exceeded in the Massachusetts reaches of the river below the discharge. [emphasis added]

Fact Sheet #2, p. 4, citing also the Nutrient Criteria Technical Guidance manual.

Since the science and EPA's own recommendation propose a seasonal average, it is excessive to use such an average as a monthly limit, which will tend to over-regulate the amount that should be allowed on a seasonal basis. Because it was a ceiling and not a floor the 0.2 mg/l monthly limit would tend to produce seasonal averages (0.09 mg/l) below that number anyway even for design flow – and Region 1 does not even present the lower values for actual flow (presumably, about 25% lower still). RTC, Ex. 7B. Region 1 resorts to an insupportably low 10% attenuation rate to justify its phosphorus limit. RTC, p. 77 and Attachments 10A-10B. The actual observed low flow phosphorus attenuation rate is 33% to 60%. RTC, Attachment 9. Indeed (and ironically), Region 1 cites a nutrient bloom in October 2007, which could not have related to Attleboro's phosphorus, because the City's discharge monitoring reports for May through October 2007 show achievement of average discharge concentrations of 0.1 mg/l. RTC, pp. 56, 82.

ii. Region 1 Discounted Attenuation Arbitrarily and Capriciously.

Region 1 cannot assume that there is no dilution or attenuation at all. See 40 C.F.R. § 122.44(d)(1)(ii) (requiring consideration of “the dilution of the effluent”) It has acknowledged that “phosphorus” is “not completely retained in the water column” (Fact sheet #2, p. 5) and has acknowledged that the Attleboro WWTP discharges experience some dilution before reaching the Rhode Island border. See EPA Response #17 to North Attleboro Permit Comments, p. 16,

Appendix Tab E, Item 2. The “current assumed attenuation rate” is 40% in the Ten Mile River, and Region 1 has not quantified the amount of reduction in attenuation it says will result from phosphorus reductions. RTC, p. 20. Region 1 discounts this entirely because of high existing background concentrations (RTC, p. 64) but this contradicts statements made elsewhere (in justifying the nitrogen limits) that background phosphorus levels will “decrease significantly.” (RTC, p. 14). Trying to have it both ways is arbitrary and capricious.<sup>10</sup>

The data support the City. Region 1 admits that downstream phosphorus levels are lower than the Facility “during **low flow** conditions ... sometimes by a significant amount.” RTC, p. 67 and Attachment 9 (emphasis added). Having relied upon low flow conditions throughout the RTC, it was arbitrary and capricious for Region 1 to shift to high flow conditions and discount this attenuation because of different attenuation rates “when the spring sampling event is included.” RTC, p. 67. Picking and choosing the most restrictive data from different seasons reflecting different flow conditions is irrational. Moreover, Region 1 never explains how phosphorus **attenuation** will decline because of “more stringent phosphorus controls.” Id. The biological need for phosphorus should, logically, be affected by the other organisms and nutrients present in the river; reduced phosphorus levels should not generate decrease in need for, and uptake of, phosphorus itself. The reduction in phosphorus limits is unsupported by any rationale for ignoring or downplaying the attenuation factor.

iii. Region 1 Failed to do a Waste Load Allocation or Equivalent.

Finally, it makes no sense to apply a WQBEL without knowing sufficient facts about total contributions to water quality problems and allocating each discharger an amount designed

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<sup>10</sup> Scientific studies show a substantial attenuation rate for phosphorus in streams. See excerpts from USGS “Sparrow” report entitled “Estimation of Total Nitrogen and Phosphorus in New England Streams Using Spatially Referenced Regression Models,” attached as Appendix, Tab E, Item 6. By reference, these comments also incorporate the entire Sparrow Report, at the URL reflected in Appendix, Tab E.

to cure water quality problems. Failure to do so means that there is no way to know whether the ultimate limit for a particular discharger is too strict or whether even a strict limit will have any positive impact at all, given other sources of pollutants. RIDEM urged EPA to adopt a wasteload allocation approach (with a margin of safety). See RIDEM Comments, dated September 12, 2006, on North Attleboro and Attleboro drafts permits, p. 3, included in Appendix, Tab E, Item 3 ("the limits must be revised using a Waste Load Allocation strategy..."). Adopting a dilution approach is no substitute; RIDEM's regulations (incorporating notions of causation and average values, as discussed below) cannot be applied without doing the work required by the allocation approach.

To do valid wasteload allocations requires identifying the other contributing sources of phosphorus; otherwise, one use may be overregulated and other ignore or under-regulations. See accompanying CDM comments. Rhode Island Rule 7 contemplates a waste load allocation approach. See Appendix, Tab G, RIDEM Comments 9/12/06, p. 3.<sup>11</sup> Likewise, in Arkansas, 503 U.S. at 108, the Supreme Court cited the Clean Water Act's – provisions designed to remedy existing water quality violations and **to allocate the burden of reducing undesirable discharges between existing sources and new sources**. See, e.g. § 1313(d)." [Emphasis added.] Cf. Friends & Fishers, 446 Mass. at 840-841 (a "comprehensive" and "studied analysis of various sources' contributions of nitrogen to the recharge area and the watershed" – a report of load growth scenarios and contributions of various sources to the Pond's nutrients, funded by

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<sup>11</sup> Since the question is the "Reservoir's" ability to maintain an average 0.025mg/l level, EPA must determine the "Reservoir's" Loading Capacity, which the RI regulations (Rule 7) define as "the maximum amount of loading that a surface water can receive without violating water quality standards." EPA has not done so. Nor has the Reservoir's Load Allocation been presented. See also RI Regs, Rule 7 (defining "load allocation" as the "the portion of a receiving water's loading capacity that is attributed either to one of its nonpoint sources of pollution or to natural background sources"). These rules demonstrate that Rhode Island contemplates essentially the same detailed analysis as Friends & Fishers, as a matter of interpretation of state water quality regulations. Indeed, RIDEM's comments of September 12, 2006, stat that the load allocation analysis "must" be done. There is no short-cut in applying the Rhode Island regulation. The permit errs in attempting to employ one.

EPA under Section 604(b) of the Clear Water Act). There is no way to allocate burdens rationally without first identifying all sources, calculating the load capacity of the receiving body and then determining which discharges merit allocations of particular loadings in the context of the "Reservoir's" watershed.<sup>12</sup> The very concept of a "wasteload allocation," referenced in RIDEM's comments, requires as much. To impose speculative limits, without supporting data, is arbitrary and capricious.<sup>13</sup>

### III. THE PERMIT'S METALS LIMITS LACK ADEQUATE EXPLANATION AND ARE ARBITRARY AND CAPRICIOUS.

The Permit significantly decreases limits for a number of metals, including copper, nickel, silver, lead, aluminum and cadmium. Of greatest concern are aluminum, cadmium and lead.

#### A. *Region 1's Aluminum Limit is Based on an Erroneous Reading of the Applicable Standard, and Is Arbitrary, Capricious and Inadequately Explained.*

Aluminum has dropped from an average monthly limit of 210 ug/l to 122 ug/l. Region 1 asserts that its hands were tied: "The acute and chronic criteria used to calculate the aluminum limits are those adopted by MassDEP into its water quality standards and so must be used as the basis for the effluent limitations." RTC, p. 40. Yet, MADEP's water quality standards do not adopt a numerical value for aluminum; they adopt EPA's own document. The applicable Massachusetts Water Quality Standard states:

(e) Toxic Pollutants. All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife. For pollutants not otherwise listed in 314 CMR 4.00, the *National Recommended Water Quality Criteria: 2002, EPA 822-R-02-047, November 2002*, published by

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<sup>12</sup> We know, for instance, that there are many other sources of nutrients in Turner Reservoir, not the least of which may be the numerous nearby golf courses. See Appendix E, Item 5.

<sup>13</sup> Region 1 belittles the City's position by claiming incorrectly that the City is arguing that EPA must "forego imposition of permit limits that would mitigate water quality impacts." EPA may impose limits that have a sound scientific basis. Indeed, its own Fact Sheet #1 proposed to technology-based limits ("highest and best" practical treatment." See RTC p. 51; Fact Sheet #1, p. 6) if water quality based limits are not ascertainable.

EPA pursuant to Section 304(a) of the Federal Water Pollution Control Act, are the allowable receiving water concentrations for the affected waters, unless the Department either establishes a site specific criterion or determines that naturally occurring background concentrations are higher. . . .

314 CMF 405(5)(e). On page 23 of the cited 2002 EPA publication, the criterion for freshwater CCC Aluminum is “87<sup>G,I,L</sup>”, which yielded 122 ug/l when multiplied by the 1.4 dilution factor. The City’s comments (RTC pp. 39-40; Appendix Tab A) quoted Footnote L, which gives “three major reasons why the use of Water-Effect Ratios might be appropriate.” EPA’s RTC, p. 40 reaffirms the “concerns regarding the aluminum criteria, specifically that the chronic criteria may be overly conservative for some waters.”

Region 1 provides no explanation why it lacks all authority to act upon the “concerns” expressed in footnote L of its own guidance, which specifically qualify the alleged numeric criterion for aluminum. MADEP’s water quality standards, in fact merely adopted EPA’s nuanced and qualified guidance. Common sense dictates that EPA itself can and should interpret EPA’s own guidance. Instead, EPA defers to MADEP, which deferred to EPA’s guidance. As in a hall of mirrors, the result is distorted and illogical.

Region 1 cannot refuse to apply all aspects (including footnotes) of its own guidance without being arbitrary and capricious. Moreover, because of the supposed lack of authority, Region 1 never even explains whether (or why) it would reject an NPDES permit limit that embodies the caveat expressed in EPA’s own footnote L to the aluminum criterion. This Board should reject the notions that EPA is “bound” by a state WQ criterion that merely cross-references EPA’s own document, and that EPA must ignore the caveats in its own guidance.

The reduction in phosphorus first proposed in Fact Sheet #2 has major consequences for the aluminum limits, which exacerbate Region 1’s refusal in Fact Sheet #1 to assess aluminum limits properly. The plant uses poly aluminum chloride (PAC) in its phosphorus removal



process. See RTC, p. 39 (CDM comments). Region 1 should have hesitated to require the unnecessary phosphorus limits in the first place and should have considered the interaction between aluminum and phosphorus limits. Instead, Region 1 unfairly used the plant's success on phosphorus removal by citing post- July 2007 DMRs without affording the City an opportunity to respond and discuss the role of PAC in that success. While the plant has had success in achieving a 0.1 ug/l effluent for phosphorus, at times it is difficult for the Facility's process to nitrify and stay within its ammonia limit, because the process becomes nutrient deficient. To overcome that, the plant has to become less efficient in primary removal and more efficient at the final effluent stage. This requires less ferric chloride to be introduced at the headworks and more PAC (aluminum) at the final clarifiers, which increases the amount of the aluminum being discharged in the final limit. To achieve the new phosphorus levels imposes an unnecessary and unrealistic cost upon the City and its industries, particularly where the permit has imposed an increased need for the plant to use aluminum to meet the new phosphorus limit. Had Region 1 allowed the City to explain all this, the trade-offs would have been clear.

Accordingly, the aluminum limit should remain at 210 ug/l, particularly given the plant's excellent track record for toxicity testing. In addition, the frequency of sampling for bioassay testing should be reduced from four times per year to twice per year.

*B. Cadmium, Lead and Other Metals.*

Cadmium has dropped from 9 ug/l monthly and 20 daily to 0.4 ug/l monthly and 2.9 ug/l daily, although footnote 14 sets forth a monthly minimum level of 0.5 ug/l. Lead has dropped to 4 ug/l monthly. Yet, as to all metals, the Facility has shown that its final effluent does not have a toxic effect on the receiving waters. Attached as Attachment 3 hereto are the results of 19 consecutive bioassay tests from November 2003 through May 2008 (one test shy of five years)

showing no toxic effect (with only one exception, for reproduction in February 2005). These tests prove the lack of the effluent's toxicity.

To use less reliable tests to impose unnecessary limits comes at a cost to real water quality, because metals are necessary to accommodate plant operations that improve the overall effluent. That point also bears on the need for a compliance schedule for the metals, if the metals limits remain in some form in the Permit.

#### IV. REGION 1 ERRONEOUSLY FAILED TO CONSIDER A COMPLIANCE SCHEDULE.

MADEP's 401 water quality certification included a compliance schedule for phosphorus and included a condition asking EPA to include a compliance schedule. RTC p. 8, Appendix Tab I. Attleboro itself requested that any stricter limits be the subject of negotiation and a future "schedule[d] review" (e.g., RTC, pp. 25, 50), rather than immediate imposition. Nonetheless, Region 1 refused to consider a compliance schedule in its permit on the ground that Rhode Island law supposedly prohibits RIDEM from including a compliance schedule in a state permit. RTC, pp. 23, 50, 90. This was a ruling of law (and perhaps policy) that precluded any exercise of discretion. It was wrong. Rule 20 of Rhode Island's regulations expressly authorizes compliance schedules for renewal permits like this one.

#### RULE 20 – SCHEDULE OF COMPLIANCE

- 20.01 General. The permit may, when appropriate, specify a schedule of compliance leading to compliance with the State and Federal Acts and all other applicable authority for these regulations.
- 20.02 Time for compliance. Any schedules of compliance under this section shall require compliance as soon as possible.
- (a) For discharges to surface water or groundwater, schedules of compliance shall require compliance not later than the applicable statutory deadline under State and Federal regulations.

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20.03 Interim dates. Except as provided in paragraph (a)(2) of Rule 20.04, if a permittee establishes a schedule of compliance which exceeds one year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement.

\* \* \*

Moreover, Region 1 claims that the phosphorus limit “is necessary to attain Massachusetts narrative water quality schedules.” RTC p. 74. MADEP squarely allows compliance schedules. 314 CMR 4.03(1)(b)(2). Region 1 therefore should have incorporated a compliance schedule to the extent that that limits relies on Massachusetts standards (for instance, if the EAB accepts the above arguments on the Rhode Island phosphorus standards).

This misreading of the law regarding compliance schedules is material and prejudicial. Region 1 recognizes that “treatment plant operation will be more challenging when trying to balance biological phosphorus removal with biological nitrogen removal.” RTC, p. 85. It acknowledges that “the City may not be able to comply with all of the metals limits immediately.” RTC, p. 27. In fact, the City has already devoted extensive resources to plant improvements and operations to treat metals. Further investment in plant upgrades for these purposes is not warranted. The City will need to require its generators to implement an improved industrial pretreatment program with lower limits, which will take time. Region 1 agrees. RTC, p. 47. Imposition of the proposed metals limits therefore will require a phased implementation by both the plant and those who discharge into its system. In these circumstances, Region 1’s refusal consider compliance schedules, as required in a condition of the 401 certification, was a clear error of law.

V. REGION 1 UNLAWFULLY RAISED NEW ISSUES FOR THE FIRST TIME IN THE RTC.

The RTC contains many key arguments and facts that Attleboro has never had the chance to address, because they were neither in Fact Sheet #1 nor Fact Sheet #2. This violates

Attleboro's rights to meaningful notice of the record and analysis underlying Region 1's permit limits so that City could comment. 40 CFR §§ 124.8, 124.13. See In re Ash Grove Cement Co., 7 E.A.D. 387, 431 (EAB 1997) ("The purpose of the response to comments and any supplementation of the administrative record at that time is to ensure that interested parties have **full notice of the basis for final permit decisions** and can address any concerns regarding the final permit in an appeal to the Board pursuant to 40 C.F.R. Section 124.19" (emphasis added). See also In re City of Phoenix, 9 E.A.D. 515, 526 (EAB 2000).

A key part of Region 1's analysis of the phosphorus limit is the undocumented statement that "RIDEM has informed EPA that it calculated retention time based on 7Q10 flow." RTC, p. 75. The City was not aware of this bilateral communication and therefore was not able to comment upon this critical input. As noted above, RIDEM's use of 7Q10 flow for a lake conflicts with TMDLs that RIDEM has approved. See e.g., <http://www.dem.ri.gov/programs/benviron/water/quality/rest/reports.htm> (Spectacle Pond and Sands Pond). The City relied to its detriment upon Fact Sheet #2 and RIDEM's comments, which focused upon "average river flow." Region 1 has never considered the City's arguments (above) on why RIDEM's statement is incorrect and inconsistent with RIDEM's regulations and practice.

The RTC, pp. 82, 90 and attachment 13, relies upon monthly discharge monitoring reports for May through October, 2007 to reject a compliance schedule for phosphorus. When the comment period closed on August 16, 2007, half of these reports did not exist (and only three months is hardly a trend), and the City never had a chance to explain why Region 1's conclusion is a non-sequitur. Among other things, Region 1 did not consider the unreliability of basing determinations upon results for the short duration of just one summer, the specific conditions

prevailing during that period and the fact that the City was not under an obligation to limit aluminum to the level in the new permit. It was arbitrary and capricious and procedurally improper to deprive the City of the chance to argue the point and to receive Region 1's considered response.

As further evidence against Attleboro, the RTC, p. 56 cites a bloom of *Microcystis* algae "in September 2007," which obviously occurred after the comment period closed. The City never had the chance to explain why this event provided no justification for the phosphorus limit in the Permit. Analysis of this bloom, and comments on it, would have at least included the observation that the Facility was meeting a 0.1 average phosphorus limit for May through September 2007 (RTC, p. 82), and so its phosphorus did not contribute to this water quality violation even according to Region 1's analysis. This in-stream example would have tended to undercut the need reduction in the Facility's phosphorus limit.

The RTC reads like a new Fact Sheet in many other respects as well. Region 1 concedes that its "calculations" for the effluent limitations for phosphorus, dilution and background "were not shown in the revised fact sheet" and presents its equation for phosphorus for the first time at page 64 of the RTC. It cites, for the first time, a water quality model for the ecosystem, without giving the City a chance to comment upon the model or the wisdom of using the model (which Region 1 never discusses). RTC, p. 29. On page 36, the RTC cites for the first time a "Preliminary Report" by the Narraganset Bay Commission to discount any upstream flow of nutrient bearing waters. The City had no chance to comment on this preliminary report. Elsewhere, Region 1 acknowledges for the first time that there are important differences between the MERL experiments and the Providence Seekonk river systems and presents a new theory on why it sticks to its guns – a theory that the City has not previously had a chance to rebut. See

RTC, p. 35. It also appears to have shifted from a dissolved-oxygen-driven calculation to one based upon "prevention of cultural eutrophication."

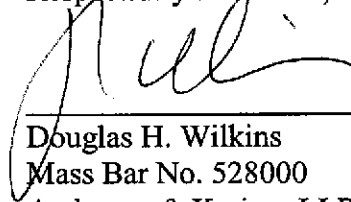
There are other procedural irregularities. First, under 40 CFR 124.14, given the reopening of the comment period, there should have been a 60 day comment period, not a 30 day one. Moreover, the City requested a hearing, to address the important issues raised above. See 40 CFR 124.11 and 124.12. Given the above procedural issues, the City was prescient in commenting that trying to deal indirectly through EPA with issues that are apparently driven by RIDEM is a difficult process. The City was concerned that RIDEM might comment on the revised draft limits, and that the City would not be privy to those comments, if any. RTC, p. 83. What happened was apparently worse – RIDEM's communication off the record with Region 1 regarding the interpretation of its regulations. See RTC, p. 75.

The City trusts that Region 1's apparent disregard of the City's need for input on these point was actually motivated by the need to find a way to bolster the originally-proposed permit limits with whatever information the Region could locate. But Region 1's belated disclosure of information and rationales have defeated the letter and purpose of the comment regulations and require a remand.

### **CONCLUSION**

The nitrogen, phosphorus and metals limits should be reversed and remanded for further consideration by Region 1. The EAB should instruct Region 1 to proceed in accordance with the principles contained in this Petition.

Respectfully submitted,



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