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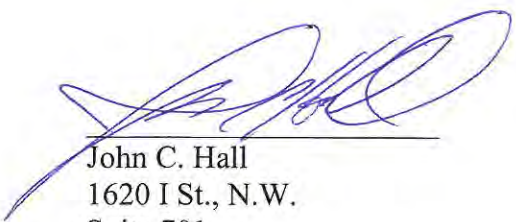
U.S. Environmental Protection Agency
Clerk of the Board
Environmental Appeals Board 1103M
1200 Pennsylvania Avenue, N.W.
East Building
Washington, D.C. 20460-0001

Re: Town of Newmarket Wastewater Treatment Plant
Permit Number: NH0100196
Appeal Number: NPDES 12-05

Dear Ms. Durr,

Please find attached the Petitioners' Reply to EPA Region's Memorandum in Opposition to the Petition for Review and accompanying Certificate of Service regarding NPDES Appeal No. 12-05.

Sincerely,



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

_____)	
In re:)	
Town of Newmarket)	
)	
NPDES Permit No. NH0100196)	NPDES APPEAL No. 12-05
_____)	

**REPLY TO EPA REGION 1'S MEMORANDUM IN OPPOSITION TO THE PETITION
FOR REVIEW**

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I. Introduction

Though hundreds of pages of analysis have been filed by both parties, the resolution of this case is a simple matter regarding the answers to a few questions on whether nutrients are actually documented to be causing narrative criteria violations in the Great Bay Estuary, whether the peer review received all relevant analyses and whether EPA has misapplied 40 C.F.R. § 122.44(d). The Coalition provided extensive documentation (including sworn testimony of the key New Hampshire Department of Environmental Services (“DES”) officials) confirming that (1) there is no factual or objective scientific basis to find that nutrients are causing narrative criteria violations (*i.e.*, cultural eutrophication) related to eelgrass impairment in this system, (2) EPA/DES skewed the administrative record (“AR”) to support its conclusions, and (3) the 2009 criteria document is not scientifically defensible because its methodology is fundamentally flawed. EPA’s response, though long, never actually refutes any of the key documents or sworn testimony of State officials, with competent “evidence”, though it now claims such information was “considered”. Resp. Sec. V.B.2. Instead, it is replete with unsupported conclusory statements, rather than documentation that narrative impairments exist or are likely to exist.¹ Thus, EPA has committed clear factual and legal error in issuing this permit.

¹ The Region, in a number of locations, also indicated that arguments were not “preserved for review” and therefore, may not be considered by the Board. Resp. at 41, 66, 71, 79, 87, 89. The Region’s contentions are misplaced as follows: (1) there is no requirement to specifically identify the pages of original or disputed comments in the brief; (2) *Daubert* was simply a case law citation, the issue of scientific validity has been repeatedly raised (AR C.2 at 17, 18); (3) the ability of TN reduction to achieve either DO or transparency criteria was raised repeatedly (AR C.2 at 2,3,5,8,9,12,15); (4) the issue of basing the 3 mg/l limit on the need for NPS reduction was raised at EPA Headquarters after the Region changed its rationale for imposing the limit (AR C.2 at 10, 11; AR H.61); and (5) the inclusions of a specific permit provision to implement this mandate only occurred when the final permit was issued. AR H.61 at 1; *see also* AR.C.2 Exh. 8-10, 14-23. EPA’s other assertions of non-preserved issued in its Appendix A are equally misplaced. The Region makes repeated (almost pro forma) claims that over fifty issues (actually supporting points in arguments) were not preserved in Appendix A. Because these arguments are not presented in the Agency’s “main brief” they do not require a response. However, the Region’s claims that we should have known EPA was hiding documents from the peer review only support Petitioners’ case that such review was fundamentally flawed. *See* Resp. App. A (numerous responses list the basis for denying review as “not preserved.”).

EPA now boldly asserts that it does not need to base its narrative criteria compliance decisions on system-specific, objective scientific information (Resp. at 4) or any type of “cause and effect” demonstration (Resp. at 3-4, 40-45) to claim (1) the discharger of nutrients “caused” a narrative criteria violation, (2) that meeting the chosen criteria will be “sufficient” to remedy the alleged violation or (3) that the selected TN limitation is “necessary” to attain narrative criteria compliance. Each of these regulatory requirements are, obviously, science-based determinations that require an objective analysis, reflecting the actual data in the system, to ensure the proper requirements have been set. *See Upper Blackstone Water Pollution Abatement Dist. v. Env'tl. Prot. Agency*, 690 F.3d 9, 26-27 (1st Cir. 2012) (affirming EPA’s decision because the model assumptions “corresponds to what is actually occurring in the Providence/Seekonk River system.”) [hereinafter *Upper Blackstone*]. Decades of jurisprudence, the state rule at issue, and EPA’s own guidance have repeatedly stated that “cause and effect” demonstrations are necessary to regulate under the Act.² EPA has no authority to presume narrative criteria violations exist or impose water quality-based permit requirements that are not demonstrated necessary to ensure standards attainment.³ Consequently, as EPA admits it did not make this causal demonstration (Resp. at 22), this petition for review should be granted.

² The final SAB Report underscored the need for science-based “cause and effect” demonstrations when regulating nutrients: “[T]he final document should clearly state that statistical associations may not be biologically relevant and *do not prove cause and effect*.” AR M.23 at 2. “Without a mechanistic understanding and a *clear causative link* between nutrient levels and impairment, there is no assurance that managing for particular nutrient levels will lead to the desired outcome.” *Id.* at 4; For criteria that meet EPA’s stated goal of “protecting against environmental degradation by nutrients,” the underlying *causal models* must be correct.” *Id.* at 37 (emphasis added). EPA’s claim that the 2010 Stressor-Response guidance obviated this requirement is incorrect and unsupported. Resp. at 60.

³ *Nat’l Metal Finishers Ass’n v. Env’tl. Prot. Agency*, 719 F.2d 624, 640 (3rd Cir. 1983) (holding there is no CWA liability without causation). Mr. Trowbridge concurred that a narrative criteria violation “only occurs if nutrients are causing some demonstrated adverse effect.” AR D.4.i.4. at 326 ln 4-8.

II. Key Undisputed Factual Points Governing the Boards Decision⁴

Petitioner's brief extensively chronicled the events leading up to issuance of the Newmarket permit. Br. Sec. II. EPA's response did not dispute the vast majority of these facts in its response with references to relevant scientific data or analyses.⁵ The most salient (undisputed) record information confirming EPA's actions are clear error follows.

1. EPA Plainly Misapplied the State Narrative Criteria⁶

EPA claims narrative criteria violations may be demonstrated by applying a selected numeric value to the receiving water. Resp. at 8. However, narrative criteria, unlike numeric criteria, define a condition to be prevented, not an instream pollutant concentration. In this case, the "condition" regulated via the narrative standard is "cultural eutrophication." Cultural eutrophication is defined as "excessive plant growth" that "result in" (*i.e.*, causes) an adverse impact on some important component of the aquatic ecosystem. Resp. at 10. Eelgrass declines and low dissolved oxygen ("DO") may be caused by both natural and man-made influences unrelated to "cultural eutrophication." If eelgrass declines are due to natural factors, such as floods, poor transparency due to "color" entering the system, turbidity due to the high tidal exchange or low DO due to wetland influences, a narrative criteria violations has not occurred nor is there evidence of "cultural eutrophication." Resp. at 11; AR D.4.i.1 at 87 ln.7-12.

Therefore, to trigger the imposition of more restrictive nitrogen limits under the narrative

⁴ The key admissions from the deposition testimony were presented to EPA on numerous occasions. Pet. Exh. 15 was the most detailed listing of the admissions and citations to the relevant pages. Prior to its response, EPA never indicated any confusion or inability to discern the relevant deposition materials. *See* Resp. Appendix B at 2-3.

⁵ *See Am. Registry of Radiologic Technologists v. Bennett*, 655 F. Supp. 2d 944, 946 n.2 (D. Minn. 2009) ("It is well established that a party concedes an issue by failing to address it in an opposing brief."); *Hopkins v. Women's Div., Bd. of Global Ministries*, 238 F.Supp.2d 174, 179 (D.D.C. 2002) ("It is well understood in this Circuit that when a plaintiff files an opposition to a motion to dismiss addressing only certain arguments raised by the defendant, a court may treat those arguments that the plaintiff failed to address as conceded") (*citing FDIC v. Bender*, 326 U.S. App. D.C. 390, 127 F.3d 58, 67-68 (D.C. Cir. 1997); *Day v. D.C. Dep't of Consumer & Regulatory Affairs*, 191 F.Supp.2d 154, 159 (D.D.C. 2002) ("If a party fails to counter an argument that the opposing party makes in a motion, the court may treat the argument as conceded).

⁶ This argument is also related to EPA's misapplication of 40 C.F.R. § 122.44(d), *infra* at 22.

criteria, there must be a demonstration that nitrogen caused “cultural eutrophication” and not one of the other dozen non-nutrient factors that can create the same conditions.⁷ There is no such analysis in the record. *Moreover, if there is one fact that is irrefutable at this point, it is that nutrient increases never caused any change in algal growth in the system impacting either water column transparency or DO.* On this basis alone, EPA’s decision is clear error, as Mr. Carrier observed:⁸

A: ...[T]his rule basically applies to cultural eutrophication, and the end point is the excessive plant growth. **Q:** ...Suppose I had nitrogen or phosphorus discharge into the water body and it didn’t cause a change in plant growth. Would that nitrogen or phosphorus be considered in violation of this provision in any event?
A. No. (AR D.4.i.1 at 19 ln 4-13).

2. Great Bay Information Plainly Contradicts EPA’s Impairment Assumptions

The factual/scientific points raised by the Coalition in objection to EPA’s action (and unrefuted by EPA with credible evidence, *supra* note 5, are extremely elementary. Br. at 11, 19-20. First, there are no data or analyses, *for this system*, showing that nutrients are responsible for eelgrass declines anywhere in this system. The only available analysis confirms nutrients were *not* responsible for the dramatic system wide eelgrass decline that occurred in 2006 after the floods. *See, e.g.*, AR D.2.i.1-2, D.1.i.3-4, K.11, D.4.i.4 at 371 ln 16 – 372 ln 10. Second, changing nutrient levels never caused any changes in water column transparency or algal growth

⁷ EPA may not regulate based on “probabilistic evidence” or “correlations” without proving causation. *Tex Tin Corp. v. Envtl. Prot. Agency*, 992 F. 2d 353, 356 (D.C. Cir. 1993). Likewise, EPA may not claim that nitrogen is the cause of impairment in Great Bay because it has caused impairment in other waters.

⁸ EPA’s Response claimed nutrients did cause changing algal/transparency levels over time. Resp. at 27. No basis for this position was stated and it was directly refuted by the PREP reports, DES under oath, and the 2012 Burack letter. AR H.43 (“it is correct that there have been no clear trends in chlorophyll-a...measured in Great Bay over the full period of record from 1974 to 2011”). Unsupported claims of counsel are not evidence and must be ignored by the Board. *Jin Chun Lin v. Holder*, 430 Fed. Appx. 54, 56 (2d Cir. 2011) (*citing INS v. Pinpathya*, 464 U.S. 183, 188 n.6 (1984) (finding “counsel’s unsupported assertions in a brief do not constitute evidence”).

(phytoplankton) or low DO anywhere in the system.⁹ AR D.2.i.1-2, D.1.i.3-4, D.4.i.3. at 124 ln 22 – 125 ln 1. Without this change, nutrients cannot possibly be the cause of changing eelgrass populations via transparency impacts and low DO. Third, the transparency in the tidal rivers is naturally low and not materially affected by the algal growth present in those waters. AR K.11; D.2.i.2.; D.4.i.4 at 427 ln 6- 428 ln 2, 383 ln 16 (“you can’t control color ...or turbidity by controlling nitrogen.”). Therefore, regulating nutrients levels is immaterial to improving transparency in this area and could not be causing a narrative violation. Fourth, Great Bay itself (where over 90% of all eelgrass exist in this system) is not even a transparency limited system because plants receive sufficient light at low tide. AR H.38, C.2 Exh. 21, D.4.i.3 at 177 ln 8-18. Speculation that TN reduction “can only help” to better transparency in the bay (Resp. at 84) is irrelevant to whether or not a narrative violation presently exists. AR D.4.i.4 at 362 ln 11-14. Fifth, tidal river studies did not show that low DO was due to excessive algal growth. AR K.6-9, 20; *infra* note 25. Sixth, the author of the 2009 Criteria document and his supervisor, admitted under oath that these facts were true and that the 2009 Criteria are not intended to implement the existing narrative standard.¹⁰ EPA’s decision to regulate TN given these undisputed facts and use the 2009 Criteria contrary to the author’s admissions is *per se* arbitrary and capricious.¹¹

3. Peer Review Bias Was Confirmed

Petitioners argued that EPA’s peer review was biased and fundamentally flawed because the key information showing nutrients had never caused the alleged changes in water column

⁹ Such a difference is demonstrated by looking at algal and nutrient concentrations at a specific location over time. What the DES analysis demonstrated was that different DO and transparency levels exist in different parts of the system, not that nutrients and algal growth caused the differences to occur. *See infra* at 16; Chapra Affidavit.

¹⁰ AR D.4.i.1 at 80 ln 14-23, D.4.i.4 at 323 ln 22 – 333 ln 8.

¹¹ *Texas Oil & Gas Ass'n v. Envtl. Prot. Agency*, 161 F.3d 923, 935 (5th Cir. 1998) (“When an agency adopts a regulation based on a study [that is] not designed for the purpose and is limited or criticized by its authors on points essential to the use sought to be made of it the administrative action is arbitrary and capricious and a clear error in judgment.”) (*quoting Humana of Aurora, Inc. v. Heckler*, 753 F.2d 1579, 1583 (10th Cir. 1985), *cert. denied*, 474 U.S. 863 (1985)).

transparency and DO were excluded from the review. Br. Sec. V.J. Since the reviewers did not know that the key graphs did not reflect actual impacts, they had no reason to doubt the validity of the analysis.¹² In response, EPA only claimed that the peer review had the public comments submitted as part of developing the 2009 Criteria, not the relevant DES or EPA statements/analyses (only revealed through the state court action) confirming the 2009 Criteria did not reflect what was actually occurring in the system. Resp. at 24. That response fails to address/refute Petitioner's objections. Moreover, EPA failed to refute several other important regulatory facts raised, including: (1) It was EPA that insisted DES continue to develop the 2009 criteria, despite knowing that the "conceptual model" (transparency decrease due to nutrient induced excessive algal growth) was not applicable to this system (Br. at 7, AR D.4.i.4 at 198 ln 9-17); (2) DES amended the 2008 impairment list to declare Great Bay nutrient impaired using the unadopted numeric nutrient criteria at EPA's request to resolve a Conservation Law Foundation ("CLF") "litigation threat" (Br. at 21); (3) EPA refused to allow the Coalition to participate in the peer review to raise new issues. Br. at 10, 87.

These final points underscore the bad faith approach EPA undertook in seeking to impose nutrient limits, while hiding the fact that nutrients had never caused the impacts the 2009 criteria were claimed "necessary" to remedy.¹³ Skewing the record to create an impression that is plainly false is a serious violation of Administrative Procedures Act responsibilities. Where it is apparent that an agency failed "to disclose the substance of other relevant information that has been present to it..." the reviewing court "... must treat the agency's justification as a fictional

¹² For this same reason, Dr. Valiela's analyses are just speculative. EPA notes that he qualifies this "expert opinion" based on "what I have seen". Resp. at 50. His report provides no indication that he saw, or considered, any of the relevant historical assessments performed by DES verifying that transparency is not the issue in this system. His entire report refers to what has occurred in other systems, not this system. Br. at 57, n.32.

¹³ Mr. Trowbridge testified the 2009 criteria were never demonstrated to be "necessary" for the Great Bay Estuary. AR D.4.i.3 at 239 ln3-10, D.4.i.4 at 364 ln 4-13.

account of the actual decisionmaking process and must performe find its actions arbitrary.”

Home Box Office, Inc. v. FCC, 567 F.2d 9, 54-55 (D.C. Cir. 1977).¹⁴ This case requires the same result.

4. Facts Confirmed Under Deposition Showing Clear Error

EPA claims it considered the depositions but decided to not alter its position since there was no information contained therein indicating regulatory error.¹⁵ As discussed below, EPA’s response is not credible¹⁶ and not consistent with the facts revealed under deposition.¹⁷

¹⁴ EPA’s primary defense for these serious misdeeds is twofold: (1) ignore the depositions because the lawsuit that led to the depositions should have been filed earlier (Resp. at App. B) and (2) the issues are not preserved because Petitioners should have known that EPA left critical information out of the record. Resp. at App. A, *passim*. Board should reject them as harshly as the 10th Circuit and the U.S. Supreme Court did in *Humana of Aurora, Inc. v. Heckler*, *supra* note 11 and *Bowen v. New York*, 476 U.S. 467 (1986), respectively.

¹⁵ “The body of evidence used by EPA included technical guidance for estuaries, peer-reviewed scientific literature, analyses from other states and, of course, the 2009 Criteria document, whose utility and continuing relevance was not undermined either by deposition testimony, nor the 2012 Burack Letter, or the draft 2012 PREP Report, as erroneously claimed at *Pet.* 42-45.” Resp. at 46. Absent some indication of how this critical information was considered and rejected, this is simply a “post hoc rationalization.” See *Natural Res. Def. Council v. Army Corps. of Eng’rs*, 457 F.Supp2d 198, 227 (S.D.N.Y 2006) (“There is a fine line between legitimate responses to public comment and post-hoc rationalization designed to justify a decision that was already been made.”).

¹⁶ The Region admits that it must provide written response to “timely and significant” issues and to reopen there must be a “new” and “substantial” issue. Resp. at 79. Admissions by the author of the 2009 Criteria that (1) crucial information showing that TN had not caused changes in transparency and algal growth were excluded from the weight-of-evidence analysis and (2) that the criteria did not implement the state’s narrative standard certainly should meet this test. See *Home Box Office, supra* at 7 and *Texas Oil & Gas Ass’n, supra* note 11.

¹⁷ EPA’s argument that the DES deposition testimony fails to meet the procedural threshold requirement for consideration because it was “reasonably available and ascertainable during the public comment period” (Resp. Appx. B, at 1), is baseless for several reasons. First, the Coalition sought such documentation from EPA under Freedom of Information Act (“FOIA”) requests, and the key records disclosing EPA knew that transparency and algal levels had not changed were not disclosed. Nor, was there any indication of the request to alter the impairment listings based on a threatened CLF suit. Though the submitted FOIA requests precisely sought the type of information and documents the depositions revealed (AR I), such information never appeared. EPA’s decision to improperly withhold that information does not inure to its benefit. See *Bowen v. New York*, 476 U.S. at 481 (“Where the government’s secretive conduct prevents plaintiffs from knowing of a violation of rights, statutes of limitations have been tolled until such time as plaintiffs had a reasonable opportunity to learn the facts concerning the cause of action.”). Second, the unsupported claim that the Coalition should have filed an earlier lawsuit in order to gain access to relevant facts on EPA/DES decision making is frivolous. Resp. App. B at 1-2, see *Peschel Affidavit*. Petitioners detailed the events leading up to the filing of the suit. Br at 3-16. Through late December 2011, it appeared that DES and the Coalition would be able to resolve their disagreements without litigation, per the MOA. See *also*, Br. At 16, Email from T. Diers, DES, to J.Hall (Dec. 9, 2009) (the Coalition in December 2011 was still awaiting a response from DES on whether the 2009 Criteria would apply in the tidal rivers, contrary to the MOA.), *Gallagher Affidavit*. When it became clear that DES, at EPA’s assistance, refused to back down on its application of the 2009 Criteria in the tidal rivers, the Coalition filed its lawsuit roughly three months later, an entirely reasonable time given the authorizations and resource commitment such an endeavor requires. As EPA may not benefit from its actions that shield the regulated community from access to relevant documents and the lawsuit filing

a. What caused DES to identify the system as eelgrass impaired? Answer: The sharp turndown in eelgrass populations occurring in 2006, following major flooding and the wettest rainfall year on record.

As demonstrated by the record, Dr. Short (UNH Seagrass Ecology Group) had been monitoring eelgrass populations in Great Bay and the Lower Piscataqua River/harbor area for decades. AR K.17 at 20-11. He acknowledged that his studies were not intended to ascertain the factors causing eelgrass populations to fluctuate in the system, only to document how those populations fluctuated.¹⁸ AR D.4.i.2 at 16 ln 18-22. Through 2005, the consensus was that eelgrass populations in Great Bay and the Lower Piscataqua River were healthy (though Little Bay eelgrass populations had never fully recovered from the 1988 wasting disease that decimated eelgrass throughout the system). AR D.4.i.4 at 354 ln 2 – 355 ln 14, K.17 at 20-21. PREP also noted that apparently increasing nitrogen levels had occurred in the system prior to this time, but the system was not exhibiting increased algal growth.¹⁹ Mr. Trowbridge confirmed that increasing nitrogen (measured as dissolved inorganic nitrogen at Adams Point) did not result in any observable plant growth increases or reduced transparency:

Q. So the only available data you have shows water clarity didn't change in the Piscataqua River and in Great Bay, right? **A.** Right. *** **Q.** And where do you have data, in Great Bay, do you have data showing increased nitrogen levels caused phytoplankton blooms which reduced water clarity in Great Bay? *** **A.** We don't have that information related to nitrogen causing phytoplankton blooms in the Great Bay Estuary.²⁰ (AR D.4.i.3 at 230 ln 16-19, 123 ln 19 – 124 ln 1).

was not delayed, consideration of the depositions as related supplemental filings is allowed pursuant to 40 C.F.R. § 124.17(a)(2).

¹⁸ Putting blinders on, EPA continues to reference Dr. Short's comments as the scientific basis for imposing stringent TN limits. Resp. at 17, 51. The Short deposition confirmed that none of his studies were designed or intended to determine what factors were responsible for changing eelgrass populations. AR D.4.i.2 at 16 ln 18-23.

¹⁹ EPA's 2006 SOE references do not say nitrogen is causing cultural eutrophication; they indicate it is *not* evident but caution should be taken with further *increases*. Resp. at 28. The 2006 SOE states "Researcher are still debating the possible effects of the increasing DIN concentrations on Great Bay because it is a unique system, both hydro-dynamically and biologically, that may respond differently to excess nitrogen than other estuaries. So far, the typical effects of excess nitrogen have not been observed in Great Bay, although DIN concentrations in Great Bay are similar to concentrations in other estuaries where negative effects have been clearly observed." AR M.28 at 12. That evidence does not support a major reduction in TN loadings to the system as proposed by EPA.

²⁰ Mr. Currier stated that the 2009 Numeric Criteria were based on the assumption that nutrients had caused this effect to occur. AR D.4.i.1 at 136 ln 6-12. Obviously that assumption was misplaced given Trowbridge's responses.

In 2006, eelgrass populations plummeted sharply. Dr. Short, in particular, began to claim, with no objective scientific support, that nitrogen caused this event to occur.²¹ DES stated that it was this specific eelgrass decline that led to the estuary being listed as impaired for eelgrass. AR D.4.i.1 at 106 ln 11-19, D.4.i.4 at 369 ln 1 – 370 ln 11. This condition, however, does not support a conclusion that a narrative criteria violation, related to nutrients, caused that to occur, as explained by Mr. Currier:

Q....If the situation were that transparency were poor but wasn't caused by the nitrogen component, you could say that you have an eelgrass impairment but not a nitrogen-induced eelgrass impairment... **A.** That's correct ...you would have to do further causation analysis to figure out what was causing the lack of eelgrass. (AR D.4.i.1. at 133 ln 22 – 134 ln 11).

b. What information indicated that nitrogen was the cause of the sharp decrease in eelgrass populations occurring in 2006? Answer: Nothing, this was done to appease CLF and avoid a claimed threatened lawsuit.

At the request of EPA, DES subsequently identified nitrogen as the cause of the eelgrass decline through application of the unadopted 2009 Criteria. Pet. Ex. 4. DES stated that it made this change in impairment listing so EPA could avoid a threatened lawsuit by CLF.²² See email from G. Comstock to P. Currier, P. Trowbridge, and K. Edwardson (Nov. 26, 2008) (“Al Basile just called. To avoid a potential lawsuit with CLF, EPA has decided that Gt Bay should be listed for N.”). Mr. Trowbridge confirmed under oath that there was no data showing nitrogen had actually caused a major increase in algal growth after the 2006 floods:

Q. Here's the question: That major decline you don't what caused that in 2006, '7 and '8; right? **A.** Uhm-hmm. Yes. We do not know. **Q.** ... do we know what caused the decline in Portsmouth Harbor? **A.** No. **Q.** Okay. Do we have data showing that there's major increases in algal growth in Great Bay or the

²¹ See, e.g., emails between F. Short, P. Trowbridge, P. Colorusso, and J. Latimer (Jan. 17-18, 2008).

²² Based on information and belief, this claimed threat of CLF lawsuit never existed. This was simply an excuse EPA created to promote the identification of the estuary as impaired by nutrients, even when no objective data indicated that the 2006 eelgrass population downturn had anything to do with nutrient levels. Petitioners are still waiting for EPA to produce the records showing a suit was threatened.

Portsmouth Harbor area occurring during this time? I suppose the answer's no, or we might have tagged that as a indicator of what was happening; right? **A.** You're referring to phytoplankton? **Q.** Phytoplankton, yeah. **A.** For phytoplankton, no, there's no information. (AR D.4.i.4 at 371 ln 16 – 372 ln 10).

Mr. Trowbridge, under oath acknowledged that it was the flood itself (a natural event) that could have caused the major, rapid decline in eelgrass populations but he never evaluated the effect of that event. AR D.4.i.4 at 382 ln 5 – 383 ln 5. Thus, the depositions confirm that no objective information shows nitrogen had anything to do with the rapid decline in eelgrass that occurred system wide following the 2006 flood and extreme wet weather events. Moreover, the best available scientific information, the field data, which EPA asserts must be used in decisionmaking (Resp.at 47) supports that the eelgrass decline was caused by a rare natural event. AR K.11, D.3. However, EPA claimed it was this “documented impairment” that led EPA to conclude TN restrictions were necessary. Resp. at 29. As the system was identified as nitrogen impaired to protect EPA Region I from a threatened CLF lawsuit and not because of a demonstrated TN impairment, the deposition testimony confirms EPA's action is clear error.

c. Was DES aware that the 2009 Criteria did not reflect the adopted narrative criteria or impacts due to nitrogen in the system? Answer: Yes, but DES applied it anyway because EPA said they could call it a narrative translator.

Since 2005, EPA was demanding that DES adopt new numeric nutrient criteria for Great Bay. AR D.4.i.1 at 21 ln 3-7, 140 ln 7-15, H.14 Ex. 1 at 1. This triggered a series of analyses and data assessments. Under the auspices of PREP and its Technical Advisory Committee, DES, with EPA's input, completed repeated evaluations that determined nutrients had neither caused an algal growth increase nor a change in system transparency:

Dissolved inorganic nitrogen has increased by 59% over the past 25 years.... No evidence for elevated chlorophyll-a. (AR D.2.i.1). The best predictor of Kd was CDOM (salinity). Obvious water quality trends were not apparent. (AR D.2.i.2). Traditional conceptual models for nitrogen-eelgrass relationships do not work for

Great Bay. . . . Need a different model which includes tidal amplitude, sediment resuspension and macroalage [sic]. (AR D.1.i.3). Eelgrass biomass declining in Great Bay but no apparent decline in water clarity. (AR D.1.i.4).

The most detailed study of factors affecting system transparency, funded by EPA in 2007, specifically concluded that transparency was not the factor controlling eelgrass growth in Great Bay. AR K.11; Br at 64.²³ As a result of these various detailed data assessments DES and EPA specifically concluded in November 2007 that the “conceptual model” (increasing nutrients will cause reduced transparency) was not supported for this system (AR D.1.i.3):

Q:...By the way, who wrote these conclusions? Was this a collaborative effort ...or was it -- were these just your conclusions? **A.** This was ... certainly collaborative. It wouldn't have everyone's name on it if they didn't review it. **Q:** So [Conclusion]“The traditional conceptual models for nitrogen eelgrass relationships do not work for Great Bay.” Which models were you talking about?... Was it also the model that says phytoplankton -- excessive phytoplankton growth this going to lead to significant decreases in transparency when you increase nutrient loads? Isn't that also one of the conceptual models you're talking about there? **A.** Yes.²⁴ (AR D.4.i.3 at 222 ln 6 – 223 ln 7).

Despite these repeated analyses of the available system data showing that nitrogen had never caused any excessive plant growth (*i.e.*, cultural eutrophication) leading to declining system transparency,²⁵ EPA informed the state that they should apply the draft 2009 Criteria and call it a “narrative translator” to avoid concerns of illegal application of a new unadopted, numeric criteria. AR D.4.i.1 at 109 ln 17 – 110 ln 14, Pet. Ex. 4. Both Mr. Currier and Mr. Trowbridge, however, knew that exceeding the 2009 criteria was not sufficient grounds to claim a narrative

²³ EPA’s assertion that the 2009 Criteria were based on an analysis of Bay data showing that the current transparency level in Great Bay was insufficient is another fabrication and unsupported statement. Resp. at 27. Mr. Trowbridge admitted that a poorer level of transparency had supported acceptable eelgrass growth in Great Bay up through 2005 as well as 2009-2011. AR D.4.i.3 at 240 ln 3- 241 ln 21. The 2009 Criteria were not based on what was considered “necessary” to protect eelgrass in Great Bay. AR D.4.i.3 at 239 ln 6.

²⁴ EPA claims the conceptual model was confirmed appropriate for Great Bay Estuary. Resp. at 25-26, n. 13. That is a clear fabrication as EPA’s expert (Matt Liebman) was part of this collaborative presentation.

²⁵ See Letters to and from Drs. Langan & Jones (lead researchers for Great Bay and UNH Jackson Laboratory members) (Jan. 1 and Feb. 19, 2013) (providing a summary of the research efforts conducted for the bay indicating that none of the studies showed that TN significantly impacted algal growth, transparency or DO in this system).

criteria violation since it was not based on a “cause and effect” relationship showing that the nutrients “resulted” in “cultural eutrophication” in the system:

Q. Mr. Currier, you indicated that this analysis of light attenuation versus total nitrogen at trend stations, that this analysis doesn’t prove causation, correct? **A.** Yes. **Q.** Okay. So is this analysis sufficient in your mind to determine that nitrogen is causing a violation of the narrative standard in that it doesn’t demonstrate causation? **A.** It’s not sufficient, no. (AR D.4.i.1 at 80 ln 14-23).

See also AR D.4.i.4 at 332 ln 22 – 333 ln 8. Thus, it is apparent that EPA’s claim that nitrogen discharges caused or contributed to violation of the state’s existing narrative standard by causing “cultural eutrophication” resulting in eelgrass declines in Great Bay was a pure regulatory fabrication orchestrated by EPA and CLF. There is not now, nor has there ever been, a documented narrative violation caused by nutrient levels in this system and EPA’s repeated assertions to the contrary are flatly disputed by this deposition testimony. This is why the science misconduct charges are still under review by the Office of Inspector General.

d. Were relevant scientific studies excluded from the 2009 Criteria document and 2010 peer review? Answer: Any documents indicating TN had not caused impacts were excluded from the assessment.

The 2009 Criteria document issued by DES claiming stringent TN criteria were necessary to address eelgrass impairments was based on “weight of evidence” analysis. Resp. at 21-25.

However, Petitioners asserted that to complete this 180 degree reversal in scientific conclusions, a little housekeeping was in order – the elimination of any contrary evidence. Br. at 13, 24, 93.

Mr. Trowbridge confirmed that the inconsistent evidence was omitted from the report:

Q... 2009 criteria document that you developed, that’s a – you said you used a weight of evidence analysis to come up with the criteria in that report; right? **A.** Yes. **Q.** Did you include in that report the evidence that indicated that transparency was not the cause of eelgrass loss in the system that you had developed in any of your earlier analyses? **A.** What are you referring to for an earlier analysis? **Q.** That transparency, or analysis of transparency had not changed over time; was that included anywhere in that report? **A.** No. **Q.** What about all the statements that Great Bay is not a transparency-controlled system,

from EPA and Dr. Short, and those are the ones you and I walked through in your first round of the deposition. Did you include the statements that Great Bay was not transparency-controlled? **A.** I'm not sure; I don't believe so. **Q.**... did you include the statements that the cause of eelgrass losses and changes in the system were unknown, statements that were contained in the various 303d listing documents? **A.** Uhm, I have to look through. I'm not sure. I'm not seeing it here. **Q.** Did you include any of Morrison's conclusions that the major factors controlling transparency in the system were, in fact, turbidity and color-dissolved organic matter, and not chlorophyll? **A.** I believe we included equations from the Morrison study. **Q.** Did you highlight the Morrison study concluded that the transparency level of Great Bay was acceptable, and that you needed to look at something else as the cause of eelgrass demise? **A.** I'm not sure if we have that statement in here. **Q.** It's pretty important statement, isn't it? It made your report. Did you – well, did you include any discussion about how the primary graphs that you were using to develop the transparency and nitrogen relationships were merely correlations and did not demonstrate causation? **A.** I don't believe so. (AR D.4.i.4 at 436 ln 8 – 438 ln 9).

Thus, it is apparent that the alleged “weight of evidence” document carefully excluded any contrary evidence that would show the alleged transparency-algal-TN connection was not supported for this system.²⁶ See also AR D.4.i.3 at 232 ln 22 – 233 ln 17. Moreover, both DES and EPA understood that the TAC review had identified a major flaw in the new analysis – absence of a cause and effect relationship:

The comment that seems the hardest to refute is that nitrogen is correlated with light attenuation. Nitrogen was not proven to be the causative agent for light attenuation. Moreover, nitrogen is a component of all the factors causing attenuation (phytoplankton, CDOM, particulate organic matter) so a correlation would be expected.

AR H.16 attached email from Philip Trowbridge to Jim Latimer (EPA) (Nov. 19, 2008). The DES solution (reviewed by EPA Region I) was to simply claim that the new regression analyses actually did represent “cause and effect” for this system. 2009 Numeric Criteria RTC at B3. In short, DES lied to cover its tracks as Mr. Trowbridge readily admitted under oath that the

²⁶ Mr. Currier noted that a weight of evidence analysis should not produce results contrary to the actual data collected. AR D.4.i.1 at 90 ln 14 - 21. Likewise, this “weight of evidence” approach was directly at odds with the SAB recommendations on how such analyses should be conducted: “The Guidance can be used to develop nutrient criteria in a tiered weight of evidence assessment using appropriately modified EPA approved procedures together with other approaches *that address causation.*” AR M.23 at 37 (emphasis added). EPA actually excluded the prior data analyses that confirmed this lack of causation.

evaluations presented in the 2009 Criteria did not really reflect “cause and effect”. AR D.4.i.3 at 234 ln 11-15. It is apparent that the information “fed” to the peer reviewers was materially incomplete and purposefully misleading. EPA was also responsible for preventing the Coalition from pointing out these issues to the peer reviewers. AR D.4.i.1 at 144 ln 3 – 145 ln 20. It is hard to imagine any more important information the peer review needed to consider than the data assessments evaluating whether (1) nutrients had caused any change in system transparency/algal growth and (2) low DO, common in the tidal rivers, was actually caused by algal growth. As this critical information was withheld from the reviewers, it resulted in a review that was purposefully biased and fundamentally flawed. EPA’s actions mandate the remand of this permit. *Home Box Office, supra* at 7.

- e. **What information indicated that controlling nitrogen levels would allow restoration of eelgrass growth in the tidal rivers? *Answer: None, DES confirmed transparency was poor due to natural conditions and nitrogen reduction would have a negligible effect.***

Eelgrass apparently did historically exist in the Lamprey and Squamscott Rivers but these populations disappeared decades ago (pre-1960) and the cause of their loss is “unknown”. Fact Sheet at 17, 25. This admitted lack of information regarding what triggered that eelgrass loss (well before the 1988 wasting disease epidemic decimated Great Bay and Little Bay) was apparently no impediment to EPA claiming the nutrients were the culprit. Resp. at 29, 34. That decision, however, it unsupported by a scintilla of evidence.²⁷ DES noted that the absence of eelgrass in the tidal rivers is consistent with the poor light penetration in this part of the system, but the components controlling this situation were not well known. AR D.2.i.2. In 2007, EPA funded the Morrison study, which confirmed that color (a natural condition) coming from the tidal rivers was the key factor controlling transparency in the tidal rivers and the Bay. Br. at 64,

²⁷ EPA decision may not be based on “sheer guess work”. *Leather Indus. of Am. v. Env'tl. Prot. Agency*, 40 F.3d 392, 408 (D.C. Cir. 1994) (citing *Am. Petroleum Inst.*, 665 F. 2d 1176, 1186-87 (D.C. Cir. 1981)).

AR K.11. Despite confirmation that non-nutrient related factors control tidal river transparency, EPA continues to insist that eelgrass losses in the Lamprey are nutrient induced. Resp. at 29, 34 (finding TN impaired Lamprey River transparency and eelgrass). However, the inability of eelgrass to now inhabit an area due to natural conditions is not a narrative criteria violation. Accord, Resp. at 11.²⁸ As confirmed by the depositions:

Q. If the transparency level in the Squamscott and Lamprey River were naturally low due to color dissolved organic matter and turbidity in those systems, would that transparency be considered a violation of state standards? **A.** No. (AR D.4.i.1 at 87 ln 7-12). **A.**...In terms of the narrative standard of "as naturally," if it was determined this was naturally occurring, then it would not be an impairment. (AR D.4.i.4 at 431 ln 1-3).

Moreover, Mr. Trowbridge concurred that poor transparency in the tidal rivers due to color and turbidity is a "natural condition." AR D.4.i.4 at 427 ln 2 - 428 ln 2. Consequently, DES admitted the obvious: regulating TN would not materially affect eelgrass restoration in the Lamprey or any other tidal river, because natural conditions control tidal river transparency.

Q.[Do the] [d]ata or analyses that show [if] you control nitrogen, you're going to fix that transparency problem, transparency issue in the Lamprey River? **A.** The answer is I don't believe so. It's the same issue as the Squamscott. (AR D.4.i.4 at 432 ln 2 - 433 ln 1).

At the depositions, DES concocted the theory (presented in the Burack letter) that the eelgrass loss "must be due to TN" since it is the only factor that DES "believes" has changed.²⁹ AR D.4.i.4 at 407 ln19 - 410 ln 22, 425 ln 8 - 428 ln 2. However, this new theory has no credible basis in fact and is obviously incorrect. The current transparency is poor, unrelated to TN influences, as well documented by various studies and admitted by DES under oath. The Burack letter also acknowledged these facts but, like EPA, DES was anxious to ignore the facts and

²⁸ EPA's claim that it was operating at the "frontiers of scientific knowledge." (Resp. at 55) is unsupported. The science on what affects transparency in the Great Bay system was complete; EPA just didn't report it.

²⁹ Assuming transparency was better in the 1960's, it is apparent that the degree of color entering the system must have changed over time, as color now controls transparency in the tidal rivers.

regulate the usual suspects. Resp. at 62, 94. That does not make the position scientifically defensible; it makes the action arbitrary and capricious.

In summary, it is clear that (1) transparency is now too poor in the tidal rivers to allow eelgrass growth, (2) the condition is natural, and (3) no amount of TN regulation will change that fact or allow eelgrass to be restored. EPA's assertion that DES never admitted "TN had not caused any changes or that the 2009 correlations were unsubstantiated" (Resp. at 67) is not just unsupported, it is demonstrably incorrect. Moreover, it is also apparent that EPA's selected approach cannot achieve eelgrass restoration and is therefore not "protective" – assuming such restoration is possible.³⁰ EPA's actions are based on clear factual error.

f. The Undisputed Facts Confirm Clear Error

The depositions confirm that EPA's assertions regarding its "proof" of narrative criteria violations, cultural eutrophication and the need for stringent TN control are the result of a four year effort of deception and record manipulation. There is not now nor has there ever been excessive algal growth in this system, impairing transparency and causing the demise of eelgrass. Regulating nitrogen is unsupported. EPA's position to the contrary is pure fabrication, as the sworn testimony of the DES officials that developed the analyses confirms. *See supra* note 25; Chapra Affidavit. EPA's failure to reveal to the public and peer review the results of prior analyses confirming the "nitrogen: algal increase: transparency decrease conceptual model" was inapplicable to this system (1) requires the Board to consider the depositions (and related

³⁰ Citations to *Upper Blackstone* do not change these facts which govern the need to control nutrients pursuant to the states narrative standard. In *Upper Blackstone*, both the Board and the First Circuit noted the well documented impacts of excessive algal growth on that system: fish kills, extreme algal blooms, low DO caused by the algal blooms. 690 F.3d at 12. In this case, the opposite holds true; there is no excessive algal growth impacting eelgrass, no decline in system transparency due to nutrients, and no low DO due to algal growth. *See supra* note 25.

exhibits) to be part of the record on review³¹ and (2) renders EPA's permit action "clear error" for a host of factual and legal reasons. *Home Box Office, supra* at 17; *Texas Oil & Gas Ass'n, supra*, note 11 .

5. Peer Review Did Not Address the Coalition's Issues

Petitioners raised a series of procedural and substantive arguments regarding the validity of using the peer review/other DES documents (*see e.g.*, 2012 CALM response) as a basis to respond to the scientific errors identified in the comments. Br. Sec. IV. In response, EPA simply asserted that (1) the peer review/DES documents were valid for refuting all claims of inadequate science, (2) Petitioners didn't explain what fundamental errors/data omissions were made, (3) the CWA does not require citizen involvement in such reviews and, in any event, (4) EPA does not have to assess the technical validity of those decisions "where the state has considered and addressed the issue". Resp.at 75 and 84.³² EPA's conclusory response confirmed Petitioners assertion that the June 2010 peer review was considered the final word on the science, rendering the 2011 permit comment period a shell proceeding. Resp. at 85-86. EPA never demonstrated that any of the state's documents considered the type of technical objections raised by the Coalition (*i.e.*, the method used was flawed because disparate environmental settings were assessed in the same analysis, confounding factors were not considered and prior assessments were excluded from the review).³³ EPA simply assumes these issues were covered.

³¹ *Ass'n of Pac. Fisheries v. Envtl. Prot. Agency*, 615 F.2d 794, 811-812 (9th Cir. 1980) (As these records confirmed that EPA ignored the relevant information and "proceed[ed] upon assumptions that were entirely fictional or utterly without scientific support" a supplement is permissible.).

³² EPA's claim that the fundamental errors were not demonstrated completely ignores the written comments, oral testimony, and slides contained within the Newmarket presentation. AR N.32 slide 13, 33; *see* AR N.59 slide 13.

³³ EPA is asserting that any scientific conclusion stated by DES is taken as Gospel. That is precisely what the CWA does not allow: 40 C.F.R. § 131.11; *see also Natural Res. Def. Council v. Envtl. Prot. Agency*, 16 F.3d 1395, 1398 (4th Cir. Va. 1993) ("The court agrees with EPA that its duty, under the CWA and the accompanying regulations, is to ensure that the underlying criteria which are used as the basis of a particular state's water quality standard, are scientifically defensible . . ."); *Chem. Mfrs. Ass'n v. Envtl. Prot. Agency*, 28 F.3d 1259, 1265 (D.C. Cir. 1994) (stating, when challenged, EPA must provide a "full analytical defense of its model" and show "there is a rational

As noted by the Coalition, CWA § 101(e) plainly requires EPA to promote public participation in water quality standards revision as does the applicable WQS regulations. Br at 46 n.51, see *Citizens for a Better Env't v. Env'tl. Prot. Agency*, 596 F. 2d 720 (9th Cir. 1979). EPA's purposeful exclusion of public input from the peer review process and subsequent claim that the peer review adequately answered all subsequent issues raised in the permit process (Resp. at 74-75) plainly denies due process and violates the Act. A three-year old, highly restricted peer review, cannot possibly address all of the technical deficiencies Petitioners raised from December 2011 to August 2012. In any event, the sufficiency of the peer review to address the public comments would need to be demonstrated with particularity, not by conclusory statements of counsel.³⁴ EPA's actions were clear error.

The main point repeatedly raised by the Coalition was that the 2009 stressor-response assessment developed by DES was facially deficient because it failed to assess the other confounding and co-varying factors that could explain, independent of nutrients, why DO and transparency varied as it did. AR C.2 at 17. DES admitted under oath that no such "confounding factors" analysis had ever occurred. AR D.4.i.4 at 438 ln 16- 439 ln 10. The 2010 SAB review and EPA's subsequently issued Stressor Response Guidance document expressly state that these procedures may only be used where sufficient data are available to assess confounding factors.³⁵ Thus, by DES's admission, and the complete absence of a "confounding factors" analysis in the

relationship between the model and the known behavior of the ...pollutant to which it is applied."); *Columbia Falls Aluminum v. Env'tl. Prot. Agency*, 139 F. 3d 914, 923 (D.C. Cir 1998) (EPA "retains the duty to examine key assumptions as part of its affirmative burden of promulgating a non-arbitrary, non-capricious rule.").

³⁴ *Baltimore Gas & Elec. Co. v. U.S.*, 871 F.2d 108, 116 (D.C. Cir. 1987) ("The failure to respond to comments is significant only insofar as it demonstrates that the agency's decision was not 'based on a consideration of the relevant factors.' Under the 'arbitrary and capricious' standard of review, an agency is thus required to respond to significant comments that cast doubt on the reasonable of the rule the agency adopts.") (internal citations omitted).

³⁵ EPA's Stressor-Response Guidance document specified that the methods would only be considered sufficient if data are available on "causal variables, response variables and confounding factors." AR M.4 at 4. Consequently, EPA notes that "many confounding factors must be considered when estimating the effects of nitrogen/phosphorus on a measure of aquatic life in streams..." AR M.4 at 11. Absent such information, a "scientifically defensible" relationship generally cannot be developed.

administrative record, EPA's claims regarding the reliability of the stressor-response evaluation used to generate the 2009 criteria have no support. AR D.4.i.4 at 438 In 11 439 In 4, 10, Chapra Affidavit. While EPA's response feigned confusion on this issue (Resp. at 56-57), EPA Region I was fully aware of what the concern was:

The SAB stated that purported stressor-response relationships based on statistical associations are not sufficient to prove cause and effect *unless supplemented by additional analyses, such as multiple regressions or classification to eliminate the effects of potentially confounding, or co-varying variables*. In addition the SAB emphasized that the strength of the stressor-response relationship and levels of uncertainty should be quantified. Hall and Gallagher emphasize these points in their review of the Great Bay nutrient criteria.³⁶

Thus, EPA was fully aware that the available analyses confirmed that (1) the wrong conceptual model was being used and (2) a confounding/covarying analysis was never completed.

Consequently, EPA's reliance on the 2009 Criteria document in the decision making process and failure to check the reasonableness of key assumptions was clear error.³⁷

III. Legal Issues

1. "Cause and Effect" and Reliance on Only "Scientifically Defensible Information" are a Bedrock CWA Principles in Criteria Derivation and Permit Issuance

In response to Petitioners argument that the nutrient endpoints used to set the numeric criteria were not "scientifically defensible" because they are admittedly not based on a "cause and effect" relationship in this system, EPA raises a new defense: the CWA and implementing regulations do not require "cause and effect" or the use of scientifically defensible information.

³⁶ The Liebman analysis also noted deficiencies in the confounding factors analysis – the analysis was not sufficient for algal growth, transparency or DO. AR H.72 at 3-5. It should be noted that DES never made any of the Region's "suggested improvements", the parties simply pretended no improvements were necessary. There is no other "independent assessment." Peschel Affidavit.

³⁷ EPA claims that since DES used the term "weight of evidence" the 2009 document is therefore reliable. Resp. at 22, 25, 54. This is specious. The EPA's argument regarding the use of the term "weight of evidence" is similar to the following analogy: DNA evidence is considered reliable when properly collected and properly analyzed. Therefore, since courts have already ruled DNA evidence to be reliable in certain circumstances, it is reliable in all circumstances by invoking the moniker "DNA evidence." Obviously just invoking a term of art does not make an analysis reliable or subject to judicial deference, one has to show the analysis was done properly. EPA never does.

Resp. at 41-45. EPA, per usual, cites to no case or guidance document that ever made such a claim, because there is none. EPA's position is clear error. The CWA is a "science-based" statute that requires the establishment of criteria "accurately reflecting the latest scientific information" regarding "...the effects of pollutants on biological community diversity, productivity and stability..." Section 304(a)(1); *accord*, 40 C.F.R. § 131.3(c) (criteria developed by EPA are based on "the effect of a constituent on a particular aquatic species"). No criteria (including a narrative criteria interpretation) can be approved unless it is "based on a sound scientific rationale". *Id.* § 131.11 (a). Likewise, the effluent limit generated to meet the "applicable standard" must be demonstrated to be "necessary" and "which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria". *Id.* § 122.44(d), *passim*. Obviously compliance with the statute and applicable regulations requires an objective scientific assessment to show that the selected approach is both "necessary" and "sufficient" to achieve criteria compliance. *Supra*, note 34.

Given the language of the Act and the implementing regulations, it is not surprising that courts have determined "that neither the language of the Act nor the intent of Congress appears to contemplate liability without causation." *Nat'l Metal Finishers Ass'n*, 719 F.2d. at 640; *Ark. Poul. Fed. v. Env'tl. Prot. Agency*, 852 F. 2d 324, 328 (8th Cir. 1988) (stating the discharge must at least be "a cause" of the violation). In the TMDL context, nutrient wasteload allocations must be based on a documented "cause and effect" relationship using appropriate models:

An integral part of the TMDL process is the analysis of cause-effect relationships via a mathematical model of loading input and resulting water quality response.³⁸

Even EPA's response admits that NPDES permits must be based on "all available *scientific* information." Resp. at 47 (emphasis added). It would seem obvious but, if the information is not

³⁸ Technical Guidance Manual for Developing Total Maximum Daily Loads Book 2: Rivers and Streams; Part 1: Biochemical Oxygen Demand/ Dissolved Oxygen and Nutrients/ Eutrophication USEPA March 1997 at 4-27.

“reliable”, it does not meet the definition of “scientific.”³⁹ In assessing the reasonableness of the proposed 2009 Criteria, even EPA Region I (Mr. Liebman) noted: “I reviewed the Great Bay nutrient criteria to determine whether the authors...provided enough information to establish a *scientifically defensible cause and effect relationship.*” AR H.72 @ 1; Peschel Affidavit (confirming no other “independent” EPA analyses exist). EPA’s response admits that all estuaries are “unique” (Resp. at 13) and that “it is impossible to recommend a single national criteria.” Resp. at 20. Therefore, this cause and response relationship must be confirmed on a case-by-case basis, not simply by using “causal and response variables known to exist in nature.” Resp. at 14.⁴⁰

On its face, § 122.44(d) itself indicates that more restrictive limits only apply if the discharge “causes” a water quality criteria excursion.⁴¹ The *Upper Blackstone* decisions repeatedly refer to the fact that nutrients were demonstrated to be “causing” extensive “cultural eutrophication” as the basis for imposing more restrictive limitations.

Both the MERL model and the field measurements demonstrated that as nitrogen loadings increase, dissolved oxygen decreases and chlorophyll *a* increases, with both becoming less stable and subject to greater swings at higher levels of nitrogen. The EPA concluded that the basic causal relationship demonstrated in the MERL experiments “corresponds to what is actually occurring in the Providence/Seekonk River system.” (690 F.3d at 25-26).⁴²

³⁹ Webster’s Dictionary defines a “scientific method” as “a method of research in which a problem is identified, relevant data are gathered, a hypothesis is formulated from these data, and the hypothesis is empirically tested.”

⁴⁰The Agency’s guidance on nutrient criteria development broadly discusses the need to address how causal (nutrients) and response (algal growth) is documented for particular water bodies. *See e.g.*, M.12. This means a case-specific cause and effect relationship must be developed for the estuary.

⁴¹ The “or contributes” language means it is contributing to the “cause” of the violation.

⁴² *Upper Blackstone*, 690 F.3d at 11 (“An influx of nitrogen and phosphorus from sewage treatment plants *is causing serious problems* for the River’s waters and those downstream. The Blackstone, Seekonk, and Providence Rivers, and Narragansett Bay, all suffer from severe cultural eutrophication.”), at 14 (“State water quality standards generally supplement these effluent limitations, so that where one or more point source dischargers, otherwise compliant with federal conditions, are nonetheless *causing a violation of state water quality standards*, they may be further regulated to alleviate the water quality violation. [30 U.S.C.] § 1311(b)(1)(C) ...”) (emphasis added).

Because the prior data assessments could not show this “causal relationship”, EPA’s convenient recommendation is to ignore this bedrock requirements of the Act. This “post hoc rationalization” is clear error. Likewise, EPA’s claim that it may render narrative criteria interpretation decisions on information that does not meet the “scientifically defensible” standard to show causation exists or that it may ignore the site-specific assessments that confirm such causation does not exist, is equally misplaced.

2. EPA’s Interpretation of 40 C.F.R. § 122.44(d) Implementation is Misplaced

EPA asserts that Petitioner’s understanding of how § 122.44(d) operates is in error. Resp at 43. EPA asserts that it may use the procedures identified in § 122.44(d)(1)(vi) to not only develop an effluent limitation, but also to declare that a narrative violation exists. *Id.* EPA claims that *Upper Blackstone* supports this interpretation of the rule. EPA’s arguments are unsupported by the referenced cases, the language of the rule, and are contrary to the structure of the Act.

Contrary to EPA’s assertion, the *Upper Blackstone* decision nowhere supports EPA’s (re)interpretation of § 122.44(d). A created numeric value cannot be used to determine that narrative criteria (which describe desired physical or biological conditions in the water body) are being violated. The Rhode Island narrative criteria at issue in *Upper Blackstone* also was based on preventing “cultural eutrophication” as evidenced by nutrients causing excessive algal growth, low DO and related effects. In that case, the court first looked to see if the effects of “cultural eutrophication” existed and were documented to be caused by nutrients:

An influx of nitrogen and phosphorus from sewage treatment plants is causing serious problems for the River’s waters and those downstream. The Blackstone, Seekonk, and Providence Rivers, and Narragansett Bay, *all suffer from severe cultural eutrophication.* (690 F.3d at 11)... Here, the EPA states, and the record reflects, that the MERL *model demonstrated the relationship between nitrogen loading, dissolved oxygen, and chlorophyll a production* for a range of loading

scenarios *in a water environment similar to the Bay's*. (*Id.* at 27). Subsequently, in order to address the severe and ongoing phosphorus-driven cultural eutrophication in the Blackstone River, the EPA incorporated a more stringent phosphorus limit into the 2008 permit. In formulating this limit, the EPA considered the national and regional guidance criteria and recommended values it had recently published. (*Id.* at 31) (Emphasis added).

Thus *after* “cultural eutrophication” was adequately documented, and the nutrient cause verified, the court *then* determined that EPA’s derivation of permit limits using the methods described in Section (vi) was acceptable, not that EPA could claim cultural eutrophication existed based on Section (vi) methods. Under EPA’s approach, the Agency may equate “cultural eutrophication” (the condition intended to be regulated under the adopted narrative criteria) with a numeric value and may conclude more restrictive limits are “necessary” *even if the water body is not exhibiting signs of cultural eutrophication*. However, the NPDES regulation were designed to implement the narrative standard as closely as possible with the state’s intent – not to substitute a new numeric value in place of it.⁴³ Br. at 44.

The structure of the rule and “relevant” preamble discussion⁴⁴ confirms this approach. Under §122.44(d)(1)(ii), the permit writer first determines if “a discharge... causes or contributes to an instream excursion”. In the case of a narrative standard one looks to see if the characteristics that are intended to be prevented are evidenced in the waters (*i.e.*, cultural eutrophication causing some type of system imbalance). If it is determined that an excursion is

⁴³ See *e.g.*, *Am. Paper Inst. v. Env'tl. Prot. Agency*, 996 F.2d 346, 351 (D.C. Cir. 1993) (“Of course, that does not mean that the language of a narrative criterion does not cabin the permit writer's authority at all; rather, it is an acknowledgement that the writer will have to engage in some kind of interpretation to determine what chemical-specific numeric criteria--and thus what effluent limitations--are most consistent with the state's intent as evinced in its generic standard.”).

⁴⁴ EPA cites to preamble indicating that one does not need to wait for impairment to trigger the application of a more restrictive limit under § 122.44(d). That is true, but irrelevant. One may project a violation of a narrative standard (*i.e.*, that “cultural eutrophication” is predicted to occur in the future) if adequate modeling or other reliable predictive capabilities are available, considering the physical parameters of the system. This would restrict future load increases. However, in this instance, EPA is dramatically lowering the existing load to the system, claiming that it is currently far too high. In that case, EPA should be able to readily identify the existing cultural eutrophication and identify, with a reasonable scientific certainty, how nitrogen caused the excessive plant growth to occur. The fact that EPA is desperately trying to avoid this demonstration confirms that they are unable to do it.

occurring (or likely to occur) then, and only then, under §122.44(d)(1)(iii) “the permitting authority must establish effluent limits using one or more of the following methods...” The structure of the rule is clear, the methods for picking an protective instream level are only used to set the effluent limits, not to decide that the waters are in violation of the narrative standard. The 1989 preamble discussion confirmed this sequence:

Subparagraph (i) should assist the permitting authority in determining whether it is necessary, under Federal regulations, to establish limits for a pollutant. *Note, however, this is different from calculating water quality-based effluent limits. ...Proposed subparagraph (iv) addresses the situation in which...the permitting authority does not have a numeric criteria to use in deriving a water quality-based limit.*” 54 Fed. Reg. 1303, 1304 (Jan. 12, 1989) (emphasis added).

As is clear from these quotes, §122.44(d)(1)(vi) (original § 122.44 (d)(1)(iv)) is used to set the permit limits *after the excursion (violation) is identified*, not to declare the waters in exceedance (violation) of a state’s narrative standard in this permit. Any other approach would turn the structure of the Act on its head.⁴⁵ EPA is not implementing the adopted narrative standard, EPA is replacing it with a new numeric standard as if it was the adopted standard. That plainly violates the Alaska Rule and 40 C.F.R. § 131.21, as well as, Section 303(c) of the Act. Br. at 8, 46. Contrary to EPA’s position, *Upper Blackstone* did not ratify that procedure. EPA is simply jumping over the requirement to confirm a narrative criteria violation exists by claiming that exceeding a specific nutrient concentration constitutes a narrative criteria violation, regardless of whether or not nutrients are actually causing excessive plant growth or DO violations. That is clear error.⁴⁶

⁴⁵Under EPA’s approach, a state could determine that an area is not exhibiting “cultural eutrophication” and therefore, not place the water on the § 303(d) list, regardless of the nutrient concentration present. However, when it comes time for permitting, EPA substitutes its chosen numeric criteria for the narrative standard and determines that a more restrictive limit is needed to meet the narrative criteria, contrary to the § 303(d) determination.

⁴⁶ EPA’s latest position is a major reinterpretation of 40 C.F.R. § 122.44(d), without rulemaking and contrary to the structure of the Act. It is thus, therefore, patently illegal and may not be applied in this instance. *Amer. Mining Congress v. Mine Safety & Health Admin.*, 995 F.2d 1106, 1111 (D.C. Cir. 1993) (“... any agency statement not subjected to notice-and-comment rulemaking will be more vulnerable to attack not only in court but also within the

3. EPA has Acknowledged Clear Error by Not Refuting Facts and Arguments

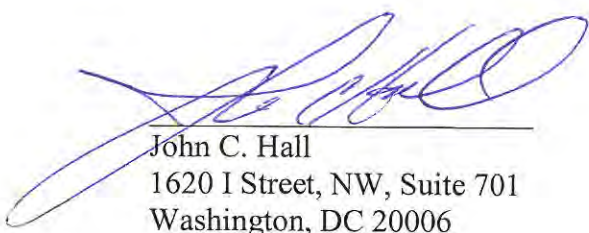
A significant number of critical facts and argument were never refuted in EPA's main brief. These issues should be deemed admitted. *Supra*, note 5. In particular, EPA did not contest that the FOIA responses confirmed over two dozen critical factual assertions made in EPA's Fact Sheet regarding the Lamprey and Squamscott Rivers are unsupported. Br.at 10, 24. In addition, the facts alleged on Brief pages 11,19-20, 26, were also not contested. Finally, EPA never responded to the argument that the wrong form of pollutant was being regulated (Br. 79-80) or that nitrate is not at a toxic level. Br. at 77-79. EPA's Appendix A at 34-36, conceded EPA was not claiming eelgrass suffered impairment from nitrate toxicity. Consequently, these uncontested facts and arguments confirm the Agency's decision to impose stringent TN limitations is both unnecessary and unsupported, and therefore, clear error.

This petition for review should be granted.

Respectfully submitted,

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Mar 1, 2013



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agency itself."); *U.S. Telecom. Ass'n v. Fed. Commc'ns Comm'n*, 400 F.3d 29, 35 (D.C. Cir. 2005) ('a substantive change in the regulation,' requires notice and comment) (quoting *Shalala v. Guernsey Mem'l Hosp.*, 514 U.S. 87, 100 (1995)).

CERTIFICATION OF SERVICE

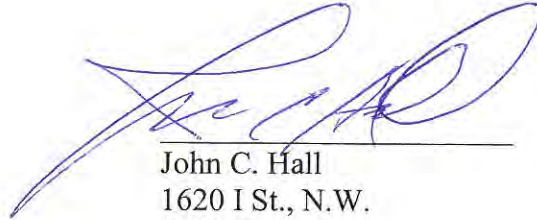
I hereby certify the copies the Petitioner's Reply to EPA Region 1's Memorandum in Opposition to the Petition for Review in connection with NPDES Appeal No. 12-5, were sent to the following persons in the manner indicated:

By Electronic Filing:

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