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

In the Matter of:	
Town of Newmarket Wastewater Treatment Plant	
NPDES Permit No. NH0100196	NPDES Appeal No. 12-05

RESPONDENT REGION 1'S MEMORANDUM IN OPPOSITION TO THE PETITION FOR REVIEW

Respectfully submitted,

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TABLE OF CONTENTS

TABLE OF AUTHORITIES

Federal Cases

Environmental Appeals Board cases

Statutes

Regulations

Federal Register Notices

EXHIBIT LIST

Exhibit No.	Admin. Rec. No.	Name
1	B.1	Response to Comments, dated November 15, 2012
2	A.8	Fact Sheet, dated September 26, 2011
3	M.28	EPA's NPDES Permit Writers' Manual (2010)
4	N.41 & N.42	N.H. Rev. Stat. Ann. 485-A and Env-Wq 1700
5	A.12	Previous NPDES Permit, dated April 27, 2000
6	A.7	Draft NPDES Permit, dated October 5, 2011
7	H.20	Letter from Nancy K. Stoner, EPA, to John C. Hall, Hall & Associates, dated September 27, 2012
8	F.1	NHDES Section 401 Water Quality Certification, dated November 5, 2011
9	M.12	EPA's *Nutrient Criteria Technical Guidance Manual: Estuarine and Coastal Marine Waters* (2001)
10	L.3	NOAA's *Effects of Nutrient Enrichment In the Nation's Estuaries: A Decade of Change* (2007)
11	M.4	EPA's *Using Stressor-Response Relationships to Derive Numeric Criteria* (2010)
12	N.33	Timeline of 2008 NH 303(d) List and Great Bay Nutrient Criteria Development
13	H.70	Charge Questions for Boynton and Howarth Peer Reviews (April 2010)
14	M.20	Howarth Peer Review, dated June 2, 2010
15	M.1	Boynton Peer Review, date May 29, 2010
16	H.71	E-mail from Alfred Basile, EPA, to Philip Trowbridge, Paul Currier, and Greg Comstock, NHDES, dated November 25, 2008

16A	H.72	E-mail from Matt Liebman, EPA, to Alfred Basile, Phil Colarusso, David Pincumbe, and Jean Brochi, EPA, dated November 21, 2008
17	L.21	Massachusetts Estuaries Project's *Site-Specific Nitrogen Thresholds for Southeastern Massachusetts Embayments: Critical Indicators Interim Report* (2003)
18	K.17	New Hampshire Estuaries Project's 2006 *State of the Estuaries* (2006)
19	K.26	Piscataqua Region Estuaries Partnership's *2009 State of the Estuaries* (2009)
20	L.29	NOAA's *Estuarine Eutrophic Survey. Volume 3: North Atlantic Region* (1997)
21	L.30	NOAA's *National Estuarine Eutrophication Assessment: Effects of Nutrient Enrichment in the Nation's Estuaries* (1999)
22	M.21	EPA Review of *NHDES Numeric Nutrient Criteria for the Great Bay Estuary*, dated September 1, 2010
23	--	Intentionally Blank
24	M.31	Memo from Nancy K. Stoner, EPA, "Working in Partnership with States to Address Phosphorus and Nitrogen Pollution through Use of a Framework for State Nutrient Reductions," dated March 16, 2011
25	K.18	New Hampshire Estuaries Project's *Total Nitrogen Concentrations in Wastewater Treatment Plant Effluent in the Great Bay Estuary Watershed in 2008* (2008)
26	J.9	NHDES's Final 2010 Section 303(d) Surface Water Quality List Submitted to EPA
27	J.19	NHDES's Amendment to the New Hampshire 2008 Section 303(d) List Related to Nitrogen and Eelgrass in the Great Bay Estuary

28	K.13	NHDES's *Draft Analysis of Nitrogen Loading Reductions for Wastewater Treatment Facilities and Non-Point Sources in the Great Bay Estuary Watershed* (2010)
29	H.13	Valiela and Kinney Review of *NHDES Numeric Nutrient Criteria for the Great Bay Estuary*, dated July 28, 2011
30	C.8	Dr. William H. McDowell, UNH and Michelle L. Daley, UNH Comments on Draft Permit, dated December 14, 2011
31	C.9	Dr. Fred Short, UNH Comments on Draft Permit, dated December 15, 2011
32	H.43	Letter from NHDES Commissioner Thomas Burack, dated October 19, 2012, to Mayor Thomas J. Jean, City of Rocheseter, *et al*.
33	N.37	State of New Hampshire's Motion for Summary Judgment and Memorandum of Law in Support of Motion for Summary Judgment in *City of Dover, v New Hampshire Department of Environmental Services*, Docket No. 217-2012-CV-00212, dated August 15, 2012
34	A.1	Final NPDES Permit, dated November 16, 2012
35	H.35	Great Bay Municipal Coalition's Adaptive Management Plan
36	K.22	Piscataqua Region Estuaries Partnership's Draft Environmental Data Report, dated July 16, 2012
37	J.2	NHDES's Response to Public Comment on the Draft 2012 Consolidated Assessment and Listing Methodology, dated April 20, 2012
38	H.22	Dr. Arthur Mathieson, UNH, Comments on 303(d) List, dated May 21, 2012
39	H.69	Memorandum of Agreement Between the Great Bay Municipal Coalition and the NHDES (2011)

40	H.73	Letter from NHDES Commissioner Thomas Burack Letter to the Town of Newington Chairs Board of Selectmen and Conservation Commissioner, dated June 8, 2011
41	H.74	Letter from NHDES Commissioner Thomas Burack to CLF, Great Bay Trout Unlimited and N.H. Coastal Protection Partnership, dated June 8, 2011
42	K.13	NHDES's *Draft Analysis of Nitrogen Loading Reductions for Wastewater Treatment Facilities and Non-Point Sources in the Great Bay Estuary Watershed (Appendix C)* (2010)
43	K.14	NHDES's 2009 *Numeric Nutrient Criteria for the Great Bay Estuary* (2009)
44	J.12	NHDES's Methodology and Assessment Results Related to Eelgrass and Nitrogen in the Great Bay Estuary for Compliance with Water Quality Standards for the New Hampshire 2008 Section 303(d) List
45	J.4	New Hampshire's 2012 Section 305(b)/303(d) List – Technical Support Document – Assessments of Aquatic Life Use Support in the Great Bay Estuary for Chlorophyll-a, Dissolved Oxygen, Water Clarity, Eelgrass Habitat, and Nitrogen
46	K.11	Morrison, *et al's Using Moored Arrays and Hyperspectral Aerial Imagery to Develop Nutrient Criteria for New Hampshire's Estuaries. A Final Report to the New Hampshire Estuaries Project* (2008)
47	H.37	Phone Log of Conversation Between Dan Arsenault, EPA, with Dr. Fred Short, dated November 14, 2011
48	H.38	Phone Log of Conversation Between Dan Arsenault, EPA, and Dr. Fred Short, dated November 18, 2011
49	K.12	Nettleton, *et al*'s, *Tracking environmental trends in the Great Bay Estuarine System through*

		comparisons of historical and present-day green and red algal community structure and nutrient content (2011)
50	K.27	Piscataqua Region Estuaries Partnership's *Environmental Indicators Report 2009*
51	M.26	EPA's *Technical Support Document for Water Quality-Based Toxics Control* (1991)
52	M.23	EPA's Science Advisory Board's Review of Empirical Approaches for Nutrient Criteria Derivation (2010)

I. STATEMENT OF THE CASE

"The CWA is strong medicine," *City of Abilene v. U.S. EPA*, 325 F.3d 657, 664 (5th Cir. 2003) (quoting *Texas Mun. Power Agency v. Adm'r of EPA*, 836 F.2d 1482, 1488 (5th Cir. 1988)). The Clean Water Act, 33 U.S.C. §§ 1251-1387, prohibits the "discharge of pollutants" from a "point source" into the waters of the United States unless that discharge complies with other provisions of the Act. 33 U.S.C. §§ 1311(a); 1362(7), (12). Among those provisions is CWA Section 402, under which discharges may be authorized by a National Pollutant Discharge Elimination System ("NPDES") permit issued by the United States Environmental Protection Agency ("EPA"). 33 U.S.C. § 1342(a).

The Great Bay Estuary, and the network of tidal rivers that feeds it, is New Hampshire's most important aquatic resource and is an estuary of national significance under the National Estuary Program ("NEP"), 33 U.S.C. § 1330. The Petition for Review challenges the NPDES permit issued by Region 1 of the EPA ("EPA") to the Town of Newmarket ("Town" or "Permittee") to regulate nitrogen effluent discharges from that municipality's publicly owned treatment works ("Newmarket Treatment Plant") into the Lamprey River, which is the largest tidal tributary to Great Bay proper.[1]

In the scientific judgment of federal and state agencies, and leading academic experts in the field of estuarine science, the Great Bay Estuary is in the midst of an environmental decline

[1] The Great Bay Estuary consists of: the Piscataqua River and its tributary tidal rivers, *i.e.*, the Salmon Falls, Cocheco and Great Works; Little Bay and its tributary tidal rivers, the Bellamy and Oyster; and Great Bay and its tributary tidal rivers, the Lamprey, Squamscott and Winnicut. The entire Great Bay Estuary covers approximately 17 square miles and consists of waters of varying depths, current and salinities. Great Bay proper covers approximately 9 square miles, about 50 percent of the entire estuary. EPA uses the term "Great Bay Estuary" when identifying the estuary as a whole, and "Great Bay proper" when referring to that more limited geographic segment. Ex. 1 at 4 n.4 (Response to Comments ("RTC")) (AR B.1).

due to nitrogen-induced cultural eutrophication—the "process by which a water body suffocates from receiving more nutrients than it can assimilate." *In re City of Marlborough*, 12 E.A.D. 235, 237 (EAB 2005). Peer-reviewed scientific studies, site-specific analyses, and water quality monitoring conducted over the past twenty years at first foretold the threats posed by nitrogen over-enrichment to the Great Bay Estuary, and then increasingly revealed the anticipated impacts of cultural eutrophication, including increased algal growth, water clarity decline, eelgrass loss, and dissolved oxygen impairments in the estuary's tidal rivers. The State of New Hampshire has included the Lamprey River on its 2010 CWA § 303(d), 33 U.S.C. § 1313(d), list as impaired, identifying impairments of among other things, aquatic life use related to dissolved oxygen, chlorophyll-a and total nitrogen.

Despite the fact that portions of the Great Bay Estuary have reached their assimilative capacity for nitrogen, nearly 20 million gallons of wastewater, receiving little or no treatment for nitrogen removal, flow from wastewater treatment facilities ("WWTFs") to the Estuary every day.[2] The Newmarket Treatment Plant's previous NPDES permit was issued in 2000, and contains no nitrogen limit.

New Hampshire Surface Water Quality Regulations ("NH Standards") contain a narrative nutrient criterion that prohibits in-stream concentrations of nitrogen in Class B waters like the Lamprey River and Great Bay proper "that would impair any existing or designated uses, unless naturally occurring," and that requires discharges of nitrogen that "encourage cultural eutrophication" to be treated to remove nitrogen to the extent required to "ensure attainment and maintenance of water quality standards." Env-Wq 1703.14(b), (c). While the Great Bay Municipal Coalition ("Coalition") raises many legal, scientific and policy issues in

[2] Ex. 1 at 4 (RTC) (AR B.1).

its lengthy Petition, the resolution of this case pivots on only three: (1) when interpreting this narrative nutrient criterion, whether EPA rationally concluded that a numeric in-stream water quality target of 0.3 mg/l total nitrogen ("TN") was the necessary and appropriate level to fully protect designated uses, including eelgrass protection, in the receiving waters; (2) whether EPA rationally determined that nitrogen effluent discharges from the Newmarket Treatment Plant had a "reasonable potential to cause, or contribute" to an exceedance of that 0.3 mg/l in-stream target, and (3) whether EPA properly imposed a nitrogen effluent limitation of 3.0 mg/l on the basis that the limit was necessary to meet the State's narrative nutrient criterion and other applicable water quality standards under section 301(b)(1)(C) of the Act, 33 U.S.C. § 1311(b)(1)(C), and 40 C.F.R. § 122.44(d)(1).

The Coalition challenges these determinations through two principal lines of argument. First, the Coalition contends that EPA erred in deriving a protective numeric in-stream target of 0.3 mg/l TN to interpret the State's narrative nutrient criterion in the absence of a hydrodynamic model, controlled experiments or other scientific analyses that the Coalition believes are necessary to demonstrate cause and effect between nitrogen loading into the receiving waters and water quality impacts. Second, the Coalition asserts that EPA's calculation of the 0.3 mg/l TN in-stream target to interpret the narrative nutrient criterion, and its imposition of a nitrogen effluent limit of 3.0 mg/l to implement that criterion, were inconsistent with the intent of the State, thus rendering EPA's actions contrary to section 301(b)(1)(C) of the Act and 40 C.F.R. § 122.44(d)(1).

These arguments do not demonstrate any basis for Board review. EPA is not legally required under the Clean Water Act to meet the heightened cause-and-effect threshold articulated by the Coalition before imposing a water quality-based effluent limitation on a

pollutant. Rather, Section 301(b)(1)(C) and its implementing regulations obligate EPA to include effluent limitations as stringent as necessary to ensure compliance with state water quality standards whenever it finds that the discharge has a "reasonable potential to cause, or contribute to" a water quality standards excursion, and EPA may arrive at this determination based upon the best information reasonably available to it at the time of permit reissuance. *See* 40 C.F.R. § 122.44(d)(1)(i). Moreover, the record of this proceeding demonstrates that EPA's actions in first *interpreting* New Hampshire's narrative nutrient criterion (resulting in an in-stream total nitrogen target of 0.3 mg/l) and then *implementing* it (through the imposition of a nitrogen effluent limitation of 3.0 mg/l) were clearly—indeed explicitly—consistent with the State's intent, as well as applicable CWA requirements.

In the end, what remains is a technical difference of opinion between EPA and the Coalition over the precise numeric in-stream nitrogen threshold to protect designated uses—0.3 mg/l or the Coalition's suggested alternatives—and the degree of nitrogen effluent reductions from the Treatment Plant—3.0 mg/l or the Coalition's preferred alternative of 8.0 mg/l—necessary to implement New Hampshire's narrative nutrient criterion and comply with the Clean Water Act. In the face of unavoidable technical and scientific complexity and some measure of uncertainty, EPA in this case reasonably exercised its technical expertise and scientific judgment in light of relevant site-specific, peer-reviewed studies, reports and literature, to set a nitrogen effluent discharge limitation to address severe nutrient-induced water quality impairments in New Hampshire waters and meet water quality standards consistent with CWA § 301(b)(1)(C). In doing so, EPA articulated a rational methodology to guide it toward reasonable and protective permit limits. The Coalition has not carried its

burden of demonstrating grounds for review, and is unable to demonstrate error—much less clear or compelling error—of fact or law, or abuse of discretion, by EPA.

This Board should deny review.

II. BACKGROUND

A. Statutory and Regulatory Background

1. The Clean Water Act

Congress enacted the CWA, 33 U.S.C. §§ 1251-1387, "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a); *see also Rhode Island v. EPA*, 378 F.3d 19, 21 (1st Cir. 2004). To this end, the CWA prohibits any person from discharging any pollutant into the waters of the United States from any point source, except as authorized by the Act, which may include issuance of an NPDES permit. 33 U.S.C. §§ 1311(a), 1342(a). Under CWA section 402, EPA may issue NPDES permits for the discharge of pollutants from "point source[s]" if the permit conditions assure that the discharge complies with certain requirements, including those of sections 301 and 401 of the CWA, 33 U.S.C. §§ 1311, 1341.[3] NPDES permits are for fixed terms of no more than five years, 33 U.S.C. § 1342(b)(1)(B), and generally contain discharge limitations and establish related monitoring and reporting requirements. 33 U.S.C. § 1342(a)(1), (2).

The CWA also requires each State to adopt water quality standards for its waters. *See* 33 U.S.C. § 1313(a)-(c). Water quality standards consist of, *inter alia*: (1) designated "uses" of the water, such as propagation of fish, aquatic life, and wildlife, recreation and aesthetics; and (2) "criteria," expressed either in numeric or narrative form, which, *inter alia*, specify the amounts of various pollutants that may be present in those waters without impairing the

[3] The State of New Hampshire has not obtained NPDES program authorization, and therefore EPA's Region 1 office issues NPDES permits to point source dischargers in New Hampshire. *See Rhode Island*, 378 F.3d at 21.

designated uses. *See* 33 U.S.C. § 1313(c)(2)(A); *see also* 40 C.F.R. §§ 131.2, 131.3, 131.6, 131.10, 131.11. CWA regulations expressly authorize States to establish either numeric (quantitative) or narrative (qualitative) water quality criteria, or both. *See* 40 C.F.R. §§ 131.3(b), 131.11(b).

Section 301 of the CWA provides for two types of effluent limitations to be included in NPDES permits: "technology-based" limitations and "water quality-based" limitations. *See* 33 U.S.C. §§ 1311, 1313, 1314(b); 40 C.F.R. Parts 122, 125, 131. As a class, Publicly Owned Treatment Works ("POTWs") must meet performance-based requirements based on "secondary treatment." *See id.* § 1311(b)(1)(B). Secondary treatment-based effluent limitations are expressed in terms of five-day biochemical oxygen demand (BOD_5), total suspended solids (TSS) and pH. *See* 40 C.F.R. Part 133.

Water quality-based effluent limits are designed to ensure that state water quality standards are met regardless of technological and economic factors. *See Upper Blackstone Water Pollution Abatement Dist. v. U.S. EPA*, 690 F.3d 9, 33 (1st Cir. 2012); *U.S. Steel Corp. v. Train*, 556 F.2d 822, 838 (7th Cir. 1977). Section 301(b)(1)(C) requires that NPDES permits include effluent limits more stringent than technology-based limits whenever "necessary to meet water quality standards, treatment standards, or schedules of compliance, established pursuant to any State law or regulations…or any other Federal law or regulation, or required to implement any applicable water quality standard established pursuant to [the CWA]."[4] 33 U.S.C. § 1311(b)(1)(C); *see also* 40 C.F.R. § 122.4(d) (prohibiting issuance of an NPDES permit "[w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States.").

[4] Effluent limits are restrictions on the quantities, rates, and concentrations of pollutants that may be discharged from point sources. 33 U.S.C. § 1362(11).

NPDES permits must contain effluent limitations necessary to attain and maintain water quality standards, without consideration of the cost, availability or effectiveness of treatment technologies. *See Upper Blackstone*, 690 F.3d at 33; *U.S. Steel*, 556 F.2d at 838; *In re City of Moscow*, 10 E.A.D. 135, 168 (EAB 2001); *In re City of Fayetteville, Ark.*, 2 E.A.D. 594, 600-601 (CJO 1988) (Section 301(b)(1)(C) "requires unequivocal compliance with applicable water quality standards, and does not make any exceptions for cost or technological feasibility."). "Congress has vested in the Administrator [of EPA] broad discretion to establish conditions for NPDES permits" in order to achieve this statutory mandate. *Arkansas v. Oklahoma*, 503 U.S. 91, 105 (1992).

EPA's 1989 regulations lay out the process for the Agency to determine whether permit conditions are necessary to achieve state water quality standards and for the formulation of these conditions. *See* 40 C.F.R. § 122.44(d). They establish, among other things, methods for EPA to translate or interpret a State's narrative water quality criterion into numeric effluent limitations, since "EPA's legal obligation to ensure that NPDES permits meet all applicable water quality standards, including narrative criteria, cannot be set aside while a state develops [numeric] water quality standards." National Pollutant Discharge Elimination System; Surface Water Toxics Control Program; Final Rule, 54 Fed. Reg. 23,868, 23,877 (June 2, 1989).

Permit writers are first required to determine whether pollutants "are or may be discharged [from a point source] at a level which will cause, have the reasonable potential to cause, or contribute to an excursion" of the narrative or numeric criteria set forth in state water quality standards. *See* 40 C.F.R. § 122.44(d)(1)(i). EPA guidance directs that this "reasonable potential" analysis be based on "worst-case" conditions. *In re Washington Aqueduct Water Supply Syst.*, 11 E.A.D. 565, 584 (EAB 2004); *accord Am. Iron & Steel Inst. v. EPA*, 115 F.3d

979, 1001 (D.C. Cir. 1997) (discussing EPA's policy that reasonable potential analysis be based on the worst case scenario). If a discharge is found to cause, have the reasonable potential to cause, or contribute to an excursion of a state water quality criterion, then a permit *must* contain effluent limits as stringent as necessary to achieve state water quality standards. *See* 40 C.F.R. § 122.44(d)(1), (5) (providing in part that a permit must incorporate any more stringent limits required by CWA § 301(b)(1)(C)).

EPA in issuing an NPDES permit must, by necessity, translate existing narrative criteria into in-stream numeric concentrations when developing water quality-based effluent limitations. As explained by the District of Columbia Circuit:

> As long as narrative criteria are permissible…and must be enforced through limitations in particular permits, a permit writer will inevitably have some discretion in applying the criteria to a particular case. The general language of narrative criteria can only take the permit writer so far in her task. 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.

Am. Paper Inst., Inc. v. EPA, 996 F.2d 346, 351 (D.C. Cir. 1993) (citations omitted). The process of translating a narrative criterion is specifically governed by 40 C.F.R. § 122.44(d)(1)(vi), which implements Sections 301 and 402 of the Act. Subsection (A) of that provision mandates at the outset that in translating a state narrative criterion, EPA is to calculate a protective *numeric* concentration for the pollutant:

> Where a State has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits using one or more of the following options:
>
> > (A) Establish effluent limits *using a calculated numeric water quality criterion* [emphasis added] for the pollutant which the

> permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and will fully protect the designated use. Such a criterion may be derived using a proposed State criterion, or an explicit State policy or regulation interpreting its narrative water quality criterion, supplemented with other relevant information which may include: EPA's Water Quality Standards Handbook, October 1983, risk assessment data, exposure data, information about the pollutant from the Food and Drug Administration, and current EPA criteria documents[.]

See also Upper Blackstone, 690 F.3d at 23.

In establishing numeric permit limits to meet the in-stream criteria, EPA accounts for the concentration of a given pollutant in the effluent (discharge concentration); the percentage of effluent in the receiving water immediately downstream of the discharge under the critical low flow conditions identified in the state water quality standards (available dilution); and the concentration of pollutants upstream of the discharge (background) to determine how much the discharge can contribute such that the resulting mix downstream does not exceed the criterion. Ex. 3 at 6-20, 33 (NPDES Permit Writers Manual) (AR M.28). Where the discharge concentration exceeds the criterion, and there is no available dilution or remaining assimilative capacity in the receiving water for the pollutant, then the permit writer may establish the permit limit at the criteria level, to ensure the resulting discharge will not cause or contribute to an exceedance of the numeric criterion in-stream. *Id. at 6-19.*

2. Applicable State Water Quality Standards

Under NH Standards, surface waters are divided into water "use" classifications: Class A and B. RSA 485-A:8; Env-Wq 1702.11.[5] Great Bay proper and the Lamprey River are Class B waters and, as such, are designated as habitat for fish, other aquatic life and wildlife and for primary (*e.g.*, swimming) and secondary contact (*e.g.*, fishing and boating) recreation. RSA

[5] NH Standards are found in N.H. Rev. Stat. Ann. ("RSA") § 485-A and N.H. Code Admin. R. Ann. Env-Wq 1700 et seq. Ex. 4 (RSA 485-A and Env-Wq 1700) (AR N.41 and N. 42).

485-A:8, II. Waters in this classification "shall have no objectionable physical characteristics." *Id.* NH Standards also provide that the discharge of sewage or waste shall not "be inimical to aquatic life or to the maintenance of aquatic life in said receiving waters." *Id.* "All surface waters shall be restored to meet the water quality criteria for their designated classification including existing and designated uses, and to maintain the chemical, physical, and biological integrity of surface waters." Env-Wq 1703.01(b).

Class B waters are subject to narrative and/or numeric water quality criteria set forth in Env-Wq 1703.03 through 1703.32. A number of these criteria are relevant in circumstances where nitrogen is discharged, because of the potential effects of excessive nitrogen (discussed generally *infra* at Section III.A.3). Env-Wq 1703.14 provides a narrative water quality criterion for nutrients: Env-Wq 1703.14(b) prohibits in-stream concentrations of nitrogen in waters "that would impair any existing or designated uses," while Env-Wq 1703.14(c) requires existing discharges of nitrogen that "encourage cultural eutrophication" to be "treated to remove…nitrogen to ensure attainment and maintenance of water quality standards." Cultural eutrophication is defined as "human-induced addition of wastes containing nutrients to surface waters which result in excessive plant growth and/or a decrease in dissolved oxygen." *Id.* 1702.15.

Further, Class B waters must meet a dissolved oxygen ("DO") content of at least 75% saturation based on a daily average, and an instantaneous minimum DO concentration of at least 5 mg/l. *Id.*1703.07(b).

Class B waters are also prohibited from containing benthic deposits that have a detrimental effect on the benthic community, *id.* 1703.08(b), as well as from having slicks, odors, or surface floating solids, *id.* 1703.12(b), or color in concentrations, *id.* 1703.10(b), that

will impair any existing or designated uses, unless naturally occurring. Class B waters also shall not contain turbidity more than 10 NTUs (nephelometric turbidity units) above naturally occurring conditions. *Id.* 1703.11(b).

NH Standards additionally require that all surface waters meet certain general water quality criteria. *Id.* 1703.03. "All surface waters shall provide, wherever attainable, for the protection and propagation of fish, shellfish and wildlife, and for recreation in and on the surface waters." *Id.* 1703.01(c). Furthermore, all surface waters must be "free from substances in kind or quantity" that:

> a. Settle to form harmful deposits;
> b. Float as foam, debris, scum or other visible substances;
> c. Produce odor, color, taste or turbidity which is not naturally occurring and would render it unsuitable for its designated uses;
> d. Result in the dominance of nuisance species; or
> e. Interfere with recreational activities.

Id. 1703.03(c)(1). Finally, all surface waters "shall support and maintain a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region." *Id.* 1703.19(a). "Differences from naturally occurring conditions shall be limited to non-detrimental differences in community structure and function." *Id.* 1703.19(b).

NH Standards require water quality criteria to be met even during severe hydrological conditions, *i.e.*, periods of critical low flow when the receiving water is able to provide relatively little dilution of pollutants. "For tidal waters, the low flow condition shall be equivalent to the conditions that result in a dilution that is exceeded 99% of the time." *Id.* 1705.02(c).

III. FACTS AND PROCEDURE

A. Background

1. Ecological Setting: Great Bay; Lamprey River; Newmarket Treatment Plant[6]

Great Bay is one of only 28 "estuaries of national significance" under the National Estuary Program, which was established in 1987 by amendments to the Clean Water Act to identify, restore and protect estuaries along the coasts of the United States. The Great Bay Estuary is composed of a network of tidal rivers, inland bays, and coastal harbors covering 17 square miles and has 144 miles of tidal shoreline. The estuary extends inland from the mouth of the Piscataqua River between Kittery, Maine and New Castle, New Hampshire to Great Bay proper. Over forty New Hampshire communities are entirely or partially located within the Great Bay Estuary watershed. The estuary receives treated wastewater effluent from eighteen publicly owned treatment works (fourteen in New Hampshire and four in Maine).

The centerpieces of the estuary are Great Bay proper and Little Bay. Great Bay proper is a tidally-dominated, complex embayment near the New Hampshire-Maine border. It is a popular location for kayaking, birdwatching, commercial lobstering, recreational oyster harvesting, and sportfishing. The Lamprey River is one of three tidal rivers that discharge directly into Great Bay proper. The Lamprey River drains a watershed covering approximately 214 square miles, which includes the town of Newmarket.

The Lamprey River watershed receives nitrogen loading from two significant point sources (*i.e.*, the Newmarket and Epping wastewater treatment plants), "nonpoint" sources (*e.g.*, diffuse stormwater runoff and septic system leachate) and atmospheric deposition. Newmarket's 0.85 million gallons per day (MGD) Treatment Plant discharges treated

[6] The information in this section is drawn from Ex. 1 at 3 – 6 (RTC) (AR B.1.); Ex. 2 at 11 -12 (Fact Sheet) (AR A.8.).

wastewater effluent, including total nitrogen, into the tidal portion of the Lamprey River. The Epping treatment plant, a 0.5 MGD facility, discharges approximately 19 river miles upstream of the Newmarket Treatment Plant.

2. Estuarine Systems Generally[7]

Estuaries, especially large, productive ones like the Great Bay Estuary, are extremely significant aquatic resources. An estuary is a partially enclosed coastal body of water located between freshwater ecosystems (lakes, rivers, and streams; freshwater and coastal wetlands; and groundwater systems) and coastal shelf systems where freshwater from the land measurably dilutes saltwater from the ocean. This mixture of water types creates a unique transitional environment that is critical for the survival of many species of fish, birds, and other wildlife.

Maintaining water quality within an estuary is important for many reasons. Estuaries provide a variety of habitats, such as shallow open waters, freshwater and saltwater marshes, and seagrass beds. Many species of fish and shellfish rely on the sheltered waters of estuaries as protected places to spawn. Estuaries also provide a number of recreation values such as swimming, boating and fishing.

3. Effects of Nutrients on Estuarine Water Quality[8]

Estuarine nutrient dynamics are complex and are influenced by flushing time, freshwater inflow, and stratification, among other factors. Nutrient problems in estuaries generally stem from freshwater nitrogen (N) and phosphorus (P) loading on its way to the sea,

[7] The information in this section is drawn from Ex. 1 at 3 – 6 (RTC) (AR B.1); Ex. 2 at 11 – 15 (Fact Sheet) (AR A.8).

[8] The information in this section is drawn from Ex. 1 at 3 – 6 (RTC) (AR B.1); Ex. 2 at 12 - 15 (Fact Sheet) (AR A.8).

and by direct inputs within tidal systems. Waterborne pollutants, along with contaminated sediment, may remain in the estuary for a long time, magnifying their potential to adversely affect the estuary's plants and animals.

Eutrophication is an increase in the rate of supply of organic matter to a waterbody. Cultural eutrophication is "the human-induced addition of wastes containing nutrients to surface waters which result in excessive plant growth and/or a decrease in dissolved oxygen." Env-Wq 1702.15. In U.S. coastal waters, nutrient overenrichment is a common thread that ties together varied coastal problems such as red tides, fish kills, outbreaks of shellfish poisonings, loss of seagrass and bottom shellfish habitats, coral reef destruction, and hypoxia and anoxia.

Nitrogen inputs to a water body result in predictable consequences. The primary symptoms of nutrient overenrichment include an increase in the rate of plant growth, changes in algal dominance, and loss of water clarity and are followed by one or more secondary symptoms such as loss of submerged aquatic vegetation (*e.g.*, eelgrass), nuisance/toxic algal blooms, and low dissolved oxygen. Increased plant growth includes phytoplankton and larger algal species such as floating mats of macroalgae, including *Ulva* or sea lettuce. Phytoplankton are microscopic algae growing in the water column and are measured by chlorophyll-a. Macroalgae are large algae, commonly referred to as "seaweed."

The deleterious physical, chemical, and biological responses in surface water resulting from excessive plant growth can impair existing and designated uses, and for this reason nitrogen concentrations must remain below the in-stream levels that are necessary to protect those uses. Although a certain amount of phytoplankton and macroalgae are needed to support fish, excessive algal growth can lead to serious water quality impacts. For example,

high concentrations of phytoplankton may cloud the water and cause die-off of seagrasses and other submerged aquatic vegetation. Seagrasses, such as eelgrass (*Zostera marina*), are essential to estuarine ecology because they filter nutrients and suspended particles from the water column; stabilize sediments; provide food for wintering waterfowl; provide habitat for juvenile fish and shellfish; and are the basis of an important estuarine food web. Macroalgae growth can smother and kill seagrasses and bottom-dwelling organisms such as clams. In addition, episodes of low bottom water dissolved oxygen (*i.e.*, hypoxia or anoxia) may occur if algae sink to the bottom and deplete oxygen levels during decomposition. The phytoplankton community may shift to favor more toxic and nuisance species, or harmful algal blooms (red tides) that may also result in public health concerns.

Nutrient-driven impacts on aquatic life and habitat uses are felt throughout the eutrophic cycle of plant growth and decomposition. Excessive aquatic plant growth degrades aesthetic and recreational uses. Nutrient-laden plant detritus can settle to the bottom of a water body, where it will physically alter the benthic environment and aquatic habitat. In addition, nutrients in the sediments can become available for future uptake by aquatic plant growth, further perpetuating and potentially intensifying the eutrophic cycle.

When nutrients exceed the assimilative capacity of a water body, the ensuing eutrophic cycle can also negatively impact in-stream dissolved oxygen levels. Through respiration, and the decomposition of dead plant matter, excessive algae and plant growth can reduce in-stream dissolved oxygen concentrations to levels that could negatively impact aquatic life. Many aquatic insects, fish, and other organisms become stressed and may even die due to decreases in dissolved oxygen levels.

Excessive plant growth can result in a loss of diversity and other changes in the aquatic plant, invertebrate, and fish community structure and habitat. For example, elevated nitrogen concentrations can negatively affect seagrasses through direct toxicity by disrupting their normal physiology, leading to reduced growth, reduced disease resistance, and mortality. Losses of submerged aquatic vegetation (SAV), such as eelgrass, also occur when light is decreased due to turbid water associated with overgrowth of algae or as a result of epiphyte growth on leaves. When sunlight cannot reach SAV, photosynthesis decreases and eventually the plants die. The loss of SAV can have negative effects on the ecological functioning of an estuary and may impact some fisheries because the SAV beds serve as important habitat. Because SAV is sensitive to water quality changes, its health can be an indicator of the overall health of the coastal ecosystem.

Nutrient overenrichment of estuaries from human-based causes is now recognized as a national problem on the basis of Clean Water Act Section 305(b) reports from coastal States. Most of the nation's estuarine and coastal waters are moderately to severely polluted by excessive nutrients, especially nitrogen and phosphorus.

For all these reasons, EPA favors a pollution control approach that is both "protective" and "expeditious" to prevent further degradation of these critical natural resources.

B. Reissuance of the Newmarket Treatment Plant NPDES Permit

1. Procedural History

EPA issued Newmarket its previous NPDES permit on April 27, 2000. Ex. 5 (Previous Permit) (AR A.12.). That permit expired on June 11, 2005,[9] and contains no total nitrogen limit. After receiving Newmarket's timely application for permit renewal, EPA publicly

[9] An expired permit continues in force beyond its term until a new permit is issued and remains effective provided the permittee timely filed a complete application on which the Regional Administrator has yet to act. *See* 40 C.F.R. § 122.6.

noticed a draft permit on October 5, 2011, and requested comment. Ex. 6 (Draft Permit) (AR A.7). The draft permit set a monthly average discharge limit of 3.0 mg/l for total nitrogen for the months of April through October, based on a calculated in-stream target of 0.3 mg/l for total nitrogen that EPA determined would be fully protective of designated uses. *See infra* at Section III.B.2.

Although NPDES permitting regulations only mandate a thirty-day public comment period, 40 C.F.R. § 124.10(b), EPA more than doubled that period, accepting comments though December 16, 2011, and furthermore exercised its discretion to schedule a public hearing. EPA received nine sets of written comments, including lengthy and detailed comments and attachments from the Coalition, its engineering consultants, and its legal counsel. The Coalition and the Town of Newmarket took issue with various aspects of EPA's permitting action, but expressed their willingness to accede to a nitrogen effluent limitation of 8.0 mg/l rather than 3.0 mg/l. *See, e.g.*, Ex. 1 at 23, 56 (RTC) (AR B.1). Other comments on the draft permit supported EPA's decision to impose a 3.0 mg/l nitrogen limit (*e.g.*, Frederick T. Short, Ph.D, William H. McDowell, Ph.D and Michelle L. Daley, Ph.D, all of Department of Natural Resources and the Environment, University of New Hampshire; Conservation Law Foundation ("CLF"); a coalition of environmental groups, commenting jointly, comprised of CLF, Conservation New Hampshire, Environment New Hampshire, Great Bay Trout Unlimited, N.H. Audubon, and New Hampshire Coastal Protection Partnership; The Nature Conservancy; Lamprey River Watershed Association; and a municipality, the Town of Newington.)

Following the close of the public comment period, the Coalition submitted nine sets of supplemental comments, on December 19, 2011, August 15, August 30, September 7, September 12, September 24, October 18, November 5, and November 8, 2012. *See also*

Region 1's Opposition to Petitioner's Motion to File a Supplemental Petition for Review (EAB Docket No. 9) at 1 (listing the more than 60 discrete administrative or judicial actions taken by the Coalition with respect to the permit over the past year and a half). The Coalition, furthermore, on May 4, 2012, submitted a letter to both the Administrator and EPA's Office of Inspector General (OIG); the letter requested a meeting with the Administrator's office, transfer of Great Bay matters from Region 1 to an independent panel of experts, and OIG review of Region 1 staff for scientific misconduct. The OIG referred the matter to its Office of Program Evaluation, where it is now pending. The Administrator referred the request to the Office of Water, which determined that the Coalition's allegations were meritless, concluding:

> The EPA's 2012 Science Integrity Policy indicates that, "Scientific misconduct includes fabrication, falsification or plagiarism in proposing, performing, or reviewing scientific and research activities, or in the publication or reporting of these activities; scientific misconduct does not include honest error or differences of opinion." Due to the seriousness of your integrity claim, I contacted the EPA's interim science integrity official, and he determined that your letter and its attachments do not provide a basis to conclude that the Region's action in any way constituted scientific misconduct as defined by the EPA's Scientific Integrity Policy.
>
> The EPA appreciates the fact that you and your clients may not agree with many of the determinations reached by the New Hampshire Department of Environmental Services (NH DES) and the EPA Region 1 office. It is of course, not unusual for parties to disagree – and often disagree strongly – with the EPA over Agency action that may affect them, especially when those actions rely on interpretations of legal authority an analysis of scientific data. I recognize that you are concerned that the EPA-proposed limits may result in the need for action by your clients, as well as other stakeholders, to reduce nutrient loadings to the Great Bay Estuary. Nevertheless, based on careful consideration of your letter and the documents you provided, the EPA Office of Water has not seen evidence that Region 1 has engaged in scientific misconduct, as you suggest.

See Ex. 7 at 1 (Letter from Nancy K. Stoner, EPA Office of Water, to John. C. Hall, Hall & Associates, September 27, 2012) (AR H.20).[10]

[10] On June 4, 2012, the Regional Administrator of EPA Region 1 testified before a House Oversight Committee, chaired by the Honorable Darrell Issa, at the request of the Coalition, to provide an explanation of EPA's nutrient

After considering and responding to comments on the draft permit in light of all information in the record, EPA issued the final permit challenged here on November 16, 2012, following certification under CWA § 401 by the State that the permit would ensure compliance with applicable water quality standards. *See* Ex. 34 at 12 (Final Permit) (AR A.1); Ex. 8 at 1 (Certification) (AR F.1). With respect to the nitrogen limit of 3.0 mg/l, the only changes in the final permit compared to the draft were an adjustment of the averaging period from a monthly average to a rolling seasonal average and the addition of a reopener provision. Ex. 1 at 2 (RTC) (AR B.1).

The Coalition, representing the Cities of Dover and Rochester, New Hampshire, timely appealed.

2. Basis for the Permit's Nitrogen Effluent Limitation to Ensure Compliance with Applicable Water Quality Standards Under 40 C.F.R. § 122.44(d)(1)

"Establishment of a nitrogen effluent limit in a permit is inherently a technical issue." *In re D.C. Water & Sewer Auth.*, 13 E.A.D. 714, 742 (EAB 2008). When establishing a permit limit to ensure that New Hampshire's water quality standards would be met, EPA undertook three basic steps.

First, it interpreted the narrative nutrient criterion to calculate a numeric in-stream target for nitrogen that would fully protect uses designated by the State for the Lamprey River.[11] *See* 40 C.F.R. § 122.44(d)(1)(vi)(A). EPA determined that target to be 0.3 mg/l.

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permitting initiative in Great Bay. *See* http://oversight.house.gov/hearing/field-hearing-epa-overreach-and-the-impact-on-new-hampshire-communities/ (last visited February 7, 2013).

[11] As noted *supra* at Section III.A.3, there are numerous criteria designed to protect uses that could be affected by excessive nitrogen. By focusing on the narrative nutrient criterion, EPA was also ensuring that these other criteria, such as DO, would be maintained, since the narrative nutrient criterion prohibits nitrogen in waters at levels that would impair any existing or designated uses.

Next, EPA considered whether nitrogen effluent discharges into the Lamprey River from the Newmarket Treatment Plant had the "reasonable potential to cause, or contribute[] to an excursion" of that 0.3 mg/l target. *Id.* § 122.44(d)(1)(i), (ii). Among other evidence that it would have such a potential, EPA found that the Treatment Plant discharge would by itself—*i.e.*, even without accounting for background concentrations of nitrogen in receiving waters, which are significant—cause the Lamprey River to exceed the applicable target. Ex. 1 at 2 – 21 (RTC) (AR B.1); Ex. 2 at 15 – 31 (Fact Sheet) (AR A.8).

Finally, EPA implemented the narrative nutrient criterion by establishing a nitrogen effluent limitation on the discharge that would meet New Hampshire's narrative nutrient criterion. *See* 40 C.F.R. § 122.44(d)(1)(i). EPA determined that limit to be 3.0 mg/l, operating in conjunction with an explicit permit reopener provision (discussed in Section III.B.2.c, *infra*). Ex. 1 at 2 – 21 (RTC) (AR B.1.); Ex. 2 at 25 - 31 (Fact Sheet) (AR A.8).

a. Establishment of In-stream Nitrogen Target of 0.3 mg/l to Achieve Narrative Nutrient Criterion

Because the response of a coastal ecosystem to nitrogen enrichment is highly complex, EPA has not published recommended national nitrogen criteria for estuarine and coastal waters. Ex. 9 at 1-8 (EPA Nutrient Criteria Technical Guidance Manual: Estuarine and Coastal Marine Waters) (AR M.12) ("It is impossible to recommend a single national criterion applicable to all estuaries."). Absent a recommended criterion, EPA relied on the best information reasonably available to it at the time of permit reissuance, including site-specific analyses by the New Hampshire Department of Environmental Services ("NHDES"), EPA nutrient technical guidance for estuaries, and scientific literature, to establish an in-stream numeric nitrogen target of 0.3 mg/l.

i. NHDES Analyses to Derive an In-stream Nitrogen Target to Protect Designated Uses Utilizing a Stressor-Response/Weight-of-the-Evidence Methodology

NHDES conducted a site-specific water quality analysis for the Great Bay Estuary to support development of numeric nutrient criteria and published it in 2009 as the "*Numeric Nutrient Criteria for the Great Bay Estuary*" ("Great Bay Nutrient Report"). Ex. 1 at 6 - 21 (RTC) (AR B.1); Ex. 2 at 27 – 31 (Fact Sheet) (AR A.8); *see* Ex. 43 (Great Bay Nutrient Report) (AR K.14).

In the *Great Bay Nutrient Report*, NHDES utilized a scientific approach that drew conclusions about the relationships between nitrogen loading and water quality impairments by testing, through statistical analyses, and the strength of multiple correlations between stressors (*e.g.*, total nitrogen) and responses (*e.g.*, increases in nuisance aquatic plant growth, decreases in dissolved oxygen levels and other adverse aquatic life impacts).[12] This is known as a stressor-response analysis and, in this case, was guided by a widely-accepted conceptual eutrophication model that describes predictable relationships between a range of specific causal and response variables.[13] Ex. 10 (Effects of Nutrient Enrichment In the Nation's Estuaries: A Decade of Change) (AR L.3). In deriving ambient water quality thresholds for the Great Bay Estuary that would protect designated uses using the stressor-response approach, NHDES (in

[12] Because the effects of nitrogen pollution, while linked to widespread and significant aquatic degradation, are difficult to replicate in simple laboratory studies, environmental data and analyses often rely on tests of correlations, rather than causal relationships. In some cases, nitrogen concentrations have been experimentally manipulated, but in general, numeric criteria derivation for nitrogen often relies on analyses of observational data collected in the field. Ex. 11 at 1 (Using Stressor-Response Relationships to Derive Numeric Criteria) (AR M.4). Mechanistic, physical models or controlled experiments specifically designed to demonstrate cause and effect do not exist for the Great Bay Estuary. Ex. 1 at 10 (RTC) (AR B.1).

[13] NHDES used a peer-reviewed conceptual model to guide its stressor-response analysis. The conceptual model describes the cultural eutrophication process in estuaries and includes the parameters that should be evaluated and their theoretical relationships. The relationships of these parameters were tested using linear regressions. Ex. 1 at 74 - 78 (RTC) (AR B.1).

its interpretation of its narrative nutrient criterion) utilized a weight-of-evidence methodology, which employed multiple lines of evidence to assess the validity and reasonableness of the targets and to reduce uncertainty.

While the multiple significantly-correlated relationships between stressors and responses that this analysis yielded did not by themselves prove causation, when taken as part of a weight of the evidence approach (*e.g.*, comparison to thresholds from EPA estuarine guidance and academic literature; reference concentrations in areas of the estuary which still support eelgrass; thresholds that have been set for other New England estuaries), they provided substantial support for the view that levels of nitrogen above 0.3 mg/l would not protect designated uses and are contributing to observed eutrophic responses. Ex. 1 at 6-21 (RTC) (AR B.1)

As a result of this analysis, NHDES generated numeric in-stream nitrogen, chlorophyll-a and light attenuation thresholds ("numeric thresholds" or "numeric targets") for the various water bodies comprising the Great Bay Estuary. In NHDES's technical judgment, these numeric thresholds represented ambient conditions that would, given the site-specific characteristics of the particular receiving waters, achieve applicable water quality criteria, including the State's narrative nutrient criterion, and would be protective of designated and existing uses applicable to such waters. Ex. 1 at 6 – 21, 74 – 78 (RTC) (AR B.1); Ex. 2 at 26 – 31 (Fact Sheet) (AR A.8).

NHDES concluded, among other things, that an in-stream nitrogen threshold of 0.3 mg/l would fully protect aquatic life uses, including eelgrass, and that a nitrogen threshold of 0.45 mg/l and chlorophyll-a threshold of 10 ug/l would maintain required DO levels. The

conclusions of the *Great Bay Nutrient Report* are summarized below in the form of a stressor-response matrix:

Numeric Thresholds Found by NHDES to be Protective of Uses

Designate Use/ Regulatory Authority	**Parameter**	**Threshold**	**Statistic**
Primary Contact Recreation[1,2] (Env-Wq 1703.14)	Chlorophyll –a	20 ug/l	90th percentile
Aquatic Life Use Support – to protect Dissolved Oxygen[1,3] (RSA 485-A:8 and Env-Wq 1703.07)	Total Nitrogen	0.45 mg N/L	Median
	Chlorophyll –a	10 ug/l	90th percentile
Aquatic Life Use Support – to protect Eelgrass[1,4] (Env-Wq 1703.14)	Total Nitrogen	0.3 mg N/L	Median
	Light Attenuation Coefficient (Water Clarity)	0.75 m^{-1} 0.60 m^{-1} 0.50 m^{-1}	Median

Although sometimes labeled "criteria," New Hampshire has not adopted the numeric thresholds identified in the *Great Bay Nutrient Report* as new or revised water quality standards for nutrients within the meaning of Section 303 of the Act. Although it is not now pursuing the water quality standards adoption process, NHDES has used and continues to use these thresholds as technical guidance to inform Section 303(d) assessment and listing decisions.

Over the course of their development, the numeric thresholds were subjected to significant amounts of public process and technical scrutiny, including review by the Piscataqua Region Estuaries Partnership's Technical Advisory Committee and public notice and comment. The State received 135 comments from twelve entities (including Coalition communities), with

all of the comments related to the numeric thresholds. On June 10, 2009, NHDES released the final version (including a response to comments) of the numeric thresholds for the Great Bay Estuary. Ex. 12 (Timeline Summary of 2008 NH 303(d) List and Great Bay Nutrient Criteria) (AR N.35.).

To further bolster the confidence in the methods and science employed to develop the numeric thresholds, and to gather information on how to improve the technical and scientific soundness of the analysis for future nutrient criteria development, NHDES on December 15, 2009, requested peer review of the numeric thresholds through EPA's Nutrient Scientific Technical Exchange Partnership and Support (N-STEPS) program. In April 2010, two national experts in the discipline of estuarine science initiated the independent peer review process. The reviewers received for their consideration not only the *Great Bay Nutrient Report* itself but all comments received during the public comment period on the numeric thresholds, including from the Coalition, and NHDES's response to comments, among other information. Ex. 13 (Charge Question for Boynton and Howarth Review of Great Bay, New Hampshire Estuarine Criteria) (AR H.70).

The peer reviewers issued their reports in mid-2010, broadly endorsing NHDES's analysis. Ex. 14 (Review of "Numeric Nutrient Criteria for the Great Bay Estuary". Robert W. Howarth) (AR M.20.); Ex. 15 (Review of "Numeric Nutrient Criteria for the Great Bay Estuary". Walter R. Boynton) (AR M.1).

ii. EPA Analyses to Derive an In-stream Nitrogen Target That Would Fully Protect Designated Uses

When interpreting a State's narrative water quality criterion under section 122.44(d)(1)(vi)(A), EPA must calculate a numeric in-stream target that will fully protect the

designated uses, and in that task may employ, among other sources of scientific and technical material, any "proposed State criterion" and "relevant information."

To this end, EPA independently reviewed the data and analyses used and generated by NHDES as sources for interpretation or translation of the State's narrative water quality standards, consistent with its obligation under section 122.44(d)(1)(vi), and ultimately determined that the State's numeric nitrogen threshold of 0.3 mg/l would be sufficiently protective of designated uses, including eelgrass protection. EPA concluded that:

> …because of the strong relationships exhibited in the data, and because many components of the conceptual model seem to be corroborated, it is very likely that nitrogen strongly contributes to turbidity in the water column, resulting in impacts to eelgrass." Ex. 16 (E-mail. Alfred Basile, EPA to Philip Trowbridge, Paul Currier, and Greg Comstock, NHDES. RE: NH Estuary Criteria (submittal of comments). November 25, 2008) (AR H.71.).

EPA specifically endorsed the weight of evidence approach as sound, because:

> …they [NHDES] are applying a conceptual model that tests whether there is a dose response relationship in the data. And, most importantly, they find secondary, or independent, impacts from increasing concentrations of nutrients. These secondary impacts are independently related to use impairments. Thus, they are following a sound scientific approach to determine nutrient and chlorophyll thresholds above which impairments are likely to occur." Ex. 16A (E-mail. Matt Liebman, EPA to Alfred Basile, Phil Colarusso, David Pincumbe, and Jean Brochi, EPA. RE: My Comments on the Great Bay nutrient criteria draft document. November 21, 2008) (AR H.72.)

See also, e.g., Ex. 22. (Matt Liebman, EPA. Review of: Numeric Nutrient Criteria for the Great Bay Estuary, in light of comments made by John C. Hall and Thomas Gallagher. September 1, 2010) (AR M.21). EPA then went further and assessed each specific line of evidence against all of the information in the record. *See* Ex. 1 at 12-13 ("Table 1. Lines of Evidence") (RTC) (AR B.1); *see generally, id.* at 6-21. Upon consideration of critiques and reviews by acknowledged estuarine experts, and the Coalition, EPA ultimately concluded that NHDES performed a disciplined and reasonable investigation of correlations of water quality indicators

that would be expected under its conceptual eutrophication model (that is based upon relationships between causal and response variables known to exist in nature) and ultimately arrived at numerical thresholds that would achieve the narrative nutrient criterion, and would protect primary contact recreation and aquatic life uses (using the thresholds as measures of water quality that would be sufficient to achieve dissolved oxygen criteria and eelgrass protection). Ex. 1 at 10 (RTC) (AR B.1).

EPA, moreover, found that NHDES's approach to deriving protective ambient water quality thresholds in the *Great Bay Nutrient Report—i.e.*, stressor-response/weight of the evidence—to be consistent with methodologies described in EPA technical guidance for establishing in-stream thresholds to address nutrient pollution. Ex. 1 at 10 (RTC) (AR B.1); Ex. 2 at 27 (Fact Sheet) (AR A.8). Specifically, EPA determined that the numeric thresholds developed by NHDES used the stressor-response approach, not in isolation, but in conjunction with a weight of the evidence approach employing multiple lines of evidence. Ex. 1 at 10-11 (RTC) (AR B.1).

EPA thus discerned ample reason to treat the *Great Bay Nutrient Report,* and its conclusion that 0.3 mg/l would be a necessary and sufficient in-stream numeric nitrogen target to protect eelgrass, as relevant and useful technical information for NPDES permitting purposes and for identifying protective in-stream thresholds for nitrogen. Ex. 1 at 10 (RTC) (AR B.1); Ex. 2 at 26-27 (Fact Sheet) (AR A.8).

iii. EPA's Nutrient Guidance and Other Lines of Evidence

EPA did not rely solely on NHDES's nitrogen thresholds in interpreting or translating the narrative nutrient criterion for purposes of permit issuance. Ex. 1 at 9 – 11, 41 – 42 (RTC) (AR B.1); Ex. 2 at 26 – 27 (Fact Sheet) (AR A.8). EPA independently reviewed and

considered other sources of information and, after assessing all of the relevant underlying data and material, decided that this supplemental body of evidence was consistent with the State's threshold numeric values. Specifically, EPA weighed the *Nutrient Criteria Technical Guidance Manual* (Ex. 9) (AR M.12); peer-reviewed literature; protective values established for other estuarine systems (*e.g.*, Ex. 17 (Massachusetts Estuaries Project 2003) (AR L.21)); and values derived using other methodological approaches (*i.e.*, reference condition) in determining protective levels for the Great Bay Estuary. EPA found the NHDES thresholds are consistent with the values from these various scientific and regulatory sources of information.

Based on the foregoing, EPA determined that it was reasonable to establish a numeric in-stream nitrogen criterion of 0.3 mg/l to ensure that the State's narrative nutrient criterion will be met.

b. EPA's Determination Under Section 122.44(d)(1)(ii) that the Newmarket Treatment Plant Discharge Had a "Reasonable Potential" to Cause or Contribute to an Exceedance of the In-stream Numeric Nitrogen Target of 0.3 mg/l[14]

i. EPA's Determination That the Lamprey River and Great Bay Proper Have Reached Their Assimilative Capacity for Nitrogen

Water Quality Conditions in the Lamprey River and Great Bay Proper

The Lamprey River and Great Bay proper exhibit many primary and secondary indicators of cultural eutrophication, although not all portions of the estuary exhibit the same impacts. Total nitrogen concentrations, and resultant nitrogen-induced impacts, are highest in the tidal rivers and lower in the bays and harbors. The negative effects of the increasing nitrogen loads on the estuary system are evident in poor water clarity, eelgrass loss, nuisance

[14] Information in this section is generally drawn from Ex. 1 at 3-16 (RTC) (AR B.1); Ex. 2 at 10-28 (Fact Sheet) (AR A.8)

aquatic plant growth, including phytoplankton (as measured by chlorophyll-a) and macroalgae, and low dissolved oxygen concentrations in the tidal rivers.

Evidence of Nitrogen Impairment from Federal, State, NEP and Academic Sources

A growing body of technical and scientific literature, and site-specific data and analyses, point toward an estuary in environmental decline as a result of nutrient overloading, including surveys by the *National Oceanic and Atmospheric Administration*[15]and a series of peer-reviewed technical reports published by the Piscataqua Region Estuaries Partnership ("PREP") under the auspices of the National Estuary Program. The *2006 State of the Estuary Report*, concluded, "Dissolved oxygen concentrations consistently fail to meet state water quality standards in the tidal tributaries to the Great Bay Estuary," and warned, "the estuary cannot continue to receive increasing nitrogen levels indefinitely without experiencing a lowering of water quality and ecosystem changes."[16] Ex. 18 (2006 State of the Estuaries Report) (AR K.17). The *2009 State of the Estuary Report* showed that eleven of twelve environmental indicators (including three related to cultural eutrophication) show negative or cautionary trends – up from seven indicators classified this way in the *2006 Report*. Ex. 19 (2009 State of the Estuaries) (AR K.26.); Ex. 1 at 4 (RTC) (AR B.1); Ex. 2 at 19 (Fact Sheet) (AR A.8). As to dissolved oxygen impairments, the *2009 Report* stated that violations of the water quality criterion (5 mg/l instantaneous minimum) often occur in the tidal rivers.

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[15] *See* Ex. 20 at 6-15, 31 *(*NOAA Estuarine Eutrophic Survey. Volume 3: North Atlantic Region, 1997) (AR L.29); Ex. 21 at 17, 20-22 and 63 (NOAA, National Estuarine Eutrophication Assessment: Effects of Nutrient Enrichment in the Nation's Estuaries, 1999) (AR L.30); Ex. 10 at 41-44 (NOAA, Effects of Nutrient Enrichment in the Nations Estuaries: A Decade of Change, 2007) (AR L.28); Ex.2 at 18-19 (Fact Sheet) (AR A.8).

[16] *See* Ex. 18 at 4 (New Hampshire Estuaries Project, 2006 State of the Estuaries) (AR K.17); *see also*, Ex. 25 (New Hampshire Estuaries Project, Total Nitrogen Concentrations in Wastewater Treatment Plant Effluent in the Great Bay Estuary Watershed in 2008) (AR K.18); Ex.*2* at 18-19 (Fact Sheet) (AR A.8).

Regarding eelgrass, the *2009 Report* concluded that eelgrass cover in Great Bay proper declined by 37 % between 1990 and 2008, and had completely disappeared from the tidal rivers, like the Lamprey River. There were even more dramatic decreases in eelgrass biomass in Great Bay proper (64% from 1990 to 2008), which often occurs before the loss of acreage or areal cover. Ex. 1 at 4-5 (RTC) (AR B.1); Ex. 2 at 19 (Fact Sheet) (AR A.8).

Evidence of Nitrogen Water Quality Impairment from NHDES 303(d) Listings

As a result of documented water quality impairments, portions of the Great Bay Estuary, including its tidal tributaries, have been included on New Hampshire's Section 303(d) list.[17] According to the New Hampshire 2010 Section 303(d) list, the designated uses identified as impaired in the Lamprey River include "aquatic life." Ex. 26 (2010 Section 303(d) list) (AR J.9); Ex. 27 at 53-57(Amendment to the New Hampshire 2008 Section 303(d) List Related to Nitrogen and Eelgrass in the Great Bay Estuary) (AR J.19). The indicators used to determine those impairments are identified on the list under the heading "Impairment Name" and include, among other things, chlorophyll-a, dissolved oxygen, estuarine bioassessments, light attenuation, and nitrogen (total).

EPA Assessment of Remaining Nitrogen Assimilative Capacity of Receiving Waters

Based on the foregoing, EPA concluded that the Lamprey River and Great Bay proper have reached their assimilative capacity for nitrogen. EPA relied on data from the trend monitoring station closest to the Newmarket discharge that show a median total nitrogen concentration of 0.451 mg/l and a maximum of 0.97 mg/l, and a median chlorophyll-a concentration of 3.1 ug/l, a maximum of 145.45 ug/l and a 90th percentile value of 12.4 ug/l.

[17] Section 303(d) of the Clean Water Act requires states to, among other things, identify those waters within their boundaries for which effluent limitations implemented through technology-based controls required by sections 301(b)(1)(A) and (B) of the Clean Water Act are not stringent enough to implement any water quality standard applicable to such waters. 33 U.S.C. § 1313(d)(1)(A).

These values exceeded the calculated numeric nitrogen threshold of 0.3 mg/l and the chlorophyll-a threshold of 10 ug/l necessary for aquatic life use support (eelgrass protection and maintaining protective dissolved oxygen levels, respectively). Ex. 2 at 27 (Fact Sheet) (AR A.8.); Ex. 43 at 33 (Great Bay Nutrient Report) (AR K.14).

EPA also determined that the Lamprey River exhibits multiple symptoms of cultural eutrophication, including eelgrass loss, and that nitrogen enrichment has reached a level where it is adversely affecting the chemical, physical, and biological integrity of the receiving waters, including dissolved oxygen impairments. Ex. 1 at 6. 47 (RTC) (B.1); Ex. 2 at 27 (Fact Sheet) (AR A.8). Over the course of a 413 day monitoring period using data from the Lamprey River datasonde, the minimum dissolved oxygen criterion of 5.0 mg/l was, in the tidal portion of the Lamprey River, violated on 55 days (13.3% of the time). This segment of the Lamprey River failed to meet the minimum dissolved oxygen saturation standard of 75% on 50 days out of 352 (14.2%)

ii. EPA's Determination that the Newmarket Treatment Plant Discharge Has the Reasonable Potential to Cause or Contribute to Excursions of Water Quality Criteria[18]

Having determined that the Lamprey River had reached its assimilative capacity for nitrogen, EPA proceeded to determine whether the Newmarket Treatment Plant's nitrogen effluent discharge, causes, or has a reasonable potential to cause or contribute to excursions of water quality standards.

EPA's analysis of the available information, including NHDES documentation of cultural eutrophication related impacts in the Lamprey River and downstream in Great Bay and

[18] Ex. 1 at 16, 39-41, 57-59 (RTC) (B.1); Ex. 2 at 25-28 (Fact Sheet) (AR A.8).

Little Bay; high background levels of nitrogen in the Lamprey River; and the NHDES report "Analysis of Nitrogen Loading Reductions for Wastewater Treatment Facilities and Non Point Sources in the Great Bay Estuary Watershed-Draft," Ex. 28 ("NHDES Nitrogen Loading Reduction Report") (AR K.13),[19] resulted in a determination that the Treatment Plant's nitrogen discharge has a reasonable potential to cause or contribute to an exceedance of water quality standards. In order to further evaluate the significance of Newmarket's nitrogen contributions, EPA estimated the increase in receiving water total nitrogen concentration currently caused by the Newmarket Treatment Plant at the point of discharge by dividing the effluent concentration by the dilution factor. At a discharge concentration of 30 mg/l and a dilution factor of 55, the resulting receiving water concentration after initial mixing is 0.55 mg/l, which exceeds the target in-stream concentration of 0.3 mg/l. Since this value only represents the increase in receiving water total nitrogen concentration due to the discharge alone, the actual receiving water concentration at the point of discharge would be the sum of the existing background plus the increase caused by the discharge. In-stream data collected upstream of the tidal dam on the Lamprey River, upstream of and uninfluenced by the Newmarket discharge but downstream of the effluent discharge from Epping, shows that median total nitrogen concentration in the Lamprey River is already above the in-stream target of 0.3 mg/l (0.39 mg/l).

Accordingly, EPA concluded that the Newmarket Treatment Plant's nitrogen effluent discharge had the reasonable potential to cause or contribute to an exceedance of 0.3 mg/l, which EPA had determined to be necessary to implement, *inter alia*, Env-Wq 1703.14 (in-stream concentrations of phosphorus or nitrogen in waters "that would impair any existing or designated uses"); Env-Wq 1703.07(b) (minimum dissolved oxygen saturation of 75% (daily

[19] The *NHDES Nitrogen Loading Reduction Report* analyzed various combinations of point and nonpoint source nitrogen reductions that would attain and maintain applicable water quality criteria and fully protect designated uses.

average), and an instantaneous minimum DO concentration of at least 5 mg/l); and Env-Wq 1703.19(a),(b) ("[t]he surface waters shall support and maintain a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region").

c. Derivation of a Nitrogen Effluent Limitation Necessary to Ensure Compliance with Applicable Water Quality Standards Under Section 122.44(d)(1)[20]

When deriving the nitrogen effluent limitation, EPA ultimately concluded that a nitrogen effluent limitation of 3.0 mg/l on the Treatment Plant in conjunction with the reopener provision related to nonpoint source controls was necessary to ensure compliance with applicable water quality standards and would be protective of the State's narrative nutrient criterion and existing and designated uses.

The decision over how to frame the permit and its effluent limitations in order to achieve the in-stream nitrogen criterion (0.3 mg/l) was the final step in EPA's permit development. A variety of sources contribute to the nitrogen load in the Great Bay Estuary and its tributaries, including publicly owned treatment works and nonpoint sources, which are the dominant contributors to the Great Bay Estuary's nitrogen pollution problem. EPA considered imposing an effluent limitation on the Newmarket Treatment Plant based on a straightforward dilution-based calculation. Meeting the in-stream threshold of 0.3 mg/l that EPA determined will attain and maintain applicable water quality criteria and fully protect designated uses would have resulted in an effluent limitation at or approaching the 0.3 mg/l in-stream threshold given the lack of assimilative capacity (lack of dilution; high background) in the Lamprey River.

[20] Ex. 1 at 10-21 (RTC) (AR B.1); Ex. 2 at 25-30 (Fact Sheet) (AR A.8).

While this permitting approach would have been the simplest way to ensure that the discharge would comply with the State's water quality standards, EPA was concerned about the fact that, even while the Newmarket facility represents a significant portion of the controllable nitrogen load into the Lamprey River, nonpoint sources of pollution still represent the majority of the total nitrogen loading into the receiving waters, and absent effective controls on these pollutant sources, designated uses would not be attained. EPA was concerned that immediate imposition of a more stringent effluent limitation would not give sufficient opportunity, or incentive, for Newmarket and others in the watershed to pursue necessary nonpoint source controls, and indeed might frustrate ongoing efforts by NHDES to develop a framework to address nitrogen loading on a watershed basis. Accordingly, EPA determined that, *as an initial matter*, a limit less stringent than 0.3 mg/l would be justified *if* it could be imposed in conjunction with efforts by the State and others to address the nonpoint source component of the nitrogen pollution problem afflicting the receiving waters. This effort to achieve this more comprehensive environmental objective is in keeping with the overall objectives of the Clean Water Act "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[21] *See* 33 U.S.C. § 1251(a).

EPA specifically reviewed and relied in part upon the *NHDES Nitrogen Loading Reduction Report*, Ex. 28 (AR K.13), to determine the significance of Newmarket's nitrogen discharge load relative to other sources, and how much the discharge load would need to be reduced, in combination with other point source and non-point source load reductions, in order

[21] This choice was consistent with EPA policy to address the complex nutrient pollution problems confronting the Nation's waterways. *See* Ex. 24 (Memorandum from Nancy K. Stoner, "Working in Partnership with States to Address Phosphorus and Nitrogen Pollution through Use of a Framework for State Nutrient Reductions," March 16, 2011) (AR M.31) ("While EPA has a number of regulatory tools at its disposal, our resources can best be employed by catalyzing and supporting action by states that want to protect their waters from nitrogen and phosphorus pollution.").

to meet nitrogen thresholds in the Lamprey River and downstream in Great Bay and Little Bay. Ex. 1 at 17-18, 48, 73, 79-80, 105, 118 (RTC) (AR B.1); Ex. 2 at 29-30 (Fact Sheet) (AR A.8). One such loading scenario showed that a limit of 3.0 mg/l for the Newmarket facility (the accepted limit of current technology), coupled with reductions from other POTWs and a 30-40% reduction in nitrogen from nonpoint sources would achieve water quality standards in the Lamprey River and in Great Bay proper. Analyses for the Lamprey River and Great Bay proper clearly indicate significant nutrient-driven impairments and that the Newmarket facility represents an important component of the overall load to these waters. *See supra* Section III.B.2. Given this, and in the absence of any meaningful nonpoint source controls, EPA felt it was necessary to require Newmarket to control nitrogen to the maximum extent possible with existing technology, while at the same time providing a framework to address other sources of nitrogen in the watershed. EPA recognized that controlling nitrogen through nonpoint source controls is neither inexpensive nor easy to implement at the state and local level, and while EPA supports efforts in this area, they are needed *in addition to* strong controls on point sources, not instead of them, in order to comprehensively address cultural eutrophication in the Lamprey River and the Great Bay Estuary.

EPA's decision to require a nitrogen effluent limit of 3.0 mg/l rather than a less stringent limit was informed by several considerations. First, POTWs represent a significant portion, albeit not a majority, of the total nitrogen load. During the critical season for algae growth (April through October), the point source contribution is even more significant given the reduced rate of nonpoint source contributions during this same period. As indicated, eighteen POTWs in New Hampshire and Maine discharge close to 20 million gallons a day of wastewater with little or no treatment to remove nitrogen. Because of the amount, location, and

composition of the sewage being discharged, reducing nitrogen discharges from the POTWs is the single most important and predictable step that can be taken to reverse the decline of this estuary.[22]

Second, and critically, EPA recognized that while the majority of total nitrogen loading was coming from nonpoint sources, wastewater treatment plants like Newmarket nonetheless discharge the majority of the dissolved inorganic nitrogen (DIN) load, the most bioreactive component of total nitrogen. As the most readily available form of nitrogen for algae growth, DIN is therefore the highest priority for reductions as part of a comprehensive approach to reducing total nitrogen levels as stringent as necessary to comply with water quality standards. EPA recognized that nitrogen removal at the treatment plants is thus also the most predictable and effective way to control the impacts of the most harmful component of total nitrogen on the receiving waters.

EPA was mindful of its obligation to include in the permit effluent limitations and conditions that *ensure* compliance with water quality standards. *See In re City of Marlborough*, 12 E.A.D. 235, 248-52 (EAB 2005). In the event EPA's expectations regarding NHDES's and Newmarket's pursuit of a framework to address nonpoint source reductions prove incorrect, EPA indicated in the permit and the Response to Comments that it would reopen the permit to propose limitations on the discharge that will meet the in-stream threshold in the receiving water through a permit modification. EPA therefore included an explicit reopener condition in

[22] The Permittee itself recognized the need for a nitrogen limit to address detrimental impacts from its discharge on the receiving waters. The difference between EPA and the Permittee was one of degree. The Coalition and others differed with the proposed limit of 3.0 mg/l and recommended instead a limit of 8 mg/l based in large part on their assertions of the existence of scientific uncertainty; the need for further monitoring and modeling; the costs associated with upgrading treatment facilities to achieve lower limits; and the fact that non-WWTF sources contribute the majority of nitrogen loading to the receiving waters. EPA did not find these arguments to be compelling in light of the severe nutrient-related impacts in the receiving waters, the Treatment Plant's significant contribution to these impacts, and because such reduced level of nitrogen control from the Treatment Plant would require even greater nonpoint source controls, which are less predictable and less certain to be achieved at this time.

the permit linked to the State's and Permittee's efforts on nonpoint source controls. Specifically, EPA recognized that achieving the necessary nonpoint source reductions will require collaboration between the State of New Hampshire and public, private, and commercial stakeholders within the watershed to: (1) complete nonpoint source loading analyses; (2) complete analyses of the costs for controlling sources; and (3) develop control plans that include:

> a. A description of appropriate financing and regulatory mechanisms to implement the necessary reductions;
> b. An implementation schedule to achieve reductions (this schedule may extend beyond the term of this permit); and
> c. A monitoring plan to assess the extent to which the reductions are achieved.

EPA indicated in the permit that it would review the status of the activities described above in items (1), (2), and (3) at twelve-month intervals from the date of issuance. EPA stated that, if the activities described above were not being carried out, then EPA would reopen the permit and incorporate any more stringent total nitrogen limit necessary to assure compliance with applicable narrative water quality criteria.[23]

IV. STANDARD OF REVIEW

In determining whether to review a petition filed under 40 C.F.R. § 124.19(a),[24] the Board first considers whether the petitioner has met threshold procedural requirements such as timeliness, standing, issue preservation, and compliance with the standard of specificity for review. *In re Beeland Group, LLC*, UIC Appeal No. 08-02, slip op. at 8-9 (EAB Oct. 3, 2008). A petitioner, for example, "must have raised during the public comment period the specific

[23] To be perfectly clear, these are not conditions relating to nonpoint source controls that may be enforced against the permittee, but instead conditions to the permit reopener.

[24] The recently promulgated revisions to 40 C.F.R. § 124.19 do not take effect until March 26, 2013, and are therefore not applicable to this proceeding.

argument that the petitioner seeks to raise on appeal; it is not sufficient for the petitioner to have raised a more general or related argument during the public comment period." *In re Gov't of D.C. Mun. Separate Storm Sewer Sys.*, 10 E.A.D. 323, 339 (EAB 2002).

Assuming that a petitioner satisfies all threshold procedural obligations, the Board then evaluates the petition to determine if it warrants review. *In re Guam Waterworks Auth.*, NPDES Appeal Nos. 09-15 & 09-16, slip op. at 9 (EAB Nov. 16, 2011). The Board generally will not grant review unless the petitioner establishes that a permit condition is based on a clearly erroneous finding of fact or conclusion of law, or involves an exercise of discretion or an important policy consideration that the Board determines warrants review. 40 C.F.R. § 124.19(a)(1)-(2); *In re Carlota Copper Co.*, 11 E.A.D. 692, 708 (EAB 2004). The burden of demonstrating that review is warranted rests squarely with the petitioner. 40 C.F.R. § 124.19(a); *see In re Rohm & Haas Co.*, 9 E.A.D. 499, 504 (EAB 2000).

A petitioner must argue with specificity why the Board should grant review. *In re Puerto Rico Elec. Power Auth.*, 6 E.A.D. 253, 255 (EAB 1995). To meet the threshold of specificity required under 40 C.F.R. § 124.19(a), a petitioner must take two necessary steps: (1) state the objections to the permit that are being raised for review, and (2) explain why the Region's previous response to those objections is clearly erroneous or otherwise warrants review. *See Mich. Dep't of Envtl. Quality v. EPA*, 318 F.3d 705, 708-09 (6th Cir. 2003) (citing *Puerto Rico Elec.*, 6 E.A.D. at 255). Thus, the mere repetition of objections made during the comment period or the "mere allegation of error" without specific supporting information are insufficient to warrant review. *In re Phelps Dodge Corp.*, 10 E.A.D. 460, 496, 520 (EAB 2002); *In re Knauf Fiber Glass, GmbH*, 9 E.A.D. 1, 5 (EAB 2000).

"Neither the Board, nor the Region are required to 'scour the record' to determine whether a petitioner raised, during the public comment period, the issue it pursues on appeal." *In re City of Palmdale*, PSD Appeal No. 11-07, slip op. at 31 (EAB Sept. 17, 2012). A petitioner must not only specify objections to the permit but also must explain why the permit issuer's previous response to those objections is clearly erroneous or otherwise warrants review. *See In re Teck Cominco Alaska, Inc*., 11 E.A.D. 457, 494-95 (EAB 2004); *In re Westborough*, 10 E.A.D. 297, 305, 311-12 (EAB 2002); *In re City of Irving*, 10 E.A.D. 111, 129-30 (EAB 2001), *review denied sub nom. City of Abilene v. EPA*, 325 F.3d 657 (5th Cir. 2003); *see also Guam Waterworks*, slip. op. at 19 n.14 (noting frustration with a petitioner for not providing anything more than general citations where the record is lengthy and the RTC is 44 pages long); *In re Shell Offshore, Inc.*, 13 E.A.D. 357, 400 n.59 (EAB 2007); *In re Dominion Energy Brayton Point, LLC*, 12 E.A.D. 490, 685 n.318 (EAB 2006) (explaining that where a petitioner did "not point to the precise location of this particular comment" and the Board did not see one, the Board will not '"scour the record' in order to make arguments on behalf of participants'"); *In re Encogen Cogeneration Facility*, 8 EAD 244, 250 n.10 (EAB 1999).

Additionally, clear error or reviewable exercise of discretion is not established simply because petitioner presents a difference of opinion or alternative theory regarding a technical matter. *In re Town of Ashland Wastewater Treatment Facility*, 9 E.A.D. 661, 667 (EAB 2001). Instead, when a petitioner challenges the Region's technical judgment, the "[p]etitioner[] must provide compelling arguments as to why the Region's technical judgments or its previous explanations of those judgments are clearly erroneous or worthy of discretionary review." *In re Ash Grove Cement Co.*, 7 E.A.D. 387, 404 (EAB 1997); *accord Town of Ashland*, 9 E.A.D. at 668; *see also In re City of Attleboro,* NPDES Appeal No. 08-08, slip op. at 32 (EAB Sept. 15,

2009). ("[I]n a challenge to technical issues, we expect a petitioner to present us with references to studies, reports or other materials that provide relevant, detailed, and specific facts and data about permitting matters that were not adequately considered by a permit issuer.").

Moreover, where the science in an area is uncertain, a contrary opinion urged by a petitioner will neither establish that a rational, adequately explained judgment by the Region is clearly in error nor overcome the Board's traditional deference to regional technical determinations. *Dominion Energy*, 12 E.A.D. at 510-11. This particularly heavy burden advances the policy imperative of "ensur[ing] that the locus of responsibility for important technical decisionmaking rests primarily with the permitting authority, which has the relevant specialized expertise and experience." *In re Peabody W. Coal Co.*, 12 E.A.D. 22, 33 (EAB 2005), citing *In re NE Hub Partners, L.P.*, 7 E.A.D. 561, 567-68 (EAB 1998), *rev. denied sub nom. Penn Fuel Gas, Inc. v. EPA*, 185 F.3d 862 (3d Cir. 1999). "[W]here a permit decision pivots on the resolution of a genuine technical dispute or disagreement, the Board prefers not to substitute its judgment for the judgment of the decisionmaker specifically tasked with making such determinations in the first instance." *Peabody*, 12 E.A.D. at 34. In such cases, deference to the Region's decision is generally appropriate if "the record demonstrates that the Region duly considered the issues raised in the comments and if the approach ultimately selected by the Region is rational in light of all of the information in the record." *NE Hub*, 7 E.A.D. at 568. If conflicting views of the Region and a petitioner "indicate bona fide differences of expert opinion or judgment on a technical issue, the Board typically will defer to the Region." *Id*. at 567-68.

V. ARGUMENT

A. The Coalition Has Not Carried Its Burden of Demonstrating Any Clear Legal or Factual Error Warranting Board Review

1. EPA Properly Established a Nitrogen Limit That is Necessary to Implement the State's Narrative Water Quality Criterion for Nutrients in Accordance with the Act and Implementing Regulations

a. EPA Properly Interpreted the State's Narrative Nutrient Criterion, Found Reasonable Potential and Derived a Water Quality-Based Effluent Limitation[25]

The Coalition contends that EPA misapplied federal regulations governing the derivation of numeric water quality-based effluent limitations from a narrative water quality criterion, alleging that it erred (1) by failing to make a cause-and-effect showing of the impact of nitrogen loading on use impairments; and (2) by purportedly relying on mere 'assumptions' and 'presumptions' as evidence of nitrogen-induced water quality impairments. *Pet.* at 41-45. The Coalition is as mistaken on the law as it is on the facts. [26] The Board should deny review

[25] This section primarily addresses Section V.c of the Petition and sections throughout the Petition where the Coalition argues the need for direct cause-and-effect demonstrations prior to interpreting and implementing New Hampshire's narrative nutrient water quality criterion. *See also* Appendix A at 23-31.

[26] EPA has made every effort to be concise in its response to the Petition. The length of this response has been necessitated by the nature of the Coalition's Petition, a filing that identifies at least twenty separate claims (and still more subclaims) over 100 pages and relies heavily on thousands of pages of exhibits. It is one of the longest petitions ever filed with this Board. EPA believes its main brief provides all the legal, factual and scientific rationale necessary to decide this case.

In light of the sheer number of technical and scientific allegations, and the nature and extent of the mischaracterizations, EPA has addressed them comprehensively, and separately, in *Appendix A*, which includes the majority of assertions raised in the section of the Petition labeled, "Scientific Issues," although certain of these are more legal in nature (*i.e.*, due process, role of *Daubert, etc.*) and have been addressed in the main brief. The Coalition's misstatements largely consist of conclusory assertions drawn from a combination of incorrect premises. The Coalition has, moreover, almost uniformly failed to provide specific references to its exhibits to support its assertions. The Coalition's misstatements often require detailed record-based explication to correct. Similarly, *Appendix B* addresses the extensive deposition testimony drawn from a state court case relied on by the Coalition in its Petition. EPA has numerous procedural and substantive objections to the Coalition's reliance on, and mischaracterization of, this material. Because the Coalition has failed to provide adequate explanation or citation for numerous conclusory assertions in its Petition, which it erroneously claims are supported by its exhibits, *Appendix A* and *Appendix B* are intended to provide a guide or reference for the Board in its consideration of these claims.

of these issues.[27]

EPA's NPDES regulations do not require cause-and-effect proof between a pollutant discharge and a water quality impairment before the permit writer can derive a numeric in-stream target to interpret a narrative water quality criterion, or impose a water quality-based effluent limitation to implement that criterion. The Coalition fundamentally misunderstands—or simply ignores—the legal threshold under 40 C.F.R. § 122.44(d)(1)(i) for determining the need for a water quality-based effluent limitation (*i.e.*, "reasonable potential"), and the types of information that may be used to establish that limit (*e.g.*, "relevant information"). *Id.* at § 122.44(d)(1)(vi). Throughout its Petition, the Coalition challenges EPA's decision to impose a nitrogen limit based on its conclusion that an in-stream nitrogen target of 0.3 mg/l is necessary to protect designated uses, arguing that the determination was not based on information that proved cause and effect. *See, e.g., Pet.* at 10, 19, 20, 31, 44-45, 63, 67, 84, 89 and 91-92. As a category, as well as in their particulars, these allegations are unfounded and cannot form a basis for review, because they are based on the faulty assumption that EPA was required to prove the Permittee's discharge caused the impairment prior to imposing a limit and that any information used to support the limit must likewise have stemmed from actual cause-and-effect demonstrations. The Coalition misses on both counts, misconstruing the threshold required before imposing a water quality based-effluent limit on a discharge containing a pollutant of

[27] Here, as with most of the issues and arguments presented on this appeal, the Coalition does not provide citations to either the record or the Response to Comments to specifically identify where it raised an issue or made an argument during the public comment period so that the issue was properly preserved, nor does it specifically explain *how* EPA's response is deficient. The failing is even more pronounced here, where the Coalition's intricately and inlaid technical and legal comments form part of a 177-page Response to Comments. By not providing specific cites to the record, including the Response to Comments (the Coalition indeed fails to even include as an exhibit the Response to Comments or Fact Sheet), the Coalition has failed except in rare cases to satisfy threshold pleading requirements and thus failed to meet its burden of demonstrating review. The Coalition appears to rely mostly on the general representation in the Petition that it submitted comments on all the issues raised in the Petition. *See Pet.* at 27. This is insufficient. *See* Section IV, *supra*. EPA has noted these instances more comprehensively in *Appendices A and B.*

concern, and just as seriously, misreading, or unjustifiably diminishing the evidence used by EPA to interpret the narrative nutrient criterion. *Pet.* at 42-45.

The Coalition simply cannot, and for perhaps that reason does not even attempt to, square its position with the plain text of 40 C.F.R. § 122.44(d)(1). Under this regulation, permit issuers are required to determine whether a given point source discharge "cause[s], ha[s] the reasonable potential to cause, or contribute[s] to an excursion above" the narrative or numeric criteria set forth in state water quality standards. 40 C.F.R. § 122.44(d)(1)(i). Thus, the regulations require nothing more than a *reasonable potential to cause, or contribute to* an excursion of a numeric or narrative state water quality criterion; whenever such a potential exists, a permit must contain effluent limits to meet state water quality standards. *See id.* § 122.44(d)(1), (5) (providing in part that a permit must incorporate any more stringent limits required by CWA § 301(b)(1)(C)). "'Reasonable potential' requires some degree of certainty greater than a mere possibility, but it leaves to the permit writer's scientific and technical judgment how much certainty is necessary." *See In re Upper Blackstone Water Pollution Abatement Dist*., NPDES Appeal Nos. 08-11 to 08-18 & 09-06, slip op. at 32-33, n.29 (May 28, 2010). As EPA's preamble to its final rulemaking promulgating 40 C.F.R. § 122.44(d)(1)(vi) explained:

> Some commenters said that the phrase "reasonable potential to cause" was too vague and could apply to permittees that are not actually exceeding a water quality criterion. EPA does not believe that it is appropriate to be more specific because a permitting authority has a significant amount of flexibility in determining whether a particular discharge has a reasonable potential to cause an excursion above a water quality criterion, taking the factors in subparagraph (ii) into account.

54 Fed. Reg. 23,868, 23,873 (June 2, 1989). This regulatory provision has been upheld as a reasonable, authorized approach of necessary gap-filling in the CWA statutory scheme as it provides permit writers with guidance on how to interpret state narrative water quality standards

in deriving effluent limitations. *See Am. Paper Inst. v. EPA*, 996 F.2d 346, 348, 351 (D.C. Cir. 1993); *see also Am. Iron & Steel Inst. v. EPA*, 115 F.3d 979, 990-991 (D.C. Cir. 1997).

Although the question facing this Board turns on whether the Newmarket Treatment Plant's nitrogen effluent discharge has a reasonable potential to cause or to contribute to an excursion of the State's water quality standards in the Lamprey River and Great Bay proper, the words "reasonable potential" do not appear in the Coalition's 101-page Petition.[28] Simply ignoring the relevant legal standard does nothing to diminish its applicability, and certainly does nothing to demonstrate legal error on the part of EPA, let alone clear error. The Coalition opts to leave EPA's extensive legal analysis of the reasonable potential standard under section 122.44(d)(1)(i) unanswered. *See* Ex. 1 at 57-59 and 79-80 (RTC) (AR B.1); *see also id.* at 16 fn. 15, 39-40, 86 fn. 38, 123-24.

But the Coalition goes further and, without any foundation in the law or regulations, invents a new, three-pronged standard more to its liking, which would preclude EPA from deriving an in-stream target to interpret a narrative criterion and imposing a water quality-based effluent limitation to implement that criterion until: '(1) a narrative criterion violation is documented; (2) that is caused by a pollutant discharge; and (3) the necessary level of protection to correct the narrative violation is determined.' *Pet.* at 42. EPA readily concedes

[28] If that is not the question, then the Coalition's arguments can only be construed as an impermissible challenge to the regulation. *In re USGen New Eng., Inc*., 11 E.A.D. 525, 555 (EAB 2004), *dismissed appeal for lack of juris.*, 443 F.3d 12 (1st Cir. 2006); *In re City of Irving*, 10 E.A.D. 111, 123-25 (EAB 2001), *petition for review denied sub nom. City of Abilene v. U.S. EPA*, 325 F.3d 657 (5th Cir. 2003); *In re Tondu Energy Co*., 9 E.A.D. 710, 715-16 (EAB 2001); *In re City of Port St. Joe*, 7 E.A.D. 275, 286-87 (EAB 1997); *see also In re Suckla Farms, Inc*., 4 E.A.D. 686, 699 (EAB 1993). The Board has repeatedly emphasized that the reason for this is that "[a] permit appeal proceeding is not the appropriate forum in which to challenge either the validity of Agency regulations or the policy judgments that underlie them." *Port St. Joe*, 7 E.A.D. at 286; *Suckla Farms*, 4 E.A.D. at 699. Furthermore, the regulations that govern the "Board's review of permits authorize the Board to review *conditions* of the permit decision, not [the] statutes or regulations that are the predicates for such conditions." *USGen*, 11 E.A.D. at 555 (citing 40 C.F.R. § 124.19(a)); *see also City of Irving*, 10 E.A.D. at 124. To the extent that the Coalition's challenge amounts to a claim that the regulation implementing Section 301(b)(1)(C) of the act must legally require the permitting authority to demonstrate that an impairment exists and that the discharger caused the water quality impairment, it is essentially a challenge to the Agency's regulations implementing the CWA and the policy judgments underlying them, and the Board should deny review on these grounds.

that it did not apply this test, because it has no basis in EPA regulations, as this Board has elsewhere affirmed. *Upper Blackstone*, slip op. at 31-32 (The "regulations . . . require a precautionary approach when determining whether the permit must contain a[n] effluent limit for a particular pollutant."); *accord Upper Blackstone Water Pollution Abatement Dist. v. U. S. EPA*, 690 F.3d 9, 33 (1st Cir. 2012) ("EPA regulations require permitting authorities to include in NPDES permits conditions which control all pollutants or pollutant parameters . . . [that] are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. We thus reject the notion that in order to strengthen the District's discharge limits, the EPA must show that the new limits, in and of themselves, will cure any water quality problems." (internal quotation marks and citations omitted)). EPA in the Final Rule Preamble for 40 C.F.R. § 122.44(d)(1) dispels any doubt over the necessity of proving an impairment and causation of that impairment prior to either deriving a numeric in-stream target to implement a narrative water quality criterion, or imposing a water quality-based effluent limitation to implement that criterion:

> Several commenters asked if it was necessary to show in-stream impact, or to show adverse effects on human health before invoking [§ 122.44(d)(1)(vi)] as a basis for establishing water quality-based limits on a pollutant of concern. It is not necessary to show adverse effects on aquatic life or human health to invoke this paragraph [iv]. The CWA does not require such a demonstration and it is EPA's position that it is not necessary to demonstrate such effects before establishing limits on a pollutant of concern.

54 Fed. Reg. at 23,878. EPA's preamble explanation of what is actually required is at odds with the Coalition's view that a mathematical model, or controlled experiment, demonstrating direct cause and effect related to harm is the standard to which EPA should be held in the NPDES permitting process.

Particularly in light of EPA's "protective" and "expeditious" approach to nutrient control in estuarine environments, EPA in this case met and exceeded the reasonable potential standard that would justify the need for a nitrogen limitation in the permit. *Ethyl Corp. v.EPA*, 541 F.2d 1, 27-28 (D.C. Cir. 1976) ("[R]ecognizing…the developing nature of [the field]…[t]he [EPA] Administrator may apply his expertise to draw conclusions from suspected, but not completely substantiated, relationships between facts, from trends among facts, from theoretical projections from imperfect data, from probative preliminary data not yet certifiable as 'fact,' and the like."). As described *supra* at Section III.B.2, the record is replete with well-documented in-stream impairments and an abundance of site-specific information implicating the role of nitrogen in those impairments.

As the Coalition has wholly failed to even mention the Region's extensive response to public comments discussing why its interpretation and implementation of the narrative nutrient criterion was sound, even though not based on a mechanistic model or controlled experiment, and its decision to impose a permit limit based on that finding, the Board should deny review.

b. EPA Properly Interpreted the State's Narrative Nutrient Criterion to Derive an In-stream Nitrogen Target of 0.3 mg/l That EPA Determined is Necessary to Protect Designated Uses

i. EPA Properly Decided to Consider the 2009 NHDES Great Bay Nutrient Report Under Section 301(b)(1)(C) and 40 C.F.R. § 122.44(d)(1) When Developing the In-stream Target of 0.3 mg/l That EPA Determined Would be Necessary to Protect Designated Uses[29]

The Coalition does not identify any statutory or regulatory provision that would foreclose the use of any of the information EPA utilized—most prominently the *Great Bay*

[29] This addresses various sections throughout the Petition where the Coalition challenges the content of the *Great Bay Nutrient Report* and EPA's consideration of that report. *See also* Appendix A at 3-5, 17-19.

Nutrient Report, and the nitrogen-related data, analyses and findings therein—for the purposes of interpreting the State's narrative criterion to derive a protective in-stream target of 0.3 mg/l. Needless to say, it has not demonstrated error, and indeed none exists. While the Coalition may believe that this body of evidence, for whatever reason, does not reflect true conditions in the receiving waters, or the source and nature of the impairment, "[t]he selection of representative data for the analysis under section 122.44(d)(1) is a technical judgment that falls within the permit issuer's discretion and technical expertise." *Upper Blackstone*, slip op. at 43 (citing *In re Washington Aqueduct water Supply Sys.*, 11 E.A.D. 565, 583 (EAB 2004)); *see also Am. Iron & Steel*, 115 F.3d at 1006.

EPA was entitled to use a wide variety of information, whether or not stemming from a mechanistic model, controlled experiment or demonstration, in carrying out its legal obligation to interpret the State's narrative nutrient criterion. The body of evidence used by EPA included technical guidance for estuaries, peer-reviewed scientific literature, analyses from other states and, of course, the *Great Bay Nutrient Report*, 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. *See Appendix A* and *Appendix B*. As explained in the Response to Comments, Ex. 1 at 40-41, 57-58, 69-72, 116-117 (RTC) (AR B.1), EPA identified the many reasons justifying its use of this information, including the plain language and overall purpose of the regulatory provision EPA was obligated to follow, in order to interpret or translate the State's narrative nutrient criterion into a protective numeric in-stream target and effluent limitations to meet water quality standards.

The only legally relevant test for determining the types of information that may be considered when deriving an appropriate numeric effluent limitation to implement a narrative

criterion is laid out in § 122.44(d)(1)(vi)(A). Under that provision, the permitting authority *must* establish effluent limits based on 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," and *may* derive this threshold value from "a proposed State criterion, or an explicit State policy or regulation interpreting its narrative water quality criterion, supplemented with other relevant information." *Id*. The preamble to the regulation states that "[u]nder [Option A] the permitting authority should use all available scientific information on the effect of a pollutant on human health and aquatic life," suggesting a broad construction of both "relevant information" and "proposed State criterion" so long as it is based on scientific information. 54 Fed. Reg. at 23,876.

The scientific analysis underlying the *NHDES Great Bay Nutrient Report* is clearly "relevant" to this permit proceeding; this peer-reviewed, site-specific analysis directly relates to the receiving waters and pollutant of concern at issue in this permit proceeding. In contrast to the Coalition's assertions, its relevance as a source of information to consider in the process of interpreting or translating an applicable narrative water quality criterion and deriving an effluent limitation to meet such a criterion does not turn on whether numeric thresholds have been finalized, adopted as rules under N.H. Rev. Stat. Ann. § 541-A or submitted to EPA for approval as a revised water quality standard pursuant to section 303 of the Act.[30]

[30] Petitioner mischaracterizes EPA's observation that New Hampshire has not adopted a "numeric translator mechanism," a term under the Act's implementing regulations referring to generally-applicable formulae used to derive numeric criteria from narrative standards and requiring EPA approval. 54 Fed. Reg. at 23,876; EPA, Guidance for State Implementation of Water Quality Standards for CWA Section 303(c)(2)(B), at 10 (Dec. 1988). The Coalition plays a game of semantics to conclude that, if EPA is no longer calling the numeric thresholds a numeric translator, "its original designation as a new criteria stands." *Pet.* at 47-48. EPA's characterization of thresholds in the *Great Bay Nutrient Report* as an "interpretation" or "translation" is different than "a numeric translator mechanism," and EPA is no way abandoning this description. Additionally, it is simply false that EPA 'originally designated' the 2009 Report a new criteria.

Similarly, nothing in the regulation or its preamble suggests that a "proposed state criterion" means that the criterion must have reached some specific point in the state legislative or administrative process prior to being employed, along with other relevant information, in the derivation of a water quality-based effluent limitation under section 122.44(d)(1)(vi)(A). As the preamble to this regulation states:

> Paragraph (d)(1)(vi) is used only in the absence of a state numeric water quality criterion (including a criterion derived from an approved translator mechanism). The options in paragraph (d)(1)(vi) provide a regulatory basis for developing water quality-based effluent limitations as an interim measure until a numeric criterion for the pollutant of concern is available. *State policies or procedures, even procedures which calculate derived criteria but are not approved by EPA, may be used to develop effluent limits under option A of paragraph (d)(1)(vi).*

54 Fed. Reg. at 23,876 (emphasis added). Indeed, it would make little sense to forbid the use of information because it has not been sufficiently "proposed" when the alternative would then amount to the use of *less* site-specific and *more* generalized information. Moreover, NHDES construes its numeric thresholds analysis as an interpretation or translation of its narrative nutrient criterion for those Great Bay Estuary waters that were the subject of the study. *See* Ex. 43 at 1 (Great Bay Nutrient Report) (AR K.14) ("The numeric criteria will first be used as interpretations of the water quality standards narrative criteria for DES' Consolidated Assessment and Listing Methodology for 305(b) assessments."). NHDES's interpretation of its narrative nutrient criterion is non-binding, to be sure, but it represents NHDES's scientific assessment of protective values for the receiving waters for the pollutant. Barring the use of NHDES's numeric thresholds and other information where appropriate would cut against a rationale underlying subsection (A) of EPA's regulation, which is, as the Coalition itself points out, to pay appropriate heed to the State's reading of its own water quality standards.

It is accordingly reasonable for EPA to consider NHDES's scientific analysis when interpreting NH's narrative criterion and deriving a water quality-based effluent limitation under section 122.44(d)(1)(vi). The Coalition apparently has no quarrel with EPA's construction of Section 301(b)(1)(C) and section 122.44(d)(1)(vi), set forth at Ex. 1 at 7-9, 40-41, 57-58, 69-72, 116-117 (RTC) (AR B.1.), because it makes no attempt to frontally challenge EPA's explanations or legal interpretation. [31] Silence, however, does not demonstrate clear error or reviewable exercise of discretion.

ii. EPA's Selection of the Stressor-Response/Weight of the Evidence Methodology Utilized in the *Great Bay Nutrient Report* to Interpret the Narrative Nutrient Criterion and Derive an In-stream Nitrogen Target of 0.3 mg/l Was Rationally Based in the Record and Not Clearly Erroneous

Throughout its Petition, the Coalition argues that the stressor-response/weight of the evidence methodology employed by the NHDES in the *Great Bay Nutrient Report*, and upon consideration ultimately relied on by EPA, is scientifically unsound due to its reliance, in part, on statistical correlations, and given background scientific uncertainty. *See, e.g., Pet.* at 12, 13, 88, 90, 92, 93. EPA's rationale behind its chosen technical approach to interpreting the narrative nutrient criterion and deriving a protective in-stream target was fully explained, was rationally based in the record and adequately accounted for uncertainty. The Board should uphold this determination.

[31] The best the Coalition can do is to allege that vast swathes of facially relevant materials considered by EPA (*i.e., the Great Bay Nutrient Report*) have been discredited by admissions purportedly made by NHDES (*i.e.*, the Burack letter) in an effort to claim that the nitrogen limit is in some way inconsistent with the "intent" of the State as to the implementation of its narrative nutrient criteria. This is simply not true. *See Appendix A* at 2-5, 7-8, 22, 40-43, 48 and *Appendix B.*

EPA arrived at its determination to utilize the thresholds in the *Great Bay Nutrient Report* only after careful consideration of the overall stressor-response/weight of the evidence methodology approach used to derive those thresholds and underlying site-specific data. EPA's estuarine experts concurred with the overall NHDES stressor-response/weight of the evidence approach employed in the *Great Bay Nutrient Report* after reviewing the water quality data and overall methodological approach. *See supra* at Section III.B.2. This conclusion was in keeping with the peer review of the *Great Bay Nutrient Report* by authorities in estuarine science, Dr. Robert W. Howarth, and Dr. Walter R. Boynton. *See* Ex. 14 (Review of "Numeric Nutrient Criteria for the Great Bay Estuary". Robert W. Howarth) (AR M.20.); Ex. 15 (Review of "Numeric Nutrient Criteria for the Great Bay Estuary," Walter R. Boynton) (AR M.1.). Both the *Great Bay Nutrient Report* and Howarth and Boynton peer review, were subsequently assessed by two other experts in estuarine science, Valiela and Kinney, and included as an attachment to comments on the draft permit submitted by Conservation Law Foundation. *See* Ex. 29 (Valiela and Kinney Review) (AR H.13). Valiela and Kinney concluded:

> There is very strong, empirical evidence that there have been increases in land-derived nitrogen loads and nitrogen concentrations and that eelgrass habitat and minimum dissolved oxygen concentrations are lowered as a result, in global (Waycott et al. 2009) and regional (Latimer and Rego 2010) terms. The Great Bay estuary shares this fate, judging from the evidence we have seen, and does not differ at all from what we have seen elsewhere.
> . . .
> We agree with Howarth's and Boynton's assessments that the Numeric Nutrient Criteria for the Great Bay Estuary provides an excellent basis for protecting the estuary and is an improvement over narrative nutrient criteria.

Id. at 9. *See also*, Ex. 30 at 1 (Comment Letter of Dr. William H. McDowell, Professor of Water Resources Mgt., Presidential Chair, UNH Dep't of Nat. Resources and the Env't, and Michelle L. Daley, Research Scientist II, Assoc. Director, NH WRRC, UNH Dep't of Nat. Resources and the Env't) (AR C.8) ("We have seen data on the dissolved oxygen (DO) impairment in the tidal

Lamprey and the significant eelgrass loss in Great Bay and its tidal tributaries. We agree with [NHDES] and EPA that nitrogen loading to the bay must be reduced to improve water quality and restore aquatic health."); Ex. 31 at 1 (Comment Letter of Dr. Fred Short, SeagrassNet Director and Research Professor, UNH, Dep't of Nat. Resources and the Env.) (AR C.9.) ("The [NHDES'] choice of eelgrass health as an indicator of estuarine conditions is well-founded. We have seen, time and again, that when eelgrass diminishes in an estuary, the system is on its way down – e.g., Chesapeake Bay, Waquoit Bay in Massachusetts, and Long Island Sound.").

The Coalition does not substantively dispute these expert assessments of empirical approaches taken by NHDES. It simply speculates in the case of the NSTEPS peer review, *Pet.* at 35-38, 57, 87-88, about what might have been had Boynton and Howarth been provided with additional material from the Coalition. However, "[l]ess speculation and more empirical evidence is needed by petitioner to justify review of the permit." *In re Texas Indus., Inc.*, 2 E.A.D. 277, 279 (Adm'r 1986); *accord In re Three Mountain Power, LLC*, 10 E.A.D. 39, 58 (EAB 2001). The Coalition's response to the Valiela and Kinney assessment is notably deficient—in fact, nonexistent as a substantive matter. *Pet.* at 25, n.29. This is striking for several reasons. First, Valiela, an acknowledged estuarine expert with over 40 years of experience in estuarine science, specifically assessed not only the Boynton and Howarth peer review, but also the Coalition critiques of the *Great Bay Nutrient Report*. Ex. 29 at 2 (Valiela and Kinney Review) (AR H.13.). Second, EPA specifically relied upon the Valiela and Kinney review in reaching its conclusions about the adequacy of the methodology, including statistical analyses, and numeric thresholds underlying the *NHDES Great Bay Nutrient Report. See* Ex. 1

at 12-13, 134 (RTC) (AR B.1). The Coalition's response to Valiela and Kinney is relegated to a vague footnote:

> The filing does not address EPA's use of the [sic] Dr. Viella's [sic] comments other than to note none of Dr. Viella's [sic] comments, made on behalf of CLF, consider any of the relevant site-specific information for Great Bay. For Dr. Viella [sic], it is all guilt by association. Such analyses do not demonstrate that the estuary 'has' TN impairments or that the 2009 Numeric Criteria are necessary to protect eelgrass populations in this estuary.

Pet. at 25, n.29. The Petition also does not, as a consequence, set forth a basis for review of a significant aspect of EPA's overall technical consideration of the NHDES approach to deriving protective in-stream numeric thresholds.

EPA did not rely on assurances from estuarine experts alone, but also carefully assessed each of the various lines of evidence, and the critiques of NHDES's conclusions. *See* Ex. 1 at 12 (RTC) (AR B.1) ("Table 1: Lines of Evidence"). Thus, EPA delved into "the assumptions and methodology used in preparing" the *Great Bay Nutrient Report*, *Sierra Club v. Costle*, 657 F.2d 298, 333 (D.C. Cir. 1981), and responded to any perceived differences between the conclusions of the NHDES analysis and "real world conditions" during the permitting process. *Upper Blackstone*, 690 F.3d at 27; *see also Am. Coke & Coal Chems. Inst. v. EPA*, 452 F.3d 930, 943 (D.C. Cir. 2006) (holding that EPA's use of the challenged model was not arbitrary or capricious in part based on EPA's extensive efforts to compare model assumptions against real-world data). *See* Ex. 1 at 10-17 (RTC) (AR B.1). Furthermore, it looked to draft or final nitrogen criteria from other states and in the literature, as well as in-stream targets yielded by other methodological approaches, to ensure that the numeric thresholds fell within the range of published values. *See* Ex. 1 at 69 – 71 (RTC) (AR B.1.); Ex. 2 at 26 - 31 (Fact Sheet) (AR A.8.).

EPA also took specific note of the fact that the *Great Bay Nutrient Report*, including its methodologies and approaches to mitigating uncertainties, had been subject to an unusual amount

of public process and expert scrutiny for an extended period of time. *See* Section III.B, *supra*. "[A]dmission of uncertainties where they exist, public exposure of the assumptions and data incorporated into the analysis, the acceptance and consideration of public comment, and, ultimately, a decision that reflects the rule of reason, are the structural features of reasoned, publicly accountable science-based agency decisionmaking." *Upper Blackstone*, 690 F.3d at 27-28 (internal quotation marks omitted) (citing *Sierra Club*, 657 F.2d at 334 & n.130); *see also Nat'l Mar. Safety Ass'n v. Occupational Safety & Health Admin.*, 649 F.3d 743, 752 (D.C. Cir. 2011), *cert. denied*, 132 S. Ct. 1960 (2012). In addition to the Boynton and Howarth peer reviews, New Hampshire developed proposed water quality thresholds with input from a technical advisory committee, and NHDES accepted and responded to comments on the numeric thresholds. EPA subjected its technical determinations to a longer than usual public comment process. Under these circumstances, EPA's reliance on the *Great Bay Nutrient Report* as a source of information under 40 C.F.R. § 122.44(d) was reasonable and rational in light of the record and is still more reason for its decision to be upheld. *See Upper Blackstone*, 690 F.3d at 27-28 (upholding EPA's imposition of a nitrogen effluent limitation in part because EPA incorporated "structural safeguards into its decisionmaking process").

The Coalition does not even attempt to grapple with EPA's explanations regarding its chosen technical approach to derive an in-stream target of 0.3 mg/l using a stressor-response/weight of the evidence methodology. *See e.g.*, *Pet.* at 41-45. In its Petition, the Coalition casually casts off EPA's extensive factual explanations underlying its permitting determinations as mere 'presumptions' or 'assumptions' about nitrogen impacts on water quality. The Coalition postulates that EPA's record findings, which were based on correlations, associations and relationships statistically inferred from large volumes of real- world water

quality data, were simply unproven assertions or even coincidences. As noted earlier, EPA fully understood that correlation (by definition) does not prove causation, but could nevertheless be highly probative of a discharger's impact on a receiving water:

> Stressor-response approaches use field data to estimate the relationship between nitrogen or phosphorus concentrations and a response measure that is either directly or indirectly related to the designated use. These approaches do not establish cause and effect because statistical correlation can never prove causation. The SAB's review of this approach was very clear in its support by stating 'The stressor-response approach is a legitimate, scientifically based method for developing numeric nutrient criteria if the approach is appropriately applied (i.e. not used in isolation but as part of a weight-of-evidence approach).' Thus it is recommended to combine the stressor-response approach with other information that documents cause and effect.
>
> The proposed numeric thresholds developed by the NHDES did not use the stressor-response approach in isolation. It used a weight of evidence approach with multiple lines of evidence. The estuarine eutrophication model used by NOAA (Bricker, 2007) relating external nutrients to primary (phytoplankton blooms and proliferation of macroalgae) and secondary (low dissolved oxygen and loss of submerged aquatic vegetation) symptoms was used as a guide for the analysis. Additionally, the NHDES assessed cause and effect data from the literature, criteria developed in other states, and reference concentration approach (NHDES utilized Portsmouth Harbor and Little Harbor as reference sites although declines in eelgrass acreage at these location indicates these areas are not pristine) in the development of its proposed numeric thresholds.

Ex. 1 at 78 (RTC) (AR B.1). In essence, the Coalition claims that this body of evidence has no application to, or even bearing on, real-world conditions until passed through another model designed to show direct cause and effect, but this is not a demonstration of error on EPA's part, merely a difference of technical opinion.

Moreover, the Coalition's view that cause and effect must be proven prior to imposition of a water quality-based effluent limitation is contrary to the regulations and case law and does not demonstrate grounds for review. The mere fact that the NHDES analysis and other information relied upon by EPA was based in part on statistical correlations that did not conclusively prove cause and effect does not bear on their overall validity and continuing

relevance to the nitrogen limits here so long as that analysis is robust, which in the judgment of EPA and independent experts, it was. *See supra* at Section III.B.2.a.2. The use of statistical correlations to show the basic relationship between causal (nitrogen loadings) and response variables (*e.g.*, dissolved oxygen and chlorophyll-a levels) is appropriate under 40 C.F.R. § 122.44(d)(1)(vi). *See In re Upper Blackstone Water Pollution Abatement Dist.*, NPDES Appeal Nos. 08-11 to 08-18 & 09-06, slip op. at 42-53 (finding no clear error in the Region's use of a physical model as relevant information to derive a nitrogen limit based on "the consistency between the [experimental] data and Rivers' data with respect to the correlation between nitrogen levels and DO and chlorophyll *a*."); *In re City of Attleboro,* NPDES Appeal No. 08-08, slip op. at 17-21 (EAB Sept. 15, 2009) (upholding EPA's determination that experimental data were relevant to understanding the extent of existing nitrogen impairment and required nitrogen reductions based on "a clear correlation between nitrogen loadings, dissolved oxygen impairment and chlorophyll *a* levels."); *In re Dominion Energy Brayton Point, L.L.C.*, 12 E.A.D. 490, 694 (EAB 2006) (finding that a power plant discharge and cooling water intake had "had a significant negative impact on the Mount Hope Bay fishery" based on a correlation rather than proof of a cause-and-effect relationship through a controlled experiment). *See also Ethyl Corp. v. EPA*, 541 F.2d 1, 28 (D.C. Cir. 1976) (en banc) ("Where a statute is precautionary in nature, the evidence difficult to come by, uncertain, or conflicting because it is on the frontiers of scientific knowledge, the regulations designed to protect the public health, and the decision that of an expert administrator, we will not demand rigorous step-by-step proof of cause and effect.").

2. EPA Appropriately Rejected Delaying Imposition of a Necessary Permit Limit to Await Possible Future Cause-and-Effect Models, Controlled Experiments or Analyses That Might Reduce Scientific Uncertainty

The Coalition clearly would have opted for a different approach than that taken by EPA in this permit proceeding, one that went beyond the types of information expressly authorized for use in interpreting a narrative nutrient criterion under 40 C.F.R. § 122.44(d)(1)(vi) in favor of modeling, controlled experiments, or other demonstrations that it believes better prove cause and effect between nitrogen loading and impairments in the Great Bay Estuary and reduce scientific uncertainty. This type of information, however, does not exist for the Great Bay Estuary. In fact, nowhere in the record or its voluminous filings with this Board does the Coalition specifically show how this "cause-and-effect" demonstration would improve on EPA's existing analysis or address the likelihood that it would lead to a different result. The Coalition likely has in mind the development of a hydrodynamic model for the Squamscott River and Lamprey River like that referenced in the Memorandum of Agreement ("MOA") between the Coalition and NHDES, *see* Section V.C.3, *infra*, but the Coalition appears for the moment to have abandoned its effort to develop that analysis. EPA chose to rely on existing information including the *Great Bay Nutrient Report* and fully explained its decision to do so, including why it believed that information constituted a sound basis for permitting decisions at this time and rationally accounted for background scientific uncertainty. EPA's decision should be upheld.

Given all of the data and other information in the record supporting the nitrogen effluent limit, EPA did not act irrationally by issuing this long-expired permit in the face of some measure of scientific uncertainty and in the absence of a mechanistic model or controlled experiments. Rather, EPA accounted for any uncertainty within the confines of applicable law,

including through recourse to the stressor-response/weight-of-the-evidence approach developed by NHDES, rather than through development of another model, which would have necessitated still further delay:

> Regardless of the methodology employed, it is often useful to utilize multiple lines of evidence, and the weight of such evidence, when evaluating environmental data. Environmental data and analyses often rely on tests of associations, rather than causal relationships, because experimental conditions cannot be created to test causal relationships without controlling for confounding factors. To address this issue, a weight-of-evidence approach is utilized, evaluating whether relationships observed are predicted by or consistent with a conceptual model. [Footnote omitted] Use of multiple lines of evidence reduces uncertainty. In deriving ambient water quality thresholds for the Great Bay Estuary that would protect designated uses, NHDES utilized a weight-of-evidence methodology.

See Ex. 1 at 97 (RTC) (AR B.1). EPA further explained,

> "The Coalition also cites to the existence of scientific uncertainty or complexity—two undeniable attributes of this permit proceeding—as a reasons to forego reliance on currently available data and peer-reviewed studies such as the *NHDES Great Bay Nutrient Report* in lieu of *future* studies and data collection and *further* peer-review processes, specifically, to establish a causal link between nitrogen loading from the watershed and cultural eutrophication in the receiving waters. EPA finds no merit in this objection, not only because it misapprehends the legal standard for imposing necessary pollutant controls, [footnote omitted] but also because additional delay would be imprudent in light of receiving water conditions, particularly in tidal tributaries such as the Lamprey River, which are already impaired and showing clear signs of nutrient-induced water quality problems; because of the magnitude of the Facility's discharge, especially as it impacts the Lamprey River; because of the nature of nutrient pollution (i.e., the eutrophication cycle, once begun, can be difficult to address, as nutrients tend to recycle in the ecosystem); because the scientific and technical record in this case is more than sufficient to support the limits in the judgment of EPA and other impartial experts; and because additional analyses will always still leave some irreducible scientific uncertainty given the complexity of the environmental context.

See Ex. 1 at 16 (RTC) (AR B.1). This conclusion was in keeping with other estuarine experts who reviewed the *Great Bay Nutrient Report*.[32] *Accord In re Upper Blackstone Water*

[32] *See, e.g.*, Valiela and Kinney concluded in their review as follows:

> There can always be more study, to more fully understand every factor contributing to the health of the estuary, but we believe that the evidence for the need to decrease the land-derived nitrogen load is overwhelming. No amount of hydrodynamic modeling or larger data sets will change the fact that

Pollution Abatement Dist., NPDES Appeal Nos. 08-11 to 08-18 & 09-06 (EAB 2010) (holding that a mathematical model was not required prior to establishing a water quality-based effluent limitation). Under these circumstances, EPA's decision to move forward with permitting based on the best information reasonably available, including the *Great Bay Nutrient Report*, rather than deferring the imposition of a necessary water quality-based effluent limitation for nitrogen in the hope of a more perfect model was rational and should be upheld. *See Upper Blackstone Water Pollution Abatement Dist. v. U.S. EPA*, 690 F.3d 9, 23 (1st Cir. 2012) ("In almost every case, more data can be collected, models further calibrated to match real world conditions; the hope or anticipation that better science will materialize is always present, to some degree, in the context of science-based agency decisionmaking. Congress was aware of this when it nonetheless set a firm deadline for issuing new permits."); *see Am. Iron & Steel Inst. v. EPA*, 115 F.3d 979, 1004 (D.C. Cir. 1997) (holding that courts generally defer to an agency's decision to proceed on the basis of imperfect scientific information, rather than to "invest the resources to conduct the perfect study"). The Coalition simply ignores EPA's response to its comments on this issue.[33]

> the amount of nitrogen entering the Great Bay estuary is increasing and there must be substantial nitrogen reductions if the eelgrass habitats, and all of the ecosystems services that they provide, are to survive. The solution to the eutrophication of the Great Bay estuary is going to require control of wastewater nitrogen-a significant and controllable source of nitrogen. The plan to deal with the problem also will need to include a combination of point and non-point nitrogen sources, and future changes in land use (NHDES 2010). The conclusions of NHDES regarding Numeric Nutrient Criteria of the Great Bay estuary are supported by studies in other New England estuaries and can provide a sound basis for permitting decisions, including those for the [] wastewater treatment plant.

Ex. 29 at 9 (Memo to Tom Irwin of CLF. RE: Review of NHDES Numeric Nutrient Criteria for Great Bay. July 28, 2011) (AR H.13).

[33] The Coalition attempts at various points in its Petition to escape the implications of *In re Upper Blackstone Water Pollution Abatement District*, NPDES Appeal Nos. 08-11 to 08-18 & 09-06 (EAB May 28, 2010), by turning that case on its head. By focusing on the fact that there was a physical model in that case available for permitting, the Coalition ignores the Board holding's that a mathematical model of the type the Coalition sought under the MOA was *not* required prior to imposition of a water quality-based limit.

In light of the factors identified by EPA for why it chose to rely on currently available information in lieu of marking time for a mathematical model or other demonstration that might never materialize, EPA's choice of a particular technical approach to derive a limit in accordance with Section 301(b)(1)(C) and 40 C.F.R. § 122.44(d)(1) was fully explained and rational and therefore worthy of deference; it should be upheld. *See Upper Blackstone*, slip op. at 43 ("[T]he use of a physical model, instead of a mathematical model or other site-specific model, to derive effluent limitations is a technical judgment that also falls within the Region's discretion and expertise."); *Attleboro*, slip op. at 17 (same).

3. The Coalition's Specific Objections to a Stressor-Response/Weight of Evidence Methodology to Derive an In-stream Target of 0.3 mg/l are Unfounded[34]

Although it does not grapple with EPA's explanations of why it adopted the stressor-response/weight-of-the-evidence approach, as explained above, the Coalition alleges several other errors with this methodology. *Pet.* at 88-91. The Coalition makes two specific arguments against EPA's approach. It asserts that EPA's analysis ran afoul of the Science Advisory Board's ("SAB") guidance on the use of stressor-response analyses. It also argues that EPA ignored information from deposition testimony and the 2012 Burack Letter showing the presumed relationship between nitrogen and transparency impacts to be false. *Pet.* at 89. Together, the Coalition contends that these faults render the *Great Bay Nutrient Report* "little more than unsupported speculation" and EPA's overall analysis "a complete and utter fabrication." *Id.* at 90.

The Coalition incorrectly claims that the statistical evaluations and weight of the evidence approach used by NHDES to derive numeric thresholds had been determined to be

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[34] This addresses Section V.k of the Petition. *See also* Appendix A at 45-48.

unreliable by EPA's SAB, and that EPA ignored or skirted these admonitions. *Pet.* at 89. To support this claim, the Coalition transmutes EPA's response on this issue into a series of strawmen, none of which is sufficient to demonstrate any error on EPA's part. The Coalition asserts that EPA 'implied' that its decision met the requirements of the SAB merely because the permit decision and the peer review occurred after the SAB's decision on requirements for a scientifically defensible stressor response analysis. *Pet.* at 91. EPA did no such thing. In its comments on the draft permit, the Coalition cited to an SAB analysis which criticized a stressor-response methodology that had been developed by EPA Headquarters. The Region's response was that the SAB criticisms had been overtaken by a revised EPA Headquarters' methodology, and that the Region's weight of the evidence approach was consistent with both the SAB report and this latter document. The weight of evidence approach utilized by NHDES and Region 1 is clearly consistent with the SAB recommendations. In its review the SAB stated, "The Stressor-Response approach is a legitimate, scientifically based method for developing numeric criteria if the approach is applied correctly (i.e. not used in isolation but as part of a weight-of-evidence approach.)." *See* Ex. 52 at 1 (SAB Review) (AR M.23). The numeric thresholds developed by NHDES and utilized by EPA did not use the stressor-response approach in isolation, but rather, as recommended by the SAB, as part of multiple lines of evidence. In addition to the stressor-response approach, NHDES utilized the estuarine eutrophication model used by NOAA relating external nutrients to primary and secondary symptoms as a guide for the analysis. The NHDES also assessed cause and effect data from the literature, criteria developed in other states, and a reference concentration approach (utilizing Portsmouth Harbor and Little Harbor as reference sites although not pristine due to declines in

eelgrass acreages at these locations) in the development of its numeric thresholds. As the Region explained:

> The Coalition's paraphrasing of the SAB position on cause and effect omits a highly material part of the SAB analysis. The SAB Report states: "the final [Guidance] document should emphasize that statistical associations may not be biologically relevant and do not prove cause and effect. However, when properly determined, statistical associations can be very useful in supporting a cause and effect argument as part of a weight-of-evidence approach to criteria development." (SAB, 2010 at 23). NHDES' weight of evidence approach is consistent with this advice.

See Ex. 1 at 112 (RTC) (AR B.1). EPA similarly relied on the weight of the evidence approach to demonstrate that designated use impairments were occurring in the receiving waters due to nitrogen loadings, and that the nitrogen targets used to remedy the impairments were therefore justified, and included in its analysis a consideration of confounding factors and any uncertainty. *See, e.g.*, Ex. 1 at 112-114 (RTC) (AR B.1). The Coalition never clarifies what precisely *its* "weight of the evidence" approach would entail; so it is impossible for anyone to even evaluate whether the alternative approach advocated by the Coalition is so compelling as to render EPA's approach erroneous.

As to the deposition testimony and Burack letter, the Coalition has not carried its burden of demonstrating error. EPA had no reason to give "controlling weight" to Petitioner's characterization of the deposition testimony, but had every reason to give it minimal weight, because it is unsupported by the facts. *See Appendix B.* Nor does the October 2012 letter from DES in any manner "confirm" that EPA "eliminated from the record" provided to the peer reviewers, "all of the site specific information confirming that nitrogen had never caused any material change in water-column transparency." *Pet.* at 89. Once again, the Coalition's assertion is a mischaracterization of that letter. In fact, Commissioner Burack, in response to a Coalition claim that various DES analyses were improperly excluded from the 2009 Report and the peer review, wrote:

> Estuaries are very complicated environments. Consequently, the DES study of the impacts of nutrients in the estuary considered multiple approaches and evolved over four years. Some of the initial analyses done by DES at the beginning of the five years of research between 2005 and 2009 failed to show simple relationships between nitrogen and transparency, phytoplankton, or dissolved oxygen. *However, these analyses did not prove that relationships between these parameters did not exist. The initial methods and datasets used were simply inadequate for the task. Therefore, the analyses that the [Coalition] uses to demonstrate the absence of cause-and-effect relationships, do not prove anything*.
>
> For the final report in 2009 (DES, 2009), DES ultimately adopted an approach that used long-term averages to take into account delays in the biological response and nonlinear feedback in the complicated estuarine system. Published papers by Burkholder et al. (2007) and Li et al. (2008) demonstrate that eelgrass loss and algae blooms are not expected to directly follow nitrogen concentrations and that plots of monthly data will not illustrate relationships in estuaries. The approach used by DES in the final report was able to illustrate the underlying relationships between nutrients and their effects. The initial analyses that had not been effective were not included in the final report, as was appropriate.

Ex. 32 at 10 (Burack letter dated October 19, 2012) (AR H.43) (emphasis added). In addition, contrary to the Coalition's claim, *Pet.* at 90, EPA did not exclude the Coalition's supplemental comments, but included them in the administrative record for the permit. *See infra* at Section V.B.2. EPA's permit decision was rational in light of all the information in the record, including these supplemental submissions. As the Coalition has itself explained, these materials were consistent with its earlier comments on the nitrogen and transparency relationship to the water quality use impairments in the Great Bay Estuary. EPA explained in its Response to Comments that its technical opinion differed from the Coalition's and that a relationship between transparency and nitrogen in fact existed in the receiving waters, despite the Coalition's claims to the contrary. *See* Ex. 1 at 43-45, 84-94,103-04 and 109-10 (RTC) (AR B.1.); *Appendix A* at 8-10, 12-18.

4. EPA Did Not Apply the NHDES Great Bay Nutrient Report as a New or Revised Numeric Water Quality Standard, but Rather Used the Scientific Analyses Underlying It When Interpreting the Narrative Water Quality Criterion for Nutrients to Derive an In-stream Target That Would Protect Designated Uses[35]

The Coalition's contention that EPA illegally applied the *Great Bay Nutrient Report* and the numeric in-stream thresholds contained in it as *de facto* criteria that "replace" rather than translate or interpret New Hampshire's existing narrative criteria for nutrient control and cultural eutrophication is clearly wrong. *Pet.* at 46 and 47. Review should be denied on this basis.

The Coalition states that EPA in its Response to Comments "sought to refute" the Coalition's position that the use of the numeric thresholds in the *Great Bay Nutrient Report* amounted to the illegal application of an unadopted, numeric nutrient criterion. *Pet.* at 46. The Coalition proceeds to outline "facts" of alleged significance to the water quality standard adoption process, but has failed to adequately address EPA's response or to demonstrate any reviewable error or abuse of discretion on EPA's part in establishment of the nitrogen limit. As EPA explained in its response:

> In this instance, the only applicable standard in the state water quality standards are *existing* approved narrative criteria for nutrients. The *NHDES Great Bay Nutrient Report* is a non-binding, site-specific analysis that yielded instream thresholds that NHDES concluded would be stringent enough to achieve the applicable narrative water quality criteria and would protect uses.

And:

> EPA, as permitting authority in New Hampshire, has used the State's proposed numeric thresholds for Great Bay as one source, supplemented by other sources, to interpret the State's narrative water quality standards and establish numeric effluent limitations for an individual permit. As explained above, EPA was not required to apply these values, and there was nothing to foreclose the use by NHDES, EPA or any other party of different thresholds if they existed, or the development of new ones, for a particular water so long as those values could be shown to achieve applicable water

[35] This addresses Section V.d of the Petition. *See also* Appendix A at 29-31.

> quality criteria and protect uses. As permitting authority, EPA is *required* to interpret narrative water quality standards where no numeric standards exist. 40 C.F.R. § 122.44(d)(1)(vi). EPA is authorized to use information sources like proposed criteria [footnote omitted] and underlying technical analyses as a source in translating those narrative standards to derive thresholds that will be protective of the State's narrative criteria and from which to calculate proposed effluent limitations. *Id.* EPA finds no merit in the assertion that it is applying the *NHDES Great Bay Nutrient Report* as de facto criteria.

See Ex. 1 at 70, 71 (RTC) (AR B.1). Rather than reflexively applying the state targets as binding criteria, EPA conducted an independent evaluation of the *Great Bay Nutrient Report* and its contents to determine whether that information would assist EPA in its effort to translate or interpret the state's narrative criteria in a manner that would yield appropriate in-stream targets and numeric effluent limits for the permit in question. The Coalition's characterizations and portrayals of EPA's actions and deliberations pertaining to the water quality standard adoption is a story, now leavened with supposed admissions and facts from deposition testimony, that the Coalition presented in the comments below. Not only are the characterizations erroneous,[36] but by essentially restating its existing position without

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[36] The Coalition also attacks, with a number of related statements, the notion that the numeric thresholds were intended by NHDES to be a translation or interpretation of the state's narrative criterion. Most notable is the Coalition's assertion that "EPA's Response to Comments has now abandoned describing the 2009 Numeric Criteria document as a translator. (RTC at 70 ("DES has not adopted a numeric translator. . .")). *Pet*. at 47-48. This statement is blatantly misquoted and mischaracterized: In fact, on Page 70 of EPA's Response to Comment, EPA actually stated the following:

> New Hampshire also has not adopted translator mechanisms. Translator mechanisms are generally-applicable formulae used to derive numeric criteria from narrative standards. 54 Fed. Reg. 23,868, 23,876, June 2, 1989; EPA, 1988 at 10). As explained above, narrative water quality criteria necessarily require some amount of translation (i.e., derivation of an instream threshold on a site-specific basis) in order to be implemented. That site-specific analysis may focus on a small area, or may encompass a much larger area, as is appropriately the case here. Ex. 1 at 70 (RTC) (AR B.1).

EPA clearly was *not* abandoning, contrary to the Coalition's assertion, the notion that the *Great Bay Nutrient Report* includes a methodology that is a translation or interpretation of the state's existing narrative criteria. EPA's position that the numeric thresholds are, in fact, translations or interpretations of the State's narrative criteria is wholly consistent with the fact that New Hampshire has not "adopted translator mechanisms."

Finally, the Coalition asserts that EPA's application of the State's numeric thresholds is demonstrably illegal by virtue of "EPA's acknowledgment and the State's admission that the 2009 Numeric Criteria does not constitute evidence or demonstrate a violation of the narrative standard." The Coalition argues from there that the "2009

explaining why EPA's response was inadequate, the Coalition has failed to demonstrate a basis for review.

> EPA's position accords with State of New Hampshire's formal position on the issue:
>
> DES's position is that the 2009 Guidance Document and the numeric values therein are not rules. DES has not, will not and cannot, apply the Document and the numeric values therein against any class of persons. The values in the 2009 Guidance Document are unenforceable by design. DES considers the Document and the numeric values therein to be a site-specific policy interpretation lacking the binding force and effect of law.

Ex. 33 at 3-4 (Mem. of Law in Support of the State's Mot. for Summ. J. (AR N.39)). In this case, NHDES conducted a site-specific analysis of the receiving waters impacted by Newmarket's discharge as part of its numeric nutrient criteria development process, and proposed a series of in-stream thresholds for a number of parameters designed to be protective of designated uses. While EPA was not required to apply these values, or exclude consideration of other relevant values, EPA determined it was reasonable to employ these values after independently assessing the validity of the State's technical analysis. EPA concluded that the thresholds represented a set of protective values that were not overly stringent, and utilized them for purposes of deriving the nitrogen effluent limitation in the draft permit, and subjected all these decisions (*i.e.*, calculated numeric thresholds and permit limits) to public notice and comment. This decision was rational.

In any event, none of the actions taken by EPA are consistent with the notion of it treating the *Great Bay Nutrient Report* as binding numeric water quality criteria under 40 C.F.R. Part 131, which EPA would have been legally obligated to apply mechanically. What

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Numeric Criteria document can [therefore] only be classified as a new unadopted numeric criteria." Here again the Coalition mischaracterizes the circumstances and misses the point. First, the Coalition provides no citation to the record where EPA acknowledges and the State admits "that the 2009 Numeric Criteria does not constitute evidence or demonstrate a violation of the narrative standard." Second, EPA and NHDES have explained throughout the record for this matter that the application of the stressor-response matrix is a *methodology* by which decisions are to be made as to whether or not a water body is impaired under the state's existing narrative criteria.

EPA instead did was to explain its derivation of a protective in-stream value over the course of dozens of pages in the Fact Sheet and dozens more in the Response to Comments.

5. The Coalition's *Daubert* Argument Does Not Demonstrate Any Grounds For Review[37]

The Coalition claims that EPA's establishment of the in-stream target of 0.3 mg/l failed to account for the site-specific considerations, as it was allegedly based on "mere correlations." *See Pet.* at 91-92. The Coalition contends that *Great Bay Nutrient Report* was inconsistent with the Science Advisory Board's 2010 Review of EPA Headquarters' stressor-response guidance and the guidance itself. *Id*. at 92. Additionally, the Coalition states that EPA and NHDES failed to respond adequately to its comment that data showing nitrogen and transparency trends were plotted from areas with "radically different ecological settings," allegedly in contravention of the 2010 SAB review. The Coalition concludes that the Region's approach fails to meet the standard for evaluating expert scientific testimony in federal trials set forth by *Daubert v. Merrell Dow Pharm., Inc*., 509 U.S. 579, 592-593 (1993), and purportedly applicable to NPDES permit issuance proceedings. *Pet*. at 94. The Coalition is mistaken on all counts.

As a threshold matter, the Coalition is too late in attempting to raise the *Daubert* argument for the first time before this Board, and review of this issue should accordingly be denied for lack of preservation. *In re Shell Offshore, Inc.*, 13 E.A.D. 357, 394-95 (EAB 2007) (rejecting as unpreserved legal arguments regarding the applicability of certain regulations when not specifically raised during the comment period). In its comments, the Coalition challenged the scientific basis for the permit's in-stream targets, and proposed a specific legal framework that it contended must be used to assess the sufficiency of the evidence underlying such targets. The Coalition, however, framed these arguments specifically in terms of the

[37] This addresses Section V.l of the Petition. *See also* Appendix A at 48-50.

Clean Water Act (relying, for example, on CWA §§ 101(a), 304(a) and 40 C.F.R. Part 131). *See* Ex. 1 at 60, 74 (RTC) (AR B.1). The Coalition never mentioned, nor did any other commenter, that EPA must look to *Daubert* as the ultimate test of the adequacy of the science and the validity of the permit's water quality-based nitrogen effluent limitation. *In re ConocoPhillips Co.*, 13 E.A.D. 768, 800-04 (EAB 2007) (rejecting as unpreserved arguments regarding the applicability of *Massachusetts v. EPA* where petitioners had failed to argue in their comments that the case required the regulation of greenhouse gas emissions in the permit at issue).

On the merits, the Coalition's position is without legal or factual foundation and does not demonstrate any basis for review by the Board. In *Daubert*, the Supreme Court established the standard by which judges must determine the admissibility of expert scientific testimony in federal trials. 509 U.S. at 592-93. The Court listed four factors for federal trial judges to consider when evaluating the reasoning or methodology underlying the expert testimony, including: (1) whether the theory or technique can be tested, (2) whether the theory or technique has been subject to peer review, (3) whether the technique has a high known or potential rate of error, and (4) whether the theory has attained general acceptance within the scientific community. *Id.* at 593-94. On its face, *Daubert* is inapposite to these permit proceedings, which involve not a trial, but an expert agency establishing an effluent limit under a statute it was charged by Congress with administering. Indeed, the Board has expressly concluded elsewhere that the "*Daubert* factors are not controlling principles" for administrative agencies, even in cases involving testimony. *In re Solutia Inc.*,10 E.A.D. 193, 211-12, n.22 (EAB 2001); *see Sierra Club v. Marita*, 46 F.3d 606, 621-22 (7th Cir. 1995) (rejecting the use of the *Daubert* test in determining whether to defer to agency decisions where petitioner

asserted that the agency employed "bad" science); *see also Edison Elec. Inst. v. EPA*, 391 F.3d 1267, 1269 n.2 (D.C. Cir. 2004) (holding that *Daubert* standard for scientific evidence was inapplicable to EPA rulemaking and stating "Evidentiary rules govern the admissibility of evidence at trial, not the establishment of the processes whereby such evidence will be created"); *Sierra Club v. Marita*, 46 F.3d 606, 621-22 (7th Cir. 1995) (rejecting the use of the *Daubert* test in determining whether to defer to agency decisions where petitioner asserted that the agency employed "bad" science). Unlike a trial where a lay trier of fact must assess the expert testimony presented, a court must afford great deference to EPA decisions that involve technical analyses and scientific judgments within the Agency's expertise under the Act. *See Envtl. Def. Ctr., Inc.* v. *U.S. EPA*, 344 F.3d 832, 869 (9th Cir. 2003); *Am. Iron & Steel Inst.* v. *U.S. EPA*, 115 F.3d 979, 1006 (D.C. Cir. 1997) (per curiam).

Neither the Clean Water Act, nor federal regulations implementing the NPDES program, nor applicable case law impose the amorphous standard of 'scientific validity' or 'scientific acceptance' posited by the Coalition as a predicate to the imposition of a water-quality based effluent limitation in an NPDES permit. *See Pet.* at 94. To the opposite, rather than setting a particularized evidentiary threshold for science related to a discharger's impact on water quality, the plain language of CWA Section 301(b)(1)(C) and 40 C.F.R. § 122.44(d) directs EPA to impose limits and conditions necessary to meet applicable water quality standards, and establish a flexible mechanism to guide the permit writer in the development of water quality-based effluent limitations to meet narrative criteria.[38]

[38] As EPA's preamble to its final rulemaking promulgating 40 C.F.R. § 122.44(d)(1)(vi) further explained:

> State narrative water quality criteria provide the legal basis for establishing effluent limits under paragraphs (d)(1)(v) and (d)(1)(vi) of today's regulations. There is flexibility in the state's interpretation of its narrative water quality criteria. 54 Fed. Reg. 23,868 at 23,875 (June 2, 1989); and

With respect to the scope of materials EPA is authorized to consider, the operative term of the regulation above is "relevant," which means, "Having a bearing on or connection with the matter at hand." *See The American Heritage Dictionary of the English Language, Fourth Edition (2004).* Nothing in the CWA or Part 124 delimits or qualifies what can constitute "relevant information" under subsections (A) or (B) of § 122.44(d)(1)(vi). While EPA's determinations must be reasonable and rationally based in the record, the regulation does not require the materials relied upon by the permit issuer to possess any specific indicia of "demonstrated acceptable in any published treatise," *Pet.* at 94, or 'reliability,' or "accepted in the scientific community"—although the peer-reviewed material manifestly did—or to meet any of the factors set forth in *Daubert*, although the information relied on by EPA is certainly both credible and reliable.

The Coalition's generic allegations that the NHDES studies lack scientific reliability, or their more specific allegations relating to EPA's presentation of data and the SAB, *see, e.g.*, *Pet.* at 18-26 and Section V (various scientific issues), are addressed in *Appendix A.*

6. The Permit As Written Will Ensure Compliance With Applicable Water Quality Standards[39]

Erroneously using its three-pronged test, *supra* at Section V.A.1.a, as the benchmark for assessing EPA's permitting determinations, the Coalition spends the first 95 pages of its Petition holding forth on why EPA's technical determinations regarding the in-stream nutrient thresholds "have no demonstrable relationship to actual environmental conditions or needs anywhere in this system (including narrative criteria compliance)," *Pet.* at 2; why the nitrogen

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EPA believes it is inappropriate for this regulation to provide detailed technical procedures for developing numeric criteria because option A is intended to provide flexibility to the states when developing water quality-based effluent limitations. *Id.* at 23876.

[39] This addresses Section V.m of the Petition. *See also* Appendix A at 50-51.

permit limit is "unrelated to actual environmental protection needs," *Pet.* at 3; and why the system "require[s] far less pollutant reduction," *Pet.* at 40, than required by the permit. Indeed, the Coalition asserts not only that the nitrogen limit of 3.0 mg/l is too stringent, *Pet.* at 26, but that "the most restrictive effluent limits [sic] justified at this time for narrative criteria compliance would be a 8 mg/l." *Pet.* at 84.

It came as no small surprise to EPA then that the Coalition, with equal vigor, if not volubility, concludes its Petition with a *volte face*, suddenly asserting that, based on this very same record, the permit is demonstrably not stringent enough to ensure compliance with applicable water quality standards for dissolved oxygen and nutrients, necessitating a remand. *Pet.* 95. The Coalition incongruously argues that "it is apparent that the permit limitations established in this permit are insufficient to meet water quality standards," because there is no indication in the record that necessary nonpoint source reductions required in conjunction with an effluent limitation of 3.0 mg/l will be pursued. *Pet.* at 95-97.[40] In essence, the Coalition is asking the Board to remand the permit limit of 3.0 mg/l on the grounds that it is not stringent enough to ensure compliance with water quality standards. The Coalition contends that a 3.0 mg/l TN limit is insufficient to ensure compliance with water quality standards, but "any strength that this assertion could otherwise have had is undermined by [the Coalition's] own prior assertion" that 8.0 mg/l limit is sufficient. *In re Dominion Energy Brayton Point, LLC*, 13 E.A.D. 407, 428-29 (EAB 2007); *see* Pet. at 82, 84; RTC at 56, 97, 99. The Coalition's late-

[40] Although the Coalition prefaces the argument by "assuming arguendo" that the Board has rejected the Coalition's manifold claims of error, the argument is analytically independent, and does not in any logical way depend on the Board so doing: the record either is or is not sufficient to support the permit limit. As EPA explains, it happens that the record is sufficient to support the limit (the Coalition's own statement amounts, in part, to an affirmative declaration that use impairments exist in the receiving waters because water quality standards are not being met), and the Coalition accordingly has not demonstrated any grounds for review.

breaking argument is at cross purposes with its main argument, and does not convincingly demonstrate any error in EPA's position.

Foremost, the Coalition has failed to preserve this argument. As with many of the issues raised in its petition, the Coalition provides no citation to the record to satisfy its burden to demonstrate that the issue has been specifically preserved. Nor has the Coalition asserted – nor can it – that the issue was not reasonably ascertainable by the close of the comment period. The overall permitting approach was articulated in the Fact Sheet for the draft permit, where EPA made it clear that the limit of 3.0 mg/l was predicated on the communities pursuing nonpoint source reductions. Ex. 2 at 29 (Fact Sheet) (AR A.8). The Fact Sheet, in addition, included the very language of the reopener, *compare* Ex. 2 at 30-31 (Fact Sheet) (AR A.8) *with* Ex 34 at 12 (Final Permit) (AR A.1), and, thus, it cannot be said that the issue was not reasonably ascertainable. There is no reason why the Coalition could not have raised objections to it below.

Contrary to the Coalition's understanding, *Pet.* at 95, the permit does not depend on whether the State implements mandatory nonpoint source requirements. Rather, Section I.F.4 of the permit identifies a set of analyses and planning steps related to nonpoint source reductions that the Region expects will occur during the term of the permit. If they do not occur, then EPA's assumption will have proven unfounded, and its recourse will be to reopen the permit. The Coalition's apparent rush to judgment that nonpoint source controls will never be implemented is based on a false premise, and that eventuality is in any event accounted for by the permit reopener, as the Coalition expressly recognizes. *Pet.* at 96. [41]

[41] Even if the argument had been preserved, the Coalition's claim does not show any reviewable error, because for the length of these permit proceedings, the Coalition and its members have made the opposite argument they now make, using the prospect of nonpoint source reductions as a basis to forestall or obviate the need for establishment of water quality-based effluent limitations on their constituent communities, and have made those arguments on

Furthermore, it is unnecessary to take up the Coalition's invitation to speculate on whether "there is any reasonable likelihood that the type of nonpoint source reductions EPA claims are necessary have any reasonable assurance of being completed," *Pet.* at 96. [42] The permit reopener is designed to address the eventuality outlined by the Coalition, *i.e.*, if preliminary analyses and planning to support nonpoint reductions do not occur, and EPA's assumptions prove incorrect, then the permit will be reopened, and a more stringent limit will be imposed, subject to notice and comment in an entirely separate future proceeding. The Coalition fails to explain why the reopener does not adequately address its concerns.

The Coalition also speculates at what might happen if the permit is reopened, such as relocating the discharge out of the basin. *Pet.* at 96. ("*If* a lower limit is applicable the discharge would *likely* need to be relocated out of the basin. Such relocation to the ocean, for example, would not *likely* require nutrient reduction prior to discharge." (emphasis added). Mere conjecture about a potential future permit limit does not constitute a basis for review of the limit currently on appeal. *In re Three Mountain Power, LLC*, 10 E.A.D. 39, 58 (EAB 2001) ("The Board will not overturn a permit provision based on speculative arguments.").

As a separate basis for asserting that the 3.0 mg/l nitrogen limit is not stringent enough, the Coalition asserts that the "TN criteria presumes that 100% of the effect of DO and transparency is TN-induced. The data plainly show this is false and EPA has admitted this fact

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the record. The Coalition cannot credibly assert that the record for this permit proceeding does not support reliance on necessary nonpoint source reductions (*see Pet.* at 95-96) when the Coalition itself proposed a specific Adaptive Management Plan that it claimed would systematically and comprehensively address nonpoint source reductions in the watershed. *See* Ex. 35 (Great Bay Municipal Coalition Adaptive Management Plan) (AR H.35).

[42] Contrary to the Coalition's claims, there was nothing in any subsequent, post-permit issuance statements by NHDES that call into doubt the permitting framework adopted by EPA, which NHDES conceptually endorsed in its Section 401 certification, and which was never based on the implementation of mandatory nonpoint source controls, but instead by its express term was predicated on the Town taking very specific actions to develop a framework addressing nonpoint sources in its watershed. In any case, the subsequent statements in these materials are also outside the administrative record. Under EPA's regulations, the administrative record in an NPDES permit proceeding is considered complete on the date the final permit is issued. 40 C.F.R. § 124.18(c).

Therefore, the limits as structured will not assure criteria compliance as required by 40 C.F.R. 122.44(d)." *Pet.* at 95. Even if this argument possessed any merit, EPA cannot be faulted for not having considered adjustments to the nitrogen threshold on this basis during the permit proceedings. Although this argument was reasonably ascertainable, it was not made by any party during the public comment period, and the Coalition is accordingly not permitted to make it now. In any case, the argument itself is meritless, and does not demonstrate error with respect to the nitrogen effluent limitation of 3.0 mg/l. *See Appendix A* at 50.

At bottom, the Coalition would have framed the permit differently than EPA, specifically, a nitrogen effluent limitation of 8 mg/l, combined with an adaptive management plan and additional modeling and monitoring. *See Pet*. at 13, 27 fn. 30; *Ex. 1* at 56, 99-100, 105, 150-51 (RTC) (AR B.1). Aside from the precise level of point source nitrogen control, the difference now is that the Coalition suddenly is willing to consign such adaptive management efforts as hopeless, infeasible and physically impossible, whereas EPA perceives an opportunity for the permit to provide a catalyst and framework to address this very difficult problem that can only be properly addressed by collaboration on the part of multiple parties.

B. The Coalition Has Not Carried Its Burden of Demonstrating Clear Procedural Error Warranting Review

1. EPA's Discretionary Use of the Peer Review Did Not Violate the Coalition's Due Process Rights and CWA Mandatory Duties[43]

The Coalition argues that the peer review of the *Great Bay Nutrient Report* excluded their representatives and also excluded relevant "points" made by the Coalition about the peer review's "scope and content." *Pet.* at 87. Fundamentally, the Coalition criticizes EPA for

[43] This addresses Section V.j of the Petition. *See also* Appendix A at 43-45.

committing what the Coalition characterizes as "grossly improper procedural error" relating to nonexistent procedural obligations entailed by EPA's voluntarily agreeing to NHDES's request to subject the *Great Bay Nutrient Report* to peer review.

The Coalition's position is without any legal or factual merit. Most fundamentally, the Coalition has not shown why EPA's response was in error, instead simply repackaging its comments on the draft permit. The Coalition portrays a purely voluntary, additional—even exceptional—degree of process afforded this NPDES permit as a fatal flaw. This misguided rendition of events inverts good faith efforts by EPA to ensure that the best possible science was considered in establishing the effluent limitations in the manner required by 40 C.F.R. § 122.44(d)(1)(vi). The Coalition specifically fails to confront EPA's explanation that peer review is not required prior to establishing a water quality-based effluent limitation under Parts 122 or 124. The process set out by 40 C.F.R. Part 124, including preparation of a draft permit, ability to comment, ability to request a public hearing, ability to appeal the permit, were fully provided in this case, and the Coalition availed itself of opportunities to comment to an extraordinary degree. *See supra* at Section III.B.1. The Coalition somehow believes that peer review is an additional regulatory requirement in the NPDES permit issuance process, but does not explain how or why. The allegations of due process violations are vague and devoid of any meaningful reference to applicable regulatory or statutory provisions, just as they were in the comments below. There is simply nothing, beyond a mere allegation, that EPA violated *any* duties, much less "mandatory" duties under Section 101(e) of the Act.

Also without foundation is the Coalition's argument that they were *entitled* to participate in a peer review of the scientific basis for EPA's permitting decisions in this matter. Even if peer review were required in the context of issuance of an NPDES permit (which, as

already explained, it is not), the Coalition was not entitled to participate in such peer review, as EPA explained in the Response to Comments. *See* Ex. 1 at 62 (RTC) (AR B.1) (stating that, among other things, "a peer review process should not be confused with a public review process"). Again, the Coalition is simply silent on these points; but it is not free in its Petition to ignore EPA's responses, and to simply repeat its arguments and comments before the Board if it wishes to obtain review of a permit under the permitting rules.

The Coalition's implication (*Pet.* at 87, n.76) that EPA and NHDES sought to preclude the peer reviewers from considering the Coalition's comments is false, as is the implication that the information would have radically altered the result, which is mere conjecture. The Coalition concedes that the comments it submitted (including detailed inquiries prepared by their technical consultants) during the public comment period on the NHDES draft nitrogen thresholds were in fact provided to the peer reviewers. *See Pet.* at 87, fn. 76. Moreover, as evidenced by the peer review results themselves, the fundamental issues of the concern to Coalition —*e.g.*, correlation versus cause, sufficiency and interpretation of data, adequacy of the weight of the evidence approach—were considered by Boynton and Howarth, so it is at very best unclear why the Coalition believes that more argument or analyses on these points would have caused the reviewers to reverse course, particularly when this type of information did not have that effect on other experts in estuarine science. *See, e.g.*, Ex. 29 at 2, 7-8 (Memo to Tom Irwin of CLF. RE: Review of NHDES Numeric Nutrient Criteria for Great Bay.) (AR H.13). Indeed, all the Coalition can do is to lay odds as to the result of a hypothetical scenario, s*ee, e.g.*, *Pet.* at 38 ("it is highly probable that they would have concluded that the criteria were not scientifically defensible") but mere conjecture such as this is insufficient to warrant review. Furthermore, the Coalition's assertion that NHDES admitted that it excluded "critical

information" from the peer review process is plainly incorrect. NHDES never admitted (or even believes) that the information in question was "critical," or that the previous data "showed TN had not caused" any changes, or that the 2009 correlations were "unsubstantiated." *See Appendices A and B.*

Part of the Coalition's quarrel seems to be that the peer review did not consider comments and analyses performed *after* the peer review was concluded, and the peer review was not *revived* to consider this new information. Just as EPA is under no obligation to conduct peer reviews of information used to establish NPDES permit limitations, it is certainly under no obligation to revisit and reconstitute any peer review process it voluntarily chooses to establish each and every time any new information is developed allegedly casting doubt on the peer review's already documented final conclusions.

Another shortcoming of the Coalition's argument is the notion that EPA's decision was premised on the peer review alone. This is belied by the record, which clearly indicates that a variety of factors formed the basis for EPA's decision to utilize information in the *Great Bay Nutrient Report*. Additionally, EPA itself considered the referenced post-peer review information, since the Coalition submitted those reports with its comments on the permit. Technical reports prepared by Hydroqual and/or Hall & Associates, one dated June 30, 2010, and a second dated January 10, 2011 that appear to be a significant part of the "critical" information the Coalition alleges would have justified re-opening the peer review were addressed in the Response to Comments, and those analyses were also demonstrated by Valiela and Kinney to be unpersuasive. *See* Ex. 1 at 85-94 (RTC) (AR B.1.); Ex. 29 at 2, 7-8 (Memo to Tom Irwin of CLF. RE: Review of NHDES Numeric Nutrient Criteria for Great Bay.) (AR H.13).

Although the Coalition attempts to cast doubt on the additional layer of process and scientific scrutiny, the structure and content were fully in keeping with applicable peer review practices.[44] Review should be denied.

2. EPA Did Not Abuse its Discretion in How it Handled the Coalition's Late-Filed Comments, Including by Treating Them as Untimely[45]

The Coalition argues that EPA arbitrarily rejected new and relevant information submitted by the Coalition after the close of the public comment period, *Pet.* at 27-28, and that EPA's "decision to ignore" that information constituted clear error. *Id.* at 30. The Coalition claims that EPA "mistakenly classified these supplemental comments as new issues when in fact they transmitted updated data analyses, new data, and supplemental discussion based on new information available after close of the comment period that pertain to issues previously raised in timely filed comments." *Pet.* at 28-30. The Coalition further claims that these comments, even though submitted after the close of the public comment period, should be considered timely because the information, data or analyses contained within them were not available during the public comment period. *Id.* The Coalition is mistaken in law and fact, and the Board should deny review.

Most fundamentally, the Coalition's argument is founded on the erroneous assumption that EPA excluded the Coalition's late-filed submissions from the administrative record, and failed to consider them. On the contrary, EPA incorporated all the Coalition's materials into the administrative record of the permit. *See* Certified Index to the Administrative Record, Section D. The Coalition's misunderstanding of EPA's position stems from a misreading of the Response to Comments, in which EPA simply stated that it was not responding to the

[44] *See also* Ex. 7 (AR H.20) (EPA's Office of Water's letter denying the allegations of scientific misconduct).

[45] This addresses Section IV.a of the Petition. *See also* Appendix A at 1-3.

supplemental comments because they were untimely. *See* Ex. 1 at 2, fn. 1 (RTC) (AR B.1). But, contrary to the Coalition's understanding, EPA did include the supplemental comments as part of the administrative record and did consider them.

The Coalition submitted nine sets of comments outside the public comment period, in almost all cases many months after the comment period closed. EPA's decision not to delay permit issuance in order to prepare specific responses for all of the Coalition's supplemental comments was reasonable in light of the large volume of comments already submitted by the Coalition during the lengthy public comment period, as well as the substantive nature of the comments, which EPA reviewed and found to "relate generally to the subject matter" of timely comments submitted by the Coalition. *See* Ex. 1 at 2, fn. 1 (RTC) (AR B.1)[46] This is especially true where, as EPA explained elsewhere in its response, time is of great essence in the Great Bay Estuary, and delaying permit issuance in order to prepare additional responses to comments ultimately going to the question of a demonstration of direct causation between nitrogen loading and eutrophic impacts was neither necessary nor appropriate where EPA had explained that such a causal demonstration was not required for permitting purposes. Ex. 1 at 17 and 124 (RTC) (AR B.1) *See, e.g.*, *In re Genesee Power Station, LP*, 4 E.A.D. 832, 842 (EAB 1993) (upholding the denial of an extension of the public comment period based on Board's conclusion that the public received a meaningful opportunity to make their views known and the permitting authority had demonstrated that it took seriously all comments it had

[46] This assessment of the content of the supplemental comments in entirely in keeping with the Coalition's characterizations of the comments:

> "It should be noted that none of the Coalition's supplemental comments actually raised new comment issues. The Coalition was simply providing supplemental information with respect to issues previously raised in the Coalition's original, timely filed comments." *Pet.* at 29.

EPA fully concurs with the Coalition's characterization of its supplemental materials, just as it did in the Response to Comment, so it is simply untenable to conclude, as the Coalition does, that "EPA mistakenly classified these supplemental comments as new issues." *Pet.* at 30.

received). EPA adequately balanced the desire of some members of the public for an extended review period (other members of the public complained of excessive delay in issuing the permit, *see* Ex. 1 at 140, 169 (RTC) (AR B.1)), with the need to issue the permit with reasonable dispatch in light of the ongoing environmental impacts from the Treatment Plant's discharges, and did so while paying heed to the Coalition's concerns, as evidenced by the lengthy and detailed Response to Comments.

The Coalition's arguments appear to conflate three distinct principles of administrative law: first, whether a comment is timely; second, whether a submission is included in the administrative record; and third whether the issue or information is preserved for review. If a comment is timely and significant, EPA must "[b]riefly describe and respond to" it, 40 C.F.R. § 124.17(a)(2), and *must* include that responsiveness summary in the administrative record for the permit. If a comment is untimely, *i.e.*, submitted after the close of the public comment period, EPA need not respond to it. EPA may, however, include information submitted by the public after the comment period closes in the administrative record, and EPA exercised its discretion to do so here. *In re Prairie State Generating Co.*, 13 E.A.D. 1, 66 (EAB 2006) (noting that Part 124 regulations "do not require the issuer of an EPA permit to supplement the record with information submitted by the public *after* the close of the public comment period"); *see also* 40 C.F.R. § 124.17(b) (after the close of the public comment period, the permit issuer prepares a response to the public comments and "may" add new materials to the record to respond to public comments). To the extent information is not available during the public comment period, that fact may go to issue preservation, rather than timeliness. In such a case, the Coalition has the burden of demonstrating that issues or arguments were not reasonably ascertainable during the public comment period or hearing. 40 C.F.R. §§ 124.13, 124.19.

Nothing in the Coalition's supplemental comments, which again by the Coalition's own admission merely amplified existing issues already before EPA, caused EPA to change course, and as one might therefore expect, these issues were substantively encompassed in EPA's response to the original comments, and the Coalition's discussion of these materials in its Petition only confirms this decision: they were more variations on the theme of causation. *Pet.* at 29. EPA's decision not to specifically address these late-filed comments in the response to comments, or to specifically use or refer to them (as it did other materials added to the record after the comment period closed) in written responses to timely comments is no deficiency or evidence of bias. *In re NE Hub Partners, LP*, 7 E.A.D. 561, 582-83 (EAB 1998) (rejecting petitioner's assertion—"[t]he fact that the Region did not change *one single line* of the Permit indicates that the Region completely discounted every concern expressed by Petitioners"—as irrelevant to the question of whether adequate consideration was given to issues). EPA heard and evaluated the Coalition's concerns, and this was sufficient. *See In re Envtl. Disposal Sys., Inc*., 12 E.A.D. 254, 287 (EAB 2005) (finding EPA gave "meaningful consideration" to significant comments even where "some of the specific nuances of [the petitioner's] comments do not appear on the face of the response-to-comments document"); *In re Hoechst Celanese Corp.*, 2 E.A.D. 735, 739 n.7 (Adm'r 1989) ("Once the Agency has reached a reasonable and legally proper permit decision based on the administrative record, it need not provide detailed findings and conclusions, but instead must reply to all significant comments…as required by 40 C.F.R. § 124.17."). Just "as permitting authorities are neither expected nor required to respond on an individualized basis to every single discrete comment and subcomment submitted on a permit, in the same length and level of detail as the comment or subcomment itself," *Envtl. Disposal Sys.*, 12 E.A.D. at 287, neither is EPA required to expressly address supplemental

materials submitted by the Coalition when the issues have been substantively encompassed by positions articulated in the permit record. *See In re Wash. Aqueduct Water Supply Sys.*, 11 E.A.D. 565, 585-86 (EAB 2004); *In re Hillman Power Co., LLC*, 10 E.A.D. 673, 696 n.20 (EAB 2002). Instead, responses answering significant comments are adequate in this context, 40 C.F.R. § 124.17(a)(2), so long as those responses give "thoughtful and full consideration" to public comments, *In re RockGen Energy Ctr.*, 8 E.A.D. 536, 557 (EAB 1999), and are "clear and thorough enough to adequately encompass the issues raised," *Wash. Aqueduct*, 11 E.A.D. at 585.[47]

3. EPA Was Not Required to Re-notice the Permit for Public Comment[48]

The Coalition argues that the 3.0 mg/l TN limit in the draft permit was "based on the need to improve transparency…to ensure eelgrass restoration" but that EPA, allegedly faced with proof that transparency was not an issue affecting eelgrass survival in the estuary, "switched" its position and justified retention of the 3.0 mg/l TN limit in the final permit on the need to control macroalgae. *Pet.* at 52. The Coalition further contends that NHDES has stated that macroalgae would be effectively controlled in the estuary at a higher in-stream nitrogen threshold. *Id.* at 52-53. Consequently, argues the Coalition, EPA was required, in light of alleged admissions by NHDES that "nitrogen removal will not materially affect transparency in

[47] As with its decision to include the Coalition's supplemental comments in the record, there likewise was no error in EPA's having included other relevant material to which the Coalition now objects, *Pet*. at 30-33, such as (1) the July 16, 2012, Draft PREP 2012 Report, Ex. 36 (AR K.22.), (2) April 20, 2012, DES Response to Comments on the Draft 2012 Consolidated Assessment and Listing Methodology issued on April 20, 2012, Ex. 37 (AR J.2), (3) comments submitted by Dr. Mathieson on May 21, 2012 to DES regarding the same Section 303(d) listing concerning system wide macroalgae impairment, Ex. 38 (AR H.22), and (4) the October 19, 2012 Burack Letter, Ex. 32 (AR H. 43). Where the Agency adds new information to the record in response to comments, "the appellate review process affords [petitioner] the opportunity to question the validity of the material in the administrative record upon which the Agency relies in issuing a permit." *In re Caribe Gen. Elec. Prods.*, 8 E.A.D. 696, 715 n.194 (EAB 2000).

[48] This addresses Sections IV.a.iii and IV.f of the Petition.

Great Bay," to republish the draft permit for comment on EPA's supposedly new reliance on controlling macroalgae to justify the 3.0 mg/l limit. *Pet.* at 53-54. The Coalition has failed to provide grounds for review.

EPA regulations at 40 C.F.R. § 124.14(b) (emphasis supplied) provide that "[i]f any data[,] information[,] or arguments submitted during the public comment period . . . appear to raise substantial new questions concerning a permit, the Regional Administrator *may* . . . [r]eopen or extend the comment period." To warrant reopening the comment period, the questions raised by the new information must be both new (*i.e.*, not involve issues already evident in the permit proceeding) and substantial (*i.e.*, have a material effect on the permit result). Moreover, even if a question is new and substantial, EPA may still exercise reasonable discretion in deciding whether to reopen the comment period.

The Coalition has not identified "new" or "substantial" questions that warrant reopening of the public comment period. The very premise of the Coalition's argument is incorrect, as there has been no "switch" in the basis for the permit's nitrogen limit. EPA repeatedly stated in the Fact Sheet for the draft permit that both macroalgae and transparency or light attenuation—along with a host of other factors—can have negative impacts on eelgrass survival in the estuary. Ex. 2 at 13, 14, 20, 22 (Fact Sheet) (AR A.8). Indeed, EPA underscored that the whole range of nitrogen-induced impacts—from macroalgae to light attenuation to toxicity—were of concern. *Id.* at 12-31. The Coalition's claim that EPA in its Response to Comments switched the basis for the TN effluent limit of 3.0 mg/l from "a need to control transparency" to a need to control macroalgae is incorrect. *Pet.* at 52; Ex. 1 at 42-44, 97-99 (RTC) (AR B.1). To the contrary, the Region expressly, at length and in detail reaffirmed in its Response to Comments that transparency remained a problem and, in addition, confirmed its view that

macroalgae was a concern within the system. *See, e.g.*, Ex. 1 at 42-44, 97, 100 (RTC) (AR B.1.). The Coalition claims that the Fact Sheet "only" mentions macroalgae four times, as if some greater or lesser number would somehow resolve the issue of whether it was a factor before the Region in making its decision.[49] It is simply untrue that there has been a "switch" in the basis for the nitrogen limit.[50]

The Coalition points to an October 19, 2012 letter from NHDES Commissioner Thomas Burack to the mayors of Rochester, Dover, and Portsmouth to support its claims that NHDES "concurs that transparency should not be the focus of the analysis" and that "nitrogen removal will not materially affect transparency in Great Bay is not a transparency limited system [sic]." *Pet.* at 53; *see* Ex. 32 (Burack letter dated October 19, 2012) (AR H.43.). The Coalition asserts that "admissions" within the letter significantly undermine the Region's initial justification for the TN limit and suggest that limits necessary to control macroalgae are now the apparent primary concern and, thus, deserve additional opportunity for public comment. *Pet.* at 52-54.

The Coalition has seriously misrepresented the content of Commissioner Burack's letter. First, the letter unambiguously states that the Coalition's claims are incorrect that TN inputs could not have caused changed transparency in the system and that reducing TN inputs

[49] In fact, even the number the Coalition cites is without foundation. In addition to five uses of the word "macroalgae" on the four pages cited by the Coalition, the Fact Sheet uses the variations "macro algae" (page 11) and "macro-algae" (page 19) and discusses "epiphytes" and "epiphytic growth" (page 14). Indeed a brief review indicates that nearly every use of the term "phytoplankton" in the Fact Sheet is accompanied by a reference to macroalgae.

[50] In its comments on the draft permit, the Coalition conceded that "[t]he Bay does have a macroalgae problem," but asserted that "the degree of nitrogen control necessary to address that issue is unknown." Ex. 1 at 42-44, 97-99 (RTC) (AR B.1). Notwithstanding this asserted uncertainty, the Coalition then proclaimed that an effluent limit of 8 mg/l would "ensure" that municipal loads to the estuary were "well below pre-1990 levels when macroalgae growth was minor" and concluded that a return to previous municipal load levels would, by itself, lower in-stream nitrogen levels to a point sufficient to achieve water quality standards. *Id.* In responding to the comment, EPA plainly stated that it did "not concur with the Coalition's premise that meeting the macroalgae nitrogen threshold will alone be sufficient to comply with the [Clean Water] Act" and to achieve water quality standards in the estuary. *Id.* In other words, the macroalgae issue was a significant concern, but was not ultimately determinative of the permit's TN limit. How any of this amounts to a switch escapes EPA.

will not improve system transparency. Ex. 32 at 3-4 (Burack letter dated October 19, 2012) (AR H.43.). The letter further notes that "reduced TN levels can only help *to improve the light available to eelgrass*, reduce the growth of macroalgae, and reduce direct nitrogen toxicity to submerged aquatic plants." *Id.* at 4 (emphasis added). Additionally, the Coalition cites a statement where NHDES agreed only that "one of the reasons why eelgrass still exists *in Great Bay proper* is the exposure of eelgrass plants to direct sunlight *during low tide*." *Id.* at 7 (emphasis added). The statement appears to be limited to Great Bay proper, not other portions of the estuary, and, more importantly, is a recognition only that transparency is, not surprisingly, less of an issue in locations where the plants receive "direct sunlight" at low tide (*i.e.*, intertidal eelgrass beds where, at low tide, there is little water, turbid or not, to intercept sunlight). Moreover, the statement was made in response to a Coalition claim that "eelgrass populations receive sufficient light during the tidal cycle." *Id.* at 7. This is not, as the Coalition has characterized it, the equivalent of stating that "transparency should not be the focus of the analysis." *Pet.* at 53. Furthermore, NHDES noted:

> Light attenuation, a general measure of water clarity, is a good indicator of the presence or absence of eelgrass especially in the deeper areas of the estuary. Subtidal eelgrass beds in these areas need clear water to transmit light to the growing depths. In shallower areas, overgrowth and smothering by macroalgae and/or cellular disruption may be the immediate cause of eelgrass loss. However, *even in shallow areas, light attenuation is still an important contributing factor for eelgrass viability because sufficient light is a requirement for plant survival in all areas.*

Ex. 32 at 4 (emphasis added) (Burack letter dated October 19, 2012) (AR H.43.). NHDES summarized that the estuary "exhibits all the classic signs of eutrophication and that excessive nitrogen is causing or contributing to the water quality problems in the estuary." *Id.* at 7.

Review of this issue should be denied.

4. EPA Adequately Responded to Comments, Including By Reference to Pre-existing NHDES Analyses and Peer Review Materials[51]

The Coalition argues that EPA's reliance on analyses generated by NHDES in responding to the Coalition's various challenges to the permit was an inadequate consideration of comments, stating that "there is no basis to presume that the information provided by DES in wholly, distinct regulatory settings, responds to the issues raised in this specific permit context." *Pet.* at 55. EPA notes that the Coalition itself alternates among "distinct regulatory settings" as a matter of course, and one reason EPA looked to, and upon consideration concurred with, State analyses and responses is that the Coalition lodged the same objections—in some cases verbatim—in the federal and state contexts. Moreover, there is no flaw in EPA looking to NHDES analyses merely because they were prepared in other contexts, including the development of the nitrogen thresholds. They are, after all, site-specific analyses of the receiving waters at issue, so there is no obvious or logical reason to exclude them from consideration. EPA does not need to reargue the scientific defensibility of the NHDES's effort each time it looks to an instance where the State has considered and addressed an issue, and EPA determines its analysis is reasonable. This misapprehends the nature of science-based decision making in the administrative context.[52]

The Coalition has not identified any reason why an analytic defense of scientific and technical aspects of the *Great Bay Nutrient Report* in another proceeding would not be relevant to the present proceedings. Here, the Petitioner's words are telling: "In response to these comments, EPA repeated [sic] cites to subsequent DES documents (post-permit comment

[51] This addresses Section IV.g of the Petition.

[52] *Coalition for Responsible Regulation, Inc. v. EPA*, 684 F.3d 102, 120 (D.C. Cir. 2012) ("EPA simply did here what it and other decisionmakers often must do to make a science-based judgment: it sought out and reviewed existing scientific evidence to determine whether a particular finding was warranted. … EPA is not required to re-prove the existence of the atom every time it approaches a scientific question."

period closure issuance) that may or may not have addressed the issue of concern raised and presumes without further evaluation of the underlying information provided by DES, that that [sic] analyses are in fact correct, scientifically defensible, and specifically addresses [sic] the permit issue raised." *Pet.* at 54. But, "may or may not" address obviously does not identify any error on the part of EPA with the requisite specificity. Thus, the Coalition's broad brush attempt to characterize EPA's reference to, and concurrence with, preexisting written analyses as erroneous should be rejected.

The Coalition's other claim that EPA's reliance on the peer review was an inadequate consideration of its comments is equally without merit. With respect to Petitioner's claim that the peer review did not address any of the "fundamental issues" raised by the Coalition "with respect to the underlying science," *Pet.* at 55, this is an unspecified and unsupported allegation of error. *See supra* at Section IV. The Coalition fails to specify what these "fundamental issues" are, and how exactly EPA's Response to Comment failed to substantively address them except to state that the authors of the materials relied on in EPA's response were not presented with the Coalition's specific supplemental submissions (which the Coalition has already explained were not "new" issues), which the Coalition inexplicably presumes would have caused them to abandon their positions. The Coalition's concerns have been heard and evaluated by EPA, as well as by other experts in estuarine science and found to be unpersuasive. Simply raising generalized objections to the permit or making vague and unsubstantiated arguments falls short of demonstrating a basis for review.

C. The Coalition Has Not Carried Its Burden of Demonstrating the Existence of an Important Policy Consideration Warranting Review

1. EPA Established a Nitrogen Limit That Was Necessary to Meet Water Quality Standards Under Section 301(b)(1)(C) of the Act and That Was In Accordance With 40 C.F.R. § 122.44(d)(1)(vi) and the Policy Rationales Underlying That Regulation[53]

The Coalition inaccurately contends that EPA, in establishing a nitrogen limit of 3.0 mg/l, embarked on a major revision of 122.44(d) "to maximize point source load reductions regardless of the degree of impact from the facility" in cases where nonpoint sources of pollution dominate and claims that such an approach "is [a] radical revision of Section 122.44(d) requirements that nowhere appears in the rule." *Pet.* at 49-51. However, as the Coalition itself concedes: "This regulation does not specify how an agency may balance pollutant reduction requirements when point sources are the minor component contributing to an alleged impairment." *Pet.* at 51. This is, in other words, an ordinary instance where EPA was required to interpret or translate a State's narrative nutrient criterion prior to implementing it on a site-specific basis pursuant to 122.44(d), a process that does not amount to rulemaking. *See supra* at Section II.A.1. Because the Coalition does not accurately represent what EPA actually did in this case in framing the permit's nitrogen effluent limitation to accord with the objectives of Section 301(b)(1)(C), and because it does not show that EPA abused its discretion in implementing 40 C.F.R. 122.44(d)(1), review should be denied.

In stark contrast to the Coalition's rendition of the record, the very starting point for EPA's decision to impose a limit of 3.0 mg/l on the Newmarket Treatment Plant was the degree and nature of the impact of the discharge on the receiving waters and was entirely consistent with 40 C.F.R. § 122.44(d)(1). *See* Ex 2. at 11-12, 16-29 (Fact Sheet) (AR A.8.); Ex. 1 (RTC) at 4-6 (AR B.1.).

[53] This addresses Section IV.e of the Petition.

Furthermore, EPA considered but rejected a more stringent dilution-based limit in favor of a less stringent limit as long as reductions in nonpoint source contributions are also pursued:

> In the absence of any available waste load allocation from a TMDL that appropriately accounts for all sources of nitrogen loading to the impacted waters or any other effective controls on nonpoint source loading, EPA did consider imposing an effluent limitation on Newmarket based on a straightforward dilution-based calculation. In order to meet the instream threshold of 0.3 mg/l that EPA has determined will attain and maintain applicable water quality criteria and fully protect designated uses, this would have resulted in an effluent limitation significantly lower than the limit of 3.0 mg/l given the lack of assimilative capacity (lack of dilution; high background) in the Lamprey. While this permitting approach would have been the simplest way to ensure that the discharge would meet the ambient water quality threshold, EPA was concerned about the fact that, even while the Newmarket facility represents a significant portion of the controllable load into Lamprey, nonpoint sources of pollution still represent the majority of the nitrogen loading into the receiving waters, and absent effective controls on these pollutant sources, designated uses cannot be attained.

See Ex. 1 (RTC) at 18 (AR B.1.). The relevant comparison, in other words, from the standpoint of maximization is not between 8 mg/l and 3.0 mg/l, but between 3.0 mg/l and 0.3 mg/l, and to the extent that EPA did not opt for the most stringent possible permitting scenario, that decision worked no harm on the Permittee.

Finally, the Coalition's reliance on the Technical Support Document for Water Quality-Based Toxics Control ("TSD") is misplaced. *Pet.* at 49-50. First, the claim that EPA's permitting approach is somehow the "opposite" of that guidance is a matter that was reasonably available during the public comment period, but the Coalition failed to raise it and therefore has not preserved it. Second, there is nothing to indicate that EPA erred based on the TSD guidance. The Coalition focuses on a table and discussion in the TSD related to the development of TMDLs and potential variations for allocating wasteloads within TMDLs.[54] *Id.* at 67-69 (mistakenly referenced in the Petition as "1991 TSD at 19"). The TSD defines

[54] Of course, there is no nitrogen TMDL for the Lamprey River or any of the other Great Bay Estuary waters, so guidance related to the development of wasteload allocations in TMDLs is simply irrelevant to the permit in this case.

"wasteload allocation" as "the portion of a receiving water's total maximum daily load that is allocated to *one of its existing or future point sources* of pollution."(emphasis added) (TSD at xxii) The Coalition's quote regarding proportionality, *see Pet.* at 49, pertains to a particular method (one of 19) for allocating wasteloads among multiple point sources within a TMDL. This statement has *nothing* to do with "balancing point source versus nonpoint source control," *Pet.* at 50, and provides no support for the Coalition's claim that less stringent point source controls are warranted where significant nonpoint source loads exist. The TSD also offers no support for the Coalition's subsequent assertion that the "concept [of proportional control between point and nonpoint sources] applies regardless of whether or not a TMDL has been completed," *id.,* and the Coalition cites to no authority for this claim.

Similarly, the Coalition's arguments based on the graph lifted from the regulatory preamble are not preserved and are off point: the cited graph was not associated with Part 122 amendments, which are at issue in this case, but to a proposed amendment to 40 C.F.R. § 130.10(d)(5), which is most certainly not in play here.[55] Accordingly, on their face, neither of these isolated statements from EPA guidance and preambles support the claim that what EPA did here amounted to a " radical revision of Section 122.44(d) requirements that nowhere appears in the rule." On the contrary, as explained above, EPA correctly applied that regulation's requirements. Review on these issues should be denied.

[55] The cited page is part of an FR notice proposing amendments to 40 CFR Parts 122, 123, and 130 for purposes of clarifying EPA's surface water toxics program. The graph pertains to a proposed amendment to 40 C.F.R. § 130.10(d)(5) proposing three conditions that would require a water to be listed under paragraph B of Section 304(l)(1) because the applicable water quality standard is not expected to be met "due entirely or substantially to discharges from point sources." The graph is an illustration for determining if the concentration of a toxic pollutant is substantially or entirely due to discharges from point sources and shows seven point source/nonpoint source combinations with conclusions regarding whether the water should be on the paragraph B list.

2. EPA's Establishment of the Nitrogen Limit Does Not Raise a Reviewable Policy Consideration[56]

The Coalition contends that EPA's actions in this permit proceeding present an issue of national significance warranting Board review on the (false) premise that EPA has adopted a new interpretation of 40 C.F.R. § 122.44(d) that would compel "maximizing point source reductions….wherever nonpoint source controls dominate a system" and that "permittees nationwide will be required to maximize nutrient removal regardless of their relative impact caused by their discharge on the system." *Pet.* at 51-52. Because EPA has never taken this position, and because the Coalition has not grappled with EPA's actual response to its claim, the Coalition's argument does not demonstrate any basis for review.

Far from posing any threat to impose blanket pollutant controls nationwide in the circumstances described by the Coalition, as EPA explained in the Response to Comments:

> EPA does not intend to impose LOT [limit of technology] on all POTWs discharging in the watershed. EPA will instead impose limits on a case-by-case basis, determined in large part by the size and location of the facility and other site-specific factors. EPA has already informed another POTW discharging to the Great Bay estuary that it will likely receive a limit of 8 mg/l. See Letter, H. Curtis Spalding, EPA Region 1, to John H. Bohenko, City of Portsmouth, July 31, 2012. More generally, as a factual matter, even a cursory review of permits recently reissued by Region 1 belies the commenter's claim that this action "mandates 'limits of technology' ('LOT') requirements for any facility that contributes a pollutant of concern to impaired waters." *See, e.g.*, Upper Blackstone Water Pollution Abatement District, NPDES Permit No. MA0102369 (5 mg/l TN limit) and North Attleboro WPCF, NPDES Permit No. MA0100595 (8 mg/l TN limit) (MA permits available at http://www.epa.gov/region1/massachusetts.html).

Ex. 1 at 37 (RTC) (AR B.1.). As evidenced by the record, EPA made a site-specific determination to impose stringent nutrient controls on the Newmarket facility based on the location of the discharge, its composition, and receiving water conditions, and stopped short of imposing a limit reflecting criteria end-of-pipe. EPA further explained that the decision to

[56] This addresses Section IV.e.i of the Petition.

impose a limit that reflects LOT on Newmarket does not mean, inevitably, such limits will be imposed on every discharge of nitrogen nationwide. The Coalition failed to address EPA's response and has not demonstrated grounds for review on the basis of an important policy consideration. Speculative suggestions fall short of establishing clear error or abuse of discretion on appeal.

The Coalition's specific arguments that EPA's approach in setting the Newmarket permit limit was contrary to a Supreme Court decision holding that "fair apportionment" may in some cases be appropriate in lieu of joint and several liability, citing *Burlington N. & Santa Fe. Ry. v. United States*, 556 U.S. 599, 613-615 (2009) and *O'Neil v. Picillo*, 883 F.2d 176, 179 (1st Cir. 1989), and that it ran afoul of the *Restatement of Torts (Second),* were not made below although they were reasonably available. They are accordingly waived.

In any case, Clean Water Act requirements cannot be waived by dint of the Second Restatement of Torts. The cited authorities are far afield from the statutory and regulatory requirements governing this adjudication. The organic statute, implementing guidance, and EPA policy are more obvious and relevant benchmarks against which to test EPA's actions. Sections 301(b)(1)(C) and 40 C.F.R. § 122.44(d)(1)(vi) are sufficient to dispose of the issues in this appeal and to determine the reasonableness of EPA's action in this case. Indeed, the Coalition never explains how these notions of equity should be reconciled with the legal requirement under Section 301(b)(1)(C) to include limits as stringent as necessary to meet water quality standards. The Coalition's vision of fair apportionment—to simply impose an affordable limit—is inconsistent with the Clean Water Act. *In re New England Plating Co.*, 9

E.A.D. 726, 738 (EAB 2001) (finding that the CWA does not make exceptions for cost or technological feasibility).[57]

EPA is, in any case, unclear how its permitting action here is inequitable, especially relative to the Coalition's Petition. The irony is that the Town of Newmarket has not complained that the apportionment was unfair; has not appealed the permit; and is proceeding to upgrade its treatment plant.[58]

3. EPA's Obligations Under 40 C.F.R. § 122.44(d)(1)(vi) Are Not Constrained by the MOA[59]

The Coalition alleges that EPA departed from the provisions of an April 2011 Memorandum of Agreement ("MOA") between the Coalition and NHDES and, in so doing, violated 40 C.F.R. § 122.44(d)(1) in letter and spirit. *Pet.* at 82-84. The MOA identified the existence of a measure of scientific uncertainty in the *Great Bay Nutrient Report,* and largely revolved around a commitment by *the Coalition* to collect additional water quality data to be used to develop a hydrodynamic model of the Squamscott River and, presumably, other unspecified portions of the estuary. *See* Ex. 39 at 2 (MOA) (AR H.69.). The Coalition argues that EPA, by using the *Great Bay Nutrient Report*, "discards the findings" of the State in concluding that an effluent limitation of 3.0 mg/l is necessary to ensure compliance with applicable water quality standards. *Pet.* at 83. The Coalition contends that the Region should be precluded from using the *Great Bay Nutrient Report* in NPDES permitting to the extent it

[57] While Section 303(d) of the Act does provide a mechanism for states to apportion loads through the establishment of a TMDL, no nitrogen TMDL has been issued or approved for the Lamprey River or any of the Great Bay Estuary waters.

[58] In light of these facts, what appears on its face to be inequitable is the Coalition's suggestion that the permit must be remanded and a *more* stringent limit imposed on Newmarket, which would only amplify any theoretical unfairness in this case. *See Pet.* at 96-97.

[59] This addresses Section V.h of the Petition. *See also* Appendix A at 33-39.

supports limits less than 8 mg/l, because the MOA should be read as a rejection by the State of any more restrictive limits. *Id.* at 83-84.

Despite the Coalition's protestations, EPA's action was consistent with the State's interpretation of its narrative nutrient criterion, and the MOA did not preclude EPA from relying on the *Great Bay Nutrient Report* as a source of scientific information under Section 301(b)(1)(C), a point upon which the State fully concurs in correspondence with municipalities in the Great Bay Estuary and in judicial filings in state court. As EPA explained at great length in the Response to Comments, the MOA is not a binding state regulation; and as an expression of the State's recognition of inevitable scientific uncertainty, it is merely one piece of information which did not outweigh the "voluminous and compelling" record supporting a limit of 3.0 mg/l. *See* Ex. 1 (RTC) at 67 (AR B.1.). New Hampshire also concurs that the material in the *Great Bay Nutrient Report* remains valid and is appropriate for use under § 122.44(d). *See* Ex. 33 at 15 (Mem.of Law in Support of the State's Mot. for Summ. J.) (AR N.39.).

The Coalition has not substantively confronted EPA's response to its comment on this point, and has thus has failed to meet its burden to demonstrate clear error. In any event, the MOA represented a point in time when the State believed it appropriate to "delay"—not abandon or prohibit forever—implementation of a more stringent nitrogen limit based upon representations by the Coalition that it was pursuing more intensive data collection and modeling. *See* Ex. 39 at 2 (MOA) (AR H.69). Insofar as the MOA ever arguably represented a rejection of an interpretation by the State of its narrative nutrient criteria, letters *post-dating* the MOA and declaring that the State stands behind the numeric thresholds proposed in the *Great Bay Nutrient Report* are surely more indicative of the State's position on the *Great Bay Nutrient*

Report. These letters on their face repudiate the Coalition's rendition of the relevance of the MOA. For example, the Commissioner wrote:

> The Department of Environmental Services (DES) is in complete agreement that the situation in Great Bay requires prompt attention and that nitrogen reductions will be needed from all sources, including municipal wastewater treatment facilities. DES further agrees that nitrogen discharge limits ought to be set in such a way as to improve the overall ecological health of the estuary. DES has already taken steps to address the problems of low dissolved oxygen and eelgrass loss by proposing Nutrient Criteria for the estuary. *These criteria are the result of comprehensive analyses by DES scientists, which have been peer reviewed. DES stands by those criteria*.

Ex. 40 at 1 (Burack letter to Newington, June 8, 2011) (AR H.73) (emphasis added). Ex. 41 at 2 (Burack letter to CLF et al., June 8, 2011) (AR H.74) (same). [60] In attempting to undermine the plain language of these letters, which categorically endorse the *Report*, the Coalition points to the fact that they were sent in response to inquiries about the status of the numeric thresholds from non-Coalition communities or entities, an irrelevant distinction. The Coalition does not make any attempt to explain how that particular fact in any way renders the letters less reflective of the State's position on the continuing relevance and validity of this scientific analysis or how EPA's reliance upon it under section 122.44(d)(1) was clearly erroneous.

The Coalition also claims that the subsequent "letters do not refute the MOA," *Pet.* at 83, but the proper inquiry is whether the State views the *Great Bay Nutrient Report* as "relevant" scientific information for purposes of implementing its narrative nutrient criterion. *See supra* at Section V.A.1.b.i. Since the letters clarify that the State still stands behind the *Great Bay Nutrient Report*, they surely provide a clearer view as to the State's interpretation of its narrative nutrient criterion than an MOA. Moreover, the Coalition contradicts its own

[60] Correspondence from NHDES Commissioner Burack to CLF, Great Bay Trout Unlimited and N.H. Coastal Protection Partnership (June 8, 2011).

argument when it recognizes, earlier in the Petition, that the State continued to view the *Great Bay Nutrient Report* as a valid interpretation of its narrative nutrient criterion. *See, e.g., Pet.* at 16 (stating that, in response to a Coalition demand made in November 2011, "DES simply refused to modify any finding that would undercut the application of the 2009 Numeric Criteria"), 17 (complaining of "DES actions to abandon its MOA commitments"); 22 (explaining that, in an October 2012 letter, the DES Commissioner "refused to abandon the [Report] or the conclusions that stringent TN reductions were necessary"). Nowhere in the MOA does the State repudiate the *Great Bay Nutrient Report*. To the contrary, the State has shown, through its subsequent correspondence and public statements, that the *Great Bay Nutrient Report* constitutes a scientific analysis appropriate for use under § 122.44(d)(1)(vi).

Even if the MOA did have some continuing force and effect, it still would not tie EPA's hands from the standpoint of NPDES permitting. The MOA is premised on the undisputed fact that there exists some measure of scientific uncertainty in the *Report*. Ex. 1, Part 1 at 26-28. But "scientific uncertainty is not a basis for delay in issuing an NPDES permit." *In re Upper Blackstone Water Pollution Abatement Dist.*, NPDES Appeal Nos. 08-11 to 08-18 & 09-06, at 40 (EAB May 28, 2010); *In re City of Attleboro*, NPDES Appeal No. 08-08, slip op. at 20-21 (EAB Sept. 15, 2009). For all its attempts to bind, and speak for, NHDES, the Coalition's efforts are for naught, because uncertainty does not foreclose action by EPA under § 122.44(d)(1), and the MOA's reference to that undeniable aspect of the *Great Bay Nutrient Report* does not consign the project to limbo, while nitrogen pollution, and its attendant impacts, continue unabated.

Moreover, the MOA contemplates that the Coalition would work to resolve any uncertainty through additional data collection and the development of a hydrodynamic model

by January 2012, focusing on the Squamscott River, which is, of course, not even the receiving water for the Newmarket discharge. Ex. 1, Part 1, at 26-28. For all its length and detail, the Petition is silent on this effort. Aside from some preliminary data that were collected and provided to EPA, and were consistent with multiple previous data sets showing elevated levels of chlorophyll-a and nitrogen in the Squamscott River and large variations in DO consistent with eutrophication, Ex. 1 at 54 (RTC) (AR B.1), the model is nowhere in sight.[61] *See id.* at 96. In short, the MOA was designed to allow some limited time for the Coalition to conduct additional monitoring and hydrodynamic modeling, Ex. 1 at 54 (RTC) (AR B.1), and for that reason is no longer relevant, the Coalition having failed to live up to its end of the bargain. The fact that NHDES believed that a collaborative effort to build a dynamic, calibrated hydrodynamic water quality model would, if successful, help resolve some of the scientific uncertainty associated with dissolved oxygen and the other impairments associated with nitrogen in the estuary in no way suggests that the Region's translation or interpretation of the State's narrative nutrient criterion and establishment of a water quality based nitrogen limit are incorrect or should be indefinitely delayed while awaiting such a model. *See Upper Blackstone Water Pollution Abatement Dist. v. U.S. EPA*, 690 F.3d 9, 22-24 (1st Cir. 2012).

Further, contrary to the Coalition's assertion, NHDES would not be able (even if it had wanted) to override EPA's responsibilities under the CWA simply by means of statements of intent regarding its water quality standards in a bilateral agreement with permittees. Under section 301(b)(1)(C), EPA has an *independent* duty to ensure compliance with applicable water quality standards when issuing an NPDES permit. "[W]hen the Region reasonably believes

[61] While the Coalition seeks to stay this proceeding to await the outcome of other matters with only a tenuous relationship to this proceeding, including FOIA appeals, it does not seek to delay the Board's resolution of this case based on completion of modeling or further study. *See Pet.* at 97.

that a state [WQS] requires a more stringent permit limitation than that specified by the state, the Region has an independent duty under section 301**(**b)(1)(C) of the CWA to include more stringent permit limitations." *In re City of Moscow*, 10 E.A.D. 135, 151 (EAB 2001); *accord In re City of Marlborough*, 12 E.A.D. 235, 252 n.22 (EAB 2005); *see also NRDC v. U.S. EPA*, 279 F.3d 1180, 1186 (9th Cir. 2002) ("Under the CWA, the EPA has its own independent obligation to determine whether a permit will comply with the state's [WQSs]."). EPA's regulations likewise interpret the statute to impose such an independent duty upon the Agency when it issues an NPDES permit. 40 C.F.R. §§ 122.4, 122.44(d)(1), (5); *see In re Gov't of D.C. Mun. Separate Sewer Sys.*, 10 E.A.D. 323, 329 (EAB 2002). If a state cannot forestall the imposition of an effluent limitation as stringent as necessary to comply with water quality standards through its § 401 certification, *Moscow*, 10 E.A.D. at 152 ("[T]he State's certification authority cannot limit the inclusion by the Region of any more stringent conditions required by section 301(b)(1)(C) of the CWA."), then it certainly may not do so through a non-binding memorandum of agreement.

EPA, as permitting authority, is required to develop effluent limitations that the Agency determines are most consistent with the "state's intent as evinced in its generic standard," *Am. Paper Inst. v. U.S. EPA*, 996 F.2d 346, 351 (D.C. Cir. 1993), not with the state's intent at some particular point in time. The proper basis for EPA's determination, in other words, was the existing narrative nutrient criterion itself, and that was where EPA's inquiry began and ended.

VI. CONCLUSION

The Petition should be denied.

Respectfully submitted,

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Dated: February 8, 2013

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing Memorandum in Opposition to the Petition for Review, in connection with NPDES Appeal No. 12-05, was sent to the following persons in the manner indicated:

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