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

In the Matter of:	
City of Attleboro, Massachusetts Department of Wastewater	NPDES Appeal Nos. 08-08 and 08-09 NPDES Permit No. MA0100595

RESPONDENT REGION 1'S MEMORANDUM IN OPPOSITION TO PETITIONS FOR REVIEW

Respectfully Submitted by EPA-Region 1,

Dated: August 27, 2008

Samir Bukhari, Assistant Regional Counsel
Amanda Helwig, Assistant Regional Counsel
U.S. EPA - Region 1
1 Congress Street 1100 (RAA)
Boston, MA 02114-2023
Tel: (617) 918-1095
Fax: (617) 918-0095

Of Counsel:

Peter Ford, Attorney
Office of General Counsel
Water Law Office

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RESPONDENT REGION 1'S MEMORANDUM IN OPPOSITION TO PETITIONS FOR REVIEW

The central dispute over this National Pollutant Discharge Elimination System ("NPDES") permit pivots on whether the New England Region of the U.S. Environmental Protection Agency ("Region"), on the record before it, was authorized by the Clean Water Act to impose numeric nutrient effluent limitations on the Attleboro Water Pollution Control Facility to address severe and undisputed nutrient-induced water quality impairments in the Ten Mile, Providence and Seekonk Rivers and upper Narragansett Bay. Narragansett Bay has been designated by Congress as an estuary of national significance.

Conflicting interpretations of law, including applicable narrative and numeric water quality standards, and disputes over record materials, including EPA technical guidance, peer-reviewed technical and scientific literature, and raw water quality data, have led to differences of opinion between the Region's experts and City on the permit's effluent limits for nitrogen and phosphorus, as well as metals.

The City of Attleboro, Massachusetts ("City," "Attleboro" or "Permittee") objects to the permit on the belief that water quality-based nitrogen and phosphorus effluent limits cannot be established for its facility based on available science and data.

In its petition, the State of Rhode Island Department of Environmental Management ("RIDEM") expressly supports the permit's nitrogen and phosphorus limits as ensuring compliance with Rhode Island law, as required by EPA permitting regulations. The Region and RIDEM, however, diverge on a narrower technical issue pertaining to the permit's limits on hardness-dependent metals.

In their challenges to the permit, each petitioner falls far short of the threshold necessary for review, and is unable to demonstrate error—much less clear error—of fact or law, or abuse of discretion, by the Region. Because the Region's determinations, made in an area of unavoidable technical and scientific uncertainty, were sound, review of the permit should be denied.

I. STATEMENT OF THE CASE

The Region reissued NPDES permit No. MA0100595 ("Final Permit" or "Permit") to the City on June 9, 2008. *See Ex. 1 (Administrative Record ("AR") 13).* The Permit authorizes discharges from the Attleboro Water Pollution Control Facility ("WPCF") to the Ten Mile River in Massachusetts.

Pursuant to 40 C.F.R. § 124.19, the City seeks review of the Permit's: (i) average monthly total nitrogen effluent limit of 8.0 mg/l, applied seasonally from April 1 through October 31; (ii) average monthly total phosphorus effluent limits of 0.1 mg/l and 1.0 mg/l, applied seasonally from April 1 through October 31 (growing season) and from November 1 though March 31 (non-growing season), respectively; (iii) average monthly aluminum limit; (iv) average monthly and/or daily limits for copper, silver, nickel, lead, cadmium and cyanide; (v) monitoring frequency for Whole Effluent Toxicity ("WET"); and (vi) the absence of a compliance schedule to achieve the average monthly total nitrogen effluent limit of 8.0 mg/l, the average monthly total phosphorus effluent limit of 0.1 mg/l, and the average monthly and/or daily metals limits.

RIDEM challenges a single issue, namely, whether hardness data used by the Region to calculate the Permit's limits on hardness-dependent metals were adequately representative of in-stream conditions.

1. Statutory and Regulatory Background

A. The Clean Water Act

Congress enacted the Clean Water Act ("CWA" or "Act") "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." *See* CWA § 101(a), 33 U.S.C. § 1251(a). To achieve this objective, the CWA makes it unlawful for any person to discharge any pollutant into the waters of the United States from any point source, except as authorized by specified permitting sections of the Act. *See* CWA §§ 301(a), 402(a), 33 U.S.C. §§ 1311(a), 1342(a). Section 402 establishes one of the CWA's principal permitting programs, the National Pollutant Discharge Elimination System. Under this section of the Act, EPA may "issue a permit for the discharge of any pollutant, or combination of pollutants" so long as the requirements of the CWA and its implementing regulations are met. *Id.* NPDES permits generally contain discharge limitations and establish related monitoring and reporting requirements. *See* CWA § 402(a)(1), (2). The regulations governing EPA's NPDES permit program are generally found in 40 C.F.R. Parts 122, 124, 125 and 136.

NPDES permits are issued by EPA or by a state agency subject to EPA review in those jurisdictions in which EPA has authorized a state agency to administer the NPDES program. *See* CWA § 402(a)-(d). The Commonwealth of Massachusetts has not obtained such authorization, and as a result, the Region issued the Permit to the City. Although the Region administers the NPDES program in Massachusetts, the Commonwealth maintains separate, independent permitting authority over surface water discharges pursuant to the Massachusetts Clean Waters Act. *See* Mass. Gen. Laws Ann. Ch. 21 § 43. While the federal and state permits have separate legal foundations, the Region and the Massachusetts Department of Environmental Protection ("MassDEP") typically coordinate their respective permitting efforts and simultaneously issue the

two permits using a single document. These permits are often identical, but there is no legal requirement for them to be the same. Unlike an NPDES permit, a Massachusetts surface water discharge permit is not required to include effluent limits sufficient to ensure compliance with the water quality standards of affected downstream states. The Massachusetts permit is not at issue in this appeal.

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* CWA §§ 301, 303, 304(b), 33 U.S.C. § 1311, 1313, 1314(b); 40 C.F.R. Parts 122, 125, 131. Technology-based limitations, generally developed on an industry-by-industry basis, reflect a specified level of pollutant-reducing technology available and economically achievable for the type of facility being permitted. *See* CWA § 301(b). As a class, Publicly Owned Treatment Works ("POTWs") must meet performance-based requirements based on available wastewater treatment technology. *See* CWA § 301(b)(1)(B). The performance level for POTWs is referred to as "secondary treatment." Secondary treatment consists of technology-based requirements 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, on the other hand, are designed to ensure that state water quality standards are met regardless of the technological and economic factors that inform the derivation of technology-based limitations. In particular, section 301(b)(1)(C) of the CWA requires achievement of "any more stringent limitation [than the technology-based requirements set forth in Section 301(b)(1)(A) and (B)], including those necessary to meet water quality standards...established pursuant to any State law or regulation...." Thus, 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 U.S. Steel Corp. v. Train*, 556 F.2d 822, 838 (7th Cir. 1977) (finding "states are free to force technology" and "if the states wish to achieve better water quality, they may [do so], even at the cost of economic and social dislocations"); *In re City of Moscow*, 10 E.A.D. 135, 168 (EAB 2001) (quoting *In re City of Fayetteville, Ark.*, 2 E.A.D. 594, 600-601 (CJO 1988) (stating that section 301(b)(1)(C) "requires unequivocal compliance with applicable [water quality standards], and does not make any exceptions for cost or technological feasibility").

Water quality standards under the Act consist of three elements, two of which are relevant here:[1] (1) a designated "use" of the water, such as for public water supply, aesthetics, recreation, propagation of fish, or agriculture; and (2) "criteria," which specify the amounts of various pollutants that may be present in those waters without impairing the designated uses, expressed either in numeric form for specific pollutants or in narrative form (*e.g.*, waters shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring). *See* CWA § 303(c)(2)(A), 33 U.S.C. § 1313(c)(2)(A); *see* 40 C.F.R. §§ 130.3, 130.10(d)(4), 131.6, 131.10 and 131.11. EPA's long-standing CWA regulations expressly authorize the establishment by States of water quality standards based upon narrative criteria. *See* 40 C.F.R. §§ 131.3(b), 131.11(b)(2).

Under the federal regulations implementing the NPDES program, permit issuers are required to determine whether a given point source discharge "causes, has the reasonable potential to cause, or contributes to" an exceedance of the narrative or numeric criteria set forth in state water quality standards. *See* 40 C.F.R. § 122.44(d)(1)(ii). If a discharge is found to cause, have

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[1] The third component of the overall water quality standards program is the antidegradation policy, which is not at issue here.

the reasonable potential to cause, or contribute to an exceedance of a numeric or narrative state water quality criterion, NPDES regulations implementing section 301(b)(1)(C) provide that a permit *must* contain effluent limits as necessary to achieve state water quality standards. *See* 40 C.F.R. §§ 122.44(d)(1), 122.44(d)(5) (providing in part that a permit must incorporate any more stringent limits required by CWA § 301(b)(1)(C)). The regulatory mechanism used by permit writers to interpret narrative water quality criteria and establish numeric water quality-based effluent limits is set forth at 40 C.F.R. § 122.44(d)(1)(vi). Where a state has not established a numeric water quality criterion for a specific chemical pollutant that is present in the effluent in a concentration that causes or has a reasonable potential to cause a violation of narrative water quality standards, the permitting authority must establish effluent limits in one of three ways: (i) based on a "calculated numeric criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and fully protect the designated use"; (ii) on a "case-by-case basis" using CWA § 304(a) recommended water quality criteria, supplemented as necessary by other relevant information; or (iii) in certain circumstances, based on an "indicator parameter." 40 C.F.R. § 122.44(d)(1)(vi)(A)-(C).

Under CWA § 401, EPA may not issue an NPDES permit to a proposed discharger until the State in which the discharger is located "certifies" that the permit contains conditions necessary to assure compliance with, among other things, the State's water quality standards. *See* CWA § 401(a)(1), 33 U.S.C. § 1341(a)(1); 40 C.F.R. §§ 124.53(a), 124.55(a)(2). Section 401(a)(2) of the CWA and 40 C.F.R. § 122.44(d)(4) explicitly direct EPA to consider the views of a downstream State concerning whether a discharge would result in violations of the State's water quality standards. When a point source discharge affects a downstream state, EPA must condition the NPDES permit to ensure compliance with the water quality standards of the downstream

State. *See* CWA § 401(a)(2), 40 C.F.R. § 122.44(d)(4). *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 applicable water quality requirements of all affected States.").

2. FACTUAL AND PROCEDURAL BACKGROUND

A. Factual Background

Located about 200 yards from the Rhode Island border, the Attleboro WPCF is an 8.6 million gallon per day (MGD) advanced treatment facility which discharges to the Ten Mile River in Massachusetts. *See Ex. 2 (Fact Sheet)* at 1, 4 *(AR 7); Ex. 3 (Response to Comments, or "RTC") (AR 14)* at 6 n. 5 and Attachment 1. The Ten Mile River is an interstate freshwater river that has its headwaters in Plainville, Massachusetts, and flows through the cities of North Attleborough, Attleboro, and the Town of Seekonk, Massachusetts, before crossing the Rhode Island border in Pawtucket. *Ex. 4 (Receiving Waters Map).* It continues through East Providence, and ultimately flows into the Seekonk River, which is a marine water. *Id.* The Seekonk River joins the Providence River, also a marine water, which ultimately flows into Narragansett Bay. *Id.* The Ten Mile River is studded by several impoundments, including Central Pond and the James V. Turner Reservoir, as well as Omega Pond. *Id.* The inlet to Central Pond is located in Rhode Island approximately three miles downstream of the Attleboro WPCF discharge point. *Id.* Central Pond and Turner Reservoir lie primarily in Rhode Island, but eastern portions of these impoundments extend into Massachusetts as well. *Id.*

i. Applicable Massachusetts and Rhode Island Water Quality Standards

Massachusetts Surface Water Quality Standards ("Massachusetts Standards"), *Ex. 5 (AR 50)*, designate the Ten Mile River, from its source to the Rhode Island border, as a Class B Warm

Water Fishery, meaning that it is designated as a habitat for fish, other aquatic life and wildlife and for primary (*e.g.*, swimming) and secondary (*e.g.*, fishing and boating) contact recreation. *See* 314 C.M.R. §§ 4.05(3)(b) and 4.06 (Table 12). Under Massachusetts Standards, such waters must have consistently good aesthetic value and, where designated, must be suitable as a source of public water supply with appropriate treatment, as well as for irrigation and other agricultural uses. *Id.* at § 4.05(3)(b). They must also be free of floating, suspended or settleable solids that are aesthetically objectionable or could impair uses. *Id.* at § 4.05(3)(b)(5). Changes to color or turbidity of the waters that are aesthetically objectionable or use-impairing are also prohibited. *Id.* at § 4.05(3)(b)(6). Dissolved oxygen levels in Class B waters must not be less than 5.0 mg/l. *Id.* at § 4.05(3)(b)(1).

In addition to criteria specific to Class B waters, Massachusetts imposes minimum narrative criteria applicable to all surface waters, including aesthetics ("free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life"); bottom pollutants and alterations ("free from pollutants in concentrations or combinations or from alterations that adversely affect the physical or chemical nature of the bottom, interfere with the propagation of fish or shellfish, or adversely affect populations of non-mobile or sessile benthic organisms"); toxics ("free from pollutants in concentrations that are toxic to humans, aquatic life or wildlife"); and nutrients ("unless naturally occurring, all surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses..."). *See* 314 C.M.R. § 4.05(5)(a),(b), (e) and (c). Massachusetts Standards do not establish a numeric criterion for total phosphorus.

Rhode Island Water Quality Regulations ("Rhode Island Standards"), *Ex. 6 (AR 53)*, designate the Ten Mile River as a Class B1 water from the Massachusetts border to the Newman Avenue Dam in East Providence, and as a Class B water from the Newman Avenue Dam to the Seekonk River. *See Rhode Island Standards* at Appendix A. The Seekonk River and Providence River are marine waters. *Id.* The Seekonk River has been designated by Rhode Island as a Class SB1{a} water. *Id.* The Providence River has also been designated as a Class SB1{a} water from its confluence with the Moshassuck and Woonasquatucket Rivers until a point in Warwick, Rhode Island, and from that point as a Class SB{a} water until the Upper Narragansett Bay Subbasin. *Id.*

Rhode Island Class B designated waters are suitable for, *inter alia*, primary and secondary recreational uses and fish and wildlife habitat. *See* Rhode Island Standards, Rule 8.B.(l)(c). Class B1 waters have the same classifications, except that primary contact recreational uses may be impacted by pathogens from approved wastewater discharges. *See Id.* at Rule 8.B.(l)(d).

Rhode Island Class SB{a} waters are designated for primary and secondary contact recreation; fish and wildlife habitat; shellfish harvesting; and must have good aesthetic value. *See Id.* at Rule 8(B)(2)(b). Class SB{a} are further suitable for aquacultural uses, navigation and industrial cooling. The {a} designation indicates that primary recreation, shellfishing, and fish and wildlife habitat will likely be restricted because the water is likely impacted by combined sewer overflows in accordance with CSO facilities plans. Class SB1{a} waters share the same designations as Class SB{a}, with the exception of shellfish harvesting. *See Id.* at Rule 8(B)(2)(c). Primary contact recreational activities may be impacted due to pathogens from approved wastewater discharges.

Class B, Class B1, Class SB{a} and Class SB1{a} waters are subject to generally

applicable minimum criteria, as well as a variety of class-specific criteria. At a minimum, all Rhode Island waters shall be free of pollutants in concentrations that: (i) adversely affect the composition of fish and wildlife; (ii) adversely affect the physical, chemical, or biological integrity of the habitat; (iii) interfere with the propagation of fish and wildlife; (iv) adversely alter the life cycle functions, uses, processes and activities of fish and wildlife; or (v) adversely affect human health. *See Id.* at Rule 8.D.(1)(a). In addition, all waters of the State shall be free from pollutants in concentrations or combinations that: (i) settle to form deposits that are unsightly, putrescent, or odorous to such a degree as to create a nuisance, or interfere with the existing or designated uses; (ii) float as debris, oil, grease, scum or other floating material attributable to wastes in amounts to such a degree as to create a nuisance or interfere with the existing or designated uses; (iii) produce odor or taste or change the color or physical, chemical or biological conditions to such a degree as to create a nuisance or interfere with the existing or designated uses. *See Id.* at Rule 8.D.(1)(b). Rule 8.D.(1)(d) (General Criteria; Nutrients) of the Rhode Island Standards provides that "nutrients shall not exceed the limitations specified in rule 8.D.(2) [Class Specific Criteria - Freshwaters] and 8.D.(3) [Class Specific Criteria - Seawaters] and/or more stringent site-specific limits necessary to prevent or minimize accelerated or cultural eutrophication."

Rules 8.D.(2) and (3) set forth various criteria (DO, taste and odor, chemical constituents) for Class B and B1 freshwaters and Class SB{a} and Class SB1{a} seawaters, including nutrient criteria. For nutrients in freshwaters:

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

> b. None in such concentration that would impair any usages specifically assigned to said Class, or cause undesirable or nuisance aquatic species associated with cultural eutrophication, nor cause exceedance of the criterion of 10(a) above in a downstream lake, pond, or reservoir. New discharges of wastes containing phosphates will not be permitted into or immediately upstream of lakes or ponds. Phosphates shall be removed from existing discharges to the extent that such removal is or may become technically and reasonably feasible.

Id. at Rule 8.D.(2)(10). For nutrients in seawaters:

> None in such concentration that would impair any usages specifically assigned to said Class, or cause undesirable or nuisance aquatic species associated with cultural eutrophication. Shall not exceed site-specific limits if deemed necessary by the Director to prevent or minimize accelerated or cultural eutrophication. Total phosphorus, nitrates and ammonia may be assigned site-specific permit limits based on reasonable Best Available Technologies. Where waters have low tidal flushing rates, applicable treatment to prevent or minimize accelerated or cultural eutrophication may be required for regulated nonpoint source activities.

Id. at Rule 8.D.(3)(10).

Both Massachusetts and Rhode Island Standards require water quality standards to be met even during severe hydrological conditions, *i.e.*, periods of critical low flow when the volume of the receiving water is able to provide relatively little dilution. In Massachusetts, NPDES permit limits for discharges to rivers and streams must be calculated based on the "7Q10," or "the lowest mean flow for seven consecutive days to be expected once in ten years." *See* 314 C.M.R. § 4.03(3). Similarly, in Rhode Island, "water quality standards apply under the most adverse conditions," meaning "the acute and chronic aquatic life criteria for freshwaters shall not be exceeded at or above the lowest average 7 consecutive day low flow with an average recurrence frequency of once in 10 years (7Q10)." *See* Rhode Island Standards, Rule 8.E.

ii. Water Quality Impairments

From the North Attleborough treatment plant to the Massachusetts/Rhode Island border, the Ten Mile River is listed on the Massachusetts 303(d) impaired waters list as impaired for unknown toxicity, metals, nutrients, organic enrichment/low DO, pathogens, and noxious aquatic plants. Central Pond and James V. Turner Reservoir,[2] parts of which are in Massachusetts, are also on the Massachusetts 303(d) list as impaired due to nutrients and noxious aquatic plants. *Ex. 4 (Receiving Waters Map)*; *Ex. 7 (Massachusetts 2004 and 2006 Integrated List of Waters) (AR 51, 52)*; *Ex. 2 (Fact Sheet)* at 5-6; *Ex. 15 (Revised Fact Sheet) (AR 10)* at 4; *Ex. 3 (RTC)* at 55.

In Rhode Island, the approximately three mile free flowing segment of the Ten Mile River from the Massachusetts/Rhode Island border to the inlet of Central Pond, excluding Slater Park Pond, is listed as impaired for cadmium, copper, and lead, and the free flowing segment from Turner Reservoir South to the Omega Pond Inlet is listed for biodiversity impacts, copper and lead. Turner Reservoir, both north and south of the Newman Avenue Dam, is listed for copper, lead, low DO, and phosphorus. Omega Pond is listed for copper, lead, and phosphorus. *See Ex. 8 (State of Rhode Island 2004 and 2006 303(d) List of Impaired Waters) (AR 56, 57)*; *Ex. 2 (Fact Sheet)* at 5-6; *Ex. 15 (Revised Fact Sheet)* at 4; *Ex. 3 (RTC)* at 55.[3]

Both the Ten Mile River and upper Narragansett Bay, which includes the Providence and Seekonk Rivers, have suffered from severe cultural eutrophication for many years. *See Ex. 2 (Fact Sheet)* at 8. Cultural eutrophication refers to the human-induced increase in nutrients

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[2] Central Pond is called Turner Reservoir North by RIDEM in its 303(d) report. MassDEP calls the body of water north of Newman Avenue Central Pond and calls the body of water south of Newman Avenue the Turner Reservoir. The Region has used the names used by MassDEP, *i.e.*, the body of water north of Newman Avenue is called Central Pond and the body of water south of Newman Avenue is called the Turner Reservoir

[3] Once a segment is identified as "water quality limited," the State is required under section 303(d) and 40 C.F.R. § 130.7, to establish total maximum daily loads ("TMDLs") for the pollutant causing the failure to meet state water quality standards. While segments of the Ten Mile, Seekonk and Providence Rivers have been identified on Massachusetts' and Rhode Island's 303(d) list of impaired waters, to date, no TMDL has been completed for the rivers.

beyond the assimilative capacity of a water body, which can result in the acceleration of plant productivity. *See, e.g.,* 314 CMR 4.02 (defining cultural eutrophication); Rhode Island Standards, Rule 7 (same). Under undisturbed natural conditions, nutrient concentrations are very low in most aquatic ecosystems. *See Ex. 3 (RTC)* at 52. Typically, elevated levels of nutrients will cause excessive algal and/or plant growth, which may prevent waters from meeting their designated uses. *Id.* Phosphorous and nitrogen promote the growth of nuisance levels of macrophytes (rooted aquatic plants), phytoplankton (free floating algae), periphyton (attached algae) and filamentous algae such as moss and pond scum. *Id.* Phosphorus is the limiting nutrient (*i.e.*, the primary determinant for the growth and reproduction of algal species and communities) for the purposes of cultural eutrophication in freshwater systems, like the Ten Mile River and its several impoundments, while nitrogen plays that role in marine coastal systems, such as the Seekonk and Providence Rivers. *Id.* at 6 n. 5.

Noxious aquatic plant growth degrades aesthetic and recreational uses in a variety of ways. *See Ex. 3 (RTC)* at 52. Unsightly algal growth is unappealing to swimmers and other stream users and reduces water clarity. *Id.* Heavy growths of algae on rocks can make streambeds slippery and difficult or dangerous to walk on. *Id.* Algae and macrophytes can interfere with angling by fouling fishing lures and equipment. *Id.* Boat propellers and oars may also get tangled by aquatic vegetation. *Id.* Excessive plant growth can also result in a loss of diversity and other changes in the aquatic plant, invertebrate, and fish community structure and habitat. *Id.*

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. *See Ex. 3 (RTC)* at 53. During the day, primary producers (*e.g.*, algae, plants)

provide oxygen to the water as a by-product of photosynthesis. *Id.* At night, however, when photosynthesis ceases but respiration continues, dissolved oxygen concentrations decline. *Id.* Furthermore, as primary producers die, they are decomposed by bacteria that consume oxygen, and large populations of decomposers can consume large amounts of dissolved oxygen. *Id.* Many aquatic insects, fish, and other organisms become stressed and may even die when dissolved oxygen levels drop below a particular threshold level. *Id.*

Decomposing plant matter also produces unpleasant sights and strong odors, again negatively impacting recreational and aesthetic uses. *See Ex. 3 (RTC)* at 53. Nutrient-laden plant detritus can also settle to bottom of a stream bed. *Id.* In addition to physically altering the benthic environment and aquatic habitat, organic materials (*i.e.*, nutrients) in the sediments can become available for future uptake by aquatic plant growth, further perpetuating and potentially intensifying the eutrophic cycle. *Id.*

The *Massachusetts Ten Mile River Basin 1997 Water Quality Assessment Report* describes both Central Pond and the Turner Reservoir as hypereutrophic. *See Ex. 9 (AR 139)* at B24*; Ex. 3 (RTC)* at 55-56. The *Massachusetts Ten Mile River Basin 2002 Water Quality Assessment Report* noted that 90 percent of Central Pond was covered in duckweed, and that a very dense subsurface cover of *Elodea sp.* (a type of macrophyte) and filamentous algae were observed. *See Ex. 10 (AR 144)* at 47; *Ex. 3 (RTC)* at 56. The survey of the James Turner Reservoir noted moderate to dense macrophyte cover, a dense filamentous green algal mat covering 50 percent of the northern portion of the reservoir, and dense duckweed in the cove areas. *Ex. 10* at 48; *Ex. 3 (RTC)* at *id.*

In 1999, the U.S Army Corps of Engineers investigated the Turner Reservoir to determine its potential as a recreational area and a back-up water supply for the City of East Providence and found it to be eutrophic. *See Ex. 16* (*Turner Reservoir Study, East Providence Rhode Island) (AR*

141) at 9; *Ex. 3 (RTC)* at 56 and Attachment 4 (images of duckweed cover in Turner Reservoir). Data collected by the Corps showed elevated levels of phosphorus at the inflow to the Reservoir, and the study describes large amounts of duckweed in Turner Reservoir and Central Pond, which caused offensive odors when the plant material died and decomposed along the shore. *Id.*

A severe bloom of Microcystis algae (which is potentially toxic to humans and animals) in September 2007 resulted in RIDEM issuing a temporary advisory that people avoid recreational activities in the Ten Mile River, including Turner Reservoir and Omega Pond. *See Ex. 3 (RTC)* at 56-57. The advisory noted, "During a recent sampling event, DEM observed a dense algae bloom turning the waters of Turner Reservoir a bright green color. Laboratory results from tests have found high levels of the naturally occurring algal toxin, Microcystin. These levels, exceeding 25,000 micrograms per liter, are significantly above the guideline of 40 micrograms per liter from the World Health Organization." *Id.* The advisory was not lifted until December 19, 2007. *Id.*

In upper Narragansett Bay, cultural eutrophication has resulted in periodic low dissolved oxygen levels and fish kills and contributed to dramatic declines in eelgrass. *See Ex. 2 (Fact Sheet)* at 8; *see also Ex. 17* (*Governor's Narragansett Bay and Watershed Planning Commission (Nutrient and Bacteria Pollution Panel*, 2004) (*AR 163)* at 4. Historic estimates of eelgrass in Narragansett Bay ranged from 8,000-16,000 acres. *See Ex. 2 (Fact Sheet)* at *id.* Eelgrass provides important spawning, nursery, foraging and refuge habitat for many fish and invertebrate species, including commercially important species. *See* AR 54. Winter flounder, striped bass and lobsters are just a few of the species that utilize this habitat. *Id.* Current estimates of eelgrass indicate that fewer than 100 acres remain, and no eelgrass remains in the upper two thirds of Narragansett Bay. *See Ex. 2 (Fact Sheet)* at 8-9.

iii. Reasonable Potential Analysis

During the permit reissuance process, the Region evaluated the sources of phosphorus and nitrogen loading into the Ten Mile, Seekonk and Providence Rivers, as well as the physical, chemical and biological impacts of the nutrient loading in the receiving water. *See Ex. 2 (Fact Sheet)* at 8-12; *Ex. 15 (Revised Fact Sheet)* at 2-5; *Ex. 3 (RTC)* at 5-38, 55-86. The Region determined that the Ten Mile River (and its impoundments) and the Seekonk and Providence Rivers are severely eutrophic due to excessive phosphorus loading to the freshwater segments and nitrogen loading to the marine segments. *Id.*

As to phosphorus, the Region found that there were clear violations of applicable narrative and numeric water quality criteria in both Massachusetts and Rhode Island, and furthermore determined that phosphorus discharges from the Attleboro WPCF facility had a reasonable potential to contribute to these violations. *See Ex. 15 (Revised Fact Sheet)* at 3-5; *Ex. 3 (RTC)* at 55-61. At its current total phosphorus limit of 1.0 mg/l and its design flow of 8.6 MGD (13.3 cfs), the Attleboro WPCF would cause an in-stream concentration of 0.7 mg/l immediately downstream of the discharge under 7Q10 conditions. *Ex. 3 (RTC)* at 61. This projected concentration far exceeds the *Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV* (*"Ecoregion XIV Criteria*), *Ex. 25* (*AR 32*), of 0.024 mg/l and the EPA *1986 Quality Criteria for Water ("Gold Book,"), Ex. 12 (AR 47)*, recommended value of 0.1 mg/l, as well as the values set forth in EPA's national technical guidance and the peer-reviewed literature. *Id.* The Region's calculation assumed a background concentration of zero, meaning that the Attleboro discharge on its own would cause this in-stream concentration in the absence of any other sources. *Id.*

The Region also concluded that excessive nitrogen loading from wastewater facilities in Massachusetts, including the Attleboro WPCF, has the reasonable potential to contribute to violations of Rhode Island Standards in the Seekonk and Providence Rivers. *See* Ex. 2 *(Fact Sheet)* at 8-12; *Ex. 3 (RTC)* at 5-15. As a factual matter, municipal wastewater treatment facilities are the predominate source of the nitrogen loading in Narragansett Bay. *See Ex. 3 (RTC)* at 7; *Ex. 13 ("Evaluation of Nitrogen Targets and WWTF Load Reductions for the Providence and Seekonk Rivers" (RIDEM 2004)) ("2004 RIDEM Load Reduction Evaluation") (AR 143)* at 18-21; *Ex. 11 (Plan for Managing Nutrient Loadings to Rhode Island Waters (RIDEM 2005) ("2005 RIDEM Nutrient Loading Plan")) (AR 129)* at 3. To address nitrogen-induced cultural eutrophication, RIDEM has recently reissued several Rhode Island Pollutant Discharge Elimination System ("RIPDES") permits to Rhode Island POTWs that discharge to upper Narragansett Bay and its tributaries. These permits include nitrogen effluent limitations of either 5 mg/l or 8 mg/l, which were assigned by RIDEM depending on the location and size of the discharge. *See Ex. 2* at 11; *Ex. 14 (RIPDES Total Nitrogen Permit Modifications (Woonsocket WWTF, Bucklin Point WTWF, Fields Point WWTF, East Providence WPCF) Response to Comments) (AR 145)*; *Ex. 13 (2004 RIDEM Load Reduction Evaluation)* at 27-31; *Ex. 11 (2005 RIDEM Nutrient Loading Plan)* at 5-9.

EPA is responsible for issuing permits to the Massachusetts facilities, which as a group represent approximately 38% of the total nitrogen load to upper Narragansett Bay, and approximately 73% of the total nitrogen load to the Seekonk River, which is the most severely impaired section of upper Narragansett Bay. *See Ex. 2 (Fact Sheet)* at 11; *Ex. 3 (RTC)* at 31-32. Attleboro is one of several municipal POTWs in Massachusetts that discharge nitrogen into tributaries of the Seekonk and Providence Rivers. As stated above, the Attleboro WPCF

discharge point is located on the Ten Mile River 200 yards upstream from the Massachusetts/Rhode Island border. From May through October 2007, the facility discharged an average load of over 900 lbs per day of total nitrogen into the receiving waters, with an average effluent concentration of 24.5 mg/l. *See Ex. 3 (RTC)* at 18, 32. During this period, the Region estimated that the North Attleborough POTW and the Attleboro WPCF together contributed approximately 90% of the total nitrogen load from the Ten Mile River to the Seekonk River, with the Attleboro facility contributing 84% of that total due to its high average nitrogen effluent concentrations (the North Attleborough nitrogen effluent concentration was only 7 mg/l). *Ex. 3 (RTC)* at 31-32;[4] *Ex. 14* (*RIPDES Total Nitrogen Permit Modifications RTC)* at 8 ("The Woonsocket, UPWPAD, Attleborough and North Attleborough WWTFs are significant contributors to the most highly enriched estuarine waters in RI, the Seekonk River.")

iv. Establishment of Effluent Limitations for Phosphorus and Nitrogen

When establishing water quality-based effluent limitations in the absence of numeric criteria for phosphorus and nitrogen, the Region looks to a wide range of materials, including nationally recommended criteria, supplemented by other relevant materials, such as EPA technical guidance and information published under Section 304(a) of the CWA, peer-reviewed scientific literature and site-specific surveys and data. *See* 40 C.F.R. § 122.44(d)(1)(vi)(A),(B). *See Ex. 3 (RTC)* at 5-8, 57. The Region does not afford definitive weight to any one value or source, but rather assesses the total mix of technical, science and policy information available to it when determining an appropriate and protective limit. *Id.* at 8 n. 6, 57.

[4] The North Attleboro POTW has been issued a final NPDES permit with a monthly average total nitrogen effluent limitation of 8 mg/l.

When permitting nutrient discharges, the Region analyzes available record materials from a reasonably conservative standpoint, as it regards one key function of a nutrient limit as preventative. *See id.* at 13 n. 11, 64. This protective approach is appropriate because, once begun, the cycle of eutrophication can be difficult to reverse due to the tendency of nutrients to be retained in the sediments. *Id.* at 53. Nutrients can "be re-introduced into a waterbody from the sediment, or by microbial transformation, potentially resulting in a long recovery period even after pollutant sources have been reduced." *See Ex. 19 (Nutrient Technical Guidance Manual: Rivers and Streams (US EPA 2000) ("Rivers and Streams Nutrient Guidance") (AR 36)* at 3. Eutrophic conditions are often exacerbated around impoundments and in other slow moving reaches of rivers, where detention times increase relative to free flowing segments of rivers and streams. In addition, "[i]n flowing systems, nutrients may be rapidly transported downstream and the effects of nutrient inputs may be uncoupled from the nutrient source, [which] complicat[es] source control." *Ex. 3 (RTC)* at 53, quoting *Ex. 19 (Rivers and Streams Nutrient Guidance)* at 3. Thus, a second key function of a nutrient limit is to protect downstream receiving waters "regardless of [their proximity] in linear distance." *See Ex. 12 (Gold Book)* at 241. *See also Ex. 3 (RTC)* at 13, citing to *Development and Adoption of Nutrient Criteria into Water Quality Standards*, Geoffrey Grubbs, Director, EPA Office of Science and Technology (November 14, 2001) (AR 37).

a. The Phosphorus Limit

EPA has produced several guidance documents that set forth total ambient phosphorus concentrations that are sufficiently stringent to control cultural eutrophication and other adverse nutrient-related impacts. *Ex. 15 (Revised Fact Sheet)* at 2-3; *Ex. 3 (RTC)* at 57-61. These

guidance documents present protective in-stream phosphorus concentrations based on two different analytical approaches. *Ex. 15 (Revised Fact Sheet)* at 3; *Ex. 3 (RTC)* at *id.* An effects-based approach provides a threshold value above which adverse effects (*i.e.*, water quality impairments) are likely to occur. *Id.* This approach applies empirical observations of a causal variable (*i.e.*, phosphorus) and a response variable (*i.e.*, chlorophyll *a* as a measure of algal biomass) associated with designated use impairments. *Id.* Alternatively, reference-based values are statistically derived from a comparison within a population of rivers in the same ecoregion class. *Id.* They are a quantitative set of river characteristics (physical, chemical and biological) that represent conditions in waters in that ecoregion that are minimally impacted by human activities (*i.e.*, reference conditions), and thus by definition representative of water without cultural eutrophication. *Id.* The total phosphorus criterion for this ecoregion, found in the *Ecoregion XIV Criteria*, *Ex. 25*, is 0.024 mg/l. While reference conditions reflect in-stream phosphorus concentrations that are sufficiently low to meet the requirements necessary to support designated uses, they may also exceed the water quality necessary to support such uses. *Id.*

The *Gold Book* follows an effects-based approach. *Ex. 15 (Revised Fact Sheet)* at 3; *Ex. 3 (RTC)* at 57. The *Gold Book* sets forth maximum threshold concentrations that are designed to prevent or control adverse nutrient-related impacts from occurring. *Id.* Specifically, the *Gold Book* recommends in-stream phosphorus concentrations of no greater than 0.05 mg/l in any stream entering a lake or reservoir, 0.1 mg/l for any stream not discharging directly to lakes or impoundments, and 0.025 mg/l within a lake or reservoir. *Id.* A more recent EPA technical guidance manual, the *Rivers and Streams Nutrient Guidance*, cites to a range of ambient concentrations drawn from the peer-reviewed scientific literature that are sufficiently stringent to control periphyton and plankton (two types of aquatic plant growth commonly associated with

eutrophication). *Ex. 15 (Revised Fact Sheet)* at 3; *Ex. 3 (RTC)* at 57-60. This guidance indicates that in-stream phosphorus concentrations between 0.01 mg/l and 0.09 mg/l will be sufficient to control periphyton growth and concentrations between 0.035 mg/l and 0.070 mg/l will be sufficient to control plankton. *See Ex. 15 (Revised Fact Sheet)* at 3; *Ex. 3 (RTC)* at 58-60 (Table 1, showing the range of literature values, and Table 2, showing a range of phosphorus criteria established by various states). To effectively address the documented eutrophication in the Ten Mile River and downstream impoundments, the Region concluded that ambient phosphorus concentrations must be brought within this protective range (*e.g.*, 0.01 mg/l to 0.1 mg/1) and the City's existing phosphorus effluent limit made more stringent. *See Ex. 15* at 4-5; *Ex. 3 (RTC)* at 61.

Given the lack of effective dilution under 7Q10 flow conditions, the Region established a monthly average total phosphorus effluent limit of 0.1 mg/l (imposed April through October) to ensure that the *Gold Book* recommended value of 0.1 mg/l will not be exceeded in the Massachusetts reach of the river immediately below the discharge. *See Ex. 15 (Revised Fact Sheet)* at 4-5; *Ex. 3* (RTC) at 61, 64-68. The Region also concluded that the limit would be sufficient to ensure compliance with Rhode Island Standards further downstream, because it would result in an in-stream phosphorus concentration of approximately 0.05 mg/l in the inlet to the Turner Reservoir/Central Pond, consistent with the *Gold Book* recommended concentration for inlets to lakes or reservoirs. *Id.* at 76-78. The Region based this conclusion on several mass-balance calculations in which the Region assumed varying phosphorus attenuation rates and background phosphorus concentrations.

In addition to being consistent with the *Gold Book*, the Region determined that the 0.1 mg/l effluent limit also falls within the range of effects-based values in *Rivers and Streams*

Nutrient Guidance and in the peer-reviewed scientific literature after accounting for the differing flow assumptions underlying the Permit (*i.e.*, based on 7Q10 dilution flow) and those underlying the guidance and literature values (*i.e.*, based on 2- or 3-month summer seasonal flows). *See Ex. 15 (Revised Fact Sheet)* at 4-5; *Ex. 3 (RTC)* at 64-67, 76-78, Attachments 7A-7C, 10A-10D. The Region based this conclusion on mass-balance calculations projecting in-stream concentrations based on a 0.1 mg/l effluent limit. In these calculations, the Region assumed varying phosphorus attenuation rates, background phosphorus concentrations and flows (*i.e.*, 7Q10, lower summer average flow, average summer flow). *Ex. 3 (RTC)* at Attachments 7A-7C, 10A-10D. Assuming, for example, a future background phosphorus concentration equal to the ecoregional reference condition of 0.024 mg/l and 10% phosphorus attenuation, a phosphorus effluent limit of 0.1 mg/l would result in an estimated inlet concentration at the entrance to Central Pond of 0.046 mg/l under 7Q10 flow conditions, 0.036 mg/l under lowest summer average flow conditions, and 0.033 mg/l under average summer flow conditions. *Id.* at 78. These projected concentrations are stringent enough to control the effects of cultural eutrophication based upon the information in the record (*e.g.*, indicating levels between 0.035 mg/l and 0.070 mg/l will be sufficient to control plankton and between 0.01 mg/l and 0.09 mg/l to control phytoplankton). *See Ex. 15* at 4-5; *Ex. 3 (RTC)* at 77-78.

In addition to the monthly average phosphorus effluent limit of 0.1 mg/l that is applied during the growing season (April through October), the Permit also imposes a monthly average phosphorus limit of 1.0 mg/l during November through March. This latter limitation on total phosphorus is necessary to ensure that the higher levels of phosphorus discharged in the winter period do not result in the accumulation of phosphorus in the downstream sediments. *See Ex. 2 (Fact Sheet)* at 7.

b. The Nitrogen Limit

The fate and transport dynamics of nitrogen in impaired estuaries are highly complex, with dilution impacted by tidal factors and uptake processes impacted by waters, sediments and the atmosphere (*i.e.*, nitrogen can be deposited by the atmosphere and can also be released to the atmosphere through biological processes). The response of a coastal ecosystem to nitrogen enrichment depends on many factors, including light availability, temperature, stratification, grazing of algae by zooplankton and shellfish, and flushing rates. EPA has not promulgated recommended national nutrient criteria for estuarine and coastal waters. *See Ex. 20 (Nutrient Criteria Technical Guidance Manual: Estuarine and Coastal Marine Waters (US EPA 2001) ("Estuarine Nutrient Guidance")) (AR 35)* at 1-8 ("It is impossible to recommend a single national criterion applicable to all estuaries.").

Absent a recommended criterion, the Region relied on the best information reasonably available to it to establish a nitrogen effluent limitation that would be sufficiently stringent to ensure compliance with Rhode Island's narrative water quality criterion for nitrogen. *See* 40 C.F.R. § 122.44(d)(1)(vi)(A). The Agency considered more than 15 years of water quality data, studies and reports evaluating nitrogen levels and response variables in Narragansett Bay. *Ex. 2 (Fact Sheet)* at 9-11; *Ex. 3 (RTC)* at 8-9. These materials included EPA's *Estuarine Nutrient Guidance* and a variety of site-specific reports commissioned by Rhode Island to address nitrogen loading and control the effects of cultural eutrophication in upper Narragansett Bay. *See, e.g., 2004 RIDEM Load Reduction Evaluation, 2005 RIDEM Nutrient Loading Plan, Nutrient and Bacteria Pollution Panel – Initial Report. See also Ex. 21 (Massachusetts Estuaries Project – Site-Specific Nitrogen Thresholds for Southeastern Massachusetts Embayments: Critical*

Indicators (MassDEP 2003)) (AR 142).

In addition, the Region relied on the results of a physical water quality model operated by the Marine Ecosystems Research Laboratory (MERL) at the University of Rhode Island that was designed to predict the relationship between nitrogen loading and several trophic response variables in the Narragansett Bay system. *Ex. 2 (Fact Sheet)* at 10-11; *Ex. 3 (RTC)* at 9. In establishing the nitrogen limit in this Permit, and evaluating the MERL model, the Region also considered actual measurements of nitrogen loadings from point source discharges, including a 1995-96 study by RIDEM Water Resources. *Id.*; *Ex. 3 (RTC)* at 9.

The MERL enrichment gradient experiment included a study of the impact of different loadings of nutrients on dissolved oxygen and chlorophyll *a*. *See Ex. 24* (*Patterns of productivity during eutrophication: a mesocosm experiment,* Oviatt, Keller, Sampou, Beatty, *Marine Ecology*, 1986); *Ex. 3 (RTC)* at 10; *Ex. 13 (2004 RIDEM Load Reduction Evaluation)* at 1-2. The MERL enrichment gradient experiments were conducted from June 1981 through September 1983 and consisted of 9 tanks (mesocosms), each 5 meters deep and 1.83 meters in diameter. *Ex. 3 (RTC)* at *id.* Three tanks were used as controls, and were designed to have regimes of temperature, mixing, turnover, and light similar to a relatively clean Northeast estuary with no major sewage inputs. *Id.* The remaining six mesocosms had the same regimes, but were fed reagent grade inorganic nutrients (nitrogen, phosphorus and silica) in ratios found in Providence River sewage. *Id.* The six mesocosms were fed nutrients in multiples of the estimated average sewage inorganic effluent nutrient loading to Narragansett Bay. *Id.* For example the 1X mesocosm nitrogen loading was 2.88 mM N/m ^{2}/day (40 mg/ m ^{2} /day) and the 2X was twice that and so on (4X, 8X, 16X) up to the a maximum load of 32X. *Id.* During the study, dissolved oxygen, chlorophyll *a*, pH, and dissolved inorganic nutrients were measured in the water column and benthic respiration

was also measured. *Id.* From the collected data the investigators produced times series for oxygen, pH, temperature, nutrients, chlorophyll *a*, and system metabolism. *Id.*

The correlation between nitrogen loadings, chlorophyll *a* levels, and dissolved oxygen impairment is well documented in the *Estuarine Nutrient Guidance. See Ex. 3 (RTC)* at 11 n.9. Dissolved oxygen levels (either low or supersaturated) and phytoplankton (as measured by chlorophyll *a* levels) are indicators of cultural eutrophication. *Id.* at 10-11. Both the MERL tank experiments and the data from the Providence/Seekonk River system indicate a clear correlation between nitrogen loadings, dissolved oxygen impairment and chlorophyll *a* levels. *Id.*; *Ex. 13* (*2004 RIDEM Load Reduction Evaluation*) at 2-17. The dissolved oxygen measurements taken from MERL tank experiment demonstrate that the range and variability of DO increases with greater nutrient loading. *Id.* The DO in the Seekonk River showed patterns of DO variability similar to that of the high enrichment tanks in the MERL experiments. *Id.* The MERL tank experiments showed a correlation between nitrogen loading rates and chlorophyll *a* levels. *Id.* These results were consistent with RIDEM data from 1995-96, which showed that mean photoplankton chlorophyll *a* levels in the three Seekonk River monitoring stations ranged from 14 ug/l to 28 ug/l,[5] with the highest levels in the upper reaches of the river and the lowest levels in the lower reaches of the river. *Id.* Coastal areas without high nutrient loads are expected to have chlorophyll *a* levels in the 1 to 3 ug/l range. *Id.* Massachusetts has identified chlorophyll *a* levels of less than 3 ug/l as representing excellent water quality and chlorophyll *a* levels similar to the levels in the Providence/Seekonk River system as representing significantly impaired waters. *Id.* at 10-11; *Ex.* 21.

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[5] Peak chlorophyll *a* levels in the Providence/Seekonk River system have exceeded 200 ug/l. *Id.*

The Region concluded that the basic relationship demonstrated by the MERL tank experiments between the primary causal and response variables relative to eutrophication corresponds to what is actually occurring in the Providence/Seekonk River system. *Ex. 3 (RTC)* at 11; *Ex. 13* (*2004 RIDEM Load Reduction Evaluation*) at 12. The Region recognized, however, that the MERL tank experiments could not completely simulate the response of chlorophyll *a* and dissolved oxygen to nitrogen loadings in a complex, natural setting such as the Providence/Seekonk River system, and thus cannot not yield a precise level of nitrogen control required to restore uses in the system. *Id.* at 11-12. For example, dissolved oxygen in Narragansett Bay is influenced by stratification, which was not simulated in the MERL tank experiment, in which waters were routinely mixed. *Id.* In a stratified system there is little vertical mixing of water, so sediment oxygen deficits are exacerbated due to the lack of mixing with higher DO waters above. *Id.* The model's lack of stratification could result in it being significantly less conservative (*i.e.*, underestimating the effects of a given nutrient loading on water quality) than the natural environment. *Id.* On the other hand, the flushing rate used in the MERL tank experiments was significantly slower than flushing rates in the natural ecosystem. *Id.* The fact that the model did not mirror the flushing rates in Narragansett Bay could render it overly conservative when compared to natural conditions, but to what degree is unclear. *Id.* Because the physical model did not generate a definitive level of nitrogen control that can be applied to a real world discharge, but instead a range of loading scenarios which are subject to some scientific uncertainty, the Region was required to exercise its technical expertise and scientific judgment based on the available evidence when translating these laboratory results and establishing the Permit limit. *Id.*

The Region determined that a concentration-based limit of 8 mg/l would be necessary to address the excessive loadings from the facility, which both the Region and Rhode Island have determined are contributing to ongoing water quality impairments in the Narragansett Bay system. *Ex. 2 (Fact Sheet)* at 9-12; *Ex. 3 (RTC)* at 12-13. An effluent limit of 8 mg/l for the Attleboro facility, coupled with effluent limits of either 5 mg/l or 8 mg/l (depending on size and location of the discharge) for other POTWs discharging to the Seekonk River, corresponds to a MERL loading scenario in the Seekonk River of "approximately 6.5X at current facility flows and 10X at 90% design flows."[6] *Id.* The Region was aware that the MERL tank experiments and RIDEM studies showed that limits corresponding to a nitrogen loading scenario of between 2X and 4X may be necessary to achieve water quality standards. *Ex. 3 (RTC)* at 12-13. However, the Region opted not to impose a limit based on more stringent loading scenarios at this time despite the severe nitrogen-related impairments in the receiving waters in order to account for uncertainties associated with the physical model. *Id.*

Even with the recognition of differences between the laboratory and natural environment, the fact that water quality responses in the MERL tank experiments resulted in a significant level of impairment with a 10X nitrogen mass loading scenario (the loading if the treatment plants were

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[6] These projected loading estimates assume that roughly 40% of the nitrogen loading from the Attleboro facility will attenuate before the load reaches the Seekonk River due to uptake by existing (phosphorus-driven) eutrophic processes in the freshwater Ten Mile River system. *Ex. 2 (Fact Sheet)* at 10; *Ex. 3 (RTC)* at 18, 20, 38; *RIDEM 2005 Permit Modification RTC* at 11-12. In addition to the 40% attenuation assumption made with respect to the Ten Mile River, the loading estimates also assume nitrogen attenuation rates of 18% and 13%, respectively, for POTWs discharging to the Pawtuxet and Blackstone Rivers, two major tributaries to upper Narragansett Bay. For the purposes of establishing the NPDES permit limit, the Region determined that increasing the limit beyond 8 mg/l to account for existing rates of estimated attenuation would not be protective because, over time, the primary mechanism for uptake and attenuation—excessive plant growth—is expected to significantly diminish as the result of new phosphorus controls imposed by the Region on point source phosphorus discharges to the Ten Mile River. *Ex. 2 (Fact Sheet)* at 10; *Ex. 3 (RTC)* at 18, 20, 38. The Region was cognizant that "a decrease in Attleboro's attenuation would result in an increase in Attleboro's loading to the Seekonk River," and indicated that a lower limit would be imposed "if monitoring shows that the overall load reduction to the Seekonk River is insufficient to achieve water quality standards even after the POTWs achieve their total nitrogen limits." *Ex. 3 (RTC)* at 20.

to discharge near design flow) was an area of concern for the Region in light of its duty under section 301(b)(1)(C) to ensure compliance with water quality standards. *Ex. 3 (RTC)* at 12-13. However, when evaluating the adequacy of the limit, the Region was also aware that the particular approach it adopted possesses conservative elements which enhance the protectiveness of the Permit beyond that of the 10X mass loading scenario. *Id.* Specifically, the decision by the Region to impose concentration rather than mass limits will assure that effluent nitrogen concentrations are maintained at consistently low levels and, as a practical matter, will result in actual mass loadings that are kept significantly below the 10X loading scenario for the foreseeable future, as treatment plant flows remain well below the facility's design flow of 8.6 MGD and have been steady in recent years. *Id.*

When establishing the limit and assessing its protectiveness, EPA also took account of the fact that RIDEM has committed to ensuring adequate monitoring and assessment of water quality changes to determine if additional reductions will be necessary to meet water quality standards. *Ex. 3 (RTC)* at 12-13. RIDEM has, in partnership with several research and academic institutions in Rhode Island, established an extensive monitoring network in order to provide data for evaluating compliance with water quality standards upon implementation of the recommended nitrogen reductions. *Id. See also Ex.* 28 (AR 159) (description of Narragansett Bay fixed-site monitoring network). This information will be available to check the Region's assumptions regarding the adequacy of the limit. *Id.* If the Region has erred in navigating the scientific complexities and uncertainties associated with the MERL tank experiments, it will be able to further refine the limit in future permitting cycles. *Id.*

When evaluating whether it had met its obligations under sections 301(b)(1)(C) and 401(a)(2) to ensure compliance with applicable water quality standards, including those of

affected states, the Region furthermore accounted for the fact that Rhode Island, when assigning permit limits to facilities within its own borders based on size and location in accordance with its own water quality standards, did not conclude more stringent limits would be necessary or appropriate at this time. *Ex. 3 (RTC)* at 12-13. Under Rhode Island's permitting approach, limits of 5 mg/l and 8 mg/l have been imposed on various Rhode Island POTWs whose discharges impact Narragansett Bay, and Rhode Island has recommended that similar limits be placed on certain Massachusetts facilities that are impacting the Bay, including the North Attleborough WWTF and the Attleboro WPCF. *Id.*; *Ex. 13* (*2004 RIDEM Load Reduction Evaluation*) at 28-31; Ex. 11 (*2005 RIDEM Nutrient Loading Plan)* at 4, 8-9. Both the Region and RIDEM have established or proposed nitrogen limits of 5.0 mg/l for facilities contributing the largest amount of nitrogen to the upper reaches of the Seekonk River system, where the greatest level of impairment has been documented. *Ex. 3 (RTC)* at 13-14. These include one facility in Massachusetts, the Upper Blackstone Water Pollution Abatement District, and two facilities in Rhode Island, NBC-Bucklin Point and Woonsocket. All of the Rhode Island facilities receiving a limit of 8.0 mg/l discharge either into the Providence River or into Narragansett Bay below the Providence River, where the flushing rate is higher and the impacts less severe. *Ex. 3 (RTC)* at 13 n. 12. RIDEM recommended that the North Attleborough WWTF and the Attleboro facility receive limits of 8 mg/l. While the Attleboro and North Attleboro facilities discharges into the area experiencing the greatest impairment (Seekonk River), they are smaller than the three facilities with 5 mg/l limits referred to above. *Id.* at 14. In arriving at its decision to impose a nitrogen effluent limit of 8 mg/l on the Attleboro WPCF, the Region regarded Rhode Island's position as additional evidence that the limit was reasonable and sufficiently stringent to comply with the CWA. *Id.* at 13.

The Region in addition determined that no less stringent limits could be imposed that would still ensure compliance with Rhode Island water quality standards in light of the severe existing eutrophic conditions in the Providence/Seekonk River system, indicating that it is significantly overloaded for nitrogen. *Ex. 3 (RTC)* at 12-13. In so concluding, the Region also weighed the fact that RIDEM has indicated that nitrogen limits as low as the limits of technology (*i.e.*, 3 mg/l) may be necessary to achieve water quality standards, with the caveat that it too has acknowledged uncertainty in the MERL model. *Id.*; *Ex. 13* (*2004 RIDEM Load Reduction Evaluation*) at 27.

B. Procedural History

The City's prior NPDES permit was issued on September 30, 1999, and expired on September 30, 2004. The expired permit was administratively extended pursuant to 40 C.F.R. § 122.6(a)(1) because the City timely filed a complete application for permit reissuance under 40 C.F.R. § 122.21.

The Region solicited public comments on a draft NPDES permit renewal ("Draft Permit") and Fact Sheet from August 16 to September 15, 2006. The Region received comments on behalf of the City, including from its wastewater superintendent, its attorneys and its engineering consultant, Camp, Dresser and McKee. Additional timely comments were received from RIDEM, the Commonwealth of Massachusetts Riverways Program, and NewStream LLC. Rhode Island submitted its comments pursuant to CWA § 401(a)(2).

From August 1 to August 30, 2007, the Region issued a partially revised draft permit ("Revised Draft Permit") and Fact Sheet ("Revised Fact Sheet") for public comment because it

concluded that comments received from Rhode Island raised substantial new questions regarding the sufficiency of the seasonal phosphorus effluent limitation of 0.2 mg/l to ensure compliance with Massachusetts and Rhode Island Standards. The City's attorneys and engineering consultant again submitted comments on the Revised Draft Permit. The City's attorneys also requested a public hearing to "address the important issues" raised in its comments. *See Ex. 3 (RTC)* at 83.

After preparing a Response to Comments and obtaining certification pursuant to CWA § 401 from Massachusetts, *see Ex. 22 (AR 11)*, the Region issued the Final Permit authorizing the discharge on June 9, 2008.

Concurrent with issuance of the Final Permit, the Region also denied the City's request for a public hearing, citing the limited number of comments received and the absence of any other hearing requests. *See Ex. 3 (RTC)* at 84.

The City and RIDEM timely petitioned the Board for review of the Final Permit on July 9 and 10, 2008.

Upon reviewing the City's Petition, the Region issued a notice of uncontested and severable conditions on August 27, 2008, putting the portions of the Permit that had not been challenged into effect on October 1, 2008.

II. STANDARD OF REVIEW

These petitions for review were brought pursuant to 40 C.F.R. § 124.19(a), which creates a direct appeal to the EAB of federally-issued NPDES permit decisions. Although the Board has broad authority to review decisions made in NPDES permit cases, EPA intended the Board's power of review to be exercised "only sparingly." *See* 44 Fed. Reg. 32853, 32887 (June 7, 1979).

With respect to appeals under Part 124 regarding NPDES permits, EPA policy calls for most such permits to be finally adjudicated at the regional level. *Id.*

In proceedings brought under 40 C.F.R. § 124.19(a), 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 with the petitioner. 40 C.F.R. § 124.19(a); *see Rohm & Haas,* 9 E.A.D. 499, 504 (EAB 2000). A petitioner must argue with specificity why the Board should grant review. *In re Puerto Rico Electric Power Authority,* 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 Michigan Dep't of Envtl. Quality v. EPA*, 318 F.3d 705, 708-09 (6th Cir. 2003) (citing *In re Puerto Rico Elec. Power Auth.*, 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).

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, "[p]etitioners 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." *Id.* at 668 (citing *In re Ash Grove Cement Co.*, 7 E.A.D. 387, 404 (EAB 1997)). 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. *In re Dominion Energy Brayton Point, L.L.C.*, 12 E.A.D. 490, 511 (EAB 2006). 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." *See In re Peabody W. Coal Co.,* 12 E.A.D. 22, 34 (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.") 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 567-68. 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.

III. ARGUMENT

1. THE REGION DID NOT COMMIT REVIEWABLE ERROR, ABUSE ITS DISCRETION OR RAISE AN IMPORTANT POLICY CONSIDERATION WARRANTING REVIEW IN ESTABLISHING THE PERMIT LIMIT FOR NITROGEN

A. The Region Had Sufficient Scientific Basis and Adequate Data Upon Which to Establish the Nitrogen Effluent Limit

The City claims that a water quality-based nitrogen effluent limit for the Attleboro facility cannot be established based on available science and data, and that the technical approach adopted by the Region to derive such a limit failed to account for the site-specific impacts of the discharge on water quality. *See Att. Pet.* at 5-6. The City contends that the MERL model fails to fully mirror the natural ecosystem of upper Narragansett Bay and thus was not "scientifically reliable for the specific purpose" of establishing the nitrogen effluent limit for the facility. *Id.* at 8. The City 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 Down Pharmaceuticals, Inc.*, 509 U.S. 579, 582, 592-593 (1993), allegedly adopted by the Board in *In re City of Salisbury*, 2000 WL 190658 (EPA 2000), and purportedly applicable to NPDES permit issuance proceedings. *Att. Pet.* at 5. The City is mistaken on all counts.

As a threshold matter, the City's theory that *Daubert* is the controlling standard for scientific and technical determinations made during NPDES permit proceedings under 40 C.F.R. Part 122 was not made by any party in the comment period for either the Draft or Revised Draft Permit, although the argument was reasonably available. The argument has therefore not been preserved for Board review. In its comments, the City challenged the scientific basis for the Permit's water quality-based effluent limits (including the applicability of the MERL model), and proposed a specific legal framework that it contended must be used to assess the sufficiency of the evidence underlying such limits. The City, however, framed these arguments purely in terms of the Clean Water Act (relying, for example, on CWA § 303(d) and 40 C.F.R. § 130.7) and

Rhode Island Standards (relying on Rule 7).[7] *See Ex. 3 (RTC)* at 2, 51, 73-74.[8] The City argued that, under the CWA, a TMDL or an equivalently comprehensive scientific assessment would be necessary prior to the Region imposing water quality-based effluent limits and, as proof of this claim, cited to the state law case of *Friends & Fishers of the Edgartown Great Pond, Inc. v. Department of Environmental Protection*, 446 Mass. 830, 840-844 (2006). *Id.* at 70. The City never mentioned that the Region should have looked to *Daubert* as the ultimate test of the adequacy of science and the validity of the Permit's water quality-based effluent limits. Had the City done so, the Region could have considered the argument and determined its relevance prior to issuance of the Final Permit rather than doing so for the first time now at this late stage in the proceedings. It is well-settled that under the Agency's permitting regulations, permit issuers are "under no obligation to speculate about possible concerns that were not articulated in the comments." *In re New England Plating Co.*, 9 E.A.D. 726, 735 (EAB 2001); *accord, e.g., In re Teck Cominco Alaska Inc., Red Dog Mine,* 11 E.A.D. 457, 481; *In re Steel Dynamics, Inc.*, 9 E.A.D. 165, 229-31 (EAB 2000); *In re Sutter Power Plant,* 8 E.A.D. 680, 694 (EAB 1999). Instead, a petitioner "must have raised during the public comment period the specific 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). *See also In re Fla. Pulp & Paper*

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[7] In its comments, the City stated, "The *Clean Water Act* [emphasis added] contemplated solid scientific support for imposing site-specific effluent limits upon publicly owned treatment works," and specifically couched its argument in the CWA's TMDL requirements, which include "a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality." *See Ex. 3 (RTC)* at 2. This language is copied verbatim into the City's Petition. *See Att. Pet.* at 6 n. 3.

[8] When referring to the City's or RIDEM's comments on the Draft Permit or Revised Draft Permit, the Region in this Memorandum cites back to its Response to Comments rather than the original comment letters. The Response to Comments generally reproduces comments received on the drafts verbatim and in their entirety.

Ass'n, 6 E.A.D. 49, 54-55 (EAB 1995) (comment alleging sludge testing is unnecessary is not sufficient to preserve for appeal the question of legal authority to require any sludge testing). The City 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.

On the merits, the City's position is without legal or factual foundation and does not demonstrate any basis for review by the Board. First, the City wrongly theorizes that the Board's customary standard of review, *supra* at Section II, for technical and scientific issues has been altered by an administrative law judge's passing reference to *Daubert* in *City of Salisbury*. It has been firmly established by the Board's precedent that, "[W]hen presented with technical issues, [the Board] look[s] to determine whether the record demonstrates that the [permit issuer] duly considered the issues raised in the comments and whether the approach ultimately adopted by the [permit issuer] is rational in light of all of the information in the record." *In re Scituate Wastewater Treatment Plant*, 12 E.A.D. 708, 718 (EAB 2006) (quoting *In re MCN Oil & Gas Co.*, UIC Appeal No. 02-03, at 25-26 n.21 (EAB Sept. 4, 2002) (Order Denying Review)), *appeal dismissed per stipulation of parties*, No. 06-1817 (1st Cir. 2006). "Establishment of a nitrogen effluent limit in a permit is inherently a technical issue." *In re D.C. Water and Sewer Authority*, NPDES Appeals Nos. 05-02, 07-10, 07-11, 07-12, slip op. at 39 (EAB March 19, 2008). This long-standing standard of review should continue to be applied by the Board, as neither *Daubert* nor *Salisbury* controls, or is even of relevance, to this proceeding.

In *Daubert*, 509 U.S. at 582, 592-593, the Supreme Court established the standard by which judges must determine the admissibility of expert scientific testimony in federal trials. 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. *See Id.* at 593-594. 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. *See Edison Elec. Inst. v. EPA*, 391 F.3d 1267, 1269 (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."). 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 Environmental Defense Center, Inc.* v. *U.S. EPA*, 344 F.3d 832, 869 (9th Cir. 2003); *American Iron and Steel Institute* v. *U.S. EPA,* 115 F.3d 979, 1006 (D.C. Cir. 1997) (per curiam).

The City's reliance on *Salisbury* is also misguided. That case did not involve the development of water quality-based effluent limits under 40 C.F.R. Part 122. Rather, *Salibury* is an initial decision of an ALJ in an enforcement proceeding under 40 C.F.R. Part 22 for violations of EPA's sewage sludge regulations (40 C.F.R. Part 503). The ALJ, as trier of fact, applied the *Daubert* factors to expert scientific testimony. *Salisbury,* 2000 WL 190658. The case by no means establishes a generally applicable standard of review for scientific evidence and methods applicable to the development of water quality-based effluent limits under 40 C.F.R. Part 122. To the contrary, the Board has expressly concluded elsewhere that the "*Daubert* factors are not

controlling principles" for administrative agencies.[9] Furthermore, the Board's subsequent decision upholding the presiding officer's decision did not even make any mention of *Daubert*. *See In re City of Salisbury, Maryland*, 10 E.A.D. 263 (EAB 2002).[10] Thus, the Board's customary standard for assessing the adequacy of technical and scientific determinations in NPDES permits remains in place.

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 City as a predicate to the imposition of a water-quality based effluent limitation in an NPDES permit. *See Att. Pet.* at 7.[11] To the contrary, rather than setting a particularized evidentiary threshold for science related to a discharger's impact on water quality,

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[9] *See In re: Solutia Inc., Petitioner*, 10 E.A.D. 193, 211-212, n.22 (EAB 2001). Although the City failed to bring this case to the Board's attention, *Solutia* is squarely on point. The Board held:

> The Region urges that the Board weigh the evidence in light of Federal Rule of Evidence 702 (Testimony by Experts) and the four factors delineated in the Supreme Court's ruling in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 593-94 (1993). The Region posits that the affidavit evidence presented by Petitioner fails to satisfy the *Daubert* admissibility standards and is inadequate as expert testimony. We disagree for several reasons. First, while it is appropriate for us to look to the federal rules and court guidance in determining the weight to be given the evidence presented, it is a well-settled rule that "Agencies are not bound by the strict rules of evidence governing jury trials." *Bennett v. NTSB*, 66 F.3d 1130, 1137 (10th Cir. 1995); *Sorenson v. NTSB*, 684 F.2d 683, 686 (10th Cir. 1982); *Calhoun v. Bailar*, 626 F.2d 145, 148 (9th Cir. 1980), cert. denied, 452 U.S. 906 (1981). Thus, Rule 702 and the Daubert factors are not controlling principles.

Thus, even in cases involving testimony, the Board has indicated that *Daubert* factors are not controlling principles.

[10] *Friends & Fishers*, upon which the City heavily relies in its comments below and in its Petition, also makes no reference to *Daubert*. The Massachusetts Supreme Judicial Court instead articulates a highly deferential standard of review pertaining to technical and scientific matters that is closely parallel to the Board's own. *See Friends & Fishers*, 446 Mass. at 836-837.

[11] The Clean Water Act certainly does not require that, "[b]efore a new NPDES permit imposes *substantial costs* [emphasis added] upon ratepayers and citizens, there must be credible science to support a conclusion that *real world environmental benefits* [emphasis added] will result." *See Att. Pet.* at 5. The law is clear that economic or technological feasibility are not appropriate factors to consider when establishing water quality-based limits. *See U,S, Steel*, 556 F.2d at 838. Thus, even if a limit were impossible to meet using existing treatment technology, the permit issuer would still be obligated as a matter of law to impose it.

the CWA and 40 C.F.R. § 122.44 direct EPA to impose limits and conditions that will ensure compliance with applicable water quality standards, and establishes a flexible mechanism to guide the permit writer in the development of water quality-based effluent limitations.

As described *supra* in Section I.1.A, the specific means by which narrative water quality criteria must be interpreted to derive water quality-based effluent limits is provided by 40 C.F.R. § 122.44(d)(1)(vi), which was promulgated in 1989 as part of a set of regulations related to the establishment of water quality-based effluent limits in compliance with section 301(b)(1)(C). These provisions amended 40 C.F.R. § 122.44(d)(1) (1988), which had simply required permits to contain requirements "necessary to....[a]chieve water quality standards established under section 303 of the CWA." As EPA explained in its preamble, "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." *See* 54 Fed. Reg. 23868, 23877 (June 2, 1989). As provided by the regulation, where a State has not established a numeric water quality criterion for a specific chemical pollutant that is present in the effluent in a concentration that causes or has a reasonable potential to cause or contribute to a violation of narrative water quality standards, the permitting authority must establish effluent limits in one of three ways:

> (A) Establish effluent limits using a calculated numeric water quality criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and will fully protect the designated use. 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; or
> (B) Establish effluent limits on a case-by-case basis, using EPA's water quality criteria, published under section 304(a) of the CWA, supplemented where necessary by other relevant information; or

(C) in certain circumstances, based on an "indicator parameter."

40 C.F.R. § 122.44(d)(1)(vi)(A)-(C). This regulatory provision has been upheld as a reasonable, authorized attempt at necessary gap-filling in the CWA statutory scheme as it provides permit writers with guidance on how to translate state narrative water quality standards into numeric requirements. *See American Paper Inst. v. EPA*, 996 F.2d 346, 348, 351 (D.C. Cir. 1993); *American Iron & Steel*, 115 F.3d at 990-991.

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 40 C.F.R. § 122.44(d)(1)(vi). Even the use of the documents specifically cited by EPA in the regulation is not mandatory. *See* 54 Fed. Reg. at 23876. While the Region'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 "reliability" or "credibility," or to meet any of the factors set forth in *Daubert*, although the information relied on by the Region is certainly both credible and reliable.

As explained in the Region's Response to Comments, in keeping with the regulation, no one source of information should necessarily be given definitive weight, nor should the absence of any particular information source necessarily preclude EPA from establishing an effluent limit. *See Ex. 3 (RTC)* at 8 n. 6, 57. The Region's response is consistent with the preamble to the 40 C.F.R. 122.44(d)(1)(vi), which explains, "It is EPA's intent that the three options in subparagraph (vi) will allow the permitting authority to set effluent limits to control discharges (in the absence of state numerical water quality criteria for all pollutants of concern) that interfere with attaining

and maintaining designated uses, while at the same time, giving the permitting authority sufficient flexibility to account for site-specific impacts on aquatic life or human health." *See* 54 Fed. Reg. at 23878. The approach of utilizing available guidance and materials generated by EPA and States, as supplemented by other information reasonably available at the time of permit reissuance, is also reasonable in light of federal regulations requiring EPA to include requirements that will achieve state water quality standards when reissuing a permit and prohibiting issuance of a permit when the imposition of conditions cannot ensure compliance with the applicable state water quality requirements of all affected States. *See* 40 C.F.R. §§ 122.4(d), 122.44(d)(1); *see also* CWA §§ 301(b)(1)(C) and 401(a)(2). On the other hand, the alternative proposed by the City—to forego imposition of permit limits that would address ongoing water quality impacts while awaiting complex TMDL studies and dynamic mathematical models that may take years to complete, if competed at all—would forestall water quality improvements and would be inconsistent with EPA's statutory and regulatory obligations.

Under applicable regulatory standards, EPA is thus plainly authorized, even in technically and scientifically complex cases, to base its permitting decision on a wide range of relevant material, including EPA technical guidance, State laws and policies applicable to the narrative water quality criterion, and site-specific studies. In this case, the Region had ample grounds in the record on which to rationally base a nitrogen effluent limit, and did so in accordance with regulations governing the implementation of a narrative criterion though a numeric limit. Indeed, the Region relied on precisely the types of information contemplated by section 122.44(d)(1)(vi). In the absence of a validated dynamic model or TMDL, EPA relied on the best information reasonably available to it, which included 15 years of ambient water quality data; numerous site-specific studies, reports and scientific papers evaluating nitrogen levels and response variables in

Narragansett Bay; and EPA nutrient technical guidance documents. *See supra* at Section I.2.A.iv.b.

The City's generic allegation that the MERL results and RIDEM studies are not 'scientifically credible' or are not 'scientifically applicable' to the facility's Permit is simply false and is belied by the record. *See Att. Pet.* at 5, 7. The MERL model was peer-reviewed and published in a scientific journal, thereby withstanding the scrutiny of representatives of the scientific community. *See Ex. 3* at 9 (citing a 1986 *Oviatt* publication from *Marine Ecology*). As the Region pointed out in the Response to Comments, at *id.*, EPA cited the MERL experiment with approval in national nutrient technical guidance, a document which in turn was relied on by the Region and is intended to provide "scientifically defensible technical guidance to assist States, authorized Tribes, and other governmental entities in developing numeric nutrient criteria for estuaries and coastal waters under the authority of the Clean Water Act (CWA), Section 304[a]." *See Estuarine Nutrient Guidance* at 1-1, 2-11 and 2-16.[12] The City not only fails to offer any specific facts to contest the scientific validity of the underlying physical model results and RIDEM studies, but rightly concedes the obvious and inescapable fact: that they "add to general *scientific* knowledge[.]" *Att. Pet.* at 8.[13]

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[12] The guidance states: "Three case studies provide some of the strongest evidence available that water quality managers should focus on N for criteria development and environmental control (see NRC 2000 for details). One study involves work in large mesocosms by the University of Rhode Island (Marine Ecosystem Research Laboratory–MERL) on the shore of Narragansett Bay. Experiments showed that P addition was not stimulatory, but N or N+P caused large increases in the rate of net primary production and phytoplankton standing crops (Oviatt et al. 1995)."

[13] The City does not specifically explain how the Region's reliance on the MERL model or other materials fails to satisfy the *Daubert* factors, but merely alleges that it does. Even though inapplicable to this proceeding, the *Daubert* standard would also be met if applied to the Region's technical determinations in this case. The MERL model experiments pertained specifically to nutrient loading in Narragansett Bay; the experiments were actually performed; they were published in a peer-reviewed scientific journal; and were expressly affirmed by EPA in its national estuarine nutrient technical guidance. Thus, the MERL model experiments were clearly scientifically reliable within the meaning of *Daubert*.

Although the City decries the application of the MERL and RIDEM studies as overly simplistic and criticizes the Region for imposing limits despite its lack of a mathematical model or study to precisely assess impacts from all sources on the Providence and Seekonk Rivers (the City itself does not provide any such model or study), the relevance of the MERL model and RIDEM studies to nitrogen impairment in the receiving waters and Attleboro's nitrogen loadings is self-evident. In this case, the Region expressly articulated the link between the MERL model and the natural environment, determining that, "[b]oth the MERL tank experiments and the data from the Providence/Seekonk River system indicate a clear correlation between nitrogen loadings, dissolved oxygen impairment and chlorophyll *a* levels." *See supra* at Section I.2.A.iv.b. Generally, "it is only when a model bears no rational relationship to the characteristics of the data to which it is applied that [a court] will hold that the use of the model was arbitrary and capricious." *Appalachian Power Co. v. EPA*, 135 F.3d 791, 802 (D.C. Cir. 1998) (per curiam). *See also County v. United States EPA*, 2008 U.S. App. LEXIS 12119, 39-41 (11th Cir. 2008); *Chemical Mfrs. Ass'n v. EPA*, 28 F.3d 1259, 1265 (D.C. Cir. 1994). This standard has been met in the instant case.

The mere fact that the MERL tank experiments were physical rather than mathematical models and could not completely simulate the physical environment does not bear on their overall validity and continuing relevance to the nitrogen limits here.[14] "[A] model is meant to simplify

[14] This view of physical models is consistent with *EPA Estuarine Nutrient Guidance*, which states, at 9-2:

> Frequently, the impression is given that the only credible water quality modeling approach is that of mathematical process-based dynamic computer modeling. This is not the case. For example, a Tampa Bay water quality modeling workshop in 1992 (Martin et al. 1996) produced the consensus recommendation that a multipronged (mechanistic and empirical) modeling approach be implemented to provide technical support for the water quality management process. The Tampa Bay National Estuary Program produced an empirical regression-based water quality model. The estimated N loads were related to observed chlorophyll concentrations using the regression model (Janicki and Wade 1996).

reality in order to make it tractable," and it is no criticism of a model "that [it] does not fit every application perfectly." *Chemical Mfrs. Ass'n v. EPA*, 28 F.3d at 1264. Here, the Region frankly acknowledged that the model was a useful, though imperfect, mirror of the natural ecosystem, and explicitly factored the differences into its final determination. *See Ex. 2 (Fact Sheet)* at 10-11; *Ex. 3 (RTC)* at *11-13; supra* at Section I.2.A.iv.b. Under these circumstances, the inferences drawn by the Region from the MERL tank experiments were reasonable and rational in light of the record and should be upheld. *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.").

B. The Region's Nitrogen Effluent Limits are Consistent with and Rational in Light of All the Information in the Record

The City contends that the Region's citation to the results of a mathematical model showing BOD impacts from direct dischargers into upper Narragansett Bay—referred to by the City as the "Kester Model"—contradicts its position that a mathematical model showing nitrogen impacts was unavailable. *Att. Pet.* at 8-9. The City concludes that the Permit should be remanded in order to determine applicability of the Kester Model to the facility's nitrogen limit. The

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There are many other examples of empirical models used to relate environmental forcing functions to ecological responses, especially nutrient load/concentration and response relationships. Much of the professional aquatic ecological literature reports on use of empirical models (e.g., Chapters 2 and 3). Empirical models have their limitations, but when judiciously applied, they offer a highly useful tool to water quality managers.

See Ex. 20.

purported contradiction identified by the City is illusory, and the Board should deny review of this issue.

The Region cited *Modeling, measurements, and satellite remote sensing of biologically active constituents in coastal waters*, D.R. Kester et al., *Marine Chemistry* 53 (1996) 131-145, *Ex. 26*, for the discrete and narrow proposition that "Biochemical Oxygen Demand (BOD) from direct discharges to Upper Narragansett Bay has been shown to have minimal impact on dissolved oxygen levels." *Ex. 3 (RTC)* at 29. However, the fact that mathematical modeling has been performed for one pollutant does not mean that such modeling is actually feasible for all pollutants in a particular ecological setting. In this case, the record clearly reflects that mathematical modeling is in all likelihood incapable of generating scientifically defensible nitrogen effluent limits for the Attleboro facility at this time. In deciding to rely on the MERL experiments as a basis for the Permit limit rather than await the completion of a mathematical model at some future date, the Region considered the fact that for the past decade or more RIDEM had expended significant resources in an attempt to simulate upper Narragansett Bay through the use of mathematical models but was forced to conclude that "the system is too complicated to simulate with available mathematical models." *See Ex. 3 (RTC)* at 7. In its Response to Comments, the Region specifically referred to the discussion in the *2005 RIDEM Nutrient Loading Plan, Ex. 11*, at 3, in which Rhode Island concluded that:

> Water quality sampling and modeling studies, for the most part commissioned by the Narragansett Bay Project between 1985-1990, indicated that additional data collection and a more detailed computer model was necessary to predict the reduction in nutrients necessary to meet water quality standards. Since1995, DEM has conducted additional fieldwork, hired a consultant and worked with a technical advisory committee (TAC), consisting primarily of scientists and engineers representing, academic, municipal, state and federal organizations, to calibrate a model and develop a water quality restoration plan, or TMDL, for the Providence and Seekonk Rivers. It was recently determined that

> the hydrodynamic model formulation could not adequately simulate conditions due to the relatively severe changes in the bathymetry in the Providence River.

Moreover, as described in the RIDEM 2004 Evaluation, *Ex. 13,* at 1:

> It has recently been determined that due to problems encountered when modeling the interaction between deep channel and shallow flanks of these water bodies, the mass transport component of the system cannot be successfully calibrated and validated. This problem has been encountered in other estuaries and has not been resolved with state of the art numerical solution techniques. Because water doesn't mix in the model as it does in the rivers, we are unable to simulate the chemical and biological behavior of the system in the water quality phase of the modeling effort."

There is no indication that the Kester Model, which pre-dates the RIDEM conclusion by more than a decade, adequately addresses, much less resolves, the central obstacle raised by the Rhode Island's subsequent modeling effort, resolution of which is beyond the reach of "state of the art numerical solution techniques state of the art numerical solution techniques."

Prior to establishing a water quality-based effluent limit in an NPDES permit, the permit writer is not required, and should not be required, to undertake complex modeling efforts with little guarantee of success. This is especially so where (1) the system has been widely determined by experts to be extremely difficult to model given its physical characteristics, and (2) the Region has expressed its water quality-based rationale for acting both conservatively and expeditiously. *See Ex. 3 (RTC)* at 9-10. Rhode Island's recent technical conclusions underscore the rationality of the Region's approach on this point and its decision to base the Permit limit on the information available to it at the time of permit issuance. While the Region agrees that "[u]sing a consistent, valid model would have an important public policy benefit of providing a predictable basis for facilities planning," the irony in the City's position is that the MERL tank experiments remain the only nutrient reduction model that satisfies the City's own test. As the City fails to present any sufficiently specific or compelling evidence or argument that would cast doubt on the rationality

of the Region's technical evaluations and conclusions on this point, review should be denied. *See Ash Grove,* 7 E.A.D. at 403-13.

Even if the Kester Model could be used by the Region to determine a reasonable effluent limitation for the facility, the City has given no indication whatsoever of whether it would be likely to yield a more or less stringent nitrogen effluent limit. Instead, the City proposes to send the Region on a fishing expedition, while ignoring the fact that pollutant loading into the severely eutrophic Providence and Seekonk Rivers continues unabated, a fact which significantly informed the Region's decision to move forward with reasonable alacrity based on the record before it. "Less 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). The City's argument does not amount to a demonstration of error, much less the type of compelling demonstration of error required to disturb the Region's carefully considered technical determination. *See 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."). Review should thus be denied.

The City also claims that the Region erred by considering the flushing rates in the Providence River and the Providence/Seekonk River system rather than the Seekonk River per se, because the Permit's nitrogen loadings were based on impacts to the Seekonk River. *See Att. Pet.* at 10. Again, the City does not set forth grounds for review.

Although the City claims that the Region was "wrong" to reject the City's comment that flushing time of the Seekonk River was faster than 3.5 days, the Region never did so. Rather, the Region considered the difference in flushing rates between the MERL tank experiments and the natural setting of upper Narragansett Bay in the context of the wider ecosystem, rather than the

Seekonk River alone,[15] and specifically considered the impact of this difference on the Permit limit:

> The average estimated flushing time in the Providence River during the May – October periods of 1995 and 1996 was about 3.5 days, much faster than the rate of 27 days used in the MERL experiments. However, the flushing rate during the critical period of high temperatures and low tributary flow rates during dry summer conditions, such as occurred in 1995, would be slower than 3.5 days. The indicators of cultural eutrophication were significantly greater in 1995 then they were in 1996. As indicated in [elsewhere in the Response to Comments], water quality standards must be met during both dry and wet years.
>
> Differences in flushing rates between the MERL tank experiments and the 1995-1996 ambient data from the Providence/Seekonk River system is one of the key factors in our decision not to impose more stringent nitrogen load reductions at this time. It is therefore incorrect to suggest that EPA has not accounted for this difference. After implementation of the required nitrogen reductions at all POTWs, the permitted nitrogen loading rate to the Seekonk River will still reflect the 10x loading rate (see *Evaluation of Nitrogen Targets and WWTF Load Reductions for the Providence and Seekonk Rivers*, RIDEM, December 2004). Water quality responses to a 10x nitrogen loading rate in the MERL tank experiments resulted in a significant level of impairment. In extrapolating these laboratory results to the natural environment, EPA determined that a 10x loading limit was reasonable to account for this uncertainty.

See Ex. 3 (RTC) at 35, 36-37 (discussing differences between the "Providence/Seekonk River system and the MERL tank experiments"). The question of whether residence times in the Seekonk River, the Providence River, or the two Rivers together, were somewhat faster or slower than 3.5 days was subsidiary to the Region's larger point that all of these time periods were significantly faster than the 27 day flushing period utilized by the MERL model.[16] When

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[15] This wider lens stands to reason, as the Seekonk River essentially joins and widens into the Providence River, which flows directly into Narragansett Bay; all of these waters are impaired as a result of excessive nitrogen loading. It is also consistent with the approach taken by RIDEM in its 2004 Evaluation. *See Ex. 13 (RIDEM 2004 Load Reduction Evaluation)* at 9 ("How Does the Providence and Seekonk River System Compare with the MERL Experiment").

[16] As the Region correctly concluded, flushing time in the Providence River indeed increases under low flow conditions (at 0 flow, the residence time is 9 days), and also increases in the Providence and Seekonk River together (at 0 flow, the residence time is 7 days). *See Asselin and Spaulding, Flushing Times for the Providence River Based on Tracer Experiments*, Figures 8 and 9.

establishing the Permit's nitrogen limit, the Region *already* determined that it would be appropriate to qualitatively account for differences in flushing rates between the model and the real world, and for this reason decided not to impose a more stringent limit (*i.e.*, one based on a 2X or 4X loading scenario) on the facility.

Other than observing that the flushing times in the Seekonk River are 3.5 days or faster under low flow conditions, the City does not explain the significance of this fact, or how it would affect the Permit limit, or how it renders insufficient the Region's prior accounting for differences between the model and real world flushing rates. Furthermore, the Region determined that no less stringent limit than 8 mg/l could be imposed that would still achieve compliance with water quality standards on two grounds that were independent of flushing, namely "the severe existing eutrophic conditions in the Providence/Seekonk River system, indicating that it is significantly overallocated for nitrogen" and "the fact that RIDEM has indicated that nitrogen limits as low as the limits of technology (*i.e.*, 3 mg/l) may be necessary to achieve water quality standards[.]" *See Ex. 3 (RTC)* at 13.

In addition, the same portion of the Rhode Island study to which the City refers in its Petition clearly states that flushing rates were not the only reasons that mean Dissolved Inorganic Nitrogen ("DIN") concentrations observed in the Providence and Seekonk Rivers were significantly lower than the MERL tank experiments, and cites "DIN uptake by macroalgae and denitrification in the bottom waters" (processes related to the eutrophic cycle) as contributing factors. *See Ex. 13 (RIDEM 2004 Load Reduction Evaluation) at 12.* RIDEM also cites to scientific literature that suggests "in shallow systems, the residence time of nitrogen may be much longer than a conservative substance, such as fresh water." *Id.*

The City fails to present any sufficiently specific or compelling evidence or argument that would cast doubt on the thoroughness or rationality of the Region's technical evaluations and conclusions on this point. *See Ash Grove,* 7 E.A.D. at 403-13 (rejecting challenges to risk assessment analysis for failure to meet heavy burden of proving clear error on technical grounds). Given that the Region adequately explained its approach to flushing and, moreover, accommodated the City's concern by not imposing a more stringent limit at this time, the Board should deny review of this issue.

C. The Region's Approach to Calculating the Nitrogen Effluent Limits is Consistent with the CWA and NPDES Regulations

The City alleges that the Region concluded without justification that the MERL experiments correspond with the behavior of the Providence/Seekonk River system and that its "rationale [for the nitrogen limit] boils down primarily to restating the MERL experiments at length, thereby reprising RIDEM's choices in the RIDEM 2004 Evaluation." *See Att. Pet.* at 10. The City claims that the Region was "not responsive to the City's point that the MERL experiments establish general propositions, but provide no reliable basis for application of specific limits to the Facility." *Id.* at 10. In fact, EPA squarely and adequately addressed the City's comments on this technical matter. Not only has the City failed to show any infirmity in the overall approach to determine the nitrogen effluent limit taken by the Region, it also has not demonstrated that the actual effluent limitation selected by the Region was erroneous. The City has merely described *what* the Region has done, as though it were facially unreasonable, but has made no serious attempt to specifically show *why* it was in error, or *how* an alternative approach to the one actually employed by the Region might be made to work and would be preferable, from the standpoint of the CWA. As such, review of this issue should be denied.

The Region's determination of a "basic relationship" between the MERL experiments and actual conditions in upper Narragansett Bay was not "conclusory," as the City alleges. *See Att. Pet.* 11. In its Petition, Attleboro entirely ignores the fact that the Region's conclusion followed a careful and reasoned comparison of laboratory conditions and the real world ecological setting, and that the Region's determination was firmly grounded in empirical data and observations. Noting that "[l]ow dissolved oxygen levels, as well as supersaturated dissolved oxygen levels, are indicators of cultural eutrophication." the Region established that, "[b]oth the MERL tank experiments and the data from the Providence/Seekonk River system indicate a clear correlation between nitrogen loadings, dissolved oxygen impairment and chlorophyll *a* levels[.]" *See supra* at Section I.2.a.iv.b; *Ex. 3 (RTC)* at 10-11. Mere allegations of error are insufficient to support review and, accordingly, review on this issue should be denied. *See Phelps Dodge,* 10 E.A.D. at 496 (petitioner must present issues with sufficient specificity in order to justify review).

In its Petition, the City does not specifically contest or demonstrate that any of the principles the Region used to derive the limit in light of the MERL model and other information was improper under the CWA and its implementing regulations, but instead makes a unsubstantiated claim of error regarding the Region's "simplistic" application of the information available to it. To the contrary, the Region formulated clear principles—all consistent with the available information in the record and the policy objectives of the Clean Water Act—to guide its decision-making against a background of unavoidable scientific and technical uncertainty regarding the precise nitrogen effluent limitation required to ensure compliance with applicable water quality standards. *Ex. 2 (Fact Sheet)* at 10-11; *Ex. 3 (RTC)* at 10-13. The Region expressly stated that it was adopting a reasonably conservative approach for the purposes of determining the Permit limit, in part due to receiving water conditions and in part due to the tendency of nutrients

to accumulate and recycle in the water column. *See Ex. 3* at 13 n. 11, 64. Still, when assessing the MERL experiments and RIDEM studies for the purposes of establishing a nitrogen effluent limit, the Region did not adopt the most conservative option available to it, but sought to rationally account for differences (*i.e.*, flushing, stratification) and similarities (*i.e.*, nitrogen loading rates and chlorophyll *a* levels) between the laboratory and the real world. *Ex. 3 (RTC)* at 10-11. The Region also sought to anchor its conclusions to other indicia of reasonableness (*e.g.*, Rhode Island, when assigning permit limits to facilities within its own borders in accordance with its own water quality standards, did not conclude more stringent limits would be necessary or appropriate at this time) and environmental protectiveness (*e.g.*, Rhode Island has established an extensive monitoring network in order to provide the data necessary to evaluate compliance with water quality standards upon implementation of the recommended nitrogen reductions). *Ex. 2 (Fact Sheet)* at 10-11; *Ex. 3 (RTC)* at 11-13. The Region's explanation included a demonstration of the facility's adverse impact on the receiving waters, as well as a demonstration that the City's effluent limit was equitable and consistent with those imposed on other Massachusetts and Rhode Island facilities. *Ex. 2 (Fact Sheet)* at 10-11; *Ex. 3 (RTC)* at 11-14. Finally, the Region expressly stated its objective of addressing the severe and undisputed environmental degradation in the receiving waters with reasonable expedition. *Ex. 3 (RTC)* at 9-10.

The City has opted to ignore the substantive components of the Region's approach and frame its Petition against an inaccurate rendition of the Region's actual position ("Region 1's rationale boils down primarily to restating the MERL experiments at length, thereby reprising RIDEM's choices in the RIDEM 2004 evaluation"; "In response [to the City's and CDM's comments], EPA *asserts only* [emphasis added] that it 'was required to exercise its technical expertise and scientific judgment' because 'the physical model did not generate a definitive level

of nitrogen control that can be applied to a real world discharge..."). *See Att. Pet.* at 11; *see contra Ex. 3 (RTC) at 2-26* (addressing City's nitrogen-related comments) and 27-38 (addressing CDM's nitrogen-related comments). However, the law is clear that "[a]n agency confronted with a complex task may rationally turn to simplicity in ground rules, and administrative convenience, at least where no fundamental injustice is wrought." *American Public Gas Association v. FPC*, 567 F.2d 1016, 1056 (1977) (quoting *Gulf Oil Corp. v. Hickel*, 435 F.2d 440, 446 (1970)), *Hercules, Inc. v. EPA*, 598 F.2d 91, 116-117 (D.C. Cir. 1978). Consistent with the foregoing, the Region turned to simplifying assumptions, which it fully explained, in order to protect an important, but long impaired, public resource with reasonable expedition and, moreover, the Region demonstrated that the limit being imposed was equitable relative to other POTWs that also load nitrogen into Narragansett Bay. The City's cursory and dismissive arguments pay insufficient regard to the fact that the Region was forced to weigh competing interests and sometimes contradictory facts in determining how to rationally map the findings of a physical laboratory model onto the complicated geography of a real world—and severely degraded—estuary. Just as it would not be reasonable to ignore relevant differences between laboratory and real world conditions, it would likewise be unreasonable to ignore relevant similarities, which clearly pointed to adverse impacts from existing—and, indeed, much reduced—levels of nitrogen loading into the Providence and Seekonk Rivers. In such circumstances, the relevant question is not whether the numerical standard is "precisely right" but "whether the agency's numbers are within a "'zone of reasonableness.'" *See Hercules,* 598 F.2d at 106-07 ("We do not demand certainty where there is none. There may be no strong reason for choosing 1.10 gplg rather than a somewhat higher or lower number. If so, we will uphold the agency's choice of a numerical standard if it is within a 'zone of reasonableness.'"); *see also National Association of*

Broadcasters v. Copyright Royalty Tribunal, 675 F.2d 367, 374 (D.C. Cir. 1982); *Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 525 (D.C. Cir. 1983). Because the City has failed to confront the substantive basis of the Region's determination on this technical issue, it fails to set forth grounds for Board review. *NE Hub,* 7 E.A.D. at 567.

The City also does not propose a credible alternative to deriving a nitrogen effluent limit based on the available record, if not from MERL and the RIDEM studies. The City's confusing and vague aside pertaining to the "highest and best practicable treatment" does not amount to a credible alternative approach. *See Att. Pet.* at 6. First, the "HBPT treatment" standard is not contained in Rhode Island's water quality standards. The phrase appears in Massachusetts Standards, but the nitrogen limit is not based on Massachusetts Standards. Second, there is no indication in the record that a technology-based limit would be any less stringent than the 8 mg/l actually imposed by the Region on a water quality basis, so the City's claim of error is at best equivocal and would not necessitate a change in the Permit limit. (As evidenced in the Permit record, several facilities, including the North Attleborough, Massachusetts facility, are upgrading their facilities to meet nitrogen limits of 8 mg/l or less, which suggests that a technology standard would be no less stringent than 8 mg/l. RIDEM has identified 3 mg/l as the limit of technology). The City's alternative theory is wholly unsubstantiated, and thus fails to demonstrate clear error or reviewable exercise of discretion. *See Scituate Wastewater Treatment Plant*, 12 E.A.D. at 718.

The City also suggests that the Region study the problem further to justify the particular limit imposed on the facility. *See Att. Pet.* at 6-7, 11-12. The City's preference appears to be that the Region exercise its discretion to delay reissuance of the Attleboro WPCF permit pending completion of a mathematical model, TMDL or equivalently comprehensive study. But the Region clearly explained its reasoning for moving forward at this time based on the current

record, citing the "severe existing nitrogen-driven cultural eutrophication in the receiving waters"; "the tendency for nitrogen to not only exacerbate existing water quality impairments but to persist in the environment in a way that contributes to future water quality problems," which counseled in favor of limiting the pollutant expeditiously; the extreme difficulty and uncertainty associated with developing a dynamic model; and the fact that the facility was operating under an expired permit that had been administratively extended for several years. *See Ex. 3 (RTC)* at 9-10. "EPA typically has wide latitude in determining the extent of data-gathering necessary to solve a problem." *See American Iron & Steel Inst.*, 115 F.3d at 1004 (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 City does not directly contest the validity of any of the Region's rationales for moving forward with a nitrogen-effluent limitation at this time. The City's proposed course—to await a completion of a dynamic model or a comprehensive study of all pollutant sources while pollutant loadings from its facility continue unabated—is unreasonable and contrary to policy objectives of the CWA to make reasonable further progress toward eliminating pollution to the Nation's waters. *See Natural Resources Defense Council, Inc. v. Costle*, 568 F.2d 1369, 1380 (D.C. Cir. 1977) ("...EPA may issue permits with conditions designed to reduce the level of effluent discharges to acceptable levels. This may well mean opting for a gross reduction in pollutant discharge rather than the fine-tuning suggested by numerical limitations. But this ambitious statute is not hospitable to the concept that the appropriate response to a difficult pollution problem is not to try at all."). *See also City of Waukesha v. EPA*, 320 F.3d 228, 252 (D.C. Cir. 2003) (citing *Chlorine Chemistry Council v. EPA*, 206 F.3d 1286, 1290-1291 (D.C. Cir. 2000) (arbitrary and capricious for EPA to delay

decision for which adequate basis exists just because new science may emerge that contradicts the present result, as that could always provide an excuse for delay and inaction).

The City also argues that the Region erroneously compared the limit of 8 mg/l imposed on Attleboro to the limits of 5 mg/l and 8 mg/l assigned by RIDEM to various Rhode Island facilities, such as Woonsocket, when the Region was assessing the reasonableness of Attleboro's nitrogen limit. *See Att. Pet.* at 12, 16. Specifically, the City alleges the Region erred in doing so because the limits on Rhode Island facilities are effectively less stringent than those assigned to Attleboro given the decision by the Region to not account (through an increased nitrogen limit) for the estimated 40% attenuation that is currently occurring as a result of nitrogen uptake by phosphorus-driven eutrophic plant growth in the Ten Mile River downstream of the discharge.

The City's claim that the Attleboro facility has been assigned a more stringent limit than necessary is based on the false premise that existing estimated levels of attenuation in the Ten Mile River will continue. However, as the Region concluded in the Fact Sheet and Response to Comments, this assumption is unreasonable in light of the new permit requirements for phosphorus, which have been designed to control the effects of cultural eutrophication in the Ten Mile River. *See Ex. 2 (Fact Sheet)* at 10; *Ex. 3 (RTC)* at 18, 20 and 38. Once excessive plant growth is reduced, the associated uptake of nutrients (*i.e.*, phosphorus and nitrogen) by such plants will also be reduced. This conclusion stands to reason and is also consistent with the *2004 RIDEM Load Reduction Evaluation, Ex. 13*, which states, "River delivery factors may increase as nutrient inputs are restricted to control low dissolved oxygen and excessive algal growth." *See id.* at 18. *See also RIDEM 2005 Permit Modification RTC, Ex. 14*, at 11 (concluding that after algae levels are controlled "attenuation will be minimal").

In addition, the precise level of assumed attenuation makes little difference in the overall loading analysis. In the Response to Comments, the Region directly compared the Attleboro limit to Woonsocket's, with and without attenuation, to demonstrate its reasonableness:

> To show the relative contribution of POTW discharges to the Seekonk River, EPA calculated the total DIN load to the River using the effluent DIN limits recommended by RIDEM technical evaluation and EPA. The calculations were made using 90 percent of the POTWs' design flows and the suggested permit concentration limits. The resulting loads were then calculated under two scenarios, one assuming no attenuation and the other using the attenuation rates calculated by RIDEM (13 percent for Blackstone River dischargers and 40 percent for the Ten Mile River discharges). *See* Attachment 11. Under the no-attenuation scenario, Attleboro's load would be roughly equal to Woonsocket's, due to Attleboro's higher proposed limit, even though Woonsocket has a much higher design flow, with each discharge representing about 12 percent of the total [] POTW loading to the Seekonk River. Using attenuation, Attleboro's contribution to the total load falls to 9 percent with Woonsocket's increasing to 13 percent, given the different attenuation rates. As we have discussed previously, we expect the attenuation in the Ten Mile River to decrease as the phosphorus-driven algae growth decreases in the future.

Ex. 3 (RTC) at 13-14. In other words, after assuming both 0% and 40% attenuation, the Region determined that the differences in overall loading were equal or within a few percentage points given the differences in the size of the two facilities. *See Ex. 3 (RTC)* at 14 and Attachment 11. Thus, this dispute essentially pivots on whether the relative percentage of total loadings between Attleboro and Woonsocket are exactly equal or differ by a range of 1-4%. The City does not squarely confront this analysis in its Petition, stating only that "[t]here is no basis for ignoring attenuation completely." Because the Region duly considered the City's concern, and the City provides no compelling reason that would cast the Region's technical judgment into question on this issue, the Board should decline to review it. *See Dominion Energy Brayton Point*, 12 E.A.D. 510-511, 576-583 (rejecting Petitioner's claim of technical error where available information does not provide a definitive cutoff for a temperature threshold, and "Petitioner's challenge to the 24 [degrees] C temperature threshold value is really a dispute between experts over the proper

interpretation of several scientific studies as well as an underlying dissatisfaction with the Region's use of a more conservative approach than Petitioner would prefer."); *Hercules,* 598 F.2d at 106-07 (uphold Agency's choice of a numerical standard where it was within a "zone of reasonableness.").

The City also claims that the Region does not have enough information to assume that the "anticipated reductions in phosphorus" will "reduce or eliminate credits for the amount of nitrogen attenuation through plant growth" given the complexity of the Providence/Seekonk River system. *Att. Pet.* at 12, 13. The City does not offer any specific information to contest the Region's conclusion or rationale on this issue. The City fails to explain or provide supporting information as to why the complexity of the system would necessarily prevent the Region from drawing the conclusion that nitrogen attenuation rates will decrease once excessive plant growth in the Ten Mile River is controlled. The purported confounding factors identified by the City (stratification, temperature, tidal stage, wind-induced mixing and re-aeration) relate to processes in the marine Seekonk and Providence Rivers, where nitrogen impacts predominate, rather than the freshwater Ten Mile River, where phosphorus impacts predominate. While the Region fully agrees with the City that this is a highly complex permit proceeding replete with technical and scientific issues, the Region's conclusion regarding expected reductions in nitrogen attenuation rates as eutrophic conditions subside in the freshwater Ten Mile River (*e.g., Ex. 3 (RTC)* at 18, 20 and 38) remains undisturbed by the City's observations related to hydrodynamic complexities in the marine waters further downstream. In a challenge to scientific or technical issues, a petitioner must present 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. *See In re Envtl. Disposal Sys., Inc.*, 12 E.A.D. 254, 289-92 (EAB 2005); *In re Wash. Aqueduct Water*

Supply Sys., 11 E.A.D. 565, 578-90 (EAB 2004); *Gov't of D.C. Mun. Separate Storm Sewer Sys.*, 10 E.A.D. at 334-43, 345-47, 357; *In re Steel Dynamics, Inc.*, 9 E.A.D. 165, 174-81 (EAB 2000)). Because the Region's position was a rational inference drawn from the information available to it in the record, and the City has not compellingly demonstrated error on the Region's part, review of this issue should accordingly be denied. [17]

The City's supposition that the Attleboro facility's nitrogen limit of 8 mg/l is unnecessarily stringent when compared to Rhode Island facilities suffers not only from a mistaken premise regarding future attenuation rates, but also illogically assumes that the concept of attenuation is applicable only to the Attleboro facility and to no other facility. According to the City's tabular comparison showing effective and nominal limits applicable to various POTWs, the Attleboro facility is subject to an effective limit of 4.3 mg/l (*i.e.*, the projected in-stream contribution in the Seekonk River, after accounting for attenuation, based on an end-of-pipe nitrogen limit of 8 mg/l), compared to limits of between 5 mg/l and 8 mg/l for Rhode Island facilities. *See Att. Pet.* at 16. The City's demonstration is disingenuous, because the City refracts its own limit through the lens of current estimated attenuation, but does not do the same for Rhode Island facilities. Of the major tributaries to upper Narragansett Bay, current estimated attenuation is 40% in Ten Mile River, 18% in the Pawtuxet River (where the Cranston, Warwick and West Warwick POTWs are located) and 13% in the Blackstone River (where the Woonsocket POTW is located).[18] For the comparison to be accurate, the nitrogen contributions based on limits

[17] If EPA were to accept the City's claim as valid, and that nitrogen attenuation would continue at existing levels as a result of excessive plant growth in the receiving water, this would suggest that the phosphorous limit is not stringent enough to control eutrophic processes in the Ten Mile River and that a more stringent limit is required.

[18] Zero estimated attenuation was assumed by RIDEM with respect to NBC-Bucklin Point, which discharges directly into the Seekonk River.

of 8 mg/l and 5 mg/l imposed on these Rhode Island facilities must also be discounted by the attenuation rates applicable to the Pawtuxet and Blackstone Rivers.[19] Further, as the Region has repeatedly emphasized, current estimate nitrogen attenuation rates are expected to diminish over time as receiving water conditions improve. As discussed above, *supra* at Section I.2.A.iv.b, the nitrogen limits recommended by RIDEM for Massachusetts facilities contributing to nitrogen impairments in upper Narragansett or imposed by RIDEM on Rhode Island facilities were based on the relative size of the POTWs and their location in relation to the Seekonk River, not on whether the POTW happens to reside Massachusetts or Rhode Island. The City's allegation that is has been arbitrarily subject to disparate and disproportionately burdensome limits compared to Rhode Island facilities is false, and review of this issue should be denied.[20]

The City also asserts that the Permit's nitrogen limits are flawed because the MERL experiments were based on dissolved inorganic nitrogen ("DIN") while the Permit limit was expressed as total nitrogen. *Att. Pet.* at 14. The City simply reproduces in verbatim form comments from CDM on the Draft Permit, to which the Region adequately responded. Specifically, the Region stated that "in establishing effluent limitations for POTWs the recommended DIN limits were adjusted to TN by increasing the recommended limits by 2 mg/l[,]" and that "a check of effluent data from the Bucklin Point facility for 2007 confirms that the difference between TN and DIN averaged about 1.4 mg/l with a maximum of 2 mg/l,

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[19] The City in its Petition also wrongly states that Woonsocket was given a limit of 8 mg/l. It was given a limit of 5 mg/l.

[20] Even if the Rhode Island permits were inequitable or insufficiently stringent, which they are not, this would not be a basis for further weakening the permit at issue here. Although EPA looked to the Rhode Island permits as a reference point and as an additional factor in confirming the overall reasonableness of the nitrogen limit, the Region has an independent duty under section 301(b)(1)(C) of the CWA to ensure compliance with water quality standards, and determined that a limit of 8 mg/l would be necessary to meet this standard.

confirming that the...estimates are valid." *Ex. 3 (RTC)* at 36. Because the City has merely repeated its comments below, and has not demonstrated any error on the Region's part, review of this issue should be denied. *See Phelps Dodge*, 10 E.A.D. at 507-09, 518-19 (denying review where petitioner merely repeated comments without attempting to rebut permit issuer's responses to those comments).

D. Region 1 Properly Exercised Its Authority Under the CWA and NDPES Regulations to Require Compliance with Water Quality Standards of All Affected States

Attleboro contends that EPA erred as a matter of law in applying CWA § 401(a)(2) and was arbitrary and capricious in its decision to apply the nutrient limits because it did not promote uniformity and provided a downstream state undue power over the upstream discharger. *Att. Pet.* at 15.

The CWA and its implementing regulations require each NPDES permit to include conditions necessary to conform to applicable water quality standards when the permitted discharge affects a state other than the certifying state. CWA § 401(a)(2); 40 C.F.R. § 122.44(d)(4) and 122.4(d)(4). The Agency has interpreted the CWA to prohibit it from issuing an NPDES permit "when the imposition of conditions cannot ensure compliance with the applicable water quality requirements of *all affected States.*" 40 C.F.R. § 122.4(d) (emphasis added); *accord Arkansas v. Oklahoma,* 503 U.S. 91, 105 (1992). The Attleboro WPCF is located 200 yards upstream from the Rhode Island border and from May through October 2007 discharged an average load of over 900 lbs per day of total nitrogen into the receiving waters at an average concentration of 24.5 mg/l. *See Ex. 3 (RTC)* at 18, 32. The Region determined that the POTW's discharges affected Rhode Island waters, which are severely overloaded for nitrogen and

phosphorus, and accordingly considered Rhode Island's water quality standards when developing Attleboro's permit. *See Ex. 2 (Fact Sheet)* at 8-12; *Ex. 3 (RTC)* at 7; CWA § 401(a)(2); 40 C.F.R. §§ 122.4(d), 122.44(d)(4).

The City first alleges that the Permit has placed a "disproportionate burden" on Attleboro compared to Rhode Island facilities. *Att. Pet.* at 15-17. As the Region has demonstrated, *supra* at Section III.1.C, the City's comparison is unpersuasive, and as a factual matter no such disparate treatment exists. As the City has not demonstrated error on this issue, review should be denied.

The City next argues that the Region imposes limits on the Attleboro facility that Rhode Island has itself postponed for its own in-state dischargers, namely NBC-Bucklin Point and Fields Point, and RIDEM's permit limits are not actual limits because they are subject to consent agreements that contain schedules of compliance. *See Att. Pet.* at 17. The City's position is incorrect and fails to raise a material issue of fact, nor has not shown any inadequacy in the Region's consideration of this issue. *See Ex. 3 (RTC)* at 22-24. First, issues associated with enforcement-related compliance schedules are separate from whether the nitrogen permit limit is justified; the Region has an independent duty under the CWA to impose effluent limits that will ensure compliance with applicable water quality standards. *See Ex. 3 (RTC)* at 23 n. 14. The relevant question is whether the Region properly established a limit that is sufficiently stringent to comply with applicable water quality standards. *Id.* Even if the City were correct, and an assumption is made that downstream reductions in nitrogen will not occur, this fact would not cut in favor of the City's interest, as it would not counsel in favor of relaxing or eliminating the Attleboro facility's limit. Section 301(b)(1)(C) requires each point source to achieve effluent limitations necessary to meet water quality standards and does not make allowances for the failure of other sources to comply. *See In the Matter of: National Pollutant Discharge Elimination*

System Permit for Blue Plains Sewage Treatment Plant No. DC 0021199, 1 E.A.D. 531 (EAB 1979).

Second, it is illogical to compare the Permit as written in the case of Attleboro with consent agreements enforcing the permits in the case of all other facilities. *Id.* at 23. The more rational comparison, and the one the Region performed, is between the nitrogen limits in the NPDES permit issued to the Attleboro WPCF and the RIPDES permits issued to various Rhode Island facilities. *See Id.* at 13. This is particularly true where the Region has indicated that the City too will soon be subject to an enforcement order containing a reasonable compliance schedule to meet the nitrogen effluent limit in light of the facts and circumstances related to the facility.[21]

Third, contrary to the City's suggestion, the consent decrees both plainly require the Rhode Island facilities to achieve the nitrogen limits in their permits. The consent decrees mandate that "The Respondent shall attain compliance with the final effluent limits for Total Nitrogen (May-October) as specified in the Permit Modification [5 mg/l]," and sets forth a compliance schedule for achieving such a limit, on penalty of $1,000 dollars "for each day and every day it remains in violation of the schedule." *See Appendix to Att. Pet., Tabs 6A and 6B.* Although the City claims that under the agreement entered into with NBC (the entity responsible for the operation of Bucklin Point) NBC may "argue against ever meeting the 5 mg/l limit," this interpretation mischaracterizes the agreement. The City ignores the fact that the facility "agrees

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[21] Equity does not demand that all dischargers receive identical schedules but that the facts and circumstances of each dictate terms of such schedules. In this regard, the Region has noted that both NBC-Bucklin Point and Fields Point experience significant wet weather inflows, which accounts in part for the relatively lengthy compliance schedule. *Ex. 3 (RTC)* at 23 n. 14. Still, as stated in the Response to Comments, "it is EPA's intent to work closely with MassDEP and RIDEM to ensure that the facilities in each state are on the same approximate schedules. *See* Letter dated January 8, 2007 from Ken Moraff, Deputy Director, Office of Ecosystem Protection, EPA to Glenn Haas, Director, Bureau of Resource Protection, MassDEP and Alicia Good, Assistant Director, Water Resources, RIDEM." *Ex. 3 (RTC)* at 83; *Ex. 27 (AR 192).*

not to object to a Total Nitrogen monthly average permit limit of 5.0 mg/l for the months of May through October, so long as the schedule and interim limits outlined in [the settlement] remain in effect." In other words, NBC reserves the right to argue against a limit *more stringent* than 5.0 mg/l. As explained in the Response to Comments, the Region believes it is reasonable to assume that technically achievable reductions associated with the legally enforceable permits issued to Rhode Island dischargers will actually occur; the fact that these reductions are mandated by the Rhode Island legislature, as the City has previously pointed out, bolster this conclusion. *See Ex. 3 (RTC)* at 23 n. 14. The Region's original response adequately responded to the City's concerns regarding the permits issued by RIDEM to Rhode Island facilities, and was reasonable. Accordingly, review should be denied.

The City also argues that the nitrogen limits in the RIPDES permits issued to Rhode Island facilities are not "requirements" of an affected state under 40 C.F.R. § 122.4. *See Att. Pet.* at 18. The Region never claimed that they were. As the Region explained in its Response to Comments, "The 'requirements' of state law do not refer to the individual permit limits proposed by RIDEM for various facilities, but instead to the underlying laws and regulations on which those limits are based," and that it was imposing the nitrogen limit on Attleboro because it independently determined under 401(a)(2) and 301(b)(1)(C) that the limit was necessary under applicable water quality requirements in Rhode Island. *See Ex. 3 (RTC)* at 23. The Region stated that it "does not view the RIDEM nutrient permitting plan and recommendations as legally binding requirements for EPA-issued permits in Massachusetts in and of themselves, but consistent with the CWA, considered and accounted for this information when establishing the limit, as they reflected the views of Rhode Island regarding the impacts of upstream discharges on waters within its borders." *Id.* The City did not confront the Region's response, but essentially repeats its earlier

comments. *Compare Att. Pet. 17-18 with Ex. 3 (RTC)* at 21-22. Therefore, review should be denied. *Phelps Dodge*, 10 E.A.D. at 507-09, 518-19 (denying review where petitioner merely repeated comments without attempting to rebut permit issuer's responses to those comments).

Lastly, the City argues that the Region has ignored the major cause of the impairment (the presence of a dam) in imposing the phosphorus limit, citing to arguments raised in MassDEP's water quality certification, and the Permit imposes the "principal burden of lowering pollution" on out-of-state dischargers. [22] *See Att. Pet.* at 15, 18. Again, the Region squarely addressed this point, noting that, "EPA's authority under the NPDES program is limited to imposing reasonable limits and conditions related to the point source discharge that will, among other things, ensure compliance with applicable water quality standards of all affected states," and that "questions regarding the desirability and feasibility of dam removal would appear to fall primarily within the ambit of Massachusetts and Rhode Island rather than EPA" given that "portions of the downstream impoundments are in fact in Massachusetts and appear on the state's 303(d) list as impaired for nutrients." *Ex. 3 (RTC)* at 88, 16. Rather than forestall water quality improvements in the hope that the dam will be removed at some later date, the Region instead determined to exercise its authority to impose nutrient limits on the point source with reasonable expedition, consistent with the Clean Water Act and NPDES regulations. *Id.* at 88. Finally, removing the dam would also lead to the same amount of nutrient load moving downstream into the Providence/Seekonk River system, which is of serious concern to the Region in the context of

[22] The City cites to the dam removal issue as it appears in Massachusetts water quality certification, dated May 27, 2008. The Region addressed the issues raised by Massachusetts in its certification in the Response to Comments document in a separate section entitled "Massachusetts 401 Certification" for administrative convenience, but did not, and does not, regard these as comments on the Draft Permit. *See Ex. 3 (RTC)* at 1 (noting parties from whom timely comments were received). The City also raised a similar dam-related issue in its comments, and the Region fully responded to its concerns. *Id.* at 73, 76.

nutrient permitting. *See, e.g., Ex. 3* (RTC) at 53. The City does not substantively respond to the Region's view on this point, but instead essentially repeats verbatim its comments on the Draft Permit regarding the inequitable burdens on "those who lack a political voice in Rhode Island," which is insufficient to garner Board review.[23] *Compare Att. Pet. at 19 with Ex. 3 (RTC) at 16.*

2. THE REGION'S PHOSPHOROUS LIMITS WERE BASED UPON A REASONABLE INTERPRETATION OF BOTH MASSACHUSETTS AND RHODE ISLAND WATER QUALITY STANDARDS AND EPA GUIDANCE

The City alleges that the Region's imposition of a phosphorus effluent limit was erroneous because the Region wrongly concluded that the Turner Reservoir is a lake and thus subject to the Rhode Island numeric phosphorus criterion of 0.025 mg/l. *See Att. Pet.* at 19-20. The City asserts that the Region compounded its error by establishing the phosphorus limit to meet water quality standards under 7Q10 rather than under seasonal flows. *Id.* In addition, the City argues that the Region ignored available dilution. *Id.* Review should be denied on each of these points, because the explanations provided by the Region were adequate and the determinations reasonable, and independently justified, under both Rhode Island and Massachusetts Standards.[24]

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[23] Equitable considerations also obtain with Rhode Islanders "who lack a political voice in Massachusetts," especially where the Attleboro facility is discharging hundreds of pounds of nitrogen per day into severely eutrophic Rhode Island waters at an average concentration as high as approximately 24 mg/l. Applying no limit at all on the upstream Attleboro facility while downstream Rhode Island facilities are subject to limits would certainly not be in keeping with the goal, as stated by the Supreme Court in *Arkansas*, of creating a "uniform system of interstate pollution regulation." The clearest path to that goal is the reasonable application of applicable water quality standards of affected States. This is in keeping with the CWA. According to CWA §101(a), the Act's broad purpose is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." *See* CWA §101(a), 1251(a). "The application of state water quality standards in the interstate context is wholly consistent with [this purpose]." *Arkansas,* 503 U.S. at 105.

[24] In the introduction to its Petition, the City indicates that it is contesting the winter phosphorus effluent limit of 1.0 mg/l (November 1 – March 31). *See Att. Pet.* at 1. However, no party objected to the winter limit in the comment period, so the issue has not been preserved for review. Further, the City does not pursue this matter and makes no further challenge to the limit in it is Petition. The Region has adequately justified the basis for this limit. *See Ex. 2 (Fact Sheet)* at 7.

A. The Region's Interpretation Is Consistent With the Water Quality Standard's Plain Language

The City first contends that the Region's determination that the Turner Reservoir is a lake conflicts with EPA's *Lakes and Reservoirs Nutrient Criteria Technical Guidance*, *Ex. 23*, which was cited to by RIDEM in its comments on the Draft Permit when requesting the Region to apply the numeric phosphorus criterion of 0.025 mg/l to the Turner Reservoir. *See Att. Pet.* at 20-21. The guidance states, "For the purpose of this document, lakes are defined as natural and artificial impoundments with a surface area greater than 10 acres and a mean water residence time of 14 or more days." *See Ex. 23* at 3-1. In its comments on the Revised Draft Permit, the City contended that this definition had not been met, because according to its calculations the mean residence time of Turner Reservoir was 9.68 days, *see Ex. 3 (RTC)* at 79, a calculation it claims "stands uncontradicted." *See Att. Pet.* at 20. To the contrary, the Region squarely took issue with City's calculation. After observing that the 225-acre Turner Reservoir clearly met the minimum 10-acre areal criterion, the Region stated that, "RIDEM has informed EPA that it calculated retention time based on 7Q10 flow," and determined "[u]nder this flow regime, the Reservoir has a retention time of about 42 days." *See Ex.* 3 *(RTC)* at 75. Thus, EPA concluded that Turner Reservoir met the definition of lake as set forth by the *Lakes and Reservoirs Nutrient Criteria Technical Guidance.*

The Region also determined that Turner Reservoir met the definition of lake on entirely separate grounds, specifically, based on an interpretation of Rhode Island Standards. This interpretation does not turn on EPA guidance or "mean water residence times." *See Ex.* 3 *(RTC)* at 75. Under Rhode Island Standards, neither the definition of "lake, pond, or reservoir," nor the numeric criterion established for lakes, ponds, or reservoirs refers to hydraulic retention time. *Id.*

Rhode Island Standards define a "lake, pond or reservoir" as "any body of water, whether naturally occurring or created in whole or in part, excluding sedimentation control or stormwater retention/detention basins, unless constructed in waters of the State," and require that, in such a water bodies, the "average Total Phosphorus shall not exceed 0.025 mg/l," and "average Total P in tributaries at the point where they enter such bodies of water shall not cause exceedance of this phosphorus criteria, except as naturally occurs, unless the Director determines, on a site-specific basis, that a different value for phosphorus is necessary to prevent cultural eutrophication." *See Ex.* 3 *(RTC)* at 75; Rhode Island Standards, Rule 7 ("Definitions"); Rhode Island Standards, Rule 8.D.2(10)(a). In light of Rule 4 ("Liberal Application"), which requires Rhode Island Standards to "be liberally construed to allow the Department to effectuate the purposes of state law," as well the fact that RIDEM has identified Turner Reservoir as an impaired lake in its 303(d) list of impaired waters (Waterbody ID RI0004009L-01B), the Region reasonably concluded that Turner Reservoir was a "lake" within the meaning of the Rhode Island's water quality standards and subject to the numeric water quality criteria for phosphorus. *See Ex.* 3 *(RTC)* at *Id.* In addition to expressing its unambiguous intent to treat the Turner Reservoir as a lake in its section 401(a)(2) comments on the Draft Permit, *see Ex. 3 (RTC)* at 41-42, Rhode Island has confirmed the validity of the Region's conclusion regarding application of nutrient criteria in its Petition for Review, at 13.

The City's challenge to the Region's interpretation of Rhode Island Standards does not persuasively address the Region's explanation. Although the City objects to RIDEM's calculation of mean water residence times using 7Q10 flows on the grounds that it purportedly violates the plain language of EPA guidance, this objection misses the point: as the Region has pointed out, arguments over the phrase "mean water residence time" in EPA's definition of lake

are not dispositive, because Rhode Island Standards do not include or reference the EPA definition of lake in its definition of "lake, pond, kettlepond, or reservoir." *See Id.* at 75. The Region is obligated to ensure that the Permit contains effluent limitations and conditions sufficient to comply with Rhode Island Standards, not EPA guidance. Under Rhode Island Standards, water quality standards must be achieved under critical low flow conditions. *See Id.* at 75-76; Rhode Island Standards, Rule 8(E)(1). In light of the foregoing requirement, it was reasonable for the Region and RIDEM to calculate hydraulic residence times assuming 7Q10 rather than annual flows, particularly in the case of a water body such as Turner Reservoir where the dominant source of phosphorus loading is from continuous point source dischargers. The Region's position in this respect is fully consistent with *Lakes and Reservoirs Nutrient Criteria Technical Guidance*, which states, "These definitions are provided for the purpose of illustration and consistency. States with legal definitions of their lakes or reservoirs should obviously adhere to their own terms and interpret this guidance accordingly." *See Ex. 23* at 3-2.[25]

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[25] One argument the City raises with respect to this issue relies on extra-record materials, *i.e.*, several EPA approved TMDLs not directly relating to the waters at issue, should not be considered by the Board. These materials were not referenced by the City in its comments on either the Draft Permit or Revised Draft Permit. The City cites to two TMDLs for ponds in which RIDEM calculates residence times based on annual average flow and load reductions based on mean annual loads. The permit writer did not rely, directly or indirectly, on these materials when developing the NPDES permit for the Attleboro WPCF; neither water body is even located on the Ten Mile, Seekonk or Providence Rivers. The administrative record for a permit action cannot include materials that were not actually relied on by the permit writer at the time of its decision. *See In re ASARCO Inc. & Federated Metals Corp.*, 6 E.A.D. 410, 441 (EAB 1996) (request to supplement record with state lead data denied when no evidence that EPA Region had such data before its decision). Consistent with this principle, EPA regulations governing permit issuance procedures specify that "[t]he record shall be complete on the date the final permit issued." 40 C.F.R. § 124.18(c).

Even if the TMDL documents were considered, they would not change the Region's determination in this case. Rhode Island Standards do not demand a single approach to characterizing water bodies or to determining how a permit limit should be applied. Rather, they afford the permit issuer reasonable flexibility in these respects, so long as water quality standards are met at and above the 7Q10. Mere reference to situations where Rhode Island may have used longer averaging periods for calculating hydraulic residence times or for loading purposes does not demonstrate that such an approach would be sufficiently protective in this case to satisfy the Region's obligations under 301(b)(1)(C) to ensure compliance with Rhode Islands Standards. By way of example, unlike Turner Reservoir, there are no permitted wastewater point sources in the Spectacle or Sands Pond TMDL study area that would discharge to the receiving waters under low flow conditions, and thus low flow does not represent worst case conditions for these

The City also does not demonstrate any error in the Region's legal interpretation of the term "lake" and chooses to ignore several important elements of the Region's reasoning (*i.e.*, the inclusive phrasing of the language, the rule of construction mandating a liberal interpretation of the Standards, Rhode Island's record position regarding the appropriate characterization of Turner Reservoir). The City's contention that the logic behind the Region's interpretation of "lakes" would inexorably lead it to encompass brooks and streams is absurd. *See Att. Pet.* 22. Such a reading would not be a plausible outcome under the Region's interpretative approach: even under their most elastic definitions, in the English language a "brook" or "stream" cannot be reasonably deemed to be a "lake, pond, or reservoir," and the City itself acknowledges that the Region does not interpret the regulation in this manner. On the other hand, a 225-acre, slow moving impoundment such as Turner Reservoir can reasonably (or at the very least arguably) fall within the meaning of word "lake." Where a state water quality standard is ambiguous, EPA's "adoption of one interpretation [supported by the language of the standard itself] over the other cannot be categorized as clear error." *In the Matter of: Ina Road Water Pollution Control Facility, Pima County, Arizona*, NPDES Appeal No. 84-12, United States Environmental Protection Agency Environmental Appeals Board, 1985 EPA App. LEXIS 33, *5 March 27, 1985. The Region's interpretation of this ambiguous regulation was not clearly erroneous, particularly where it has indicated that it is taking a conservative approach given the persistent nature of nutrients and severe nutrient impairment in the receiving waters. Rhode Island has, furthermore, concurred with the Region's interpretation, and the EAB generally gives "substantial deference" to a state's interpretation of its own laws. *Teck Cominco*, 11 E.A.D. at 489. In light of the foregoing, the

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types of systems. *See* http://www.epa.gov/NE/eco/tmdl/assets/pdfs/ri/eutrophicponds.pdf (accessed August 28, 2008). Turner Reservoir is dominated by continuous point source loading, including during low flow conditions.

Board should deny review of this issue.[26]

The City also objects to the Region's interpretation of Rhode Island's numeric criterion for lakes as having to be met when the lake's inlet streams are at 7Q10, theorizing that "extreme low flow conditions, such as 7Q10 flows, are not by any stretch 'average' concentrations." *Att. Pet.* at 21. To the contrary, the Region's view is fully in accordance with Rhode Island Standards. As the Region explained, Rule 8.D.(2)(10)(a), Rhode Island's numeric criterion for lakes and ponds, does not itself set forth the hydrological condition under which the "average" total phosphorus value of 0.025 mg/l must be met. *See Ex. 3 (RTC)* at 75-76. To determine what "average" means, the appropriate reference is not in the first instance to language from EPA guidance, but to the Rhode Island Standards themselves, which provide that "water quality standards apply under the most adverse conditions" and that aquatic life criteria for freshwaters must not be exceeded at or above the 7Q10, which itself is an average value. *See* Rhode Island Standards, Rule 8.E. Although the City may regard this assumption as "extreme," the use of 7Q10 flows is consistent with the Rhode Island Standards as written, *see Ex. 3 (RTC)* at 75-76, and reasonable from a water quality perspective, as it ensures that water quality standards are met even in periods of critical low flow when the volume of the receiving water is able to provide relatively little dilution to buffer impacts of pollutant loadings from the Attleboro WPCF. The City does not directly address the Region's citation to and reliance on this regulatory provision to determine the appropriate flow for the purposes of calculating the Permit limit. Use of critical low flows is also consistent with the reasonably conservative approach the Region has adopted in nutrient permitting in general and that it has determined is necessary in this case in particular to

[26] The Region also reminds the Board that the permit limit for phosphorus has two independent bases. It is required under Rhode Island Standards *and* Massachusetts Standards, as discussed *supra* at Section I.2.A.(i)-(iv).

break the ongoing cycle of eutrophication in the receiving waters. *See Ex. 3 (RTC)* at 13 n. 11, 64 (linking conservative approach to use of 7Q10) and 71. The Board should decline to review reasonable interpretations of state water quality standards by the Region, particularly those that have been affirmed by the state whose water quality standards are being applied, as Rhode Island has done here. *Teck Cominco*, 11 E.A.D. at 486-494.

The City argues that the Region has provided no evidence that the last 200 yards of the Ten Mile River in Massachusetts are affected by the City's phosphorus discharge, nor any serious explanation of why the phosphorus limit is necessary to protect Massachusetts waters. *Att. Pet.* at 22-23. It claims that the basis for the phosphorus limit was further undercut by comments made by MassDEP in its water quality certification. *Id.* These arguments are without foundation, as the Region has demonstrated ample evidence of phosphorus-driven impairment.

In the Fact Sheet and in Response to Comments, the Region clearly explained that the stretch between the Attleboro WPCF outfall and the Rhode Island border is exceeding its assimilative capacity for nutrients. *See Ex. 3 (RTC)* at 55, 61. Massachusetts has listed the Ten Mile River on the section 303(d) list as impaired for nutrients, organic enrichment/low DO, and noxious aquatic plants, among other pollutants, from the North Attleborough treatment plant to the Massachusetts/Rhode Island border. *See Ex. 2 (Fact Sheet)* at 5; *Ex. 3 (RTC)* at 55. Central Pond and James V. Turner Reservoir, parts of which are in Massachusetts, are also on the Massachusetts 303(d) list as impaired due to nutrients and noxious aquatic plants (see *Massachusetts 2006 Integrated List of Waters*). *Id.* The Region explained that the receiving waters are being impacted by further phosphorus loading by the City. *See Ex. 2 (Fact Sheet)* at 5-6; *Ex. 3 (RTC)* at 64 (demonstrating that background concentrations were equal to 0.1 mg/l, which is the ambient concentration determined by the Region as necessary to control the effects of

eutrophication, based on its review of EPA recommended water quality criteria, the *Gold Book*, *Nutrient Technical Guidance Manual: Rivers and Streams* and peer-reviewed literature) and 61 (demonstrating the projected instream concentration immediately downstream of the Attleboro WPCF outfall to be 0.7 mg/l, far exceeding 0.1 mg/l). The Attleboro WPCF projected in-stream concentration (0.7 mg/l) assumes a background concentration of zero, meaning that the Attleboro discharge on its own would cause this ambient concentration in the absence of any other sources (which does not reflect actual existing in-stream conditions). *Id.* at 61. Moreover, while the free flowing segments of the Ten Mile River in Rhode Island have not been listed for nutrient impairment, the Region noted that the in-stream sampling data indicate phosphorus effluent limits well above the 0.1 mg/l level that the Region has determined to be necessary to control the effects of eutrophication. *See Ex. 3 (RTC)* at 74 n. 25. Finally, even if there was not evidence of actual existing impacts in the receiving waters, the Region could still have imposed a limit, as it must impose limits on pollutants that have a *reasonable potential* to cause or contribute to violations of water quality standards, including narrative criteria. *See* 40 C.F.R. § 122.44(d)(1)(i).[27]

The City does not address any of the foregoing facts, and instead, points to the Region's concern that nutrients may be rapidly transported downstream from the treatment plant and into Rhode Island waters. *See Att. Pet.* at 23. This does not demonstrate error on the Region's part; there is nothing inconsistent in the Region demonstrating both that phosphorus loading from the

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[27] This is consistent with the Final Rule Preamble for 40 C.F.R. Part 122.44(d)(1), which states:

> Several commenters asked if it was necessary to show in-stream impact, or to show adverse effects on human health before invoking [40 C.F.R. 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. 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.

See 54 FR 23868, 23878.

Attleboro WPCF is contributing to eutrophication immediately downstream of the outfall and that a significant portion of such phosphorus may also make its way downstream. In any event, emphasizing that phosphorus is rapidly transported downstream, *see Att. Pet.* at 23, does not help the City's case given the demonstrated impairments in downstream water bodies such as Central Pond and Turner Reservoir, which are hypereutrophic. This argument merely underscores the need for a limit to ensure compliance with downstream water quality standards.

In addition, the City points to language from MassDEP's certification, which it claims "undercu[t] the assertion of the need to protect a short stretch of Massachusetts waters." This is false. MassDEP's certification language did not even speak to the Region's application of *Massachusetts'* narrative nutrient criterion set forth at 4.05(5)(c)), but rather questioned the application of *Rhode Island's* numeric criterion for lakes (Rule 8.D.(2)(10)(a)). Furthermore, the Region offered a reasoned, point-by-point response to address MassDEP's concerns, which the City ignores in its entirety. *See Ex.* 3 *(RTC)* at 87-91. The City has failed to "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," *Town of Ashland Wastewater Treatment Facility*, 9 E.A.D. at 668, and review should thus be denied.

B. The City's Attempted Application of Its Nitrogen-Related Arguments to the Phosphorus Limit Through Incorporation by Reference Was Not Preserved and Additionally Lacks the Necessary Specificity for Board Review

The City purports to incorporate its objections to the nitrogen limit as challenges to the phosphorus limit. *See Att. Pet.* at 23. This argument was not presented below, and therefore is not preserved for review. Petitioners must raise issues with a reasonable degree of specificity and clarity during the comment period in order for the issue to be preserved for review. *In re Maui*

Elec. Co., 8 E.A.D. 1, 9 (EAB 1998). On this basis, the Board has often denied review of issues raised on appeal that were not raised with the requisite specificity during the public comment period, and should do so here, as "it is not the Board's responsibility to scour the record to determine whether an issue was properly raised below." *In re Encogen Cogeneration Facility*, 8 E.A.D. 244, 250 n.10 (EAB 1999).

Moreover, the City's drafting maneuver, which does not actually set forth the City's specific objections to the phosphorus limit, is also inadequate on its face to demonstrate grounds for review, as the argument is not presented here with requisite detail and precision to demonstrate error, or even to allow the Region to craft a meaningful reply. "It is not this Board's obligation to search through the permit for the specific permit conditions that fall into [petitioner's] general category of objections." *In re Genesee Power Station L.P.*, 4 E.A.D. 832, 867-868 (EAB 1993) (quoting *In re LCP Chemicals -- New York,* 4 E.A.D. 661, 665 (EAB 1993)). The City's contention that the phosphorus limits "rely upon the same assumptions regarding dilution, modeling and scientific support as the nitrogen limits" is patently false. The Region clearly adopted very different approaches to derive the nitrogen and phosphorus limits. The phosphorus limit, for example, was not based on the MERL tank experiments or RIDEM studies. The City's vague incorporation by reference ignores clear guidance by the Board that petitioners must argue with specificity why the Board should grant review. *Puerto Rico Elec. Power Auth.*, 6 E.A.D. at 255; *City of Moscow*, 10 E.A.D. at 172 (no basis for the Board to entertain "vague and unsubstantiated arguments").

C. The Region's Approach to Establishing the Phosphorus Effluent Limits to Comply with Massachusetts and Rhode Island Standards Utilized All Available Information and Was Reasonable Under the CWA, NPDES Regulations and

Nutrient Guidance

When establishing permit limits for nutrients, the Region faces the technical hurdle of reconciling the differing requirements of federal NPDES regulations (generally requiring permit limits to be expressed as a monthly average), state water quality standards (generally requiring standards to be met under 7Q10), and available technical literature, including EPA guidance (expressing recommended ambient criteria based on widely varying averaging periods). Here, the Region fully articulated its reasoning for calculating the limit (i) using the Gold Book recommended value of 0.1 mg/l, (ii) assuming 7Q10 dilution flow conditions, and (iii) based on a 30-day averaging period. Because the Region's approach was rational in light of all the information in the record, review should be denied.

i. The Region Reasonably Compared the Gold Book Limit of 0.1 mg/l To Confirm Whether It Would Also Meet the Other Recommended In-stream Values in the Record That Were Based on Seasonal Flows

The City argues that the *Gold Book* recommended ambient phosphorus concentration of 0.1 mg/l is a seasonal limit and that the Region erred by interpreting it as an instantaneous limit. *See Att. Pet.* at 23. The City contends that the Region also erred in applying the *Gold Book* under critical low flow conditions to derive the Permit limit, stating that, "If EPA wanted to use 7Q10 flows as a basis for a monthly average, then it should have found (and converted to a monthly equivalent) an in-stream value for such flows, instead of using one for seasonal averages." *Id.* at 24. The City also claims that EPA guidance recommends seasonal or annual averaging periods rather than monthly limits calculated using critical low flows. *Id.* at 24-25. The Region's determinations on all these issues were reasonable, and its decision should be upheld.

Attleboro's claim that the Region "does not dispute," *Att. Pet.* at 23, that the *Gold Book* value of 0.1 mg/l is a seasonal value badly misstates the Region's position. As clearly set forth in the Response to Comments, the Region interprets the *Gold Book* recommended value as an instantaneous (*i.e.*, "not to exceed" at any time) rather than seasonal average value. *Ex. 3 (RTC)* at 81. The Region wrote the Permit limit using the *Gold Book* (0.1 mg/l), and expressed it as monthly average in accordance with NPDES regulations and assumed 7Q10 dilution flow conditions consistent with Massachusetts and Rhode Island Standards. *Ex. 3 (RTC)* at 65. The Region then assessed the reasonableness and protectiveness of the permit as written by viewing it through a seasonal lens. Specifically, to determine whether 0.1 mg/l would *also* be stringent enough to meet the seasonally-based ambient phosphorus targets in the administrative record (*i.e.*, 0.01 mg/l to 0.09), the Region calculated the projected in-stream concentration of 0.1 mg/l resulting from various estimated seasonal receiving water flows (*i.e.*, average summer flows, lowest summer average flows). *Id.* at 64-66, 77-78. These targets were culled from EPA recommended *Ecoregion XIV Criteria*, *Rivers and Streams Nutrient Guidance*, and the peer-reviewed scientific literature. *Id.* In so doing, the Region rationally utilized all the information available to it in the record and confirmed that the permit as written would yield sufficiently low phosphorus levels to control the effects of eutrophication both under 7Q10 conditions and on a seasonal basis. *Id.*

Contrary to the City's contention, *Att. Pet.* at 24, the Region's interpretation that the *Gold Book* sets forth an instantaneous rather than seasonally-based value is reasonable in light of the record. The *Gold Book* states that, "To prevent the development of biological nuisances and to control accelerated or cultural eutrophication, total phosphates as phosphorus (P) *should not exceed* [emphasis added] 50 ug/L in any stream at the point where it enters any lake or reservoir,

nor 25 ug/L within the lake or reservoir. A desired goal for the prevention of plant nuisances in streams or other flowing waters not discharging directly to lakes or impoundments is 100 ug/L total P." *Ex. 12 (Gold Book)* at 240. The City charges that the Region's determination was "ludicrous," *Att. Pet.* at 24, but fails to directly address the plain language of the *Gold Book* as well as the Region's contrary observation that several states apply a total phosphorus criterion of 0.1 mg/l on an instantaneous basis. *See Ex. 3 (RTC)* at 60 ("Table 2: Examples of Numeric Criteria and Guidelines for Total Phosphorus in the U.S."). In addition, interpreting the *Gold Book* as an instantaneous value is also in accordance with the conservative approach adopted by the Region in the context of nutrient permitting. *See Ex. 3 (RTC)* at 13 n.11, 64, 71. Taking into account the *Gold Book's* language, the experience of other states, and the approach adopted by the Region due to the nature of the pollutant and the severe existing impairment in the receiving waters, the Region reasonably interpreted the *Gold Book* as an instantaneous limit, and on this basis the Region's determination should affirmed. Moreover, to the extent the Region's interpretation is grounded in technical water quality considerations, deference should be afforded to the Region. In cases where the views of the Region and the petitioner indicate *bona fide* differences of expert opinion or judgment on a technical issue, the Board typically will defer to the Region. *NE Hub,* 7 E.A.D. at 567-568; *see also In re Envotech, L.P.,* 6 E.A.D. 260, 284 (EAB 1996) ("absent compelling circumstances, the Board will defer to a Region's determination of issues that depend heavily upon the Region's technical expertise and experience"). While the City may regard the Region's approach as "ludicrous," overly stringent, and violative of "basic principles of statistics," the administrative record for this Permit demonstrates that under undisturbed conditions phosphorus concentrations are extremely low, *see id.* at 52, and the effects of cultural eutrophication are triggered at only marginally higher concentrations, *id.* at 57-59, so

they must be kept at consistently low levels. The Region's use of the *Gold Book* was rational in light of all the information in the record and review of this issue should be denied.

The City also asserts that the Region must locate a recommended ambient target specifically designed for 7Q10 flows if it wishes to apply a phosphorus limit under such conditions. *See Att. Pet.* at 24. The Region is not aware of any technical resource that identifies a recommended ambient phosphorus concentration for 7Q10 specifically, but it also was not required to have such information prior to imposing a phosphorus limit. The Region's determination of the phosphorus limit for the Attleboro WPCF was made in accordance with federal regulations, was based on the best information reasonably available to it, and was fully explained, and should therefore be upheld. *See supra* at Section I.2.A.i-iv. Because neither EPA guidance nor the scientific literature establishes any definitive quantitative thresholds for any of the causal (*e.g.*, phosphorus) or responsive (*e.g.*, primary productivity) variables of cultural eutrophication, nor definitive averaging periods, the Region applied its best professional scientific judgment and technical expertise to establish permit limits. To do so, the Region (i) consulted a wide range of guidance, technical information and site specific data, *see Ex. 3 (RTC)* at 57-60; (ii) considered a variety of possible methodological approaches, *see id.* at 57; and (iii) established a sufficiently protective limit on a site-specific basis, *see id.* at 60. Had the Region followed the City's "statistical principles" rigidly, it should have applied the *Gold Book*-based limit as an instantaneous value. Instead, the Region applied the limit somewhat less stringently than the City's own logic would suggest and expressed the limit as a monthly average assuming 7Q10 dilution flow conditions. This was not an arbitrary decision. Rather, the Region reasonably sought to reconcile the best available technical and scientific information, which did not cover all possible flow conditions, with its obligations under the water quality standards (requiring criteria

to be met under 7Q10) and NPDES regulations (generally requiring permit limits to be expressed as monthly averages), and fully explained this result on the record. The City's Petition pays little mind to the Region's actual explanations, but instead merely repeats its comments verbatim in claiming that the Region's methodology is inconsistent with EPA nutrient technical guidance, a claim the Region adequately refuted in its Response to Comments. *Compare Att. Pet.* at 24 *with Ex. 3 (RTC)* at 62-63, 79-80.

The alternatives proposed by the City are untenable. It states that, "[i]t does not contest a more stringent limit than in the 1999 permit [1.0 mg/l]," *Att. Pet.* at 19, but the Region has concluded that an effluent concentration greater than 0.1 mg/l would have a reasonable potential to contribute to a violation of water quality standards. *See Ex. 3 (RTC)* at 51-61. The City also implies that the Gold Book value of 0.1 mg/l applied as a seasonal average using seasonal flows would be acceptable—or at least would not offend "basic principles of statistics." *Att. Pet.* at 24. This alternative would not ensure compliance with water quality standards under critical low flow conditions, as the Region explained in its Response to Comments, at 65 ("A permit limit of 0.1 mg/l calculated using seasonal flows would have the potential to allow periods of excessive loading of nutrients during and around critical low flow conditions while still meeting the overall limit."). The Region also stated that it did not "foreclose the imposition of seasonally-based limits in all instances so long as such limits are *sufficiently low* to ensure compliance with water quality standards," but "[b]ased on EPA's review of seasonally-based ambient phosphorus values that were available in EPA's nutrient technical guidance and the peer-reviewed literature, it is clear that 0.1 mg/l imposed on a seasonal average basis would not be sufficiently stringent to meet this test." *Id.* On the other hand, the 0.1 mg/l limit as expressed in the Permit will result in seasonal in-stream phosphorus concentrations that fall within the range of the seasonally-based

ambient phosphorus values in the record. *See Ex. 3 (RTC)* at 65-66. Clear error or reviewable exercise of discretion are not established simply because the petitioner presents a different opinion or alternative theory regarding a technical matter, particularly when the alternative theory is unsubstantiated. *NE Hub Partners,* 7 E.A.D. at 567-68. As the City's argument does nothing to address the Region's concerns regarding the adequacy of a seasonally-based 0.1 mg/l limit, or propose a seasonal limit that would be sufficiently stringent to ensure compliance with Massachusetts and Rhode Island Standards, review of this issue should be denied.

The City also objects to the Region's use of a 30-day rather than seasonal average. *Att. Pet.* at 25. As the Region explained in the Response to Comments, the imposition of a 30-day average limit is consistent with federal regulations governing the NPDES program,[28] and will also reasonably minimize (when compared to a seasonal average limit) the amount of time that phosphorus effluent concentrations from the facility can exceed 0.1 mg/l and still comply with the limit. *Ex. 3 (RTC)* at 65. This approach maintains consistently low phosphorus effluent concentrations, as well as minimizes overall phosphorus loading into the system, which is important in impaired waters, like the Ten Mile River, which are already suffering from severe existing cultural eutrophication and where there may be some potential for the existing sediment phosphorus deposits to recycle in the water column. *Id.* As mentioned above, a relatively conservative approach is warranted in order for the eutrophic cycle to be brought to a halt, which is achieved by consistently maintaining low phosphorus concentrations and loads into the system. *Id.* The City objects to the imposition of a monthly limit, "Since the science and EPA's own recommendation propose a seasonal average…a monthly limit will tend to over-regulate the

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[28] *See* 40 C.F.R. § 122.45(d)(2) ("For continuous discharges all permit effluent limitations, standards and prohibitions, including those necessary to achieve water quality standards, shall unless impracticable be stated as average weekly and average monthly discharge limitations for POTWs.").

amount that should be allowed on a seasonal basis." *Att. Pet.* at 25. As explained above, the City's objection is grounded on a faulty premise, as the Region interprets the *Gold Book* as an instantaneous, not seasonal, value, and the City has not offered any compelling reason why the Region's interpretation, and the evidence proffered to support it, was clearly erroneous. Moreover, it completely ignores the merits of the Region's considered response on the specific issue of employing a monthly average. Review should be denied on this basis. *In re: Austin Powder Co.*, 6 E.A.D. 713, 721 (EAB 1997) (denying review of issue when petition does not discuss why region's response was erroneous or merits review).

The City also asserts that the Region assumed an "insupportably low 10% attenuation rate to justify its phosphorus limit," where actual existing attenuation rates are higher. *See Att. Pet.* at 25. The Region's use of 10% was a reasonable estimate based on actual water quality data, and was rational given the Region's view that the current rates of attenuation are not expected to continue, and will decrease as conditions in the Ten Mile River improve as a result of the new phosphorus controls. *See Ex. 3 (RTC) at 67.* The Region's use of this number was also reasonable in light of the short distance (three miles) and travel time between the Attleboro WPCF discharge and the Central Pond. *Id.* at 68.[29] More fundamental than the precise rate of attenuation, the Region explained that it was also not persuaded that attenuation would justify removal of the phosphorus limit. *Id.* In general, much of the phosphorus removed by in-stream physical and biological processes is not permanently removed from the environment, but rather settles to the bottom where it is available for further biological growth, or is subsequently

[29] The City attempts to incorporate into its petition a USGS report called "Estimation of Total Nitrogen and Phosphorus in New England Streams Using Spatially Referenced Regression Models" in its entirety. *See Att. Pet.* 26 n 10. This blanket incorporation by reference should be rejected, as it fails to provide the Board with the requisite specificity necessary for review. In addition, the City's footnote is a mere verbatim repetition of the City's comments and ignores the Region's reasoned response. *See Ex. 3 (RTC)* at 63.

transported to downstream impoundments during high flow events. *Id.* This is problematic given the severe degradation being experienced in downstream river segments and impoundments under existing conditions. *Id.* In other words, EPA did not believe that attenuation by itself counseled in favor of removing or imposing less stringent limits. *Id.* Instead, an appraisal of downstream conditions following the implementation of phosphorus controls would be necessary before deciding such a change would be appropriate and consistent with EPA's duty to ensure compliance with all applicable water quality standards. *Id.* The City merely asserts that the Region should assume existing rates of attenuation in its estimates, but does not squarely confront the Region's explanation for its decision, and has not identified errors in the Region's approach. Review should thus be denied. *Steel Dynamics, Inc.*, 9 E.A.D. at 744.

ii. The Region Reasonably Accounted for Future Changes in Attenuation Rates

The City also alleges that the Region was arbitrary in its approach regarding dilution and background concentrations of phosphorus, specifically objecting to the fact that the Region discounted the small amount of available dilution under 7Q10 due to high existing background concentrations. *Att. Pet.* at 25. In fact, the Region's approach was reasonable and adequately explained, and review should be denied.

Under 40 C.F.R. § 122.44(d)(1)(ii), when determining reasonable potential to cause or contribute to a violation of water quality standards, EPA is authorized to consider dilution "where appropriate." The Region considered and rejected the use of dilution in establishing the Permit limit for phosphorus and fully explained the reasoning used to arrive at this technical determination. *Ex. 3 (RTC)* at 64. Because the dilution factor under 7Q10 conditions is low (1.4) and the background concentration is expected to be high (the average summer background

concentration is approximately 0.1 mg/l based on the data collected at Station TM13 for the 2002 MA Water Quality Assessment), the Region determined that it was reasonable to assume that the high existing background offset the small amount of available dilution and that the limit should be equal to the *Gold Book* value of 0.1 mg/l. *Id.* If the background concentration were assumed to be zero and the desired in-stream concentration were 0.1 mg/l, the effluent limit would be 0.142 mg/l. *Id.* The Region determined that the proposed limit of 0.1 mg/l is appropriate given the Region's knowledge of currently prevailing background conditions, the uncertainty of accurately projecting the extent of reduced background concentrations in the near term future, and the existing cultural eutrophication in the receiving waters. *Id.* The Ten Mile River and its impoundments are already highly laden with phosphorus due to the past discharges from the North Attleborough POTW, Attleboro WPCF and other sources. *Id.* The Region indicated that it was prudent to adopt a reasonably conservative approach in aquatic systems where the cycle of cultural eutrophication is already underway, as is the case in the Ten Mile River. *Id.* The Region explained that "[i]n order for the river to be restored to health, the eutrophic cycle must be broken by limiting the amount of excessive phosphorus available for uptake by aquatic plants and to allow whatever existing phosphorus has accumulated in the sediments in the past to gradually flush out of the system over time." *Id.* In addition, the Region rejected the City's view that downstream dilution would justify a less stringent limit based on an analysis of actual in-stream phosphorus concentrations downstream of the Sevenmile River. *Id.* at 66-67. Although the City accuses the Region of "[t]rying to have it both ways," on the question of background by assuming that it is simultaneously high and low, *Att. Pet.* 26, the City mischaracterizes the Region's position, which is that background currently *is* high and in the future *will be* low. *See Ex. 3 (RTC)* at 64, 77 n. 27. There is no logical contradiction in discounting the impact of current

dilution in light of high existing background concentrations of phosphorus in order to establish a protective limit (particularly in light of the overall conservative approach adopted by the Region with respect to nutrient permitting) *and* in assuming that future background will decrease as cultural eutrophication is controlled by the new limits and phosphorus gradually flushes out the system.

The City alleges that the Region's approach to attenuation is inconsistent. *Att. Pet.* at 26. The City points to the Region's observation of downstream phosphorus levels that were lower than the facility's effluent concentration even under low flow conditions. *Id.* Having relied upon low flow conditions elsewhere in the Response to Comments, the City states that it was arbitrary and capricious for Region 1 to shift to high flow conditions and discount this attenuation because of different attenuation rates "when the spring sampling event is included." *Id.* The City is mistaken.

The Region adequately explained its decision to include the spring sampling event in its analysis of the attenuation issue. The Region observed that "much of the phosphorus removed by in-stream physical and biological processes is not permanently removed from the environment, but rather settles to the bottom where it is available for further biological growth, or is subsequently transported to downstream impoundments during high flow events." *Ex. 3 (RTC)* at 67. Thus, while the limited data sometimes showed attenuation at low flow, as the City correctly points out, the overall data, including high flow, showed no attenuation, indicating that phosphorus that had attenuated through plant uptake under low flows was eventually being flushed into the downstream impoundment, and added to the already phosphorus rich sediments,

fueling future growth. *Id.* The Region's analysis of this issue was rational and fully explained by the Region.

In addition, nowhere in the record below does the Region limit itself to considering phosphorus attenuation under critical low flow conditions. Adopting such a constrained approach would be contrary to the Region's interest in controlling the overall load of phosphorus being transported downstream under all conditions, since that load may subsequently become available under low flow conditions. *See Ex. 3 (RTC)* at 65. Although the City alleges that the Region is merely "picking and choosing the most restrictive data from different seasons," this entirely ignores the Region's explanation for incorporating the high flow data.

The City also ignores the broader point made by the Region that, regardless of the precise level of existing attenuation, future attenuation rates are expected to diminish. *See Ex. 3 (RTC)* at 67. The Region further stated, "Even if there is a small attenuation of phosphorus downstream of the discharge under future conditions, this will serve to help attain water quality criteria in Turner Reservoir, rather than justify an increased discharge from Attleboro." *Id.* The City has failed to address the Region's reasonable explanations, so review of this issue should be denied. *Encogen*, 8 E.A.D. at 256-57 (to the extent that technical questions relate to the representativeness of the data that the permit issuer relied upon in making its decision, the Board generally leaves such choices to the discretion of the permitting authority). *Austin Powder Co.*, 6 E.A.D. at 721 (denying review of issue when petition does not discuss why region's response was erroneous or merits review).

With respect to attenuation, the City also states that the "biological need for phosphorus" by organisms in the receiving water will remain and that "reduced phosphorus should not generate decrease in need for, and uptake of, phosphorus." *Att. Pet.* at 26. The City's argument begs the central question of how much phosphorus will be taken up by a healthy aquatic ecosystem; as the Region has explained, the levels of phosphorus required by minimally impacted systems are extremely low (*e.g.*, 0.024 mg/l under reference conditions). *Ex. 3 (RTC)* at 57-58.

The City's second point has it exactly backwards. A reduction in phosphorus will indeed decrease the uptake of phosphorus by limiting the growth of plants that consume the nutrient. The Region appreciates that the City holds a different opinion regarding the role of attenuation in the development of permit limits, but clear error or a reviewable exercise of discretion is not established simply because petitioners present a alternative theory regarding a technical matter. *Town of Ashland Wastewater Treatment Facility*, 9 E.A.D. at 667. Instead, when a petitioner challenges the Region's technical judgment, "petitioners 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." *Id.* at 668 (*citing Ash Grove*, 7 E.A.D. at 404). The City did not do so in this case and review should therefore be denied.

iii. The Region Reasonably Issued the Permit Prior to Completing a TMDL or Equivalent Assessment

The City's argument that a comprehensive loading allocation must be completed before the phosphorus limit can be imposed fails to set forth any basis for review.

First, the City's petition essentially reiterates verbatim its prior comments on this issue without substantively confronting the Region's response. *See Ex. 3 (RTC)* at 69-70. Review

should be denied on this basis. *Austin Powder Co.*, 6 E.A.D. at 721 (denying review of issue when petition does not discuss why region's response was erroneous or merits review).

Second, as the Region explained, neither the CWA nor EPA regulations require that a TMDL, or its equivalent, be completed before a water quality-based limit may be included in an NPDES permit. *See Ex. 3 (RTC)* at 70-72. Rather, water quality-based effluent limitations in NPDES permits must be "consistent with the assumptions and requirements of any *available* [emphasis added] wasteload allocation." 40 C.F.R. § 122.44(d)(1)(vii)(B). *Id.* Thus, an approved TMDL is not a precondition to the issuance of an NPDES permit for discharges to an impaired waterway. *Id.* This interpretation is consistent with the preamble to 40 C.F.R. § 122.44(d)(1), which expressly outlines the relationship between subsections 122.44(d)(1)(vi) (*i.e.*, procedures for implementing narrative criteria), and (d)(1)(vii):

> The final point about paragraph (vi) is that in the majority of cases where paragraph (vi) applies waste load allocations and total maximum daily loads will not be available for the pollutant of concern. Nonetheless, any effluent limit derived under paragraph (vi) must satisfy the requirements of paragraph (vii). Paragraph (vii) requires that all water quality-based effluent limitations comply with "appropriate water quality standards," and be consistent with "available" waste load allocations. Thus for the purposes of complying with paragraph (vii), where a wasteload allocation is unavailable, effluent limits derived under paragraph (vi) must comply with narrative water quality criteria and other applicable water quality standards.

See 54 Fed. Reg. 23,868, 23,876 (June 2, 1989). If a TMDL is completed and approved by EPA, the effluent limitation in any subsequently issued NPDES permit must be consistent with the wasteload allocation assigned to the Attleboro facility. In the meantime, relevant regulations *require* that EPA include effluent limits for any pollutants which EPA determines "are or may be discharged at a level which will cause, have the *reasonable potential* [emphasis added] to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." 40 C.F.R. § 122.44(d)(1)(i). Contrary to the City's suggestion,

subsection 122.44(d)(1)(vi) also does not equate "demonstration" with the type of comprehensive loading analysis and precise quantification of impacts performed in *Friends & Fishers* (discussed *supra* at Section III.1.A) prior to EPA imposing a water quality-based effluent limit. Even if EPA did have such a duty, it certainly would not have its origins in *Friends & Fishers*, a *state* law case involving a state ground water discharge permit, with no relevance to the Clean Water Act or Part 122, much less the specific regulatory provision at issue in the instant appeal.

3. THE PERMIT'S METALS LIMITS ARE ADEQUATELY EXPLAINED AND RATIONAL IN LIGHT OF THE RECORD

A. The Region's Aluminum Limit is Consistent with the Currently Approved Water Quality Standards for Toxics

The City challenges the Region's derivation of the chronic limit for aluminum because the limit was based on EPA's nationally recommended criterion rather than a site-specific "water effects ratio," or WER. *Att. Pet.* at 28. The City argues that the state water quality criterion for toxic metals, interpreted in light of EPA guidance, not only authorizes but compels the use of such a site-specific method in this case. The Region disagrees.

Pursuant to CWA § 301(b)(1)(C), the Region is required to include in NPDES permits any limitations "necessary to meet" State water quality standards. In particular, whenever the EPA determines (*e.g.*, by utilizing monitoring data) that a discharge causes, has the "reasonable potential" to cause, or contributes to an in-stream excursion above the State numeric criterion within a State water quality standard, for an individual pollutant such as aluminum, the permit "must contain effluent limits for that pollutant." 40 C.F.R. § 122.44(d)(1)(iii). The metals limitations were included in the permit because, based on its review of monitoring data, the

Region determined that there was such a "reasonable potential" for in-stream excursions in the receiving water to which the City's treatment plant discharges. *See Ex. 2 (Fact Sheet)* at 12-16.

The Permit's toxic metals limits were set specifically to meet the requirement in Massachusetts Standards that "[a]ll surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife." 314 C.M.R. § 4.05(e). The State implements that requirement by specifying that, "[f]or pollutants not otherwise listed in 314 CMR § 4.00, the *National Recommended Water Quality Criteria: 2002, EPA 822R-02-047, November 2002* published by EPA pursuant to Section 304(a) of the Federal Water Pollution Control Act, are the allowable receiving water concentrations for the affected waters, unless the Department ...establishes a site specific criterion[.]" *Id.* In those cases where the State does develop site-specific criteria, Massachusetts regulations require that such an effort be documented and subject to full inter-governmental coordination and public participation. *See* 314 C.M.R. § 4.05(5)(e)(4). In addition, federal law requires EPA's review and approval of Massachusetts' development and adoption of site-specific criteria. *See* 40 C.F.R. § 131.11(b)(1)(ii) (providing that states may establish criteria based on Section 304(a) criteria modified to reflect site-specific conditions) and 40 C.F.R. § 131.21 (providing for EPA review and approval of state water quality standards). Aluminum has not been "otherwise listed" in 314 CMR 4.00 and no site-specific limits for the Ten Mile River have been developed for this pollutant. In the absence of site-specific criteria in this case, the Region appropriately based the limits on the relevant criterion in the *National Recommended Water Quality Criteria.*

The City argues that the Region was mandated to apply footnote L from the *National Recommended Water Quality Criteria* to the recommended numeric freshwater aluminum criterion. Footnote L states reasons why the use of a site-specific Water Effects Ratio may be

appropriate when calculating the chronic aluminum criterion. This specific argument appears nowhere in the comments below, and was therefore not preserved for Board review. Although the City earlier made the more general argument that "[t]he water quality criteria for aluminum indicates that the chronic criteria for aluminum may be overly restrictive," and cited specific factual reasons why the use of a site-specific Water Effects Ratio would be appropriate in this case, the City did not argue that the Region was both authorized and *compelled* as a matter of law "to apply all aspects (including footnotes) of its own guidance" even if in conflict with the plain language of the applicable Massachusetts water quality criterion. *Att. Pet.* at 29. Although this argument was reasonably ascertainable, the City never made it and is not permitted to make it now. The City "must have raised during the public comment period the specific 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." *See Gov't of D.C. Mun. Separate Storm Sewer Sys.*, 10 E.A.D at 339.

The Board is also without jurisdiction to consider this argument, which amounts to a challenge to the underlying water quality standard, as it requires the Region to simply ignore the water quality standards as written. The plain text of 314 C.M.R. § 4.05(5)(e)(1) provides for site-specific criteria to be approved by the State through a revised water quality standard, which must in turn be approved by EPA under CWA § 303(c)(3), and according to that statutory provision, "shall *thereafter* [emphasis added] be the water quality standard for the applicable waters of that State." The Board's jurisdiction does not, absent exceptional circumstances, "extend to considerations of the validity of prior, predicate regulatory decisions that are reviewable in other fora," *City of Moscow,* 10 E.A.D. at 160-161, such as challenges to underlying water quality standards. *See In re City of Hollywood, Fla.*, 5 E.A.D. 157, 175-76 (EAB 1994); *U.S. Steel*, 556

F.2d at 836-37 (EPA "ha[s] no authority to consider challenges to the validity of state water quality standards"). In determining whether a petition sets forth the requisite jurisdictional basis, the Board "places considerable reliance on how the issue is framed in the petition for review, such as the basis upon which relief is being sought." *In re Knauf Fiber Glass, GMBH*, 8 E.A.D. 121, 162-163 (EAB 1999) (no jurisdiction in PSD appeal of hazardous air pollutants because not an "explicit requirement of the PSD program"). The relief sought here would necessitate overriding the express requirements of state water quality standards in favor of non-binding technical "caveats" set forth in footnote L from EPA guidance. This claim falls beyond the Board's purview, and the Board thus should deny review of this issue for lack of jurisdiction.

Nevertheless, if the Board does reach this argument, the Region's decision should be upheld. The Region's derivation of the aluminum limit and its refusal to apply the WER on the basis of EPA guidance, because it would contravene the plain requirements of 314 C.M.R. § 4.05(5)(e), was reasonable and fully explained in the record. In its Response to Comments, the Region essentially summarized the requirements of section 4.05(5)(e). *See Ex. 3 (RTC)* at 40 ("The acute and chronic criteria used to calculate the aluminum limits are those adopted by MassDEP into its water quality standards, and so must be used as the basis for the effluent limitations," and "If MassDEP were to propose, and EPA approve less stringent criteria, these would be the basis for future limits."). This interpretation of the regulation is reasonable. Were the Region to adopt the City's approach, the requirements of 4.05(5)(e)(1) (setting forth procedural requirements for adoption of site-specific criteria) would be meaningless. Under well accepted canons of construction, a rule should be read in a manner that gives effect to all of its parts rather than in a way that renders some of its terms meaningless or redundant. *See Colautti v. Franklin*, 439 U.S. 379, 392 (1979), overruled in part on other grounds by *Webster v.*

Reproductive Health Services, 492 U.S. 490 (1989). EPA's "adoption of one interpretation [supported by the language of the standard itself] over the other cannot be categorized as clear error." *Ina Road Water Pollution Control Facility,* 1985 EPA App. LEXIS 33 at *5. Having determined that the City's discharges of aluminum had the reasonable potential to cause or contribute to the exceedance of the State's water quality standards for toxics, the Region had no choice but to include an aluminum limit in the Attleboro Permit. If the State in the future were to revise its standards addressing aluminum from this facility on a site-specific basis, the Region could evaluate such a revision and, if appropriate, approve the change under Section 303(c). Unless and until this occurs, EPA must apply the State's water quality standard for toxic metals as written.

As to the substantive merits of using WERs in this case, it is not obvious, absent a site-specific analysis, that such a method would be appropriate. The Region acknowledged "concerns regarding the aluminum criteria, specifically that the chronic criteria may be overly conservative for some waters," but did not specifically conclude that the Ten Mile River was one of those rivers. *See Ex. 3 (RTC)* at 40. In outlining three reasons why an alternative method for calculating aluminum limit "*might* [emphasis added] be appropriate," the EPA guidance first suggests that aluminum might be less at higher pH and hardness levels. However, this conclusion is qualified by the caveat that "the effects of pH and hardness are not well quantified at this time." Further, the footnote refers to effluent from an industrial discharger. What application these data have to POTW discharges is unclear, and the City made no attempt to explain their relevance. The City's other arguments in favor of adopting a WER approach are also not compelling. *Att. Pet.* at 29-30. The potential for operational difficulty presented by conflicting aluminum and phosphorus removal processes is beside the point. The economic or technical infeasibility of

compliance with a water quality-based limit does not make that limit inappropriate. *See U.S. Steel*, 556 F.2d at 838. The Permit also does not mandate that the City use an aluminum-based treatment process to achieve its phosphorus effluent limit.

Finally, the City also argues that the frequency of sampling for bioassay testing should be reduced from four times per year to twice per year. Because the Petitioner did not properly preserve the issue, although it was reasonably ascertainable, and has not in any case presented supporting facts to show clear error or abuse of discretion by the Region, the Board should not entertain review of the issue. 40 C.F.R. §§ 124.13 and 124.19(a); *In re Avon Custom Mixing Servs. Inc.*, 10 E.A.D. 700, 704-05 (EAB 2002).

B. Region 1's Cadmium, Lead and Other Metals Limits Are Reasonable and Required by Applicable Water Quality Standards for Toxics

The City next argues that effluent limits for cadmium, lead and other metals are unnecessary because the facility's recent Whole Effluent Toxicity ("WET") tests show that the effluent is not toxic. *Att. Pet.* at 30.

The City's petition essentially reiterates its prior comments without substantively confronting the Region's response. *Compare Att. Pet.* at 30-31 *with* 39-40, 46-47. The Region explained that WET tests are designed to determine if there is any additive or synergistic toxicity effects of the various pollutants in the effluent, and are not designed to assess the toxicity of individual pollutants. *See Ex. 3 (RTC)* at 40, 47. Individual metals criteria are established at a level that will be protective of a range of the most sensitive aquatic species, while WET tests for

Attleboro are conducted with only one species, *Ceriodaphnia dubia*. *Id.*[30] The City has not met its obligations to present reasons why the Region's response is inadequate. *See, e.g., Town of Ashland Wastewater Treatment Facility*, 9 E.A.D. at 668 (it is insufficient for a petition to rely on previous statements of objections; a petition must show with specificity why the response was clearly erroneous or otherwise merits review).

The City argues, for the first time, that "[t]o use less reliable tests to impose unnecessary limits comes as a cost to real water quality, because metals are necessary to accommodate plant operations that improve overall effluent." *Att. Pet.* at 31. This specific argument was not preserved for review, as it appears nowhere in the comments below, although the metals limits in question remain largely unchanged between the Draft and Final Permits. It should therefore not be considered by the Board. Nor is the argument substantiated or even relevant to a showing of clear error on this issue. The City offers no evidence for the claim that individual metals limits are "less reliable" than whole effluent toxicity and "unnecessary." The City does not indicate any reason why cadmium, lead and other metals (except for aluminum) would be used to remove pollutants. Clear error or reviewable exercise of discretion are not established simply because the petitioner presents a different opinion or alternative theory regarding a technical matter, particularly when the alternative theory is unsubstantiated. *NE Hub,* 7 E.A.D. at 567-68. *See also City of Moscow*, 10 E.A.D. at 172 (no basis for the Board to entertain "vague and unsubstantiated arguments").

In addition, the CWA does not allow for relaxing a limit needed to protect water quality due to other indirect environmental consequences. *See City of Fayetteville*, 2 E.A.D. at 600 -01

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[30] The Region's position in this regard is consistent with EPA toxics guidance. *See Technical Support Document for Water Quality-based Toxics Control* (EPA 1991) (AR 41), at 21-22.

(the mandate of section 301 is plain, straightforward and unequivocal in calling for compliance with water quality standards). Rather, the CWA dictates that *each* pollutant must be controlled to a level sufficient to comply with the requirements of the Act, including ensuring compliance with applicable water quality standard for toxicity. *See* CWA § 301(b)(1)(C); 40 C.F.R. § 122.44(d)(1)(iii) (upon finding of reasonable potential for a pollutant to contribute to a violation of water quality standards, the permit "must contain effluent limits for that pollutant").[31]

C. The Region's Selection of the Hardness Value to Calculate Hardness Dependent Metals Was Rational in Light of All the Information in the Record

RIDEM challenges the Permit's average monthly limits for copper, lead and cadmium, as well as the absence of an average monthly limit for zinc,[32] arguing that the Region's presumed hardness of 100 mg/l was higher than reflected by recent water quality sampling data collected by RIDEM downstream of the Attleboro discharge. *See RI Pet.* at 14-16. Citing to these data, RIDEM claims that the Region's erroneous technical assumption yielded limits that were not sufficiently low to ensure compliance with Rhode Island water quality standards. *Id. at 16-18.* Rhode Island does not demonstrate clear error on this technical matter.

To contest the Region's conclusion, RIDEM impermissibly relies on materials that are not part of the administrative record. These data, which show individual hardness values from sampling data collected by RIDEM in 2007 ranging from 70.2 mg/l to 94.7 mg/l, were not relied

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[31] In its Petition, the City does not specifically dispute the Region's reasonable potential analysis for metals. Underscoring the Region's position that WET limits are not substitutes for chemical-specific limits, the receiving waters are listed for metals on *Massachusetts 2006 Integrated List of Waters* and for cadmium and lead specifically in *State of Rhode Island 2006 303(d) List of Impaired Waters.*

[32] Based on a comment received from CDM on the Draft Permit, the zinc limit was removed from the Permit because the effluent data indicated there was no reasonable potential to exceed applicable water quality criteria in the receiving water. *See Ex. 3* (RTC) at 39. RIDEM challenges the hardness value selected by the Region for calculating the criteria for all hardness dependent metals in the Draft Permit, but does not specifically address the Region's finding of no reasonable potential and its consequent decision to remove the zinc limit in the Final Permit.

on and were never seen by the permit writer prior to Final Permit issuance. In 2007, both MassDEP and RIDEM performed sampling on the Ten Mile River at sampling stations in their respective States. The water quality samples were then sent by the States to the EPA Regional Lab in Chelmsford, Massachusetts for analysis. The EPA lab did not correlate the data to specific sampling stations. The data was then returned to the States to perform quality control and assurance and to finalize the results. The permit writer was never apprised that RIDEM had completed this process and was in possession of final hardness data, and RIDEM certainly did not provide these data to the Region prior to Final Permit issuance.

Under the Agency's permitting rules, the administrative record in an NPDES permit proceeding is considered complete on the date the final permit is issued. *See* 40 C.F.R. § 124.18(c). The Board has interpreted this provision to mean that the record is closed at the time of permit issuance and that documents submitted subsequent to permit issuance cannot be considered part of the administrative record. *See, e.g., Dominion Energy Brayton Point*, 12 E.A.D. at 518-19; *In re BPWest Coast Products, LLC, Cherry Point Cogeneration Facility*, 12 E.A.D. 209, 220 n.27 (EAB 2005) (allowing new substantive issues to be raised after permit issuance "would run contrary to the principle that the administrative record for a permitting decision is complete at the time of permit issuance"); *In re Gen. Motors Corp., Inland Fisher Guide Division*, 5 E.A.D. 400, 404-05 (EAB 1994). Thus, the Region is not obliged to consider the new 2007 RIDEM data in its permitting calculus, and review should be declined on this ground.

The Region also opposes any supplementation of the record with these new data. The permit writer did not deliberately leave this information out of the record in an effort to skew the record, but simply was not aware that it was available, and was never informed of its existence by

RIDEM. The notion that the information was somehow before the permit writer because preliminary water quality samples had been provided to the EPA Regional lab in Chelmsford, Massachussets, for analysis should be rejected. Vast amounts of data are processed at the EPA Regional lab each year. Meanwhile, dozens of complex permitting proceedings are simultaneously under way in the Region's Boston office. While efforts are made to coordinate laboratory and permitting activities, it is unreasonable to expect the sharing of information between the laboratory and an individual permit writer to be exhaustive or seamless. Instead, it was incumbent on RIDEM to bring these finalized data, which RIDEM knew of and controlled, to the attention of the permit writer in a timely fashion during the permit development process.

Moreover, the standard for reopening public comment periods and, by analogy, permitting records, is that new data, information, or arguments "appear to raise substantial new questions" about a permitting analysis that the permit issuer should, in its discretion, choose to consider. *See Prairie State*, slip op. at 65-66 & nn.51-52, 13 E.A.D. at . It is the exceptional case in which data developed *after* the issuance of a final permit will be deemed *substantial* enough to warrant a reopening of the permitting record. *See In re: Keene Wastewater Treatment Plant,* NPDES Appeal No. 07-18 (Order Denying Review), slip. op. at 23 (EAB, March 19, 2008). As discussed below, even when the merits of the data are considered, they do not raise substantial new questions regarding the Region's analysis.

On the merits, the Region's conclusion regarding hardness was adequately explained and reasonable in light of the all information in the record. In its comments on the Draft Permit, RIDEM requested an explanation of the Region's selection of a hardness value of 100 mg/l, and claimed that such a value "is significantly higher than values typically observed in RI waters and results in higher water quality criteria than DEM would anticipate." *See Ex. 3 (RTC)* at 41. The

Region explained: "Hardness data from Attleboro's quarterly toxicity tests conducted during the summer low flow period indicate that the average in-stream hardness above the North Attleborough discharge (Attleboro takes its dilution water from the Ten Mile River above the North Attleborough discharge) was 162 mg/l for 2002 – 2004 with a range of 100 mg/l – 253 mg/l. Using 100 mg/l for calculating the numeric criteria ensures that the criteria will be protective of in-stream uses...." *See Ex. 3 (RTC)* at 43. In response to a comment by the City asserting that the selected hardness value was significantly lower than necessary, the Region also explained that the hardness values had been variable from year-to-year, but that the average hardness value for one critical low flow year was approximately 100 mg/l (97 mg/l in 2004) and it had opted to use this value to calculate the permit limits. *See Ex. 3 (RTC)* at 39. Thus, the Region's selection of the hardness value was determined by looking to the low end of the range of values over a three year period, as well as the average during a low flow year. RIDEM's vague claim that 100 mg/l is "*significantly* higher than values *typically* observed in RI waters [emphasis supplied]" does not undermine this analysis. The assertion was not attended by any data pertaining to the Ten Mile River, nor any articulation of why the Ten Mile River was, or was even likely to be, one such typical water. Because the Region's explanation adequately encompassed RIDEM's query regarding the basis for and protectiveness of the assumed hardness, and its analysis was reasonable, review should be denied. *Ash Grove.*, 7 E.A.D. at 417-18.

The Region's determination in this matter would not change even if the new 2007 hardness data were considered by the Region. In its Petition, RIDEM simply points to single samples from the 2007 data set and contends that the Region is bound by its own logic to choose the lowest observed value in the record. *RI Pet.* at 16. The argument is fallacious and ignores

key elements of the Region's approach. First, the Region has nowhere stated that it would necessarily choose the lowest hardness value contained in the record, only that "in order to approximate hardness level during the critical conditions" it had "opted to use the lower value." *See Ex. 3 (RTC)* at 39. Second, RIDEM ignores the fact that the Region considered representative hardness data over a period of several years (*i.e.*, looking to the range of observed summer hardness values over three years corroborated by the summer average for a particular low flow year) to determine a reasonable and protective hardness value. RIDEM does not explain why reflexive application of the lowest observed value in a single year is to be preferred to the more measured approach adopted by the Region. Rhode Island's preference for an alternative technical approach on this technical matter notwithstanding, the record demonstrates that the Region duly considered the issues raised in the comments and that the approach ultimately adopted by the Region was rational in light of all the information in the record. The Board should deny review of this issue. *NE Hub,* 7 E.A.D. at 567; *Encogen,* 8 E.A.D. at 256-57 (choice of data sets left to discretion of permit authority).

4. THE REGION'S DECISION TO ADDRESS COMPLIANCE ISSUES THROUGH AN ADMINISTRATIVE ORDER RATHER THAN A COMPLIANCE SCHEDULE IN THE PERMIT WAS REASONABLE AND CONSISTENT WITH APPLICABLE STATE AND FEDERAL REGULATIONS

The City incorrectly argues that the Region determined not to include a compliance schedule in the Final Permit based on the erroneous assumption that schedules are not permitted under Rhode Island Standards. *Att. Pet.* at 31. The Region's analysis of this matter was sound. The City ignores the Region's explanation of why including a compliance schedule in the Permit would not be appropriate in this instance. Review should be denied.

Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by an NPDES permit. Schedules of compliance are governed by 40 C.F.R. § 122.47, which requires, among other things, that "[a] permit may, when appropriate, specify a schedule of compliance leading to compliance with [the] CWA and [its] regulations." The schedule "shall require compliance as soon as possible, but not later than the applicable statutory deadline under the CWA." *Id.* § 122.47(a)(1). There is no right to a compliance schedule; one "may" be provided, "when appropriate." *See In re: J & L Specialty Products Corp.*, 5 E.A.D. 333, 345 (EAB 1994) (grant of a compliance schedule under Ohio water quality standards containing the word "may" is purely discretionary).

Compliance schedules have been authorized under Massachusetts Standards on a discretionary basis. *See* 314 § CMR 4.03(1)(b) ("A permit may, when appropriate, specify a schedule leading to compliance with the Massachusetts and Federal Clean Water Acts and regulations."). RIDEM, on the other hand, does not interpret its Standards to allow compliance schedules for water quality-based effluent limits because the CWA's statutory deadline for achieving such limits has lapsed. Rhode Island instead handles compliance issues through enforcement mechanisms, as the City well knows, having included samples of such consent decrees (and objected to the compliance schedules contained therein) in its filing with the Board.

In its Section 401 certification, Massachusetts states that "as a condition of the [its] certification," it is requiring imposition of a 4-year compliance schedule to achieve the Permit's phosphorus limit. *See Ex. 22* at 2. Based on its review of effluent data from the facility, the Region determined that inclusion of such a schedule is not appropriate under section 301(b)(1)(C) because the City is already fundamentally in compliance with the new limit, and that a four year schedule would not represent the soonest possible compliance date. *See Ex. 3 (RTC)* at 88-89

(citing effluent data showing that the facility achieved a monthly average discharge total phosphorus concentration of 0.1 mg/l or less for the months of May through October of 2007 and discussing treatment technology employed at plant). The Region's decision to reject MassDEP's proposed compliance schedule based on recent plant performance data is consistent with NPDES regulations governing state certification conditions and schedules of compliance. *See* 40 C.F.R. § 124.55(f). ("Nothing in this section ["Effect of State Certification"] shall affect EPA's obligation to comply with § 122.47. *See* CWA section 301(b)(1)(C)."). *See also City of Moscow,* 10 E.A.D. at 151-152 (rejecting a state's characterization of its proposal for less stringent limits as "conditions" of its certification). *Id.*

Since the State's certification authority cannot limit the inclusion by EPA of any more stringent condition required by section 301(b)(1)(C) of the CWA, the Region interpreted MassDEP's proposed compliance schedule as describing the least stringent compliance schedule that the State would consider acceptable under State law. *Ex. 3 (RTC)* at 90-91 (citing to *City of Moscow,* 10 E.A.D. at 152 (noting use of phrase in certification calling for compliance "on *or before*" the referenced compliance deadline and concluding that an "an approach to compliance schedules that, while more stringent, is within the outer bounds of what the State deems acceptable, would not be *inconsistent* [emphasis in original] with the State's certification"). The Region stated that it will consider MassDEP's proposed schedule in any future determination on that subject in an administrative order. *Id.* at 90.

The City does not demonstrate grounds for review. First, contrary to the City's claim, the issue of whether a compliance schedule for metals and nutrients should be included in the Permit as opposed to an administrative enforcement order was not preserved, although it was reasonably

ascertainable.[33] *See Att. Pet.* at 31. The City attempts to demonstrate that the issue was preserved by citing to a comment in which it objects to the fact that the Permit fails "to schedule review of the nitrogen limits at an appropriate time." Yet, this is not the same as requesting a compliance schedule to achieve the nutrient and metals limits in the Permit. Rather, it requests an opportunity to relax or even eliminate such limits. The City's also attempts to demonstrate issue preservation by referring the Board to its comment that: "We trust that the proposed permit limits and schedule are negotiable and we request to meet with you to establish mutually acceptable terms. Please contact me to set a meeting date." *See Ex. 3 (RTC)* at 50. Again, the City here is not clearly requesting inclusion of a specific compliance schedule in the Permit itself, but is seeking to negotiate with the Region over the Permit limits and any future schedule to achieve the limits. In order to preserve an issue for review, a petitioner "must have raised during the public comment period the specific 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." *Gov't of D.C. Storm Sewer Sys.*, 10 E.A.D. at 339. The City has not done so here, and review should therefore be denied.

Even if the Board were to consider the matter, the Region's determination should be affirmed. The decision to include a compliance schedule is discretionary, and the Region carefully articulated its reasons why a compliance schedule was not "appropriate" at this time, including the fact that the City was achieving the 0.1 mg/l limit and there were potential future uncertainties regarding the interaction between the pollutant removal processes. *Ex. 3 (RTC)* at 90-91. In its Petition, the City does not demonstrate that has been prejudiced by a lack of a

[33] The Draft Permit did not contain a compliance schedule for meeting the phosphorus effluent limitation of 0.1 mg/l, nor the nitrogen effluent limitation of 8 mg/l, nor any of the metals limits. The Region indicated in the Fact Sheet that it would "work with the City and its representatives to develop a schedule for the planning, design and construction of facilities that may be necessary to meet the specified limits." *Ex. 2* at 6.

schedule at this time, but instead underscores the validity of the Region's decision. The numerous potential uncertainties regarding compliance highlighted by the City—such the interaction with metals removal processes and implementation of an improved industrial pretreatment program—are consistent with the view articulated in the Region's Response to Comments that compliance should be handled comprehensively based on the best information following the Permit's effectiveness when more is known about modes of compliance, costs and trade-offs associated with meeting various Permit limits. *Att. Pet.* at 32. Based on the City's Petition, it may be, for example, that a compliance order would be appropriate for metals, but not phosphorus, or vice versa. *Id.* The Region has noted that it would consider MassDEP's proposed schedule, as well as the City's concerns, in any future deliberations. Because the City has not demonstrated clear error or abuse of discretion by the Region, review of this issue should be denied.

5. THE REGION'S DECISION NOT TO RE-NOTICE THE DRAFT PERMIT FOR A THIRD TIME WAS REASONABLE

The City argues that the Region made key arguments and introduced new facts at the response to comments phase and thus deprived Attleboro of adequate notice or opportunity to comment under 40 C.F.R. § 124.14(b). The Region's approach was procedurally sound and no remand is warranted on these grounds.

EPA regulations at 40 C.F.R. § 124.14(b) (emphasis supplied) provide that "if any data[,] information[,] or arguments submitted during the public comment period . . . appear to raise substantial new questions concerning a permit, the Regional Administrator *may* . . . reopen or extend the comment period." A Region's decision not to reopen the comment period under 40 C.F.R. § 124.14(b) is subject to review under an "abuse of discretion" standard and the Board has noted that a Region has "substantial discretion" in this regard. *In re Chelalis Generating Station*,

PSD Appeal No. 01-06, slip op. at 32-33 (EAB, Aug. 20, 2001) (Order Denying Review). *See also In re Metcalf Energy Center,* PSD Appeal Nos. 01-07 & 01-08, slip op. at 27-30 (EAB, Aug. 10, 2001) (Order Denying Review). The Board has summarized the legal framework surrounding 40 C.F.R. § 124.14(b) as follows:

> [t]he critical elements of this regulatory provision are that new questions must be 'substantial' and that the Regional Administrator 'may' take action.' *In re NE Hub Partners, L.P.,* 7 E.A.D. 561, 585 (EAB 1998), *rev. denied sub nom. Penn Fuel Gas, Inc. v. EPA,* 185 F.3d 862 (3d Cir. 1999); *accord In re Ash Grove Cement Co.,* 7 E.A.D. 387, 431 (EAB 1997). Thus, based on the language of this regulation, the Board has long acknowledged that the decision to reopen the public comment period is largely discretionary." *NE Hub,* 7 E.A.D. at 585; *Amoco Oil.,* 4 E.A.D. at 980; *see also Old Dominion,* 3 E.A.D. at 797. Furthermore, 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." *Caribe,* 8 E.A.D. at 705 n.19 (EAB 2000); *accord NE Hub,* 7 E.A.D. at 587 n. 14; *Ash Grove,* 7 E.A.D. at 431.

Dominion Energy Brayton Point, 12 E.A.D. at 695-696. In addition, the Board has stated that its review under § 124.14(b) will be "deferential." *NE Hub,* 7 E.A.D. at 585.

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, the Region may still exercise reasonable discretion in deciding whether to reopen the comment period. Many considerations may inform the Region's exercise of this discretion, including whether permit conditions have been significantly changed as a result of the substantial new questions, whether the new information or new permit conditions were developed in response to comments received during the permit proceeding, whether the record adequately

explains the Agency's reasoning so that a dissatisfied party can fairly develop a permit appeal, and the significance of adding delay to the particular permit proceeding. *See, e.g., Chelalis,* slip op. at 33, 35-36; *Metcalf Energy*, slip op. at 29*; NE Hub*, 7 E.A.D. at 587, n. 14; *In the Matter of Old Dominion Elec. Co.*, 3 E.A.D. 779, 797-98 (Adm'r 1992); *In the Matter of Thermalkem, Inc., Rock Hill, South Carolina,* 3 E.A.D. 355, 357-58 (Adm'r 1990).

In responding to comments, a Region may generate new information and analysis, add new materials to the administrative record, and change permit conditions without necessarily triggering a need to reopen the public comment period under 40 C.F.R. § 124.14(b). *See also* 40 C.F.R. § 124.17(b) (in responding to comments, new materials may be added to administrative record for final permit) and 124.18(b)(4);[34] *accord In re Caribe Gen. Elec. Prods., Inc.,* 8 E.A.D. 696, 705 n.19 (EAB 2000), *appeal dismissed per stip.,* No. 00-1580 (1st Cir. 2001). The Region may also revise analyses and/or permit conditions based on the comments. *In re Amoco Oil Co.,* 4 E.A.D. 954, 980 (EAB 1993); *In re Old Dominion Elec. Co.,* 3 E.A.D. 779, 797 (Adm'r 1992). The Board has long acknowledged that the decision to reopen the public comment period is largely discretionary. *NE Hub,* 7 E.A.D. at 585; *Amoco Oil,* 4 E.A.D. at 980; *see also Old Dominion,* 3 E.A.D. at 797. Furthermore, 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." *Caribe,* 8 E.A.D. at 705 n.19; *accord NE Hub,* 7 E.A.D. at 587 n.14; *Ash Grove,* 7 E.A.D. at 431.

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[34] The EAB and the courts have construed applicable law not to require additional rounds of public comment in every case in which new information is added to the record or a permit condition is changed in response to comments. This avoids creating a disincentive for agencies to respond to comments by improving analyses or appropriately changing permit conditions. *See, e.g., Old Dominion*, 3 E.A.D. at 797. Otherwise, agencies would face a Hobson's choice between inferior quality decisions and a never ending public comment process. *See, e.g. Rybachek v. EPA*, 904 F.2d 1276, 1287 (9th Cir. 1990); *BASF Wyandotte Corp., et al., v. Costle*, 598 F.2d 637, 644 - 47 (1st Cir. 1979).

The public comment period here functioned precisely as designed and led to improved analysis by the Region, and the Region's decision not to reopen the public comment period prior to issuing the Final Permit was reasonable. The situation confronted by the City is commonplace and a natural function of the public comment period, which is to alert the permit issuer of problems with the permit and to allow the permit issuer to improve the analysis. The City cites to several examples of materials or arguments that appear for the first time or are elaborated in the response to comments. *Att. Pet.* at 33-34. The City complains that this appeal is its first chance to challenge certain aspects of the Region's analyses or record materials. Yet, as discussed above, 40 C.F.R. § 124.14(b) does not require the public comment period to be reopened in all cases in which new information or analyses is added to the record by an agency in response to comments. All the materials and analysis cited by the City—*e.g.*, the elaboration of phosphorous effluent limitation calculations, the reliance on the Kester paper for BOD data, the use of Narragansett Bay Commission report to ascertain upstream flows of nutrients, the discussion of differences between the MERL experiments and real world conditions—stemmed logically and directly from comments received on the Draft Permit, and were fully described, explained and interpreted by the Region. Some of this information was alluded to in the Fact Sheet as well, and in any event did not have the effect of changing any permit requirement, so the claim that these materials, taken individually or collectively, constitute "substantial new" information is unpersuasive. In any event, a party dissatisfied with the agency's action has the recourse of an appeal to the Board. *See N.E. Hub,* 7 E.A.D. at 587, n. 14. *See also Dominio Energy Brayton Point,* 12 E.A.D. at 699, 702 n. 347 (citing numerous cases).

The City also contends that it could have apprised the Region of flaws in its reasoning or factual errors if it had had a chance to review and comment on the materials that were added to

the record. Yet this misses the point. The question is not whether the City *would have* raised issues with information and analysis if it had the opportunity to see such materials earlier. Rather, the question is whether the City has been equipped with adequate notice of the issues, based on the administrative record of the Final Permit, to challenge permit conditions on appeal. *See In re Caribe General Electric Products, Inc.,* 8 E.A.D. 696, 705 n. 19 (EAB 2000) (material added by Region to record in response to comments after comment period closes does not prejudice petitioner who can question the material in the administrative record on appeal to Board), *appeal dismissed per. stip.,* No. 00-1580 (1st Cir. 2001); *In re American Soda, LLP,* 9 E.A.D. 280, 299 (EAB 2000) (inclusion of information after public comment period closed does not improperly deprive petitioner of comment rights and petitioner can challenge record material in appeal to the Board); *Ash Grove,* 7 E.A.D. at 431 (opportunity to review items added to administrative record occurs after final decision by Region and before deadline for filing petition for review with the Board).

The City has been forearmed with adequate notice of the issues, and does not claim to be frustrated in this regard in its Petition for Review. Indeed, with respect to the issues cited by the City—use of 7Q10 to determine retention times, use of DMR data to determine whether a compliance schedule would be appropriate for the phosphorus effluent limit, citation to Microcystis algae bloom—the City has vigorously challenged the Region's substantive positions and has identified clear bases on which it believes the Region has erred.[35]

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[35] On the merits, these challenges are unpersuasive. The City merely alleges without supporting information that five months of DMR data is too short a duration to determine plant performance capabilities. Yet, it does not indicate why this is so, or what period of time would be sufficient. The City also suggests that the more stringent aluminum requirements in the permit will make compliance with the phosphorus limit more challenging, but does not state that the new requirements will preclude achievement of the phosphorus effluent limit, or lead to unavoidable exceedances of the aluminum limit, or otherwise state how this fact is relevant to the "as soon as possible" test under federal NPDES regulations. Incongruously, in the Petition, at 30, the City concedes that "the plant has had success

The decision to reopen the comment period is generally committed to the Region's discretion. Several considerations militated against reopening the permit for public notice and comment here. As the Region has noted, the need to issue the permit with reasonable expedition is driven not only by the severe existing impairments in the receiving waters, but also by the tendency of nutrients to accumulate and recycle in the environment. *See, e.g.*, *Ex. 3 (RTC)* at 9-10. The Region was also cognizant of the fact that the permit was last issued to the facility in 1999, has expired, and has been administratively continued for several years. *Id.*

The City claims there are procedural irregularities regarding the reopened comment period, which the City claims should have been subject to a 60-day comment period rather than the 30 days actually provided, and the failure of the Region to hold a public hearing. *Att. Pet.* at 35. The Region responded to both of these issues. *Ex. 3 (RTC)* at 84. The City ignores the Region's response and opts to reiterate its comments.

As to the length of the public comment period, the Region reopened the public comment on the Draft Permit pursuant to 40 C.F.R. § 124.14(b) and, in accordance with 40 C.F.R. § 124.14(c), sought comments on the revised monthly average total phosphorus limit. *Id.* The public notice period was established in accordance with 40 C.F.R. § 124.10 and consistent with the requirements of 40 C.F.R. § 124.14(b). *Id.* The City appears to be referring to a distinct comment period procedure identified in § 124.14(a), but the Region did not avail itself of this

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achieving a 0.1 mg/l effluent for phosphorus," which suggests the City itself has sufficient data to conclude that the phosphorus limit can be attained. Moreover, the Region has expressed a policy and technical preference for dealing with compliance schedule issues in a comprehensive fashion given the interactions of various pollutant removal processes. The City will still have ample opportunity to provide whatever relevant information it wishes to provide the Region during the development of an administrative order. Finally, the City's argument that it could not have contributed to the Microcystis algae bloom in 2007 since it was meeting 0.1 mg/l at the time regarding is not persuasive. The Region cited to the algae bloom to illustrate that the receiving water is severely overloaded for phosphorus and is exhibiting the effects of cultural eutrophication. The fact that the City was meeting 0.1 mg/l is not directly relevant to this point, as the Region has repeatedly emphasized in its response to comments that phosphorus can recycle in the water column and contribute to impairments once it becomes decoupled from the source. The City also ignores that fact that it was not the only source of phosphorus loading into the impacted waters.

provision. *Id.* The City has not identified any clear error in the Region's legal interpretation. *Id.* In addition to being consistent with the regulations, the Region explained that in its experience, a 30-day public comment period has been adequate even where complex technical matters are at issue. *Id.* The Region also pointed out that the City had not identified how its participation in these proceedings had been compromised; detailed comments on the Revised Draft Permit were received from both the law firm and engineering consulting firm representing the City. *Id.* Given the limited scope of the proposed permit revisions, the 30-day period for public comment allowed under 40 C.F.R. § 124.10 provided sufficient time to comment on the proposed revisions. It would be incongruous to offer a longer comment period on a portion of the permit than provided for the entire permit. The Region's interpretation was reasonable, and review should be denied of this issue.

Finally, with respect to the public hearing, the Region denied the City's request given the limited comments received and the fact that there were no other hearing requests. *Id.* The City does not dispute this or explain why this constituted reviewable error or an abuse of discretion. The Region also explained that the City had two opportunities to submit comments, and the Region also specifically noted that additional process would be provided by the appeal to the EAB. *Id.*

IV. CONCLUSION

For the foregoing reasons, both the City's and Rhode Island's Petitions for Review of the Final Permit should be denied.

Respectfully submitted,

Samir Bukhari, Assistant Regional Counsel
Amanda Helwig, Assistant Regional Counsel
U.S. EPA - Region 1
1 Congress Street 1100 (RAA)
Boston, MA 02114-2023
Tel: (617) 918-1095
Fax: (617) 918-0095

Of Counsel:
Peter Ford
Water Law Office
Office of General Counsel

Dated: August 27, 2008

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing Memorandum in Opposition to Petitions for Review, in connection with NPDES Appeal Nos. 08-08 and 08-09, were sent to the following persons in the manner indicated:

By Federal Express:

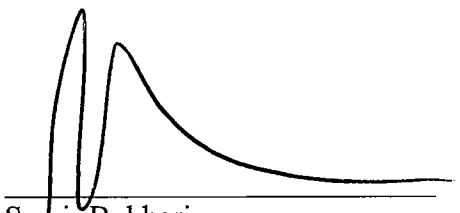
Eurika Durr
Clerk of the Board
United States Environmental Appeals Board
Colorado Building
1341 G Street, N.W., Suite 600
Washington, D.C. 20005

By First Class U.S. Mail:

Douglas H. Wilkins, Esq.
Anderson & Kreiger, LLP
One Canal Park, Suite 200
Cambridge, Massachusetts 02141

Susan B. Forcier, Esq.
Department of Environmental Management
Office of Legal Services
235 Promenade Street, 4th Floor
Providence, Rhode Island 02908-5767

Dated: August 27, 2008



Samir Bukhari
Assistant Regional Counsel
U.S. EPA - Region 1
1 Congress Street 1100 (RAA)
Boston, MA 02114-2023
Tel: (617) 918-1095
Fax: (617) 918-0095