
IN THE UNITED STATES COURT OF APPEALS
FOR THE FIRST CIRCUIT

No. 11-1474

UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT,

Petitioner,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,

Respondent.

No. 11-1161

CONSERVATION LAW FOUNDATION, INC.

Petitioner,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,

Respondent.

ON PETITIONS FOR REVIEW OF A FINAL PERMIT DECISION BY THE
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BRIEF OF RESPONDENT

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STATEMENT OF JURISDICTION

This case concerns the United States Environmental Protection Agency's ("EPA" or "Agency") issuance of a National Pollutant Discharge Elimination System ("NPDES") permit for discharges from a wastewater treatment plant ("Treatment Plant" or "Plant") in Massachusetts. Region 1 of the EPA ("Region 1" or the "Region") took final action to issue the NPDES permit challenged in this petition for review pursuant to its authority under section 402(a) of the Clean Water Act ("CWA" or "Act"), 33 U.S.C. § 1342(a). This Court has jurisdiction over these petitions for review of EPA's issuance of the permit pursuant to section 509(b)(1)(F) of the CWA, 33 U.S.C. § 1369(b)(1)(F). EPA's action was final for purposes of judicial review in this matter on April 6, 2011. *See* 40 C.F.R. § 124.19(f)(1). Petitioners, the Upper Blackstone Water Pollution Abatement District ("District") and Conservation Law Foundation, Inc. ("CLF"), respectively filed their petitions for review on April 29, 2011 and May 27, 2011, within the 120-day period authorized by section 509(b) of the CWA, 33 U.S.C. § 1369(b).

STATEMENT OF THE ISSUES

1. Whether EPA reasonably utilized a peer-reviewed physical model of the water bodies at issue in this case, in combination with an assortment of scientific studies, technical reports, and other water quality data, in determining

discharge limits on nitrogen pollution that would ensure compliance with the state water quality standards applicable to those water bodies?

2. Whether EPA reasonably determined that the Treatment Plant's nitrogen discharges were causing or contributing to water quality exceedances in the Plant's receiving waters, and that a 5 milligram per liter ("mg/l") nitrogen discharge limit was necessary to ensure compliance with applicable water quality standards?

3. Whether CLF waived its argument that EPA should have based the nitrogen limit in the challenged permit on the Plant's permitted design flow, rather than its actual historical flow, where CLF first raised that issue in a reply brief in its administrative appeal of the permit to EPA's Environmental Appeals Board ("EAB")?

4. Whether EPA reasonably determined that a phosphorus discharge limit of 0.1 mg/l was necessary to meet applicable water quality standards?

5. Whether the District waived its argument that EPA should have excluded a particular data point used in setting the aluminum limit in the challenged permit, where the District first alleged that the data point should be excluded only in its petition seeking administrative review before the EAB, and where the EAB held that the argument was waived?

STATEMENT OF THE CASE

This petition arises out of EPA's 2008 issuance of an NPDES permit ("2008 Permit" or "Permit") to the District covering discharges from its wastewater treatment plant in Millbury, Massachusetts, two years after the District's 2001 Permit had expired, leaving the Treatment Plant subject to obsolete pollutant discharge limitations. The Plant discharges into the Blackstone River, which flows into the Providence and Seekonk Rivers, which form Upper Narragansett Bay (collectively, "receiving waters"). The Blackstone River is a major source of fresh water to Narragansett Bay, Rhode Island's most important aquatic resource.

These three rivers have severely impaired water quality, due in large part to nitrogen and phosphorus discharges from the Treatment Plant. The CWA authorizes EPA to issue NPDES permits only where such permits contain provisions that will ensure compliance with applicable water quality standards, including those set by the States for the water bodies within their borders. In accordance with the mandates of the CWA and its own regulatory requirements, therefore, EPA Region 1 drafted and issued an NPDES permit containing discharge limitations designed to ensure compliance with the water quality standards that Massachusetts and Rhode Island have set for the receiving waters.

The permit issuance process took over a year, during which time the Region gathered information from multiple sources about the Treatment Plant's discharges

and the water quality in its receiving waters; sought and incorporated significant public input on that information; and ultimately produced a lengthy permit document that set out the Region's reasoning for each permit provision and offered a full response to public comments. In issuing the final permit, the Region explained that although it had had to contend with the familiar obstacles of technical complexity and scientific uncertainty in setting the 2008 Permit's nitrogen and phosphorus (collectively, "nutrients") limits, the CWA impelled EPA to act on the best information reasonably available at the time of permit reissuance to address the undisputedly severe water quality impairments in the receiving waters resulting from the District's pollution discharges.[1]

The District principally argues that the Region impulsively acted based on inadequate data, and should instead have held in abeyance any decisions regarding the permit until some indeterminate future point, pending development of a mathematical water quality model or additional site-specific, in-stream studies. However, the permit issuance was hardly the rush to judgment that the District contends. In preparing the 2008 Permit, the Region articulated a rational methodology to guide it toward reasonable and sufficiently protective permit limits. The Region had substantial information at its disposal in setting the

1 As discussed *infra* at 35, the Region added the disputed aluminum limits in a permit modification issued in 2009.

Permit's nutrient limitations, including national EPA guidance, state water quality reports and assessments, peer-reviewed research and models, and years of on-the-ground measurements and observations of conditions in the Blackstone, Providence, and Seekonk Rivers. Meanwhile, both EPA and other interested parties had already spent years trying and failing to develop a better model or more site-specific studies as a basis for EPA to more precisely predict the effects of nutrient discharges. Instead of continuing to pursue that effort in the face of continuing significant water quality problems resulting from the Treatment Plant's discharges, the Region acted in accordance with longstanding EPA regulations that specify acceptable methods to determine appropriate NPDES permit conditions based on available information. In following these regulations, the Region utilized its technical and scientific expertise, reasonably applying the knowledge it did have in order to determine nitrogen, phosphorus, and aluminum limits that would assure compliance with applicable water quality standards.

In its analysis of nitrogen, the Region expressly acknowledged, and reasonably accounted for, areas of uncertainty, including the imperfections in a physical model of the effects of nitrogen loadings in the Providence and Seekonk Rivers that the Region considered. Contrary to CLF's main argument, these imperfections meant that it would not be appropriate to merely export discharge limits directly from the model. Instead, the Region used the model in a carefully

considered fashion to inform its selection of an appropriate nitrogen limit. Rhode Island acknowledged the same imperfections in a report on the model, and has set nitrogen limits similar to the limit in the 2008 Permit for similarly-situated facilities within its borders.

The challenged discharge limits have already been examined once before, by EPA's Environmental Appeals Board, which provided an independent review of the 2008 Permit and 2009 aluminum modification on administrative appeal by the District, CLF, and several other parties. The EAB affirmed the Permit's nitrogen, phosphorus, and aluminum provisions in a carefully-reasoned, 106-page decision, finding that the Region had set them based on reasonable interpretations of available information in the administrative record and in compliance with the mandates of the CWA and EPA's regulations. Notably, neither Petitioner offers any substantive rebuttal to the EAB's decision, ignoring its conclusion that the challenged provisions are indeed reasonable measures to ensure compliance with Massachusetts' and Rhode Island's water quality standards. As both the EAB and the Region have explained, the discharge limits in the Permit are wholly consistent with available information about the Treatment Plant's discharges and its effects on the Blackstone, Providence, and Seekonk Rivers, and neither Petitioner can successfully show that the nitrogen, phosphorus, and aluminum limits in the Permit are arbitrary or capricious.

STATEMENT OF FACTS

I. Statutory and Regulatory Background

A. The Clean Water Act and Implementing Regulations

Congress enacted the CWA, 33 U.S.C. §§ 1251-1387, "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a); *see also Rhode Island v. EPA,* 378 F.3d 19, 21 (1st Cir. 2004). To this end, the CWA prohibits any person from discharging any pollutant into the waters of the United States from any point source, except as authorized by permit. 33 U.S.C. §§ 1311(a), 1342(a). Under CWA section 402, EPA may issue NPDES permits for the discharge of pollutants from "point source[s]" if the permit conditions assure that the discharge complies with certain requirements, including those of sections 301 and 401 of the CWA, 33 U.S.C. §§ 1311, 1341.[2] *See* 33 U.S.C. §§ 1342(a)(1), 1362(12). NPDES permits are for fixed terms of no more than five years, 33 U.S.C. § 1342(b)(1)(B), and generally contain discharge limitations and establish related monitoring and reporting requirements. 33 U.S.C. § 1342(a)(1), (2).

[2] NPDES permits are issued by EPA or by a state agency subject to EPA review in those jurisdictions where EPA has authorized a state agency to administer the NPDES program. 33 U.S.C. §§ 1342(a)-(d). The Commonwealth of Massachusetts has not obtained NPDES program authorization, and therefore EPA's Region 1 office issues NPDES permits to point source dischargers in Massachusetts. *See Rhode Island*, 378 F.3d at 21.

The CWA also requires each State to adopt water quality standards for its waters. *See* 33 U.S.C. §§ 1313(a)-(c). State water quality standards are the touchstone of NPDES water quality-based permitting determinations. *See* 33 U.S.C. § 1341(a)(1), (2); *see also* 40 C.F.R. §§ 122.4(d), 122.44(d); *Arkansas v. Oklahoma*, 503 U.S. 91, 110 (1992). Water quality standards consist of, *inter alia*: (1) designated "uses" of the water, such as propagation of fish, aquatic life, and wildlife, recreation, aesthetics, and use as public water supply; and (2) "criteria," expressed either in numeric or narrative form, which specify the amounts of various pollutants that may be present in those waters without impairing the designated uses. *See* 33 U.S.C. § 1313(c)(2)(A); *see also* 40 C.F.R. §§ 130.3, 130.10(d)(4), 131.6, 131.10, 131.11. EPA's CWA regulations expressly authorize States to establish either numeric (quantitative) or narrative (qualitative) water quality criteria, or both. *See* 40 C.F.R. §§ 131.3(b), 131.11(b).

Section 301(b)(1)(C) requires that NPDES permits include effluent limits "necessary to meet water quality standards, treatment standards, or schedules of compliance, established pursuant to any State law or regulations . . . or any other Federal law or regulation, or required to implement any applicable water quality standard established pursuant to [the CWA]."[3] 33 U.S.C. § 1311(b)(1)(C); *see also*

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

40 C.F.R. § 122.4(d); *Arkansas*, 503 U.S. at 110. Similarly, under CWA section 401, EPA may not issue an NPDES permit to a proposed discharger until the State in which the discharge originates "certifies" that the permit contains conditions necessary to assure compliance with, among other things, the State's water quality standards (unless the State waives certification, or certification is deemed waived). 33 U.S.C. § 1341(a)(1); 40 C.F.R. §§ 124.53(a), 124.53(c)(3), 124.55(a)(2). Additionally, CWA section 401(a)(2) requires EPA to notify any State that may be affected by the proposed discharges and to "condition such license or permit in such manner as may be necessary to insure compliance with applicable water quality requirements." 33 U.S.C. § 1341(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."). EPA "is under a specific obligation to require that level of effluent control which is needed to implement existing water quality standards without regard to the limits of practicability," *Oklahoma v. EPA*, 908 F.2d 595, 613 (10th Cir. 1990) (internal quotation marks omitted), *rev'd on other grounds sub nom. Arkansas v. Oklahoma*, 503 U.S. 91 (1992); *see also Ackels v. EPA*, 7 F.3d 862, 865-66 (9th Cir. 1993) (similar). "Congress has vested in the Administrator [of EPA] broad discretion to establish conditions for NPDES permits" in order to achieve this statutory mandate. *Arkansas*, 503 U.S. at 105.

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

Under 40 C.F.R. § 122.44(d), permit writers are first required to determine whether pollutants "are or may be discharged [from a point source] at a level which will cause, or have the reasonable potential to cause, or contribute" 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)(i). EPA guidance directs that this "reasonable potential" analysis be based on "worst-case" conditions. JA 1661. If a discharge is found to cause, have the reasonable potential to cause, or contribute to an exceedance of a state water quality criterion, then 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)).

Where state water quality standards are based upon narrative rather than numeric criteria, 40 C.F.R. § 122.44(d)(1)(vi) lays out procedures to translate those criteria into numeric effluent limitations. This provision describes three options available to permit writers when deriving effluent limits from narrative water quality standards, the first two of which are relevant to the Region's decision in this case. *See* 40 C.F.R. §§ 122.44(d)(1)(vi)(A), (B). The permitting authority must, in such circumstances, establish effluent limits: (A) 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"; or (B) on a "case-by-case basis" using recommended water quality criteria published by EPA pursuant to CWA section 304(a), 33 U.S.C. § 1314(a), supplemented as necessary by other relevant information. *Id.* Section 304(a) water quality criteria documents are to "accurately reflect[] the latest scientific knowledge" about the effects of water pollution on health and environmental welfare, "the concentration and dispersal of pollutants," and "the effects of pollutants on biological community diversity, productivity, and stability, including information on the factors affecting rates of eutrophication . . . ." 33 U.S.C. § 1314(a)(1).

B. The NPDES Permitting Process

The permit reissuance process under the NPDES program begins when the permittee submits a permit renewal application. The Regional Administrator prepares a draft permit, which undergoes public comment and, at the Region's discretion, a public hearing, followed by the Region's issuance of a final permit decision accompanied by a written response to all significant public comments. *See City of Pittsfield v. EPA*, 614 F.3d 7, 9 (1st Cir. 2010) (citing 40 C.F.R. §§ 124.6-124.19).

Parties who participated in the public comment period have thirty days to seek review of the Region's permit decision by EPA's Environmental Appeals Board. 40 C.F.R. § 124.19. The EAB is a permanent body with continuing functions, composed of Board Members designated by the Administrator, and is mandated to decide each matter before it in accordance with applicable statutes and regulations. 40 C.F.R. § 1.25(e)(1). It is "the Agency's highest adjudicative body," 57 Fed. Reg. 5320 (Feb. 13, 1992), and acts as the Administrator's delegate to resolve administrative challenges to NPDES permits. Seeking review by the EAB is a prerequisite to seeking judicial review of the final permit decision. 40 C.F.R. § 124.19(e).

If a request for EAB review is filed, the contested permit conditions, together with any uncontested conditions that are not severable from the contested

conditions, are administratively stayed pending final agency action. 40 C.F.R. § 124.16(a). These contested permit conditions are not subject to judicial review until there is "final agency action." *Id.* Upon completion of the EAB's review, "final agency action" occurs "when a final. . . NPDES . . . permit decision is issued by EPA and agency review procedures under this section are exhausted." *See* 40 C.F.R. § 124.19(f)(1). "A final permit decision shall be issued by the Regional Administrator" when, *inter alia*, "the Environmental Appeals Board issues notice to the parties that review has been denied[.]" 40 C.F.R. § 124.19(f)(1)(i). Any interested person may seek judicial review of a final EPA permit decision in the appropriate circuit court of appeals within 120 days of the issuance of the final permit decision. 33 U.S.C. § 1369(b)(1)(F).

II. Factual and Procedural Background

A. Discharges from the Treatment Plant to Receiving Waters

The Blackstone River is an interstate freshwater river that flows south from its headwaters in Worcester, Massachusetts into Rhode Island, where it flows into the Seekonk River and Providence River. *See* JA 1332, 5432 (map). The Seekonk and Providence Rivers are marine waters that form the upper reaches of Narragansett Bay. JA 3607, 3626. The Blackstone River is a nationally recognized American Heritage River and is a major source of fresh water to Narragansett Bay. *See* 63 Fed. Reg. 41,949 (Aug. 5, 1998); JA 1332.

Narragansett Bay is an estuary of national significance under the National Estuary Program and is an important New England fishery and recreational resource. *See* 57 Fed. Reg. 6178 (Feb. 20, 1992); JA 1284-85.

The Treatment Plant discharges treated wastewater effluent into the Blackstone River near its headwaters, in Millbury, Massachusetts, approximately 28 miles from the Rhode Island border. JA 1218. The Plant discharges wastewater effluent containing pollutants such as fecal coliform, nitrogen, phosphorus, and aluminum. JA 1352. It has a permitted maximum discharge flow of 56 million gallons per day ("mgd") and, in recent years, has discharged from 34 to 43 mgd on an annual average basis. *See* JA 1188, 1223 n.3; *see also* JA 1237. The Treatment Plant's location near the headwaters of the Blackstone River and large discharge volume together ensure that its effluent dominates the river flow during critical low flow conditions. *See* JA 1329.

B. Nutrient-Driven Impairment of the Blackstone, Providence, and Seekonk Rivers

1. Cultural Eutrophication

Under undisturbed natural conditions, concentrations of algae and plant nutrients such as nitrogen and phosphorus are very low in most aquatic ecosystems. JA 1311. When nutrients increase to a point beyond the capacity of a water body to assimilate them, resulting in excessive plant and algal growth, the process is known as eutrophication. JA 1953-55, 2308-13. When this process is

accelerated by nutrient increases induced by humans, it is termed "cultural eutrophication." *See, e.g.*, JA 3246. Phosphorous and nitrogen promote the growth of nuisance levels of macrophytes (rooted aquatic plants), as well as various types of algae. JA 1311. Phosphorus is typically the limiting nutrient (*i.e.*, the primary driver of such growth) for the purposes of cultural eutrophication in freshwater systems, like the Blackstone River, while nitrogen typically plays that role in marine coastal systems, such as the Seekonk and Providence Rivers. JA 1979-81, 2335.

Excessive algal and plant growth degrades aesthetic and recreational uses in a variety of ways. Unsightly algal growth is unappealing to swimmers and reduces water clarity. Algae on rocks can make streambeds slippery and difficult or dangerous to walk on. Algae and plants can foul fishing equipment, or tangle boat propellers and oars. Excessive algal and plant growth can also result in a loss of diversity and other changes in the aquatic plant, invertebrate, and fish community structure and habitat. JA 1311, 2309-10.

Both algae and plant respiration, along with the decomposition of dead plant matter, consume oxygen dissolved in the water, and can reduce in-stream dissolved oxygen ("DO") concentrations to levels that negatively impact aquatic life. JA 1311, 2310. Many aquatic insects, fish, and other organisms become stressed and may even die when DO levels drop below a particular threshold level.

Decomposing plant matter also produces unpleasant sights and strong odors, again negatively impacting recreational and aesthetic uses. JA 1311. Additionally, nutrient-laden plant detritus can settle to the bottom of a water body, where it can recycle back into the water column and become available for future uptake by aquatic plant growth, further perpetuating and potentially intensifying the eutrophic cycle. *Id.*

2. Applicable State Water Quality Standards

Massachusetts and Rhode Island water quality standards ("WQSs") prohibit nutrients in concentrations that would cause or contribute to impairment of existing or designated uses.

Massachusetts' WQSs list the Blackstone River as having designated uses including habitat for fish, other aquatic life and wildlife, and primary (*e.g.*, swimming) and secondary (*e.g.*, fishing and boating) contact recreation. JA 3254-55, 3302. These waters must have consistently good aesthetic value. JA 3254. The Blackstone River is also subject to minimum narrative criteria requiring that it be "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"; "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"; "free from pollutants in concentrations that are toxic to humans, aquatic life or wildlife" and "free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses." JA 3259-60. Massachusetts has not established a numeric criterion for total phosphorus.

Rhode Island's WQSs list the Blackstone River as having designated uses such as primary and secondary recreational uses and fish and wildlife habitat. JA 3575, 3612. The Seekonk River and Providence River are designated for uses such as primary and secondary contact recreation and fish and wildlife habitat, and they must have good aesthetic value. JA 3576, 3626. Rhode Island also requires that all three rivers be free of pollutants in concentrations that: adversely affect the composition of fish and wildlife; adversely affect the physical, chemical, or biological integrity of the habitat; interfere with the propagation of fish and wildlife; or adversely alter the life cycle functions, uses, processes, and activities of fish and wildlife. JA 3577-78, 3580-82. In addition, all waters of the State must be free from pollutants at levels that result in deposits that change the physical, chemical or biological conditions to such a degree as to create a nuisance or interfere with designated uses. JA 3577.

Finally, the Rhode Island WQSs provide that, for all waters, "nutrients shall not exceed the limitations specified in rule 8.D.(2) and 8.D.(3) [setting specific criteria for freshwater and seawater bodies] and/or more stringent site-specific limits necessary to prevent or minimize accelerated or cultural eutrophication." JA 3578. In waters such as the Blackstone, Providence, and Seekonk Rivers, nutrients shall not be present "in such concentration that would impair any usages specifically assigned to said Class, or cause undesirable or nuisance aquatic species associated with cultural eutrophication . . . ." JA 3581-82. Rhode Island's water quality standards do not include applicable numeric criteria for nitrogen or phosphorus.

Both Massachusetts and Rhode Island standards require water quality criteria 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 of pollutants. *See* JA 3249, 3578-79.

3. Water Quality Exceedances in the Receiving Waters

During the permit reissuance process, the Region evaluated the sources of phosphorus and nitrogen loading into the Blackstone, Seekonk, and Providence Rivers, as well as the physical, chemical and biological impacts of the nutrient loading into those water bodies. *See generally* JA 1232-42. The Region determined that these rivers are severely eutrophic, due to excessive phosphorus

loading to the freshwater segment (the Blackstone River) and nitrogen loading to the marine segments (the Providence and Seekonk Rivers), and are not meeting applicable water quality standards. JA 1335-41.

The Blackstone River demonstrates severe and substantial phosphorus-driven eutrophication. JA 1335-36, 4102, 4150, 4174. The portion of the Blackstone River within Massachusetts has been listed as impaired by the State pursuant to CWA section 303(d), 33 U.S.C. § 1313(d), for unknown toxicity, priority organics, metals, ammonia, chlorine, nutrients, organic enrichment/low dissolved oxygen, flow alterations and other habitat alterations, pathogens, suspended solids, turbidity, and objectionable deposits.[4] *See* JA 3442. This listing accords with technical studies that document the extensive algal growth and other adverse impacts in the Blackstone River immediately downstream from the District's discharge, including observations of abundant algal growth in the spring and summer of 2003, which "increased dramatically over the course of the summer." JA 4114. During evaluations conducted over the spring and summer of 2003, the Massachusetts Department of Environmental Protection ("Mass DEP") also noted that there was excessive algal growth at the first biomonitoring station below the District's discharge, covering "virtually the entire river bottom" by the

[4] 33 U.S.C. § 1313(d) requires States to identify and list waters within their boundaries where applicable water quality standards are not being achieved due to pollutants.

end of the summer; in-stream dissolved oxygen below the Massachusetts minimum dissolved oxygen water quality criterion of 5.0 mg/l in July, August, and September of 2003; and substantial impairments to the macroinvertebrate community. JA 4162.

The Providence and Seekonk Rivers exhibit nitrogen-driven eutrophication. Both rivers were listed on Rhode Island's 2004 and 2006 CWA section 303(d) List of Impaired Waters as impaired for nutrients, low DO, and excess algal growth/chlorophyll *a*. JA 3711, 3760. Current total nitrogen loads to the Seekonk River, the most severely impaired section of Narragansett Bay, are 24 times higher than the nitrogen load to Narragansett Bay as a whole on a per unit area basis. *See* JA 1222, 5288. In Upper Narragansett Bay, cultural eutrophication has resulted in periodic low dissolved oxygen levels and fish kills and contributed to dramatic declines in eelgrass, which provides important spawning, nursery, foraging and refuge habitat for many fish and invertebrate species, including commercially important species such as winter flounder, striped bass, and lobsters. *See* JA 1232, 5232. Historic estimates of eelgrass in Narragansett Bay ranged from 8,000-16,000 acres, but current estimates of eelgrass indicate that fewer than 100 acres remain, and no eelgrass remains in the upper two thirds of Narragansett Bay. *See* JA 1285, 5232.

C. Expiration and Reissuance of the District's NPDES Permit

The Region issued the District a previous NPDES permit for the Treatment Plant on September 30, 1999, which took effect in 2001 following appeals ("2001 Permit"). That permit expired on May 10, 2006, but it was administratively continued while the Region conducted the permit reissuance process.[5] *See* JA 1390. The 2001 Permit contains, *inter alia*, a monthly average effluent limitation of 0.75 mg/l for total phosphorus. JA 1425. Critically, it lacks any limit on nitrogen discharges from the Treatment Plant. JA 1400.

After receiving the District's timely application for permit renewal, the Region in 2007 publicly noticed a draft permit and requested comment. JA 1373-75. The draft permit set a total phosphorus limit of 0.1 mg/l (100 µg/l) for April 1 to October 31, and 1.0 mg/l for November through March; and a total nitrogen discharge limit of 5.0 mg/l monthly average for the months of May through October, along with a narrative nitrogen limit specifying treatment optimization for November through April. JA 1356-57, 1359.

The Region held the comment period open for 64 days rather than the 30-day period required by regulation and additionally exercised its discretion to

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

schedule a public hearing. *See* JA 1206; 40 C.F.R § 124.12. The Region received 34 sets of written comments, including lengthy and detailed comments and attachments from the District, its engineering consultants, and legal counsel. The MassDEP, the Rhode Island Department of Environmental Management ("RIDEM"), several municipalities, and numerous organizations and individuals also commented. JA 1207.

After considering and responding to comments on the draft permit, Region 1 issued its final permit decision, challenged here, on August 22, 2008. JA 1186. In the 2008 Permit, the Region adopted the proposed total phosphorus limit of 0.1 mg/l for April through October, and included a 1.0 mg/l phosphorus limit for November through March. The Region also affirmed a monthly average limit on nitrogen of 5.0 mg/l for May through October and a narrative nitrogen treatment optimization condition for November through April, as proposed in the draft permit. JA 1189-90, 1193. These provisions were based on the Region's conclusion that the phosphorus and nitrogen limits were necessary to ensure compliance with respective applicable water quality standards. JA 1234, 1255, 1337, 1341.

1. EPA's Reasonable Potential Determinations for Phosphorus and Nitrogen

Studies have documented that the District is, by far, the greatest point source of phosphorus to the Blackstone River under a range of flow conditions. *See, e.g.,*

JA 3912, 4182-83. Given the lack of any significant dilution of the District's discharge under low flow conditions, the Region determined that total phosphorus discharges from the Treatment Plant – whether at levels measured in the facility's effluent or at levels authorized under the 2001 permit – had the reasonable potential to cause in-stream concentrations far in excess of values necessary to prevent phosphorus-driven cultural eutrophication. JA 1240, 1310-15, 1336-37.

The Region also concluded that current levels of nitrogen loading from the District's facility had the reasonable potential to contribute to violations of Rhode Island's water quality standards for the Seekonk and Providence Rivers. *See* JA 1284-85, 1340-41. Municipal wastewater treatment facilities in Massachusetts and Rhode Island are the predominant source of nitrogen loading in Narragansett Bay, and the Treatment Plant is the largest of those facilities discharging to Upper Narragansett Bay. *See* JA 1232, 1340, 5230, 5297-5301.

The District is also the dominant point source of nitrogen loadings to the Blackstone River, and from there to the Seekonk River. *See* JA 5478 ("The Woonsocket, UBWPAD [*i.e.*, the District], Attleboro and North Attleborough WWTFs [wastewater treatment facilities] are significant contributors to the most highly enriched estuarine waters in RI, the Seekonk River."); JA 1340 (calculation that the District contributed approximately 64% of the total nitrogen load from the Blackstone River to the Seekonk River); *see also* JA 1237, 4372, 5495. Based on

the foregoing, the Region concluded that the District's discharge had a reasonable potential to contribute to ongoing water quality standards violations.

2. EPA's Derivation of Phosphorus and Nitrogen Limits

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); JA 1234-35, 1312-14. This approach is meant to provide flexibility to the permit issuer in assessing the total mix of technical, science and policy information available to it when determining an appropriate and protective limit. *See* JA 1233 n.7; 54 Fed. Reg. at 23,878.

When permitting nutrient discharges, the Region analyzes available record materials from a reasonably conservative standpoint. JA 1255 n.12. 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 sediment and from there reintroduced into the water body. *Id.*; JA 2308. 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." JA 2308. Thus, a key function of a nutrient limit is to protect downstream receiving waters "regardless of [their proximity] in linear distance." JA 2960; *see also* JA 2552.

a. The Phosphorus Limit

EPA has produced several guidance documents pursuant to CWA section 304(a) that set forth recommendations for total ambient, *i.e.*, in-stream, phosphorus concentrations that are sufficiently stringent to control cultural eutrophication and other adverse nutrient-related impacts. *See* JA 1336, 2567, 2673, 3123. These guidance documents present protective in-stream phosphorus concentrations based on two different analytical approaches. An "effects-based" approach provides a threshold value above which adverse effects (*i.e.*, water quality impairments) are likely to occur. JA 1336. 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. JA 1313.

Alternatively, "reference-based" values are statistically derived from a comparison of rivers in the same ecoregion class. *Id.* The reference-based approach identifies 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 are representative of waters without cultural eutrophication. *Id.*

The *1986 Quality Criteria for Water* ("*Gold Book*"), JA 2673, follows an effects-based approach and sets forth maximum threshold concentrations, derived from a review of scientific studies and literature, that are designed to prevent or control adverse nutrient-related impacts from occurring. JA 2675-76. Specifically, the *Gold Book* recommends in-stream phosphorus concentrations of no greater than 0.1 mg/l (100 µg/l) for any stream not discharging directly to lakes or impoundments, such as the Blackstone River, as well as 0.05 mg/l in any stream entering a lake or reservoir, and 0.025 mg/l within a lake or reservoir. *See* JA 1313, 2959.

A more recent EPA technical guidance manual, the *Nutrient Criteria Technical Guidance Manual* (July 2000), JA 2292, cites to a range of effects-based 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). JA 2406. 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* JA 1313-14, 2406.

EPA's *Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and*

Streams Ecoregion XIV ("*Ecoregional Nutrient Criteria*"), JA 3123, meanwhile recommends criteria under a reference-based approach. The total phosphorus criterion for the ecoregion that includes Massachusetts and Rhode Island waters is 0.024 mg/l for the critical growing season. *See* JA 1242, 1336, 3158.

The Region opted for an in-stream phosphorus target reflecting an effects-based approach because it is more often directly associated with an actual impairment to a designated use (such as healthy aquatic life or swimming). JA 1313. Reference-based values, by contrast, may reflect water quality that is better than necessary to support designated uses, and thus may result in unnecessarily stringent permit limitations. JA 1314.

The Region determined that the existing phosphorus effluent limit of 0.75 mg/l in the 2001 Permit – which was set in an attempt to ensure compliance with in-stream dissolved oxygen criteria rather than as a judgment regarding the level of phosphorus needed to control cultural eutrophication, *see* JA 1230, 1400 – was not stringent enough to effectively address the documented eutrophication in the Blackstone River. JA 1240, 1335-37. The Region concluded that ambient phosphorus concentrations must be brought within a protective range bounded by the values discussed above (*i.e.*, 0.01 mg/l to 0.1 mg/1). *See* JA 1310-14. In selecting an in-stream phosphorus target of 0.1 mg/l, at the high end of the effects-based protective range that it deemed most appropriate, the Region recognized that

the lower values recommended by the *Nutrient Criteria Guidance* and the *Ecoregional Nutrient Criteria* represent targets based on seasonal averages and corresponding seasonal flows (as opposed to worst-case, low-flow conditions). JA 1244. Thus, by establishing the 0.1 mg/l limit to apply on a monthly basis even in typically low-flow months, in-stream phosphorus concentrations would be lower than 0.1 mg/l when calculated over the seasonal average period, which includes higher flow conditions that provide more dilution. *See* JA 1337.

b. The Nitrogen Limit

The fate and transport dynamics of nitrogen in impaired estuaries are highly complex. 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. Because of this complexity, EPA has not promulgated recommended national nitrogen criteria for estuarine and coastal waters. *See* JA 1956 ("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 ensure compliance with Rhode Island's narrative water quality criterion for nitrogen. *See* 40 C.F.R. § 122.44(d)(1)(vi)(A). The Region considered more than 15 years of water quality data, studies, and reports evaluating nitrogen levels and

response variables in Narragansett Bay. JA 1233-34, 1338-41. These materials included EPA's *Estuarine Nutrient Guidance* and 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.*, JA 5200, 5261, 5279.

In addition, the Region relied on the results of a physical water quality model experiment conducted by the Marine Ecosystems Research Laboratory ("MERL") at the University of Rhode Island, which was designed to predict the relationship between nitrogen loading and several trophic response variables in the Narragansett Bay system, such as dissolved oxygen and chlorophyll *a*, that allow for the assessment of nutrient enrichment. JA 1234, 1338-39. The Region also considered actual measurements of nitrogen loadings from point source discharges and corresponding in-stream concentrations, including a 1995-96 study by RIDEM. *Id.*

The MERL enrichment gradient experiments were conducted from June 1981 through September 1983 and consisted of nine tanks (mesocosms), each five meters deep and 1.83 meters in diameter. JA 1252-53. 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 nitrogen,

phosphorus and silica in multiples of the per unit area amounts loaded into Narragansett Bay, based on estimated effluent loading from Providence River sewage. *Id.* For example, the 1X mesocosm nitrogen loading was the same as the estimated average per unit area loading of nutrients, the 2X was twice that, and so on up to the maximum load of 32X. *Id.* During the study, the MERL researchers measured dissolved oxygen, chlorophyll *a*, pH, and dissolved inorganic nutrients in the tanks, along with benthic respiration. *Id.* Using these 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 existing EPA guidance. *See, e.g.*, JA 1981-2001. Dissolved oxygen levels (either low or supersaturated) and phytoplankton (as measured by chlorophyll *a* levels) are indicators of cultural eutrophication. JA 1253, 1954-55. Both the MERL tank experiments and the data from the Providence/Seekonk River system confirm a clear correlation between nitrogen loadings, dissolved oxygen impairment, and chlorophyll *a* levels in those water bodies. JA 1252-54, 5281-96. The dissolved oxygen measurements taken from the MERL tank experiments demonstrate that the range and daily variability

of DO increase with greater nutrient loading.[6] JA 1253, 5282-83. The patterns of variability of DO concentrations in the Seekonk River were similar to those in the high enrichment tanks in the MERL experiments. JA 1253, 5290-91. The MERL tank experiments likewise showed a correlation between nitrogen loading rates and chlorophyll *a* levels. *Id.* These results were consistent with RIDEM data from 1995-96, where mean phytoplankton chlorophyll *a* levels in the three Seekonk River monitoring stations ranged from 14 µg/l to 28 µg/l, with the highest levels in the upper reaches of the river.[7] *Id.* Coastal areas without high nutrient loads are expected to have chlorophyll *a* levels in the 1 to 3 µg/l range. JA 2022.

Based on this corroborating information, the Region concluded that the basic relationship demonstrated by the MERL tank experiments between the primary causal and response variables related to eutrophication corresponds to what is actually occurring in the Providence/Seekonk River system. JA 1254, 5290. 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

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[6] Excessive algae growth leads to increased DO saturation during the day, while the algae engage in photosynthesis, but results in low DO levels at night due to algal respiration and decomposition. *See* JA 1311.

[7] Peak chlorophyll *a* levels in the Providence/Seekonk River system have exceeded 200 µg/l. JA 1253.

River system, and thus cannot yield a precise nitrogen limit required to control eutrophication in the system. JA 1254, 5291. For example, waters were routinely mixed in the MERL tank experiment, whereas Narragansett Bay is characterized by some stratification, where dissolved oxygen deficits in the sediments and lower layers of the water column are exacerbated by a lack of vertical mixing with higher DO waters above. The model's failure to simulate that stratification might result in underestimation of the effects of a given level of nutrient loading on water quality in the Narragansett Bay. On the other hand, the flushing rate – the average time it takes water to flow into and out of the water body – used in the MERL tank experiments was significantly slower than flushing rates in the natural ecosystem. The fact that the model did not mirror the flushing rates in Narragansett Bay could lead it to overestimate the effects of a given nutrient load. 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 that 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. JA 1254, 5291.

The Region determined that a concentration-based limit of 5 mg/l would be necessary to address the Treatment Plant's contribution to ongoing water quality impairments in the Narragansett Bay system. JA 1254, 1341. A nitrogen effluent

limit of 5 mg/l for the District's facility, coupled with effluent limits of either 5 mg/l or 8 mg/l (depending on size and location of the discharge) for other wastewater treatment plants in Massachusetts and Rhode Island that are 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." JA 1254. The Region was aware that the MERL tank experiments and RIDEM studies suggest that limits corresponding to a nitrogen loading scenario of between 2 and 4X (*i.e.*, 3.0 mg/l) may be necessary to achieve water quality standards. *Id.* However, the Region opted not to impose a limit based on more stringent loading scenarios in order to account for uncertainties associated with the physical model, including its failure to precisely simulate stratification and flushing times in the Providence and Seekonk Rivers. *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 concerned the Region in light of its duty under CWA section 301(b)(1)(C) to ensure compliance with water quality standards. JA 1254. However, the Region concluded that the particular approach it adopted possesses elements that enhance the protectiveness of the Permit beyond that of the 10X mass loading scenario. *Id.* In particular, concentration (as opposed to mass) limits assure that

effluent nitrogen concentrations are maintained at consistently low levels and, as a practical matter, will result in actual mass loadings significantly below the 10X loading scenario for the foreseeable future, as treatment plant flows remain well below the facility's design flow of 56 mgd (*i.e.*, 34 – 43 mgd) and have been steady in recent years. JA 1254-55.

The Region also considered the fact that its application of the MERL results is consistent with Rhode Island's own view of what controls are necessary to achieve its water quality standards. RIDEM has imposed limits of 5 mg/l and 8 mg/l on Rhode Island facilities discharging into Narragansett Bay, and has recommended that similar limits be placed on certain Massachusetts facilities that are impacting the Bay, including the District. JA 1255, 5307-10, 5265. RIDEM has established nitrogen limits of 5.0 mg/l for three large facilities contributing the most nitrogen to the upper Bay, where the greatest level of impairment has been documented, while four smaller facilities that discharge into Providence River or the lower reaches of Narragansett Bay, where the flushing rate is higher and the impacts less severe, are subject to an 8 mg/l limit. JA 1305-06. The Region regarded Rhode Island's position and recommendations as additional evidence that the 5 mg/l limit was reasonable and sufficiently stringent to comply with Rhode Island's water quality standards. JA 1218, 1255.

Based on this analysis of available information, the Region determined that a 5.0 mg/l nitrogen limit would ensure compliance with Rhode Island water quality standards, and that it must therefore include such a limit in the Permit. JA 1255.

3. The Aluminum Limit

Among the challengers of the 2008 Permit before the EAB, one petitioner, Trout Unlimited, contested the Region's failure to include an effluent limitation for total aluminum. JA 5801. The Region was persuaded by Trout Unlimited's claims and accordingly proposed a draft modification, accepted public comment, and then issued a final permit modification on April 15, 2009 that establishes effluent limits for total aluminum and weekly monitoring requirements. *See* JA 5498-5936.

Under the Massachusetts toxics standard, unless the State has established a site-specific criterion for toxic pollutants, or determined that naturally occurring background concentrations are higher than such a criterion level, the State applies the criterion recommended by EPA's *National Recommended Water Quality Criteria*. 314 Mass. Code Regs. § 4.05(5)(e). Aluminum is one of the pollutants for which the EPA national recommended criteria apply to Massachusetts waters, including the freshwater chronic criterion of 87 µg/l. *See* JA 5803.

To determine whether the District's discharges of aluminum have the reasonable potential to cause or contribute to an exceedance of this criterion in the Blackstone River, the Region projected the concentration of the pollutant in the

River downstream from the Plant under low-flow stream conditions. JA 5803. The Region considered both the ambient aluminum concentrations in the Blackstone River directly upstream from the District, as well as the average aluminum concentrations in the District's discharge.

In conducting its "worst-case" low-flow analysis, the Region reviewed the available ambient data collected upstream of the Treatment Plant's discharge during typical low-flow periods (*i.e.*, June through October) from 2005 through 2008, and averaged the results collected during the two months during which the River had the lowest monthly average flows (July 2007 and October 2007). JA 5803, 5807. The average of these ambient data points – reflecting the in-stream aluminum concentration before addition of the Treatment Plant's discharge – was 109 µg/l. JA 5804.

To calculate the Treatment Plant's contribution to this in-stream concentration, the Region used the District's aluminum effluent data, which were the results of metals analyses performed on samples of the District's effluent conducted during typical low flow months (*i.e.*, June through October) for the years 2005 through 2008. JA 5803, 5807. On several occasions during this period, the maximum concentration of aluminum in the District's effluent exceeded the chronic criterion of 87 µg/l. JA 5807. The Region calculated the average

concentration of aluminum in the District's discharge during these typical low flow months to be 127 µg/l.[8] JA 5804.

The Region concluded that since aluminum concentrations in the River upstream of the Treatment Plant's discharge exceed the Massachusetts chronic aluminum criterion of 87 µg/l, there is reasonable potential for the Plant's additional inputs of aluminum to cause or contribute to an excursion above the Massachusetts criterion downstream. JA 5804. The Region further determined that the average concentration of aluminum in the District's effluent during typical low flow months *itself* exceeds the Massachusetts chronic criterion. *Id.* Under these circumstances, and based on the minimal dilution of the District's effluent in the receiving waters under critical low flow conditions, the Region concluded that reasonable potential exists for the discharge to cause or contribute to excursions above the Massachusetts chronic aluminum criterion in the receiving water immediately downstream from the District, warranting the imposition of a monthly average effluent limitation equal to the Massachusetts chronic criterion of 87 µg/l for aluminum, in accordance with the requirements of 40 C.F.R. §§ 122.44(d)(1)(i)

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[8] In the Statement of Basis for the draft permit, the Region indicated that the average aluminum concentration in the District's effluent was 127 µg/l, when in fact the average aluminum concentration during the low flow months noted above is 117 µg/l. JA 5804. The Region's error is harmless since the 117 µg/l concentration is still well above the Massachusetts chronic criterion of 87 µg/l for aluminum.

and (iii). JA 5805. The Region also concluded that this limit was sufficient to ensure protection of Rhode Island's waters further downstream, since Rhode Island's WQSs contain the same aluminum chronic criterion. *Id.*

D. The Administrative Appeal of the 2008 Permit

Eight parties – the District and CLF among them – filed administrative petitions asking the EAB to review the Permit's conditions. After the Region decided to issue a permit modification to address aluminum discharges, the District filed a second petition requesting that the EAB review the new total aluminum limits and monitoring conditions. On August 7, 2009, the EAB consolidated the original petitions and the District's second petition. *See* District Addendum ("DA") 5 & n.1.

The District challenged multiple aspects of the 2008 Permit before the EAB, most pertinently: (1) the Region's decision to impose a more stringent total phosphorus limit before the District completed improvements to the Treatment Plant to meet the requirements of the 2001 Permit, DA 73, 81; (2) the inclusion of a numeric limit on total nitrogen without more data on nutrient impairment in Narragansett Bay, DA 23; and (3) the Region's conclusion that the District's discharge had a reasonable potential to cause or contribute to a violation of Massachusetts' water quality chronic criterion for aluminum based on an analysis of effluent and ambient aluminum concentrations. DA 93-94. CLF, for its part,

objected to several aspects of the permit, including the Region's decision not to include a 3 mg/l limit for nitrogen based on the "limit of technology."[9] DA 22.

In a decision issued on May 28, 2010, the EAB upheld the 2008 Permit in almost all respects, remanding to the Region for further consideration one permit provision making several other municipal entities "co-permittees" of the District, and therefore responsible for implementation of certain of its provisions. DA 12-21, 106-07. Otherwise, the EAB thoroughly considered the District's and CLF's objections to the 2008 Permit's nitrogen, phosphorus, and aluminum limits (as well as numerous other permit limits and conditions), and affirmed all as supported by the Region's reasonable judgment and relevant record evidence. DA 24-68, 81-87.

The EAB found no clear error in the Region's decision to move forward with imposition of a 5.0 mg/l nitrogen limit in the face of scientific uncertainty, given the severe impairment of the Providence and Seekonk Rivers and Narragansett Bay by nitrogen pollution, as well as technical data and analysis in available documents indicating that the 5.0 mg/l limit would ensure compliance with water quality standards for those water bodies. DA 24. The EAB specifically rejected the District's argument that there were insufficient data available to

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[9] The challenged provisions were stayed pending final agency action, leaving the District partially subject to the uncontested requirements of its reissued 2008 permit, and partially subject to conditions in its expired 2001 permit which correspond to the stayed conditions. *See* 40 C.F.R. §§ 124.16(a), 124.16(c)(2).

support the Region's selection of a 5.0 mg/l nitrogen limit to implement Rhode Island's narrative water quality standards, noting the available record evidence supporting the Region's determination that the nitrogen limit was reasonably calculated to ensure compliance with applicable water quality standards. DA 33-43. Considering the District's various objections to the Region's reliance on the MERL study and the RIDEM report analyzing that study, the EAB found no clear error in the Region's expert judgment that both documents provided "relevant" information properly considered by the Agency in setting nitrogen permit limits under 40 C.F.R. § 122.44(d)(1)(vi)(A). DA 37, 43-54.

The EAB similarly denied CLF's challenges to the nitrogen limit, rejecting CLF's assertion that there was no uncertainty in the MERL experiments and associated RIDEM report that CLF relied on to argue that the Region must impose a 3.0 mg/l limit reflecting the "limit of technology." The EAB held this argument to be an inaccurate characterization of the administrative record, "because the 2004 RIDEM Report, in fact, concludes that there is uncertainty regarding whether the limit of technology, 3.0 mg/l, is necessary to achieve Rhode Island's water quality standards." DA 59. The EAB noted that "the 2004 RIDEM Report, in fact, found that while the MERL experiment was a 'fair representation' of conditions and would suggest a limit of 3.0 mg/l, the Report also found that there is 'some

uncertainty' regarding whether effluent limitations based on the limit of technology are necessary to ensure attainment of water quality standards." DA 60.

The challenges to the 2008 Permit's total phosphorus limits also failed. The EAB explained that Region 1 had properly relied on EPA's numeric water quality criteria guidance in selecting the total phosphorus limits for the 2008 Permit to comply with Massachusetts' narrative water quality criteria, as authorized under 40 C.F.R. § 122.44(d)(1)(vi)(B). DA 81-87. The EAB noted that the 0.75 mg/l phosphorus limit set by the 2001 Permit falls outside the numeric range for phosphorus criteria in the relevant guidance. DA 82-83. The EAB further observed that the model used in selecting the 0.75 mg/l limit addressed impairment with respect to dissolved oxygen levels, but not problems associated directly with cultural eutrophication. DA 83. Finally, the EAB declined to consider data from a new phosphorus model being developed by the District because "development and testing of the model has not been completed." DA 84. In light of the "severe phosphorus-driven cultural eutrophication violating water quality criteria and impairing the Blackstone River's designated uses," the EAB endorsed the Region's decision to impose a stringent phosphorus limit without further delay. *Id.*; *see also* DA 85-87 (rejecting various objections by the District to the Region's technical data).

Finally, the EAB affirmed the Permit's aluminum limit of 87 µg/l. Foremost, the EAB held that the District had waived the argument that the Region should have excluded one data point measuring a 344 µg/l aluminum discharge from the Treatment Plant from consideration because it was an "outlier" reflecting a "plant upset" and thus not representative. The EAB observed that the District had failed to raise any concerns regarding this sampling result during the public comment period as required by 40 C.F.R. § 124.13, and had even included this data point in its own calculation of its average aluminum concentration as presented in the District's public comment letter. DA 98 n.60. As the District's objections to the data point were reasonably ascertainable at that time, the EAB concluded that the District was barred from raising its challenges for the first time on appeal. *Id.* The EAB also observed that the District had not provided sufficient evidence that this data point was in fact a one-time "outlier" result, or that the remaining data points would not themselves support the finding that the Plant's discharges contribute to WQS violations in its receiving waters. DA 97-98.

The EAB remanded the permit provisions related to co-permittees back to the Region for reconsideration, during which time all contested provisions of the Permit, even those affirmed by the EAB, remained stayed. In a July 7, 2010 decision on remand, the Region decided to remove the co-permittee provision from the 2008 Permit, since it might take a significant amount of time to respond to the

numerous and searching questions posed by the EAB regarding the provision, and meanwhile the District's discharges would continue to contribute to impairment of its receiving waters while key provisions of the 2008 Permit were stayed. Although the Region had decided to remove the one provision contested by the District and not upheld by the EAB, the District once again sought review before the EAB of the Region's decision on remand.[10] *See* DA 297.

The EAB issued another decision denying review on March 30, 2011, and on April 6, 2011, Region 1 issued notice of its final permit decision. *Id.*

E. This Litigation

The District filed a petition for review of the 2008 Permit before this Court on April 29, 2011, along with an emergency motion for stay pending review in which it stated its intent to challenge a long list of Permit provisions, including the nitrogen, phosphorus, and aluminum limits discussed above, but also monitoring requirements and limits for other discharges such as fecal coliform. *See* Doc. Nos. 116202784, 116202804. The Court issued an order that same day granting the stay as to all of the Permit provisions the District had listed "pending further orders" and directing EPA to file a response by May 6, 2011. Doc. No. 116202813.

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[10] While these permit appeal proceedings were pending before the EAB and although the Region had yet to issue a final permit decision, CLF filed a petition for review with this Court of the EAB's May 28, 2010 decision. The Court, in a Judgment dated December 6, 2010, dismissed this appeal for lack of jurisdiction based on that lack of finality. *See CLF v. EPA*, No. 10-2141.

EPA timely filed an opposition to the stay request, urging the Court to lift the temporary stay it entered on April 29, 2011, and to deny the District's stay motion, citing multiple grounds for doing so. The parties completed briefing on the stay motion on May 31, 2011, and it remains pending.[11]

SUMMARY OF ARGUMENT

Both Petitioners contend that EPA acted unreasonably in determining what pollutant discharge limits to include in the 2008 Permit to assure compliance with Massachusetts and Rhode Island water quality standards, in accordance with the CWA. The District contends the Permit goes too far; CLF contends it does not go far enough. However, Petitioners rest mainly on cherry-picking and mischaracterizing portions of the record to support their arguments that the Region should have reached different conclusions. In the end, that the Region did not interpret the evidence before it as Petitioners would have preferred is not a valid ground for granting the District's and CLF's petitions. Because of the deference

[11] Because the Court's initial stay is still in place, the District has for the last six months continued to operate under substantially obsolete NPDES permit conditions that fail to ensure compliance with applicable water quality standards, even though the Court has *not* in fact ruled that the District has satisfied the demanding test for preliminary injunctive relief. Equally troubling, the District is insulated from enforcement *even of the many provisions of the 2008 Permit that it did not challenge in its emergency stay motion and that it has not contested in its brief on the merits*. EPA therefore respectfully requests that the Court proceed to resolve the District's stay motion while the parties await argument and a final ruling on the merits in this case.

due to EPA's expertise in making technical judgments on questions involving scientific uncertainty, and since Congress specifically charged EPA with using that expertise in administering the CWA, the Agency's decisions must be upheld as long as they are reasonable based on the information in the record.

The nitrogen, phosphorus, and aluminum limits set by the Region in the District's Permit easily meet this standard. In formulating these three provisions of the Permit, the Region considered a plentiful array of data, scientific studies, and technical guidance pertinent to discharges from the Plant and pollutant levels in the receiving waters; recognized and accounted for the limitations in this body of evidence; and followed its own regulations and guidance in analyzing the available information as a basis for the discharge limits challenged here. It is hard to imagine what more could be asked of the Agency, given its mandate under the CWA to take timely action to remedy the severe impairment of receiving waters, and the difficulties in precisely modeling what effluent limitations would result in attainment of water quality standards in those water bodies. Instead of joining Petitioners in second-guessing EPA's procedurally and substantively sound analysis, the Court should uphold the 2008 Permit in all respects, as a sensible

effort to comply with the requirements of the CWA based on the information that was available to the Agency.[12]

ARGUMENT

A. Standard of Review

Petitioners offer only a cursory discussion of the applicable standard of review, glossing over the substantial deference due to EPA in its issuance of an NPDES permit. Review of such a permit is governed by the standard set out in section 706(2)(A) of the Administrative Procedure Act ("APA"), 5 U.S.C. § 706(2)(A). *See Adams v. EPA*, 38 F.3d 43, 49 (1st Cir. 1994). Under this provision, EPA's permitting action is valid unless it is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. §

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[12] In addition to the arguments expressly put forth in its opening brief, the District also provides general citations to portions of the Joint Appendix containing the numerous arguments that were raised before, and rejected by, the EAB. District Br. at 25. Additionally, the District indicates that it remains opposed to certain permit provisions that it does not discuss in its merits brief. *See* District Br. at 18 n.2. To the extent the District seeks to incorporate by reference such arguments but does not actually discuss them in its brief, such an approach is impermissible. *See Exec. Leasing Corp. v. Banco Popular de Puerto Rico*, 48 F.3d 66, 67 (1st Cir. 1995) ("[A]ttorneys cannot circumvent the page limit of Fed. R. App. P. 28(g) by incorporating by reference a brief filed in another forum."). Therefore, EPA will respond only to those arguments contained within the text of Petitioners' briefs, and only as to those provisions that Petitioners contest before this Court; the District has waived its objections to all other Permit provisions, including the ones listed in its pending stay motion. *See United States v. Zannino*, 895 F.2d 1, 17 (1st Cir. 1990) ("[I]ssues adverted to in a perfunctory manner, unaccompanied by some effort at developed argumentation, are deemed waived.").

706(2)(A). The scope of review under the arbitrary and capricious standard "is narrow and a court is not to substitute its judgment for that of the agency." *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

Rather, "[a]gency decisions, including those of the EPA under the Clean Water Act, are normally entitled to substantial deference provided the agency has followed its own procedures and its decisions meet the substantive statutory commands." *Pepperell Assocs. v. EPA*, 246 F.3d 15, 22 (1st Cir. 2001). Therefore, the agency's action should not be set aside unless it lacks any "rational basis." *Caribbean Petroleum Corp. v. EPA*, 28 F.3d 232, 234 (1st Cir.1994) (citations omitted). Such deference is due to both the Region's permit decision and the EAB's affirmance of the Region's analysis. *See Citizens for Clean Air v. EPA*, 959 F.2d 839, 845-46 (9th Cir. 1992) (explaining that review of Clean Air Act permit encompasses the "entire agency action," including both substantive rationale of permit issuer and subsequent administrative review of that rationale).

Reviewing courts must "'consider whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment.'" *Motor Vehicle Mfrs.*, 463 U.S. at 43 (citation omitted). An action would normally be arbitrary and capricious where:

> the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to

> the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.

Id. at 43. Although a court cannot "supply a reasoned basis for the agency's action that the agency itself has not given," it "will uphold a decision of less than ideal clarity if the agency's path may reasonably be discerned." *Bowman Transp., Inc. v. Arkansas-Best Freight System, Inc.*, 419 U.S. 281, 285-86 (1974).

In examining the rationality of an agency action, the agency "deserves an extra measure of deference with regard to factual questions involving scientific matters in its area of expertise." *Puerto Rico Aqueduct & Sewer Auth. v. EPA,* 35 F.3d 600, 604 (1st Cir. 1994). When an agency "is making predictions, within its area of special expertise, at the frontiers of science . . . a reviewing court must generally be at its most deferential." *Baltimore Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 103 (1983). This deference extends to mixed questions of law and fact. *Adams*, 38 F.3d at 49. In particular, in reviewing a numerical standard such as a CWA discharge limitation, a court "must ask whether the agency's numbers are within a 'zone of reasonableness,' not whether its numbers are precisely right." *Hercules, Inc. v. EPA*, 598 F.2d 91, 107 (D.C. Cir. 1978). Rather than second-guessing an agency's technical judgment, a court should simply determine whether the agency has articulated a "reasoned basis for its decision." *Tripoli Rocketry Ass'n Inc. v. ATF*, 437 F.3d 75, 82 (D.C. Cir. 2006). When an agency is operating in a realm of "technological and scientific uncertainty," its discretionary decisions

will be upheld "so long as the Agency has explained the facts and policies on which it relied; the facts have some basis in the record; and a reasonable person could make the judgment the Agency made." *BASF Wyandotte Corp. v. Costle*, 598 F.2d 637, 652 (1st Cir. 1979). Thus, petitioners challenging an agency's technical judgment "carry an extremely heavy burden." *Id.*

Additionally, a court should "defer to an agency's interpretation of a statute that it is charged with enforcing," and that "deference increases when the agency interprets its own regulations." *Adams*, 38 F.3d at 49. A court "must give 'controlling weight' to the agency's interpretation [of its own regulations] 'unless it is plainly erroneous or inconsistent with the regulation.'" *Pittsfield*, 614 F.3d at 11 (citation omitted).

B. EPA's Decision to Issue the Permit in Order to Ensure Compliance with Applicable Nutrient-Related Water Quality Standards, Rather than Waiting Indefinitely for More Data, Was Reasonable.

The District's overarching complaint is that the Region acted arbitrarily by failing to wait for "the latest and best data reflecting the upgrades the District made to its facility" or "new scientific models of the Blackstone River watershed" before issuing the Permit.[13] District Br. at 22. However, the case on which the District relies in arguing that the Region was obliged to sit on its heels and wait rather than

[13] The District does not assert that the Region should have waited for more data before selecting an aluminum limit.

using available information to address the severe impairment of receiving waters, *Puerto Rico Sun Oil Co. v. EPA*, 8 F.3d 73 (1st Cir. 1993), is inapplicable here.

In *Puerto Rico Sun Oil*, this Court faulted EPA for its decision to issue an NPDES permit to a discharger in Puerto Rico without a "mixing zone" analysis, a particular approach to measuring pollutant levels that had previously been used in most permits. Puerto Rico's Environmental Quality Board ("EQB") is authorized under CWA section 401, 33 U.S.C. § 1341, to issue a certification of any NPDES permit for discharges originating within Puerto Rico, and may include more restrictive effluent limitations in that certification to ensure compliance with water quality requirements and other requirements of state law. The EQB had required more stringent limits than those mandated by EPA in prior instances, but had also included a mixing zone analysis that mitigated the stringency of those limitations. The EQB certification of Puerto Rico Sun Oil's permit, however, contained limits that failed to incorporate a mixing zone analysis because at the time of issuance the EQB was in the midst of reformulating its mixing zone criteria. At the prompting of the permittee, the EQB asked EPA to refrain from issuing the final permit until the EQB could reconsider the certification and alter it to include a mixing zone analysis, but EPA nonetheless issued the final permit with the original certification provisions. 8 F.3d at 74-76.

This Court held that EPA's decision to move forward was arbitrary and capricious because the Agency had "proceeded to issue the final permit with no explanation for its refusal to wait" for the EQB's reconsideration. *Id.* at 77. EPA had not made any procedural or substantive missteps, *id.*, but had failed to provide "any reason *why* the EPA should want to frustrate the EQB's clumsy, long-delayed but increasingly evident desire to reconsider a mixing zone analysis for this permit." *Id.* at 78. That lack of explanation for EPA's decision to deviate from a previously well-established practice and to leave out an apparently important practical element of the permit – *not* EPA's speed in and of itself – was the aspect of the Agency's decision that this Court concluded did not "make sense." *Id.* at 81.

Here, by contrast, EPA fully articulated its rationale for proceeding with issuance of the Permit without waiting an indeterminate amount of time for the unknown results of further testing and modeling. As explained above, the Treatment Plant is the dominant discharger of pollutants to receiving waters that are severely impaired due to the presence of those pollutants. *Supra* pp. 13-19. The Plant's 2001 Permit expired in 2006, at the end of the maximum five-year term allowed under 33 U.S.C. §§ 1342(a)(3) and (b)(1)(B). The Region administratively continued that permit only for the amount of time it would take to prepare a new permit, which was then issued in 2008. JA 1235. As the Region noted in its Response to Comments,

> The CWA and EPA's regulations require that permits be issued for fixed periods of time not to exceed five years. 33 U.S.C. §§ 1342(a)(3) and (b)(1)(B); 40 C.F.R. § 122.46(a). EPA revisits all aspects of NPDES permits when the term expires, consistent with the CWA's goals of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters. The clear intent of the statute is to ensure that permit requirements are updated on a regular basis rather than left in effect, unexamined and unchanged for long periods of time.

JA 1236-37.

In the 2008 Permit proceeding, the Region examined a number of sources of information, amounting to more than 15 years of water quality data, site-specific studies and reports, and national EPA guidance. *See, e.g.*, JA 1233-34, 1338-41. Based on this evidence, the Region determined that the Plant's discharges of nitrogen, phosphorus, and aluminum (among others) "will cause, have the reasonable potential to cause, or contribute to an excursion above" Massachusetts and Rhode Island water quality standards and must be regulated pursuant to 40 C.F.R. § 122.44(d)(1) and 33 U.S.C. §§ 1341 and 1342. *See* JA 1230-38, 1336-37, 1339-41, 5803.

Meanwhile, efforts to devise a mathematical model of the Upper Narragansett Bay to inform the establishment of nitrogen limits had been ongoing for more than a decade prior to the Region's issuance of the Permit, without success in calibrating any accurate model. *See* JA 1225-26, 5264, 5306. Similarly, the U.S. Army Corps of Engineers had been unsuccessful in its attempt to update

an earlier model for use in establishing phosphorus limits for the Blackstone River. *See* JA 4324, 4326-27. These fruitless endeavors led the Region and other experts, including RIDEM, to conclude that "the system was too complicated to simulate with available mathematical models." JA 1301; *see also* JA 1281. Although the District asserted throughout the permitting process that it was working on a new model relating to phosphorus (including a simulation of nitrogen dynamics) in the Blackstone River, *see* JA 1376-77, it did not present any data from that model during the public comment period.[14]

Since the restrictions in the 2001 Permit were insufficient to ensure compliance with applicable water quality standards, the Region concluded that it would not be consistent with the commands of the CWA "to adopt a 'wait and see' approach" rather than moving forward with regulation of effluent discharges contributing to severe eutrophication in Massachusetts and Rhode Island water bodies. JA 1237. Instead, the Region chose to act on the information at hand

[14] The District's belated model is indisputably not part of the record before this Court. *See Liston v. Unum Corp. Officer Severance Plan*, 330 F.3d 19, 23 (1st Cir. 2003) ("The ordinary rule is that review for arbitrariness is on the record made before the entity being reviewed."). However, it is worth noting that even now, the District has yet to provide the Region with a completed model report, including a full analysis of calibration and verification; documentation that the model is capable of simulating observed responses to phosphorus enrichment, including the extensive macrophyte growth immediately downstream of the discharge; peer review results; or any indication as to how the model would be used to establish effluent limits that would ensure compliance with the applicable water quality standards.

without delaying even further based on the District's mere promise that it would be able to come up with a mathematical model where so many others had failed. *See, e.g.*, JA 1225-27, 1236-38.

On review, the EAB endorsed the Region's course of action, noting that "[t]he District has cited no law, regulation, or Agency policy that would allow a permit application to remain pending for an indefinite, unlimited extension of time to allow additional scientific data or analysis to be developed to support the applicant's claim that its discharges will not violate the water quality standards of affected states." DA 41. Moreover, the EAB agreed that the EPA's analysis of appropriate discharge limits was supported by a "substantial body of record evidence" for nitrogen, and likewise found that the District had offered no evidence to refute the site-specific observations and data underlying the Region's finding that phosphorus discharges from the Treatment Plant contribute to exceedances of water quality criteria even in the range of the 0.75 mg/l limit set by the 2001 Permit. DA 43, 75-76, 83-84.

As explained in the EAB's decision, the CWA disfavors unnecessary delay in progressing toward the achievement of applicable water quality standards. Under 33 U.S.C. §§ 1342(a)(3) and 1342(b)(1)(B), all NPDES permits are limited to terms of five years, ensuring reevaluation and, if necessary, tightening of permit limitations at regular intervals. In fact, in enacting the CWA, Congress stated that

its goal was to eliminate the discharge of pollutants by 1985, 33 U.S.C. § 1251(a)(1), with limitations "necessary to meet water quality standards" to be achieved by July 1, 1977. 33 U.S.C. § 1311(b)(1)(c). While these initial goals have not been entirely met, they must imbue EPA's regulatory efforts with a spirit of alacrity rather than hesitation. *Cf. Scott v. City of Hammond*, 741 F.2d 992, 998 (7th Cir. 1984) (criticizing continuing delay in implementing provision of the CWA designed to ensure achievement of water quality standards, given that "[t]he statutory time limits demonstrate that Congress anticipated that the entire process would take a relatively short time after the passage of the 1972 amendments").

A number of courts have recognized that, in the course of implementing the CWA and other statutes involving complex scientific issues, EPA may need to act with imperfect information in order to accomplish Congress' goals in a timely fashion. The Supreme Court, addressing the contentious issue of greenhouse gas regulation, refused to let "EPA avoid its statutory obligation by noting the uncertainty surrounding various features of climate change and concluding that it would therefore be better not to regulate at this time." *Massachusetts v. EPA*, 549 U.S. 497, 534 (2007); *see also Miami-Dade County v. EPA*, 529 F.3d 1049, 1065 (11th Cir. 2008) ("EPA is compelled to exercise its judgment in the face of scientific uncertainty unless that uncertainty is so profound that it precludes any reasoned judgment."). In the specific context of the CWA, the D.C. Circuit has

reprimanded EPA for refusing to impose permit conditions that would result in "a gross reduction in pollutant discharge" in favor of waiting for enough information to allow the Agency to issue "fine-tun[ed]" numerical effluent limitations, stating that "this ambitious statute [the CWA] is not hospitable to the concept that the appropriate response to a difficult pollution problem is not to try at all." *Natural Res. Def. Council, Inc. v. Costle*, 568 F.2d 1369, 1380 (D.C. Cir. 1977); *see also Am. Iron & Steel Inst. v. EPA*, 115 F.3d 979, 992 (D.C. Cir. 1997) (rejecting argument that EPA method for deriving numerical water pollution limits from narrative water quality standard was flawed simply because it would apply where a full set of data for case-by-case calculation of numeric limit was unavailable); *Am. Trucking Ass'ns, Inc. v. EPA*, 283 F.3d 355, 369-70 (D.C. Cir. 2002) (similar). Thus, where an agency has "imperfect scientific information" and faces the "classic and difficult choice" of "whether to proceed on that basis or to invest the resources to conduct the perfect study," a court will generally defer to the agency's decision as to which course to take under the APA's arbitrary-and-capricious standard. *Am. Iron & Steel*, 115 F.3d at 1004.

The Region's specific rationale for issuing the Permit in this case – that delay would be inconsistent with the goals of the CWA while offering little or no certain reward in terms of improved data or modeling – thus rises well above the level of "a mechanical desire to reach a rapid conclusion without regard to whether

the result is sound," as *Puerto Rico Sun Oil* described the decision to issue an NPDES permit without any explanation for such haste. 8 F.3d at 79. Here, the Region has offered a detailed account of why it believed the information available to it provided a solid basis for finalizing the challenged permit limits. The Region has also explained that, given the adequate available scientific and technical information, it was unwilling to wait indefinitely for further modeling of uncertain usefulness. JA 1236-38. Moreover, EPA's reasoned decision was well within its discretion under the case law described above.

This case far more closely resembles *Caribbean Petroleum Corp. v. EPA*, 28 F.3d 232 (1st Cir. 1994), than *Puerto Rico Sun Oil*. In *Caribbean Petroleum*, EPA issued an NPDES permit to the Caribbean Petroleum Corporation ("Caribbean") even though the EQB was planning to act on Caribbean's request to reconsider its certification of that permit. Caribbean attempted to analogize its situation to the circumstances of *Puerto Rico Sun Oil*. This Court definitively rejected the comparison, holding that the circumstances in *Puerto Rico Sun Oil* were distinguishable because in that case EPA had acted with unnecessary and unexplained haste, in the face of an obvious "bureaucratic snafu" regarding the omission of a mixing zone analysis, and despite the imminent prospect of correction of that snafu. *Caribbean Petroleum*, 28 F.3d at 234-35 & n.3. With respect to the Caribbean permit, on the other hand, there were no immediate gains

to be had if EPA delayed further, and the Agency already had sufficient substantive evidence to support the permit. *Id.* at 234-35. Likewise, in this case the Region had adequate information available to produce a substantively sound result, took over a year to follow all the procedures requisite to making its permit decision, and had no reason to countenance further indefinite delay when doing so would allow significant water quality impairments to continue uncorrected.

The Court should therefore defer to the Region's choice to go forward with replacing the District's expired NPDES permit and to impose new effluent limits designed to ensure compliance with the water quality standards applicable to the severely impaired waters affected by the Plant's pollutant discharges. The Region's decision was based on its expert technical judgment and ample scientific data. Furthermore, the Region's explanation for its actions "makes sense" and, unlike the approach of protracted delay advocated by the District, serves the goals of the CWA.

C. EPA Rationally Derived the Nitrogen Limit of 5.0 mg/l from Available Information, and that Limit Is Within the "Zone of Reasonableness."

The District and CLF take opposing positions on the Permit's total nitrogen limit of 5.0 mg/l. According to the District, the Region impermissibly imposed a limit derived from an experimental model, the MERL study described above, that does not perfectly replicate conditions in Narragansett Bay. Meanwhile, CLF asserts that the MERL study is accurate enough to definitively show that the

Region must set a more stringent nitrogen limit to ensure compliance with the applicable WQSs. Both Petitioners improperly focus on narrow portions of the record, without accounting for the full picture underlying the Region's decision. Especially given the heightened deference due to EPA in this highly technical arena, Petitioners fail to show that EPA utilized the MERL data irrationally or that the Agency selected a numeric nitrogen limit outside the "zone of reasonableness." *Hercules,* 598 F.2d at 107.

1. The District's Arguments.

a. EPA Rationally and Appropriately Relied on Relevant Information from the MERL Study.

One source that Region 1 considered in selecting the total nitrogen limit of 5.0 mg/l was the MERL study, a peer-reviewed set of tank experiments conducted by the University of Rhode Island's Marine Ecosystems Research Laboratory and designed to provide a physical model of the relationship between nitrogen loading and various response variables, including dissolved oxygen, in the Narragansett Bay system. *See* JA 1301-02. The District asserts that the MERL study does not qualify as "reliable scientific data" sufficient to provide a rational basis for the nitrogen limit of 5.0 mg/l. District Br. at 23. According to the District, "actual conditions in the local water bodies are materially different from the conditions under which the [MERL] experiments were conducted." *Id.* at 24. As the basis for this argument, the District focuses on the fact that flushing times in the Seekonk

River are around 3.5 days, whereas the MERL experiments used a flushing time of 27 days. District Br. at 25.

The Region does not dispute that, as the District states, the MERL experiments do not precisely simulate the conditions in the Providence and Seekonk Rivers. The Region acknowledged in developing the Permit that "the MERL tank experiments . . . do[] not yield a precise level of nitrogen control required to restore uses in the system." JA 1254; District Br. at 26. However, it is well-established that the arbitrary-and-capricious review standard does not require that an agency utilize a model that provides perfect certainty. This Court has explained that EPA's "choice of a model will be sustained if it bears a 'rational relationship to the characteristics of the data to which it is applied.'" *Sur Contra La Contaminacion v. EPA*, 202 F.3d 443, 448 (1st Cir. 2000) (quoting *Appalachian Power Co. v. EPA*, 135 F.3d 791, 802 (D.C. Cir. 1998)); *see also Pan Am. Grain Mfg. Co. v. EPA*, 95 F.3d 101, 105 (1st Cir. 1996) (noting that in technical areas such as modeling, "EPA's expertise is heavily implicated, and we may not substitute our judgment for that of the Administrator" (citations and internal quotation marks omitted)). This standard leaves room for EPA to rely on a model to provide useful information, even if it is "somewhat simplistic" or it "make[s] assumptions that are not perfectly consistent with natural conditions." *Am. Iron & Steel Inst.*, 115 F.3d at 1004.

The D.C. Circuit has further explained the limited burden that an agency bears in showing that there is a rational connection between the data it is analyzing and the model chosen:

> [T]he agency must sufficiently explain the assumptions and methodology used in preparing the model; it must provide a "complete analytic defense of its model (and) respond to each objection with a reasoned presentation." The technical complexity of the analysis does not relieve the agency of the burden to consider all relevant factors and to identify the stepping stones to its final decision. There must be a rational connection between the factual inputs, modeling assumptions, modeling results and conclusions drawn from these results.

Sierra Club v. Costle, 657 F.2d 298, 333 (D.C. Cir. 1981) (footnotes and citation omitted). The Region has met this standard in its use of the MERL experiments.

Where a State has only a narrative WQS for a pollutant, as Rhode Island does for nitrogen, 40 C.F.R. § 122.44(d)(1)(vi) directs EPA to calculate a numeric permit limit by using one of three options, as noted above, *supra* p. 9. In this case, EPA chose "Option A," under which it:

> [e]stablish[es] 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

40 C.F.R. § 122.44(d)(1)(vi)(A). Under this provision, EPA considered a range of information, including Agency guidance on nutrient criteria, various Rhode Island reports on nutrient loading in Upper Narragansett Bay, and water quality data from the Providence and Seekonk Rivers, including Rhode Island's own interpretation of its narrative water quality criterion to require nitrogen limits for Rhode Island wastewater treatment facilities in a similar range of 5 to 8 mg/l. *See, e.g.*, JA 1235-36, 1338-39.

Among these sources, Region 1 relied on the results of the MERL model, as well as a RIDEM report analyzing the MERL experiments alongside actual measurements of nitrogen loadings to and concentrations in the Providence and Seekonk Rivers in 1995 and 1996. As the Region noted, the MERL model had been peer-reviewed and published in a scientific journal, thereby withstanding the scrutiny of representatives of the scientific community. *See* JA 1302. EPA also cited the MERL experiment with approval in national nutrient technical guidance, a document that in turn was relied on by the Region and is required to "accurately reflect[] the latest scientific knowledge." 33 U.S.C. § 1314(a)(1); *see* JA 1979. The Region's overall conclusion was that the MERL study reliably demonstrated a basic relationship between nitrogen loading and cultural eutrophication that reflects the actual conditions in the Providence and Seekonk Rivers.

At the same time, the Region delved into "the assumptions and methodology used in preparing the model," *Sierra Club*, 657 F.2d at 333, and noted in the fact sheet accompanying the draft permit that certain factors, including the discrepancy in flushing times, left some scientific uncertainty as to how various levels of nitrogen control at the Plant would affect eutrophication in its receiving waters. *See* JA 1340. Multiple entities, including Petitioners, commented on this issue, *see, e.g.*, JA 1211, 1231-32, 1249-52; Region 1 then included in its 122-page Response to Comments document a "complete analytic defense" of the Region's use of the model, "respond[ing] to each objection" with an explanation of its reasoning in using the MERL model despite its imperfections. *Sierra Club*, 657 F.2d at 333; *cf.* JA 1252-56.

Thus, contrary to the District's allegations, the Region did not blindly and wholly rely on the MERL model without regard to its limitations. EPA recognized the differences between the MERL model and actual conditions in the Providence and Seekonk Rivers, as well as the uncertainty in the various scenarios described in the RIDEM report. The Region rationally accounted for those issues, especially the fact that actual nutrient flushing time in the Seekonk River is faster than that simulated in the MERL experiments, by choosing a nitrogen limit based on a less stringent loading scenario than that recommended by the RIDEM report based on the MERL experiment alone. *See* JA 1235, 1254.

The Region's course of action accords with the approach taken by RIDEM itself in light of the MERL experiment results. In arriving at its determination of the necessary nitrogen limit for the Treatment Plant, the Region expressly accounted for the limits RIDEM recommended, in light of the MERL results, for Massachusetts facilities, as well as the limits RIDEM imposed on Rhode Island facilities contributing to nitrogen impairments in Narragansett Bay. RIDEM has issued NPDES permits to Rhode Island wastewater treatment facilities with nitrogen limits in the range of 5-8 mg/l. *See* JA 1235-36, 1255. The 5 mg/l limits have been imposed on dischargers that have similar capacity to that of the Treatment Plant, and that likewise contribute to nutrient over-enrichment in the Upper Narragansett Bay. *See id.* Accordingly, RIDEM has directly supported a comparable nitrogen limitation for the District's Treatment Plant – currently the only unregulated major discharger of nitrogen to Narragansett Bay – throughout the permitting process. *See* JA 1218.

The EAB, in considering various challenges to Region 1's use of the MERL study, upheld the Region's consideration of the MERL data "given the observed consistency between nitrogen levels and the response variables of DO [dissolved oxygen] and chlorophyll *a*," which at low and high values respectively are indicators of significant eutrophication. DA 47-48. As the EAB explained, the District failed to show clear error in the Region's accommodation of the

imperfections in the MERL study, such as the potentially slower flushing time; did not explain why the existing scientific uncertainty should compel the Region to treat the study as entirely irrelevant; and did not demonstrate that there was insufficient record evidence to support the 5 mg/l limit. *See* DA 49-50. Thus, the EAB found that the chosen limit lay within the "zone of reasonableness," based on the Region's reasonable and expert analysis in judging how to use the MERL results to set a nitrogen limit that would ensure attainment of water quality standards. DA 52-54.

As the D.C. Circuit has recognized, "[a]ny model is an abstraction from and simplification of the real world." *Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 535 (D.C. Cir. 1983). It is therefore not unusual for a model not to accurately capture every relevant variable, especially with respect to a "complex, natural setting such as the Providence/Seekonk River system." JA 1254. However, a court "can reverse [an agency decision] only if the model is so oversimplified that the agency's conclusions from it are unreasonable." *Small Refiner*, 705 F.3d at 535; *see also Appalachian Power*, 135 F.3d at 805 ("To invalidate a model simply because it does not perfectly fit every data point 'would be to defeat the purpose of using a model.'" (citation omitted)); *cf. Natural Res. Def. Council, Inc. v. Herrington*, 768 F.2d 1355, 1390-91 (D.C. Cir. 1985) (affirming the Department of Energy's reliance on an energy use model that it was

unable to verify empirically where the agency had "attempted to solve the difficult predictive problem before it through use of an independently created econometric model which had received favorable notice in technical literature" and "responsibly addressed alleged defects in the model by changing the model or explaining why the defects were both extremely difficult to fix and of relatively minor moment to the rulemaking").

Here, though the MERL study did not exactly simulate conditions in the Upper Narragansett Bay, it did capture the relationship between nitrogen loadings and eutrophication well enough that Region 1 judged it to be worthy of consideration in setting a nitrogen limit for the Plant. That conclusion was supported by the fact that actual measurements from the Providence/Seekonk River system also showed a clear correlation between nitrogen loadings, dissolved oxygen impairment, and chlorophyll *a* levels. *See* JA 1234, 1253; *see also Am. Coke & Coal Chems. Inst. v. EPA*, 452 F.3d 930, 943 (D.C. Cir. 2006) (citing EPA's efforts to check model assumptions against real-world data as part of reason for holding that the Agency's use of the model was not arbitrary or capricious). The Region therefore used the MERL model as the source of a range of loading scenarios it considered in selecting a total nitrogen limitation, but did not push the model beyond its limits by relying on it as the sole, determinative source of information in making that decision. *See* JA 1254. The record of the extensive

process that the Region went through in setting the total nitrogen limit demonstrates that the Region was "conscious[] of the limits of its model" and "invit[ed] and respon[ded] to public comment on all aspects of the model," thus utilizing the central "safety valves" used by the courts to monitor an agency's use of sophisticated technical methodology: "the requirement of public exposure of the assumptions and data incorporated into the analysis and the acceptance and consideration of public comment, the admission of uncertainties where they exist, and the insistence that ultimate responsibility for the policy decision remains with the agency rather than the [model]." *Sierra Club v. Costle*, 657 F.2d at 334. Furthermore, the District has not presented any data that persuasively demonstrates that a less stringent nitrogen limit would be sufficient to address the severe eutrophication of the Providence and Seekonk. *See* DA 51.

In this case, Region 1 was confronted with evidence that did not definitively dictate the level of nitrogen control necessary to meet Rhode Island's water quality standards, and therefore made a reasoned choice, taking into account the relevant uncertainties, among a few potential regulatory scenarios. This Court should defer to this choice as the rational product of the Region's expert scientific judgment. *See Public Citizen Health Research Group v. Tyson*, 796 F.2d 1479, 1505 (D.C. Cir. 1986) ("[A]s long as Congress delegates power to an agency to regulate on the

borders of the unknown, courts cannot interfere with reasonable interpretations of equivocal evidence.").

b. EPA Satisfied the Requirements of CWA Section 301 by Determining that the 5.0 mg/l Nitrogen Limitation Is "Necessary" to Meet Rhode Island Water Quality Standards.

The District makes two arguments for its contention that the Region's establishment of the 5.0 mg/l nitrogen limit is inconsistent with CWA section 301's directive that EPA impose NPDES permit limitations that are "necessary to meet water quality standards," 33 U.S.C. § 1311(b)(1)(C). The first – that the Region failed to determine that the 5.0 mg/l limit is "necessary" to meet water quality standards – is belied by the record. Though unclear, the second appears to be that EPA had an obligation to show that the 5 mg/l nitrogen limit will actually achieve attainment of applicable water quality standards, District Br. at 33, but failed to do so. That argument misconstrues both EPA's statutory obligations and the record supporting the nitrogen limit.

Foremost, contrary to the District's allegations, the Region reiterated time and again its conclusion that a 5.0 mg/l limit was necessary to meet applicable Rhode Island WQSs. *See, e.g.*, JA 1224 ("With regard to nitrogen, the limits on total nitrogen are necessary to ensure compliance with the Rhode Island Water Quality Standards . . . ."); JA 1259 ("EPA determined that a limit of 5.0 mg/l total nitrogen for UBWPAD's discharge is necessary in order to achieve water quality

standards."); JA 1274 ("As is detailed in the Fact Sheet and this Response to Comments, the total nitrogen limit in this permit is necessary to ensure compliance with Rhode Island's water quality standards."); JA 1341 ("EPA has concluded that a seasonal reduction of nitrogen to no more than 5.0 mg/l is required at the UBWPAD facility in order to achieve water quality standards."). In considering whether to grant deference to the Region's scientific and technical judgment, the EAB evaluated whether the Region had sufficiently articulated its determination that the 5.0 mg/l total nitrogen limit was necessary to ensure compliance with the CWA. Contrary to the District's assertion, the EAB cited to numerous statements in the record that reflected such a determination. Accordingly, the EAB concluded that the Region did provide the required determination. DA 38 n.34, 55-58. The District simply ignores these portions of the record.

The District's second argument is less clear, but seems to be that, absent a finding by the Region that the 5 mg/l nitrogen limit is certain to result in attainment of applicable water quality standards, that limit is invalid.[15] *See* District Br. at 33.

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[15] At some points, the District appears to argue that, given the scientific uncertainty associated with the establishment of the nitrogen limit, the Region should have determined whether Rhode Island's water quality standards are "attainable." *See* District Br. at 34 ("If the Agency finds it cannot make that determination [that a given effluent limit will definitely result in attainment of a water quality standard], then it should either gather enough information to make that finding, or work with the State to review the water quality standard, to determine if it actually can be attained."). This is a new argument that the District

(footnote continued . . . .)

Notably, the District does not contend that a less stringent nitrogen limit would be sufficient to satisfy the CWA's requirements. Instead, the District argues that the Region should have waited for more data and more certainty and left the Plant's nitrogen discharges unregulated in the meantime. *See* District Br. at 34-35. The Region thoroughly explained why it did not take this course of action, as described above. *Supra* pp. 49-55. The District's assertion that this Court should invalidate the nitrogen limit in the absence of absolute certainty, District Br. at 30-35, is incompatible with well-established precedent that, to earn a court's deference, EPA need only demonstrate that a given permit limitation is within the "zone of reasonableness." *Hercules,* 598 F.2d at 107; *Small Refiner*, 705 F.2d at 525; *see*

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never raised below, and it should thus be considered waived. *See infra* pp. 76-77; *Pepperell Assocs. v. EPA*, 246 F.3d 15, 27 (1st Cir. 2001). Even if it were not waived, there is no reason in this case to question the attainability of Rhode Island's WQSs simply because of the limitations of the MERL model. As explained above, it is well-established that EPA may set an effluent limitation and make a finding that it ensures compliance with WQSs even in the face of some uncertainty. *See supra* pp. 55-56, *infra* pp. 70-71. The Region was able to do so here based on the evidence before it, and the District fails to demonstrate that the Region's judgment constituted an unreasonable interpretation of that evidence.

Furthermore, the provisions requiring EPA to issue a permit that it reasonably believes will ensure compliance with applicable water quality standards do not impose any obligation on EPA to first demonstrate that the standards are attainable. *See* 33 U.S.C §§ 1342(a), 1311(b)(1)(C); 40 C.F.R. § 122.44(d). There is a separate procedure for States – not EPA – to amend their water quality standards to remove uses or adopt less stringent criteria, but only through the established procedural process, not through an individual NPDES permit issuance. *See* 40 C.F.R. §§ 131.10(g), 131.21. This is not the appropriate forum for such an argument.

also Ethyl Corp. v. EPA, 541 F.2d 1, 23 (D.C. Cir. 1976) ("Where [EPA] . . . regulations turn on choices of policy, on an assessment of risks, or on predictions dealing with matters on the frontiers of scientific knowledge, we will demand adequate reasons and explanations, but not 'findings' of the sort familiar from the world of adjudication.").

The District would have this Court second-guess the Region's technical judgment even though the Agency provided a rational explanation of its regulatory choice, an approach that the arbitrary-and-capricious review standard is intended to avoid. *See Lead Indus. Ass'n, Inc. v. EPA*, 647 F.2d 1130, 1146 (D.C. Cir. 1980) ("[O]ur review of the evidence [supporting Clean Air Act air quality standards] is not designed to enable us to second-guess the Agency's expert decision maker . . . . Congress has entrusted the Agency with the responsibility for making these scientific and other judgments, and we must respect both Congress' decision and the Agency's ability to rely on the expertise that it develops."). Region 1 determined, and formally stated, its belief that "the total nitrogen limit in this permit is necessary to ensure compliance with Rhode Island's water quality standards," JA 1284. The District fails to identify any actual flaw in the reasoning underlying this determination, and since the Region's decision is entitled to deference under the APA, it must be upheld.

2. CLF's Arguments.

a. EPA Properly Considered the Limitations of the MERL Study and Associated RIDEM Report in Setting the Total Nitrogen Limit at 5 mg/l.

According to the District, the MERL study is an unreliable and inaccurate source of information that Region 1 should not have utilized to set the total nitrogen discharge limit in the 2008 Permit. CLF, on the other hand, would cast the MERL study as an oracular source that the Region should accept wholesale, without accounting in any way for differences between these laboratory experiments and real world conditions, when assessing nitrogen loading into Upper Narragansett Bay. As explained above, the reasonable path lies somewhere in between; although the MERL study, and the RIDEM report analyzing it, provided valuable information for Region 1 to consider in determining what nitrogen limit would ensure compliance with Rhode Island's water quality standards, that information also had limitations due to the failure of the MERL experiments to precisely simulate conditions in the Providence and Seekonk Rivers. The RIDEM report acknowledged these differences, and following issuance of that report RIDEM itself has declined to impose limit-of-technology standards on Rhode Island wastewater treatment plants. Therefore, the Region had ample reason to select a less stringent nitrogen limit than the 3 mg/l limit discussed in the RIDEM report analyzing the MERL experiments and demanded by CLF.

The RIDEM report's statements regarding a 5 mg/l nitrogen limit are not nearly as "unequivocal" as CLF indicates. *See* CLF Br. at 23. In describing the MERL experiment results as compared to actual nutrient measurements in a 1995-1996 study of the Providence and Seekonk Rivers, RIDEM noted that "[m]ean DIN [dissolved inorganic nitrogen] concentrations observed in the Providence and Seekonk Rivers were significantly lower than those seen in the MERL experiment for an equivalent loading rate per unit area." JA 5291. Although dissolved oxygen values in the Providence and Seekonk Rivers varied "in a manner *qualitatively* similar to that of the higher enrichment tanks [in the MERL study] . . . . . [t]he disparity between the observed and predicted DIN shows that the MERL system is not a perfect analog." JA 5290 (emphasis added). The RIDEM report acknowledged that "[t]his difference may possibly result from the shorter characteristic flushing time of the Providence River." JA 5291; *see also* JA 5306.

The RIDEM report's statement that a 5 mg/l nitrogen scenario "would not be acceptable as [a] water quality goal[] for the area" is expressly "based on the behavior observed in the MERL experiment," without taking into account the discrepancies between the nutrient levels predicted by the MERL study and those actually observed in the Providence and Seekonk Rivers. JA 5303. RIDEM itself acknowledged the tenuousness of settling on a final conclusion as to the appropriate nitrogen limit based on the MERL study alone:

> While we believe that the MERL tank results provide an adequate representation of the relationship between nitrogen and oxygen levels in the Providence and Seekonk Rivers, some uncertainty remains regarding predicted water quality improvements and loading reductions necessary to meet water quality standards. . . . For these reasons, evaluation of phased implementation is indicated.

JA 5306. Therefore, though the RIDEM report identifies a 3 mg/l nitrogen standard as an ultimate goal based on the information available from the MERL experiments, it in fact recommends a nitrogen limit of *5 mg/l* for facilities – including the District's Plant – as a first step in a phased approach toward that goal, with "follow-up monitoring and possibly water quality modeling . . . to determine *whether* additional reductions are required." JA 3609 (emphasis added). Given that the RIDEM report in fact recommends the same total nitrogen limit for the Plant as that adopted by Region 1 in the 2008 Permit, CLF's argument that the Region's analysis was not rationally connected to the RIDEM analysis and the MERL study is unpersuasive. *See* CLF Br. at 23. Indeed, the EAB relied on these significant reservations in upholding the Region's decision not to impose a 3 mg/l nitrogen limit, and there is no reason for this Court to interpret the factual and technical conclusions in the RIDEM report any differently. *See* DA 58-61.

Likewise, CLF's attack on the Region's determination that a 5 mg/l nitrogen limit will assure compliance with Rhode Island's water quality standards is not enough to overcome the deference due to the Region in this highly technical arena. As both Region 1 and the RIDEM acknowledge, the precise effect of particular

nitrogen loadings on the Providence and Seekonk Rivers is an area of some uncertainty. In such an arena, "a reviewing court must generally be at its most deferential." *Baltimore Gas & Elec. Co.*, 462 U.S. at 103. Rather than attempting to reach an independent conclusion as to the precise correct discharge limitation, this Court need only examine "whether the agency's numbers are within a 'zone of reasonableness,'" *Hercules,* 598 F.2d at 107 – that is, whether the Region has presented a "reasoned basis for its decision." *Tripoli Rocketry*, 437 F.3d at 83.

The Fact Sheet and Response to Comments offer a lengthy explanation of the Region's reasoning in arriving at a 5 mg/l nitrogen limit for the 2008 Permit, based on the MERL experiments but also on other information regarding water quality -in the Providence and Seekonk Rivers. *See supra* pp. 28-35; JA 1341, 1232-36, 1252-56. In the course of its analysis, Region 1 took into account the RIDEM report's statement that a nitrogen limit of 3 mg/l would be necessary to ensure attainment of the State's water quality standards based solely on the MERL experiments, but reasonably rejected that limit because of the limitations of the MERL study. *See, e.g.*, JA 1255-56. The Region thus plausibly concluded that, based on available information, a 5 mg/l nitrogen limit would satisfy the CWA's requirement for "EPA to establish water quality-based effluent limits that ensure that standards are met." JA 1234; *see also* JA 1255 (explaining that the chosen limit is "reasonable and sufficiently stringent to comply with the CWA").

b. CLF's Design Flow Argument Is Waived.

This Court has explained on numerous occasions that, if a petitioner has failed to properly raise an argument before an administrative agency, that argument will be considered waived on judicial review.[16] *See, e.g.*, *Pepperell Assocs.*, 246 F.3d at 27; *Adams v. EPA*, 38 F.3d 43, 50 (1st Cir. 1994); *see also United States v. L. A. Tucker Truck Lines, Inc.*, 344 U.S. 33, 37 (1952) ("Simple fairness to those who are engaged in the tasks of administration, and to litigants, requires as a general rule that courts should not topple over administrative decisions unless the administrative body not only has erred but has erred against objection made at the time appropriate under its practice."). This exhaustion doctrine serves at least three important purposes: it gives the agency "an opportunity to address a party's objections, [so] it can apply its expertise, exercise its informed discretion, and create a more finely tuned record for judicial review"; it "promote[s] judicial economy" because "[a] claim seasonably presented to the appropriate

[16] The exceptions to this rule are few and rarely invoked. *See Mass. Dep't of Public Welfare v. Sec'y of Agric.*, 984 F.2d 514, 523 (1st Cir. 1993) ("[T]here are exceptional circumstances under which a court might dispense with the raise-or-waive rule in the administrative law context. . . . As a general matter, however, courts will not entertain an issue that the parties failed to raise in the proper administrative venue unless the issue is jurisdictional in nature or some other compelling reason exists."). CLF does not even attempt to offer such a "compelling reason" for ignoring this well-established principle, and indeed makes no mention of the fact that it did not raise the design flow issue during the comment period on the 2008 Permit or in its initial petition to the EAB. *See* CLF Br. at 27-28.

administrative body has an appreciable chance of being put to rest, or at least narrowed, before it depletes the heavily burdened resources of federal courts"; and it "solidifies the agency's autonomy by allowing it the opportunity to monitor its own mistakes and by ensuring that regulated parties do not simply turn to the courts as a tribunal of first resort." *Mass. Dep't of Public Welfare v. Sec'y of Agriculture*, 984 F.2d 514, 523 (1st Cir. 1993). These considerations are particularly salient where the party's argument "present[s] the sort of problems routinely within the [agency's] purview and at the heart of its expertise." *Id.* at 524.

In accordance with this doctrine, the Court should hold that CLF waived its argument that the Region should have calculated the nitrogen limit based on the Plant's design flow.[17] The first mention that CLF made of this argument was not until its reply brief before the EAB. Add. 12. Neither had anyone raised the issue before the Region in comments on the draft Permit. Therefore, the Region did not have the opportunity to tackle the substance of this issue either in its Response to

[17] The EAB itself did not address the question of design flow at all. However, if anything this omission indicates that the EAB viewed CLF's failure to raise this argument in a timely manner as placing this issue outside its purview, in accordance with the waiver doctrine discussed in the EAB's decision with respect to the aluminum limit. *See* DA 98 n.60.

Comments or in its arguments to the EAB.[18] Rather than tangling with this technical question for the first time here, without an adequate record below or the substantive input of the Region, the Court should hold that the design flow argument is waived because CLF failed to raise it at the proper time, in commenting on the draft Permit or even in its initial petition to the EAB.

D. EPA Set the 0.1 mg/l Phosphorus Limit in Accordance with Its Longstanding Regulations and with Full Consideration of Actual Water Quality Conditions in the Blackstone River.

According to the District, Region 1's selection of the Permit's 0.1 mg/l summertime phosphorus limit was arbitrary because "EPA simply picked a 'national' number" and did not demonstrate how it relates to addressing impairment of the designated uses of receiving waters in this case. District Br. at 36. The District is wrong on two fronts. First, the Region did in fact show the link between the chosen phosphorus limit and impairment of the Blackstone River, describing the effects of cultural eutrophication on the river in great detail and discussing in specific terms how a 0.1 mg/l limit would address that impairment. Second, Region 1 did not simply pluck the in-stream criterion (on which the 0.1 mg/l limit is based) from the pages of EPA's national guidance documents without forethought. Rather, the Region evaluated a range of EPA criteria

[18] In its surreply before the EAB, Region 1 addressed the design flow argument, but only to note that it was raised inappropriately for the first time in reply, not to engage such waived arguments on the merits. *See* Add. 30-31.

recommendations and carefully considered what criterion would be appropriate to the circumstances in establishing the 0.1 mg/l limit pursuant to 40 C.F.R. § 122.44(d)(1)(vi).

Region 1 explained that it was required to impose a phosphorus limit in the 2008 Permit to address the ongoing, severe cultural eutrophication in the Blackstone River, and that "[w]ater quality standards will not be met if [the District] does not further reduce discharges of . . . phosphorus beyond treatment planned" pursuant to the expired 2001 Permit, which had imposed a phosphorus limit relevant only to achievement of dissolved oxygen criteria, not eutrophication standards. JA 1237; *see also* JA 1230-31; JA 1335-37. The Fact Sheet and Response to Comments accompanying the draft and final Permit provide a detailed account of the cultural eutrophication observed in the Blackstone River that was resulting from the District's phosphorus discharges. *See, e.g.*, JA 1335-36 (summarizing studies that show the impacts of excessive phosphorus loading into the Blackstone River, such as "high levels of macrophyte and periphyton growth"); JA 1240 (noting that in August 2003, the Plant was discharging around 0.8 mg/l total phosphorus, and immediately downstream of this discharge there were multiple indicators of cultural eutrophication). That eutrophication in turn "degrade[s] aesthetic and recreational uses in a variety of ways," in violation of Massachusetts' water quality standards designating the Blackstone River for such

uses. JA1311-12. Thus, contrary to the District's allegations, Region 1 fully demonstrated that a reduction in phosphorus discharges is necessary to ensure compliance with water quality standards. *See* District Br. at 38.

Given observations that the Blackstone River was severely impaired even at times that the Treatment Plant was discharging phosphorus at concentrations around 0.8 mg/l, *see* JA 1240, the District's suggestion that the Region should have waited to act until it could get *more* information showing that the Plant was contributing to exceedances of applicable water quality standards, District Br. at 35, simply makes no sense. The District has produced no evidence indicating that achieving a discharge level of 0.75 mg/l would be sufficient to control the severe phosphorus-driven impairment of the Blackstone River, and the record offers multiple authorities indicating that phosphorus concentrations above 0.1 mg/l are associated with cultural eutrophication in water bodies like the Blackstone River. *See, e.g.*, JA 1242, 1313, 2959. Again, the lack of a model or measurements precisely linking a given phosphorus concentration to a particular level of cultural eutrophication is no reason to ignore data that reasonably supports the Region's judgment that a more stringent phosphorus limitation would be necessary to ensure compliance with Massachusetts' applicable water quality standards.

The Region's next step was to decide what phosphorus limit *would* ensure compliance with the applicable WQSs regarding cultural eutrophication, as

required by 33 U.S.C. §§ 1311 and 1342. In making this determination the Region once again adhered to the procedural requirements of 40 C.F.R. § 122.44(d)(1)(vi). One approach sanctioned by that regulation, and relied on by Region 1 in setting the phosphorus limit for the 2008 Permit, is for EPA to "[e]stablish 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 . . . ." 40 C.F.R. § 122.44(d)(1)(vi)(B). As explained above, the Region looked in particular to two EPA water quality criteria documents, the *Gold Book* and the *Ecoregional Water Quality Criteria*, ultimately selecting the 0.1 mg/l concentration recommended under the *Gold Book*'s "effects-based" approach.[19] *See supra* pp. 25-28.

As the Region explained, although the above criteria come from national guidance, they are applicable to the Blackstone River because they "reflect a range of ambient phosphorus concentrations that are sufficiently low to prevent cultural eutrophication," eutrophication that the Region demonstrated has resulted in impairment of the Blackstone River's designated uses. JA 1314. Thus, the Region

[19] Region 1 also considered a 0.2 mg/l phosphorus limit, and rejected it because a discharge at that level would result in exceeding the in-stream target that EPA determined was necessary to control the effects of cultural eutrophication. JA 1337. This aspect of the Region's permitting process belies the District's assertion that EPA never considered any phosphorus limit between 0.1 and 0.75 mg/l. *See* District Br. at 36.

has answered the District's call for a demonstration of the relationship between the value applied by the Region from EPA's national guidance and the protection of designated uses of the Blackstone River, District Br. at 36. The Region even explicitly considered factors that might make the values from the national guidance inapplicable, but found no reason to treat the Blackstone River differently from other, similar water bodies. JA 1242-43. Neither does the District identify any such factors in its brief.

The EAB accordingly rejected the similar arguments that the District made before it. Based on its review of the Region's analysis, the EAB determined that "the Region identified the particular water quality criteria and designated uses violated by the District's total phosphorus discharges" and "also identified the particular phosphorous-driven conditions observed in the Blackstone River that violate Massachusetts' criteria and designated uses." DA 74; *see also* DA 75 (holding that, "contrary to the District's contention, the Region did not 'simply cite[] cultural eutrophication as the basis for imposition of a numeric permit limit'"). The EAB further affirmed the specific choice of a 0.1 mg/l limit, noting that it accorded with the procedures set out in 40 C.F.R. § 122.44(d)(1)(vi)(B), and that the District had not proffered any justification for thinking a less stringent limit would be sufficient. DA 82-87. The District raises no new points that would warrant doubting the EAB's endorsement of the 0.1 mg/l phosphorus limit as

reasonably based on legitimate sources of information and expert analysis of those sources.

E. The District's Argument Regarding the Aluminum Limit Was Not Preserved Below, and Is Incorrect in Any Event.

The District has waived the argument against the aluminum limit that it attempts to raise here. EPA's longstanding regulations mandate that "[a]ll persons . . . who believe any condition of a draft permit is inappropriate . . . must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public comment period." 40 C.F.R. § 124.13. The District here contends that, in calculating the aluminum limit of 87 µg/l, the Region erred by "us[ing] an inappropriate data set that included an outlier data point of 344 µg/l total aluminum," measured in July 2007. District Br. at 39. Yet, as the EAB noted when the District first asserted this argument in its reply brief before the Board, the District did not comply with the procedural requirements of 40 C.F.R. § 124.13 because it failed to "raise its issues and arguments concerning this data point during the public comment period and those arguments were reasonably ascertainable at that time . . . ." DA 98 n.60. Although the District was clearly aware of the Region's use of the 344 µg/l data point, which was expressly included in the Region's calculations in the Statement of Basis for the draft permit modification, JA 5804, 5807, nowhere in its comments on the draft did the District assert that the Region should exclude that number from its analysis.

Indeed, in its request that the Region expand the data set it used to establish the limit, the District included the 344 µg/l value in its own calculations of aluminum discharges – a strange way to suggest that EPA should have excluded that data point. JA 5939 (Table 1 and Figure 1).

This Court's uncompromising stance in refusing to entertain an argument that was not properly raised before an administrative agency is discussed above. *See supra* 76-77; *see also, e.g.*, *Pepperell Assocs.*, 246 F.3d at 27. The same considerations that render CLF's argument regarding design flow waived also apply here, where the District did not raise its argument that the 344 µg/l value should be ignored as an outlier until its petition to the EAB. DA 76; *cf. Adams*, 38 F.3d at 50 n.3 (excluding argument raised for the first time on appeal to EAB).

Because of the District's tardiness, Region 1 did not have "an opportunity to . . . apply its expertise, exercise its informed discretion, and create a more finely tuned record for judicial review." *See Mass. Dep't of Public Welfare*, 984 F.2d at 523. Instead, the Region was forced to offer the full substantive explanation of its decision in setting a total aluminum limit of 87 µg/l for the first time in a brief to the EAB, and now the District improperly offers yet more new rebuttals to that explanation in its brief to this Court. EPA's procedural regulations and this Court's waiver doctrine were designed to avoid just such a moving target for agency and judicial review by prohibiting a party from continually raising new

arguments at various points in the review process. *See id.* (explaining that the waiver doctrine "promote[s] judicial economy" because "[a] claim seasonably presented to the appropriate administrative body has an appreciable chance of being put to rest, or at least narrowed, before it depletes the heavily burdened resources of federal courts").

The District fails to demonstrate that the EAB erred in determining that this argument was waived. The only particular comment that the District can point to as relating to its argument here is its assertion that Region 1 "relied upon incomplete and incorrect data" in setting the aluminum limit. JA 5938; District Br. at 40. Region 1 appropriately responded to this comment with a general explanation of its rationale for choosing the particular data points that it relied on, mainly from low flow periods. JA 5809-11. And other than this vague criticism, which the District contends should have been enough to cause EPA "to reexamine all of the data values it used," District Br. at 41, the specific comments proffered by the District do not even indirectly imply that the Region should have excluded the 344 µg/l data point from its consideration, and in fact *include* that value in the District's own summary of relevant discharge data. *See* JA 5937-42, 5939 (Table 1 and Figure 1). Given that apparent acquiescence to the use of the 344 µg/l value, it is unclear how the District's nebulous allegations of inaccurate data could be "closely related" enough to the District's current argument such that the Region

should have understood the District to mean it was in fact objecting to the inclusion of that data point.

Even if the District's comments could somehow be construed as a request for Region 1 to reexamine each data point used in its analysis, the District cannot rely on such oblique criticisms to evade its waiver now:

> [A]dministrative proceedings should not be a game or a forum to engage in unjustified obstructionism by making cryptic and obscure reference to matters that "ought to be" considered and then, after failing to do more to bring the matter to the agency's attention, seeking to have that agency determination vacated on the ground that the agency failed to consider matters "forcefully presented."

Vermont Yankee Nuclear Power Corp. v. Natural Res. Def. Council, 435 U.S. 519, 553-54 (1978); *see also Northside Sanitary Landfill, Inc. v. Thomas*, 849 F.2d 1516, 1520 (D.C. Cir. 1988) ("Just as 'the opportunity to comment is meaningless unless the agency responds to significant points raised by the public,' . . . so too is the agency's opportunity to *respond* to those comments meaningless unless the interested party clearly states its position." (citations omitted)). If a commenter's general attack on the quality of an agency's data were sufficient to preserve any subsequent argument regarding that data, the well-established doctrine mandating waiver of an argument not raised at the appropriate juncture in an administrative proceeding would become essentially meaningless.

The District's contention that its argument regarding the 344 µg/l data point was not "reasonably ascertainable" during the comment period on the aluminum

limit permit modification is also unavailing. As outlined above, the District knew of the data point and knew that it was within the data set relied on by Region 1 in calculating the aluminum limit, even incorporating that specific value into its own comments. *See* JA 5939; *see also* JA 5804, 5807 (references to 344 µg/l value in statement of basis for draft permit). The District identifies no reason why it could not have, in those same comments, objected to the inclusion of the 344 µg/l value in the Region's data set.

Even if the Court determines that the District somehow preserved this argument or that it was not "reasonably ascertainable" at the time the District submitted its comments, the argument cannot succeed on the merits. As the EAB explained in its decision, the District failed to provide evidence that conditions that led to the 344 µg/l value will not recur. DA 98 n.60. More importantly, the EAB found that irrespective of this alleged error, the District did not challenge the Region's determination that there were other discharges above 87 µg/l which, on their own, justify the Region's determination that the District's discharge had a reasonable potential to cause or contribute to an exccedance of the aluminum criterion, since the *U.S. EPA NPDES Permit Writers' Manual* recommends that EPA determine a discharger's reasonable potential to cause or contribute to an exceedance of state water quality standards by using the maximum concentration of a pollutant in the discharger's effluent. DA 98. Although the District has

waived this issue, it has also failed to make any arguments other than the ones reasonably rejected by the EAB.

CONCLUSION

For the foregoing reasons, the Court should deny both the District's and CLF's petitions.

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE WITH WORD LIMITS

Pursuant to Fed. R. App. P. 37(a)(7)(C), and exclusive of the components of the brief excluded from the word limit pursuant to Fed. R. App. P. 32(a)(7)(B)(iii) and Circuit Rule 32 (a)(1), I certify that the foregoing Brief of Respondent EPA contains 20,948 words, as counted by the "word count" feature of my Microsoft Office Word software.

/s/ Madeline Fleisher
MADELINE FLEISHER

CERTIFICATE OF SERVICE

I hereby certify that, on this 14th day of November, 2011, I served the following with a copy of the foregoing Brief for Respondent via the Court's CM/ECF system:

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/s/ Madeline Fleisher
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ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

In re:	)	
	)	
Upper Blackstone Water Pollution Abatement District Millbury, Massachusetts	)	NPDES Appeal Nos. 08-11, 08-12, 08-13, 08-14, 08-15, 08-16, 08-17 and 08-18
	)	
NPDES Permit No. MA0102369	)	
	)	

REPLY OF THE PETITIONER, CONSERVATION LAW FOUNDATION, TO REGION I'S MEMORANDUM IN OPPOSITION TO PETITIONS FOR REVIEW AND THE UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT'S PETITION FOR REVIEW

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REPLY OF THE PETITIONER, CONSERVATION LAW FOUNDATION, TO REGION I'S MEMORANDUM IN OPPOSITION TO PETITIONS FOR REVIEW AND THE UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT'S PETITION FOR REVIEW

INTRODUCTION

Petitioner Conservation Law Foundation ("CLF") has analyzed the petition for review of the captioned NPDES permit submitted by Permittee Upper Blackstone Water Pollution Abatement District (the "District") and EPA Region I's Memorandum in Opposition (the "Region I Memorandum"), and now respectfully submits this reply consistent with the Environmental Appeals Board's Order dated February 11, 2009.

Conservation Law Foundation submits this brief because more stringent limits are necessary than those currently included in the Final Permit. The Clean Water Act is unambiguous in stating that by July 1, 1977, a date long since passed, discharges subject to the NPDES permitting program shall have achieved whatever limitations are necessary to meet water quality standards. 33 U.S.C. § 1311(b)(1)(C). Federal regulations require that NPDES permits ensure compliance with state water quality standards. *See* 40 C.F.R. § 122.4(d). The Final Permit's nutrient effluent limits do not ensure compliance with

state water quality standards. In fact, even if the discharge requires implementation of controls at the limit of technology, water quality standards will not be met in receiving waters. As a result, to the extent that such technology will not ensure water quality standards, the Region must impose additional offsets to ensure compliance with the statutory mandate. *See City of Marlborough, Massachusetts, Easterly, Wastewater Treatment Facility*, 12 E.A.D. 235 (EAB 2005).

In addition, Region I adopted insufficient nutrient limits based upon its misinterpretation of federal regulations and relevant guidebooks. To comply with federal regulations, Region I must determine the appropriate nutrient effluent limitations based on a water treatment facility's design flow, *see* 40 C.F.R. § 122.45(b)(1), but did not do so. Additionally, the Region failed to apply the correct nutrient effluent limits, which are provided in the Gold Book, and supported by the Ecoregion XIV guidebook. Finally, CLF preserved for review the issue of whether the Region determined proper phosphorus limits, and consideration of the Gold Book and Ecoregion XIV guidebooks in deciding this issue is well within the scope of the EAB's authority. *See* 40 C.F.R. § 124.13.

The Board should find in favor of CLF and remand the Permit to Region I with instructions to include more stringent nutrient limits to ensure compliance with state water quality standards.

ARGUMENT

I. REGION I CANNOT ENSURE ATTAINMENT OF WATER QUALITY STANDARDS AT THE LESS STRINGENT NUTRIENT LIMIT BECAUSE THE RECORD DOES NOT SUPPORT SUCH A CLAIM.

The record clearly indicates that water quality standards will not be met at a total nitrogen limit of 5 milligrams per liter ("mg/l") or even at a limit of 3 mg/l. The one

definitive statement in the record relevant to setting a total nitrogen limit that will meet water quality standards is made by the Rhode Island Department of Environmental Management ("RIDEM") in a 2004 study:

> DEM has evaluated impacts and set nitrogen load reduction targets using studies conducted at the University of Rhode Island's Marine Ecosystems Research Laboratory (MERL). This analysis indicated that even if the WWTF discharges are reduced to the limit of technology (total nitrogen of 3 mg/l), the Seekonk River and portions of the Providence River would not fully comply with existing water quality standards (minimum of 5.0 mg/l .except as naturally occurs.) and may not meet the latest Environmental Protection Agency (EPA) guidelines that DEM has proposed to adopt.

Evaluation of Nitrogen Targets and WWTF Load Reduction for the Providence and Seekonk Rivers (the "RIDEM Study"), at 3 (see Appendix A) (emphasis added). In its reply, Region I never provides any definitive record evidence sufficient to overcome this statement in the RIDEM study.

In fact, Region I cannot point to any materials in the record to show that water quality standards will be attained at a 5 mg/l or even a 3 mg/l limit. Instead, the Region identifies a series of oblique statements relating to nitrogen limits and water quality standards, none of which are definitive. *See Region I Memorandum*, at 64-65. These statements by EPA do not offer any affirmative statements supporting a finding that a 5 mg/l total nitrogen limit is sufficient.

Perhaps because of the lack of any definitive statements in the record to counter the RIDEM study, the Region endeavors to find uncertainty in the RIDEM study where it does not exist. Region I suggests that RIDEM is not certain whether more stringent standards are necessary. *See Region I Memorandum*, at 26 ("RIDEM has indicated that more stringent limits may be necessary to achieve water quality standards[.]") (noting the Region cited the *2004 RIDEM Load Reduction Evaluation*, at 27 (Ex. 13)) (emphasis

added). This is a mischaracterization of the record. The RIDEM study unequivocally states that even a limit of 3 mg/l would not result in attainment of water quality standards. It should be clear, for this reason and as CLF has consistently stated, that a total nitrogen limit of 5 mg/l could never result in attainment with water quality standards or elimination of the facility's contribution to water quality violations.

II. THE EXISTENCE OF SCIENTIFIC UNCERTAINTY REQUIRES EPA TO ERR ON THE SIDE OF TIGHTER LIMITATIONS TO ENSURE ATTAINMENT OF WATER QUALITY STANDARDS.

Section 301(b)(1)(C) of the Clean Water Act requires that, to be lawful, discharges must be subject to a CWA permit that includes "any more stringent limitations, including those necessary to meet water quality standards . . . or required to implement any applicable water quality standard established pursuant to this chapter." 33 U.S.C. § 1311(b)(1)(C). In keeping with this statutory mandate, federal regulations require that NPDES permits ensure attainment of water quality standards. 40 CFR 122.4(d). When confronted with scientific uncertainty concerning the likelihood that the effluent limitations in a discharge permit will result in attainment of water quality standards, EPA must err on the side of stronger limits. *See Marlborough,* 12 E.A.D. 235 (EAB 2005).

The issue in *Marlborough* was whether or not the permit's nutrient effluent limits were stringent enough to meet water quality standards. The Environmental Appeals Board was unable to find that the permit would result in attainment of water quality standards. For that reason, the Board remanded the permit to the Region with instructions to either demonstrate that its existing effluent limitations were sufficiently stringent to ensure compliance with water quality standards, as required by 40 C.F.R

122.4(d), or to tighten the restrictions appropriately so that they would ensure compliance. *Marlborough*, 12 E.A.D. at 251-3. As in the current case, the discharge at issue in *Marlborough* dominated the natural flow of the river and constituted the majority of nutrient input into the river system. *Marlborough,* 12 E.A.D. at 237 (noting that the wastewater treatment facility's effluent comprised "between 50% and 99% of the flow in Hop Brook"); *id.* at 239 (noting that "'the vast majority of phosphorus entering Hop Brook is from the [wastewater treatment] facility'") (citation omitted). Also as in the case currently before the Board, in *Marlborough* there was scientific uncertainty as to the relative contributions of nutrient pollutants from other sources such as storm water runoff and recirculation from the sediment. *Id.* at 239. Based on the record in *Marlborough,* the Board found there was scientific uncertainty as to whether the permit, as written, would ensure water quality standard compliance. *Id.* at 250. The Board in *Marlborough* clearly stated that "[a] mere possibility of compliance . . . does not 'ensure' compliance." *Id.* at 236. It held, in light of uncertainty regarding whether the effluent limits would ensure that water quality standards were achieved, that the permit's nutrient effluent limitations were insufficiently stringent to ensure compliance. Based upon this conclusion, the Board determined that the permit should be revised to include additional control measures. *Id.* at 252-3.

This case also concerns scientific uncertainty. In the present case, the uncertainty relates to the question of whether a nitrogen limit of 5 mg/l will ensure that the District's discharge will meet water quality standards in the Upper Blackstone River and downstream receiving waters, including Narragansett Bay and the Seekonk River. In fact, the uncertainty is such that EPA does not know whether an even lower standard at

the limits of technology, a limit of 3 mg/l, will be sufficiently protective. *See Fact Sheet*, at 12 (adopting the RIDEM study as a key report); *see e.g.*, *RIDEM Study*, at 3 (Appendix A) (indicating that water quality standards might not even be satisfied at 3mg/l).

In light of this scientific uncertainty, Region I has relied broadly on a number of scientific state and federal guidebooks and studies to determine the effluent limitations necessary to ensure compliance with water quality standards. These scientific studies are valid but are not fully conclusive, as is often the case where scientists' understanding of complex systems is evolving. For example, the studies conducted at the University of Rhode Island's Marine Ecosystems Research Laboratory ("MERL"),[1] relied on by the Region and RIDEM, could not precisely mimic the natural system, and therefore did not generate definitive results.

While EPA recognizes these studies as the best available information, both EPA and the District agree that the results are not conclusive. *See Region I Memorandum*, at 60-63 (noting the scientific studies relied upon show that increased nutrient levels contribute directly to eutrophication, but are not conclusive, and result in uncertainty over appropriate effluent limitations); *see* District Supplemental Petition for Review, at 24 (noting "flaws and uncertainty associated with the [MERL] experiments"). This uncertainty is not, as the District suggests, a reason for delay or a basis for less stringent standards. On the contrary, given the scientific uncertainty in this case, the Clean Water Act and its implementing regulations mandate the imposition of more stringent limits. Further, since a nitrogen limit of 3 mg/l may not ensure attainment of water quality

[1] The MERL studies were conducted by the Rhode Island Department of Environmental Management between 1995-1996 including "analysis of data produced by a physical model of the Providence/Seekonk River system". *See* Fact Sheet, at 12-13. The study was part of an overall effort "to evaluate the impact of various levels of nutrient loading on the rivers and Narragansett Bay." *Id.*

standards, additional offsets are required to meet this statutory mandate. *See Marlborough*, 12 E.A.D. at 252-3. That was exactly what the EAB held in *Marlborough* and is also the proper result in this case.

It is important to note that the Region itself argues, in response to the District's arguments, that uncertainty is not a valid basis for refraining from imposing more stringent limits. In making this argument, the Region is responding the District's argument that, in light of the "uncertainty associated with the [MERL] experiments," it is improper for the Region "to impose binding, enforceable permit limits on the District . . . without sufficient technical basis to determine whether such a limit is appropriate and necessary to address impairments." *See District Petition*, at 24. Despite the fact that the District's discharge constitutes the majority of nutrient input into the system, the District suggests that the lack of regulation of "loads from local contributing non-point sources" is a justification for less stringent limits in the permit. *Id.* The District further argues that scientific uncertainty "underscore[s] the need for a TMDL to determine the relative relationship and relative importance of nutrient loading." *Id.* at 25.

In response to this argument by the District EPA appropriately noted that the agency is not required to await additional studies or the completion of a TMDL before setting limits in the permit.

> EPA is clearly 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. Nothing in the foregoing regulation, or its preamble, suggests that EPA is required to await the completion of approved TMDLs or dynamic water quality models as predicates to imposing a water quality-based effluent limit.

See Region I Response to Comments, at 28 ("*RTC*"). Consistent with this argument, Region I also correctly asserts that a "protective approach is appropriate because, once begun, the cycle of eutrophication can be difficult to reverse given the tendency of nutrients to recycle through the ecosystem." *RTC*, at n.12.

Region I attempts to distinguish *Marlborough*, arguing that there is a greater degree of scientific uncertainty in the instant case. The Region points principally to the fact that the scientific experiments relied upon in that case were conducted in the natural setting, whereas the MERL experiments relied upon in this case represented laboratory research. The fact that the MERL studies were conducted in the lab setting does not, however, distinguish *Marlborough* from the instant case. *Marlborough* demonstrates how a permit should be judged when there is scientific uncertainty concerning whether the permit will meet water quality standards. In the face of scientific uncertainty, the Board in *Marlborough* held that stricter limits were necessary to ensure compliance. *See Marlborough*, 12 E.A.D. 235 (EAB 2005). The nature or degree of uncertainty is an important consideration, but the holding of *Marlborough* is that uncertainty is not a basis for imposing less stringent effluent limitations.

Misunderstanding this core holding of *Marlborough*, and based on its assertion that there is a greater degree of uncertainty in this case, Region I did not opt for the approach providing the greatest level of control needed to attain water quality standards, or eliminate the District's contribution to violations. Instead, the Region settled on a less stringent limit in an effort to "account for differences and similarities between that laboratory and the real world." *See Region I Memorandum*, at 62 (citing *RTC*, at 47-48

(Ex. 2)). In doing so, the Region misconstrues the holding of *Marlborough* which, properly applied, would have led the Region to adopt more, not less, stringent standards.

It is important to note that CLF does not, as Region I suggests, simply submit a different interpretation of the studies. Instead, CLF asserts that the Region must choose the most protective limits achievable in light of the scientific uncertainty the studies create. It matters not that CLF and the Region hold "different opinion[s] as to the relative weight of the uncertainties in the MERL studies." *See Region 1 Memorandum*, at 62. When there is any amount of uncertainty, EPA must err on the side of stricter limits. While the scientific complexities and differences between the watersheds prevent a direct apples-to-apples comparison, the situation in *Marlborough* is too similar to the instant case to ignore the precedent it sets. In this case, the EAB should follow its own precedent and err on the side of stricter limitations.

Here, resolving uncertainty as to whether water quality standards will be complied with requires imposing the restrictions to the limit of technology. As noted by Amicus Curiae Rhode Island Department of Environmental Management, the Woonsocket Water Pollution Control Facility operates under a permit that requires a nitrogen effluent limitation of 3mg/l. *See Brief of Amicus Curiae R.I. Dep't. of Env't. Mgmt.*, at 5. Therefore, the District should also be required to meet this limit. Also, to the extent that imposing stricter limits will not ensure compliance, the permit must include additional offsets. Uncertainty does not provide a basis for either less stringent limits as EPA argues, or delay and further study as the District argues. Rather, scientific uncertainty requires EPA to implement stricter limits to ensure attainment of water quality standards.

III. REGION I MUST ESTABLISH THE TOTAL NITROGEN EFFLUENT LIMITATION BASED ON THE FACILITY'S MAXIMUM DESIGN FLOW.

Region I must determine the total nitrogen effluent limitation for the District's NPDES permit based on the facility's maximum design flow, in order to achieve and maintain state water quality standards. *See* 40 C.F.R. § 122.45(b)(1) (requiring that "[POTW] effluent limitations . . . shall be calculated based on design flow") (emphasis added). On its face, the NPDES permit at issue in this case, as is true of any discharge permit, authorizes the District to discharge nitrogen at the maximum design flow for the life of the permit.[2] With this in mind, and to achieve the purpose of the Clean Water Act to restore and maintain water quality, the Region must ensure that the District can meet state water quality standards for total nitrogen at the established maximum design flow.

The Region attempts to justify the less stringent 5 mg/l nitrogen effluent limitation by reasoning that the facility generally operates below the maximum design flow. *See Region I Memorandum*, at 24. Region I concludes that the 5 mg/l limit will result in lower mass loadings "for the foreseeable future, as treatment plant flows remain well below the facility's design flow of 56 mgd (i.e., 34 – 43 mgd) and have been steady in recent years." *Id.* Such a justification flies directly in the face of 40 C.F.R. § 122.45(b)(1). Region I itself recognized this fact, when it flatly and properly rejected the District's assertion that limits must be based on "historical discharge flow volumes and not permitted design flows as required by permitting regulations." *See Region I Memorandum*, at 97 n.22. The Region's erroneous use of historical flows rather than

[2] In addition the ability to discharge at the maximum design flow for the life of the permit, the District is not limited in their discharges through a Total Maximum Daily Load ("TMDL") restriction. This restriction would put a ceiling on the total amount of nutrient effluent they could discharge per day.

design flows casts further doubt regarding whether the permit's nitrogen limit will ensure compliance with water quality standards.

As the permit is now written, the District can discharge at the maximum design flow, exacerbating the impairment of state water quality standards, and still meet its permit limits. This is flatly inconsistent with the Clean Water Act and EPA's own regulations.

IV. CLF PROPERLY PRESERVED FOR REVIEW ARGUMENTS REGARDING THE PROPER PHOSPHORUS LIMITS BASED UPON THE GOLD BOOK AND ECOREGION XIV GUIDEBOOKS FOR NUTRIENT CRITERIA RECOMMENDATIONS.

CLF preserved for review the issue of Total Phosphorus limits by directly addressing that issue in the Comments on the Draft NPDES Permit. *See CLF Comments on Draft NPDES Permit No. MA0102369 (May 23, 2007)*, at 1-2. CLF's comments make clear that "our principle concern is with the Draft Permit's limits on total nitrogen and on total phosphorus." *Id.* CLF did not need to do more in order to be allowed to cite to the Gold Book and Ecoregion XIV guidebooks as well as to any "other generally available reference materials" which do not have to be referenced during comment. *See* 40 C.F.R. § 124.13. Based upon EPA's regulations, the Board has clear authority to rely on these guidebooks.

EPA developed the Gold Book and Ecoregion XIV guidebooks to provide specific nutrient criteria as part of an effort to reduce problems associated with excess nutrients in water bodies. The Gold Book sets forth recommendations for concentrations of in-stream phosphorus depending on the type of water body. *See Region I Memorandum*, at 18; *see also Gold Book: Quality Criteria for Water*, at 235-239 (May 1, 1986). The Ecoregion XIV guidebook includes specific nutrient criteria for the region in

which the Upper Blackstone River and the greater watershed are situated. *See Ambient Water Quality Criteria Recommendations: Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Nutrient Ecoregion XIV, (Dec. 2000) (EPA-822-B-00-022).*

EPA contends that CLF failed to preserve the Gold Book recommended value of 0.05 mg/l because no one specifically referenced that guide during the comment period. Similarly, EPA contends that CLF's concern regarding the Region's decision to ignore Ecoregion XIV guidebook was not preserved for review because no one offered comments on the draft permit indicating the Region should have imposed a phosphorous limit based on the Ecoregion XIV values. Thus, EPA argues that CLF is now precluded from addressing the appropriateness of reliance on the Gold Book and Ecoregion XIV guidebook materials.

EPA's argument fails because CLF's recommendation that EPA refer to the guidebooks is fully consistent with and merely supportive of its position that the phosphorus limits are insufficient to meet water quality standards. *See* 40 C.F.R. § 124.13; *see CLF Comments on Draft NPDES Permit No. MA0102369 (May 23, 2007)*, at 1-2. Even more importantly, EPA confuses the need to preserve issues during the comment period with the importance of introducing information *in support of* an issue that has already been preserved and addressed. CLF does not attempt to raise a new issue by referencing these documents. CLF simply intends to correct Region I's misinterpretation of the Gold Book criteria and further support its position on the issue of total phosphorous limits with the valuable, site-specific information found in the Ecoregion XIV guidebook.

V. REGION I CHOSE THE WRONG STANDARD FOR LIMITING PHOSPHORUS BASED ON THE GOLD BOOK AND ECOREGION XIV NUTRIENT CRITERIA RECOMMENDATIONS.

In setting the phosphorus limit at 0.1 mg/l, Region I misapplied the Gold Book standards and failed to adequately consider the Ecoregion XIV guide.

a. Region I chose the wrong standard for limiting Phosphorus based on the Gold Book nutrient criteria recommendations.

The Gold Book "recommends in-stream phosphorus concentrations of no greater than 50 ug/l [0.05mg/l] in any stream entering a lake or reservoir, 100 ug/l [0.1 mg/l] for any stream not discharging directly to lakes or impoundments." *Fact Sheet* at 9. The Region I Memorandum fails to squarely address the reasoning behind the decision to select the 0.1 mg/l standard instead of the applicable 0.05 mg/l standard for discharges into streams that flow into reservoirs or impoundments. By the Gold Book's plain language, the 0.1 mg/l standard applies only to "streams" – not POTW discharges – that do not discharge directly to a lake or impoundment. The Blackstone does discharge directly to a lake or impoundment, and therefore the 0.05 mg/l Gold Book standard applies.

The requirement that the more stringent limits for streams discharging into lakes or impoundments be applied is particularly important in the instant case due to the fact that the District's discharge so dramatically dwarfs the natural flow of the stream. With an authorized discharge that is thirteen times the 7Q10 flow of the River there is simply no possibility of significant attenuation in the River between the District's facility and the first downstream impoundment. *See Region I Memorandum*, at 5; *see Fact Sheet*, at 2. In fact, the attenuation rate along the entire length of the River is estimated at only thirteen percent. *See Fact Sheet*, at 13. It is essential that streams delivering nutrients

into impoundments are protected with more stringent limits. As noted in the Gold Book, "[t]he majority of the Nation's eutrophication problems are associated with lakes or reservoirs and currently there are more data to support the establishment of a limiting phosphorus level in those waters than in streams or rivers that do not directly impact such water." *See* Gold Book, at 240-41. In setting a less stringent phosphorous limit, Region I ignored this important principle and misinterpreted the plain language of the Gold Book recommendations.

b. The Ecoregion XIV guidebook provides strong support for imposing a stricter limit on total phosphorous.

The Ecoregion XIV materials add technical support for imposing a stricter limit on total phosphorous to ensure compliance with state water quality standards. When establishing water-quality based effluent limitations, EPA must consider a "wide range of materials, including nationally recommended criteria, supplemented by other relevant materials, such as EPA technical guidance and information[.]" *See Region I Memorandum*, at 16; *see* 40 C.F.R. §§ 122.44(d)(1)(vi)(A), (B). Ecoregion XIV provides information on nutrient levels that is both specific to the Blackstone River area, and relevant to determining the most appropriate nutrient limits for ensuring attainment of state water quality standards in this watershed. The Ecoregion XIV guidebook suggests that the limitation for Total phosphorous in the Blackstone River watershed should be no higher than 0.024 mg/l. *Fact Sheet*, at 9. While CLF does not propose that EPA set the limit at this level, the fact that the Ecoregion XIV guidebook suggests such a stringent limit provides strong support for adopting the 0.05 mg/l limit recommended by the Gold Book.

CONCLUSION

The District's permit fails to impose nutrient effluent limits that will ensure attainment of state water quality standards. We respectfully ask this Board to remand the permit to Region 1 with instructions to include more stringent nutrient effluent limits that will ensure state water quality standards. Region 1 must regulate the District's discharges to 0.05 mg/l for total phosphorous and to the limit of technology for total nitrogen, which is 3 mg/l. Further, to the extent that such technology will not ensure water quality standards, the Region must impose additional offsets to ensure compliance with the statutory mandate.

Respectfully Submitted,
CONSERVATION LAW FOUNDATION
By its attorneys,

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CERTIFICATE OF SERVICE

I, David K. Mears, hereby certify that copies of the foregoing Reply, in connection with the NPDES Appeal Nos. 08-11, 08-12, 08-13, 08-14, 08-15, 08-16, 08-17, and 08-18, were sent to the following persons in the manner indicated:

By Hand and Electronic Submission:

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BY HAND AND ELECTRONIC SUBMISSION

March 9, 2009

Eurika Durr
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Re: Upper Blackstone Water Pollution Abatement District
Region 1's Sur-Reply to Upper Blackstone Water Pollution Abatement District's and Conservation Law Foundation's Reply Briefs
NPDES Appeal Nos. 08-11 and 08-13
NPDES Permit No. MA 0102369

Dear Ms. Durr:

In connection with the above-referenced permit appeals, please find enclosed for docketing and review one original copy of Region 1's Sur-Reply to Upper Blackstone Water Pollution Abatement District's and Conservation Law Foundation's Reply Briefs, together with a certificate of service. Electronic copies of Region 1's submission will also be posted to the CDX filing system.

If you have any questions, please do not hesitate to contact me at 617-918-1711.

Sincerely,

Karen McGuire / RF

Karen McGuire, Esq.
US EPA-Region 1

Enclosures
cc: Recipients Listed on Enclosed Certificate of Service

CERTIFICATE OF SERVICE

I certify that copies of the Sur-Reply to Upper Blackstone Water Pollution Abatement District's and Conservation Law Foundation's Reply Briefs, in connection with NPDES Appeal Nos. 08-11 and 08-13, were sent to the following persons in the manner indicated:

By Hand and Electronic Submission:

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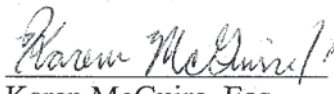

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BEFORE THE ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

In the Matter of:	
Upper Blackstone Water Pollution Abatement District	NPDES Appeal Nos. 08-11 and 08-13
NPDES Permit No. MA 0102369	

REGION 1'S SURREPLY TO UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT'S AND CLF'S REPLY BRIEFS

The Region submits this surreply to the reply briefs filed by the Upper Blackstone Water Pollution Abatement District ("the District") and the Conservation Law Foundation ("CLF"). The Region corrects errors and omissions in petitioners' re-telling of the record. The Region also points out new theories for relief that petitioners inappropriately offer for the first time in reply. As neither the District nor CLF has demonstrated any basis for review of the Region's decision-making, review of both petitions should be denied.

I. The Nitrogen Limit: the District and CLF Raise no Issues Warranting Review.

A. Region 1 Appropriately Exercised its Scientific and Technical Judgment To Account for Differences Between the Model and the Natural Setting.

While obviously seeking very different outcomes in this proceeding, both the District and CLF argue in reply that the Region erred in undertaking any effort to evaluate the differences between the MERL model and the natural setting of Narragansett Bay.

According to the District, a study cited by the Region supports its position that differences in flushing rates are so stark that the MERL model must be cast aside and no effort made to account for its uncertainties. *See District's Reply* at 6 (noting that differences in flushing rates make it "inappropriate to apply the MERL experiments to the Seekonk River"). Under CLF's view, the Region was compelled to apply the outputs of the MERL model wholesale, even in the face of differences indicating the model would over-predict the loading reductions needed to meet water quality standards. *See CLF's Reply* at 9 (claiming that "[w]hen there is any amount of uncertainty, EPA must err on the side of stricter limits."). Rather than call into question the approach undertaken by the Region, the result-oriented views offered by the petitioners in fact underscore the reasonableness of the Region's methodology: consistent with applicable regulations, the Region sought to rationally account for differences between the model and real world by taking into account all relevant information.

In support of its claim that the peer-reviewed MERL model should be rejected outright, the District's reply focuses on a study by Asselin and Spaulding. In its Opposition, the Region referenced the study for the proposition that these differences, although significant, were not as severe as painted by the District. In reply, the District argues the Asselin study is irrelevant since it evaluated flushing rates in the Providence and Seekonk River system, not solely the Seekonk River where the District's discharge first reaches the upper Bay. *See District's Reply* at 6. However, the Region's consideration of the study stands to reason: the Seekonk River 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 the Rhode Island Department of Environmental Management (RIDEM) in its 2004 Evaluation. *See Evaluation of Nitrogen Targets and WWTF Load Reductions for the Providence and Seekonk Rivers* (RIDEM, December 2004)("2004 RIDEM Load Reduction Evaluation") at 9 ("How Does the Providence and Seekonk River System Compare with the MERL Experiment") (Ex. 13).[1] More importantly, by focusing on the question of whether residence times in the Seekonk River, the Providence River, or the two Rivers together, were somewhat faster or slower, the District obscures the larger point: the Region fully recognized and took into account that flushing rates in the natural ecosystem were significantly faster than the flushing period utilized by the MERL model. When establishing the nitrogen limit, the Region determined that it would be appropriate to 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 loading scenario that corresponds to a limit of 3.0 mg/l) at this time.

Just as it would be unreasonable to completely reject the MERL model, CLF's position that the Region should simply resolve all uncertainties by imposing the most stringent limit possible is not scientifically supportable. Although it concedes the model cannot "precisely mimic the natural system [] and therefore did not generate definitive results," (*CLF's Reply* at 6), CLF contends the Region need not have bothered with any

[1] Exhibit numbers refer to the exhibits to the Region's Opposition.

evaluation of these differences. Rather, in CLF's view, the Region should have simply applied the results of the MERL studies wholesale.

Offering an isolated quote from a 2005 RIDEM report which refers to the results of the MERL analysis, CLF contends that RIDEM has unequivocally concluded that a limit of 3.0 mg/l or lower is necessary to meet standards. *CLF's Reply* at 3.[2] CLF nowhere confronts, however, the fact that RIDEM, given the entire record, has expressly concurred with imposition of a nitrogen limit of 5.0 mg/l in the District's permit and has acknowledged this limit is comparable to those that RIDEM has already imposed on facilities within its jurisdiction. Further, the Region has frankly and repeatedly acknowledged that the MERL model, ***viewed in isolation***, yields the conclusion that the District's limit should be set at a level corresponding to the 2-4X loading scenario. Yet, as all parties agree (including CLF), the model's outputs cannot yield definitive permit limits in light of differences between the model and the natural ecosystem. RIDEM has also acknowledged these uncertainties. *See, e.g., 2004 RIDEM Load Reduction Evaluation* at 24 (Ex. 13). Rather than reflexively assume that all uncertainties support the model's outputs (as CLF urges), the Region undertook to evaluate and rationally account for the differences between the model and real world based on evaluation of site-specific data and other studies. CLF has provided no compelling reason to cast the Region's technical judgment into question. *See In re Envotech, L.P.*, 6 E.A.D. 260, 284 (EAB 1996) ("absent compelling circumstances, the Board will defer to a Region's

[2] CLF indicates the quote is from the *2004 RIDEM Load Reduction Evaluation*. *CLF's Reply* at 3. The citation is actually from a 2005 report to the Rhode Island governor and legislature entitled *Plan for Managing Nutrient Loadings to Rhode Island Waters* (RIDEM 2005).

determination of issues that depend heavily upon the Region's technical expertise and experience.")

CLF enjoys no support for its position in the Board's decision in *City of Marlborough, Massachusetts, Easterly, Wastewater Treatment* Facility, 12 E.A.D. 235 (EAB 2005). In *Marlborough*, the Region concluded that the nutrient limitation at issue offered only the "possibility" of meeting standards in light of a site-specific study evaluating in-stream nutrient loadings from the sediments. Based on the Region's conclusion drawn from the sediment study, coupled with the lack of any indication that sediment loadings would be further evaluated or reduced over the term of the permit, the Board remanded. CLF's effort to equate the Region's findings related to the sediment study in *Marlborough* with the Region's conclusions about the MERL model is misplaced. That the Region, after thorough evaluation of site-specific data and other materials, ultimately concluded the MERL model outputs over-predicted the loading reductions required of the District in this permit reissuance does not lead to the conclusion that a limit of 5.0 mg/l offers only a "possibility" that standards will be met. Rather, in applying the laboratory results to a real world setting, the Region used its technical judgment and expertise to derive a permit limit needed to meet standards. And, as noted above, the Region has further grounded its conclusion in the fact that RIDEM has issued comparable limits to facilities in Rhode Island and has expressly concurred with the 5.0 mg/l limit at issue here. As yet a further backstop to its decision-making, the Region has ensured that a continuous monitoring program is in place to ensure the

necessary reductions are being achieved. *See* Ex. 22 (description of Narragansett Bay fix-site monitoring network).

Nor can CLF avail itself of the fact that the facility located in Woonsocket, Rhode Island has *voluntarily* agreed to meet a limit of 3.0 mg/l. *CLF's Reply* at 9. Based on its analysis of the MERL model and other site-specific data, RIDEM assigned Woonsocket an effluent limitation of 5.0 mg/l. In settlement of Woonsocket's appeal of the 5.0 mg/l limit, the facility voluntarily agreed to meet 3.0 mg/l upon certain conditions, including an agreed-upon compliance schedule. That Woonsocket voluntarily agreed to go above and beyond the limit RIDEM identified as necessary to meet standards does not support that a more stringent limit is needed in this proceeding.

Neither the District nor CLF have raised issues regarding the Region's approach warranting review. To the contrary, the Region's approach was reasonable, technically-sound and consistent with applicable regulations. Review of both petitions should be denied.

B. The Region's Decision to Establish the District's Effluent Limitation at the Point of Discharge is Not New and is Necessary to Ensure Rhode Island's Water Quality Standards are Met Downstream.

In its Reply, the District feigns surprise that Region determined to assign the 5.0 mg/l limit at the point of discharge rather than 28 miles downstream at the point where the District's loading reaches the upper Bay. *District's Reply* at 6-7. According to the District, the Region never explained that this approach (which would result in a concentration of less than 5.0 mg/l actually reaching the Bay) was necessary in order to

meet Rhode Island's water quality standards. *Id.* at 6. As is amply detailed in the record, the Region determined that 13% of the District's nitrogen load would be attenuated (via uptake of nitrogen by aquatic plants) as it travelled down the Blackstone River, resulting in 87% of the load ultimately being delivered to the Bay. *See Fact Sheet* at 13-14 (Ex. 1); *Response to Comments (RTC)* at 45-46 (Ex. 2). The record also makes clear that the 5.0 mg/l is applied at the point of discharge, *see e.g., Permit* at I.A.1, and that after adjustment for attenuation, 87% of the District's load would reach the Seekonk. *See, e.g., Seekonk Reach Loads* (Ex. 27); *2004 RIDEM Load Reduction Evaluation* at 18 (Ex. 13).

That the District fully appreciated the Region's approach is manifest in its consultant's comment on the draft permit that the Region should have assigned the 5.0 mg/l limit at the point where the District's load reached the Bay (i.e., the mouth of the Seekonk) rather than at the point of discharge from the District's facility to the Blackstone River. *See RTC* at 53-54, Comment #F18E (Ex. 2). By assigning the 5.0 mg/l limit at the mouth of the Seekonk, the District argued it should be allowed to meet a limit as high as 5.74 mg/l at its discharge to the Blackstone (again, because the process of attenuation would reduce the loading as it traveled down the Blackstone River to the Bay). *Id.* The Region rejected this approach, responding that, in light of the significant size of the District's nitrogen loading and the location of the discharge in the most severely impacted portion of the upper Bay, a limit of 5.0 mg/l at the point of discharge was necessary to meet Rhode Island's standards. *See RTC* at 54, Response #F18E.

The record is clear that the Region applied the 5.0 mg/l limit at the point of discharge and explained its approach was necessary to meet Rhode Island's standards. Review should be denied.

C. CLF's Argument that the Region Failed to Appropriately Account for Design Flow in Development of the Nitrogen Limit is Raised for the First Time on Reply.

In contravention of the Board's February 11, 2009 order, CLF raises a brand new argument in its reply brief: that the Region has failed to make a demonstration that the facility can meet state standards at design flow. *See CLF's Reply* at 10-11. CLF never raised this issue in its comments. Nor was this argument raised by any other commenter; as such, CLF could not have even asserted its new theory for the first time in its petition. *See Gov't of D.C. Mun. Separate Storm Sewer Sys., 10 E.A.D. 323, 339 (EAB 2002)* (holding that a petitioner must have raised during the public comment period the specific argument it seeks to raise on appeal). CLF is clearly proscribed from raising new arguments in reply. *See Order Granting CLF's Motion for Leave to File Reply* at 2 ("The Board will not entertain any new arguments for review."). *See also In re Keene Wastewater Treatment Plant*, NPDES Appeal No. 07-18 at 20 (Order, March 19, 2008) ("to the extent that … arguments [in a reply brief] raise substantive nuances that are not set forth in the petition … they constitute, in essence, 'late-filed appeals' because they could have been raised in the petition but were not so raised.") In this matter, the Region evaluated comments from over 30 parties and has responded to eight petitions for review.

In the thousands of pages of record materials, no one to date has raised a concern about this issue. CLF's new argument, raised for the first time in reply, should be rejected.

D. The Region Appropriately Did Not Include a Compliance Schedule in The Permit to Meet the Nitrogen Limit.

Rhode Island has not authorized compliance schedules in permits to meet water quality standards. Absent the requisite enabling language, the Region is bound to respect the State's preference in this matter. *See In the Matter of Star-Kist Caribe, Inc.,* 3 E.A.D. 172 (Adm'r 1990).

Citing language in the State's baseline permitting regulations at Rule 20.01 of the *Rhode Island RIPDES Regulations*, (Ex. 37), the District concludes that Rhode Island does allow compliance schedules for water quality-based limits in its permits. *See District's Reply* at 8. This is an erroneous interpretation of *Star-Kist* and Rhode Island's regulations.

Star-Kist requires a reasonably clear and unambiguous expression of state intent to allow schedules of compliance to meet water quality-based effluent limitations in a permit. The District points to language in Rule 20.01 of the *RIPDES Regulations* in support of its claim that compliance schedule enabling language related to water quality-based effluent limitations exists in Rhode Island's regulations. However, the mere existence of Rule 20.01 in Rhode Island's permitting regulations – without more – does not provide sufficiently clear evidence of Rhode Island's intent to authorize compliance schedules for water quality-based effluent limitations. Rule 20.10 merely tracks EPA's general compliance schedule regulations at 40 C.F.R. § 122.47, consistent with 40 C.F.R.

§123.25(18). Rule 20.01 of the *RIPDES Regulations* does not expressly or clearly articulate Rhode Island's intent to allow compliance schedules for water quality-based effluent limitations. Indeed, the Rule makes no reference at all to compliance schedules to meet water quality-based effluent limitations. Moreover there is no language allowing compliance schedules for water quality-based effluent limitations in the State's separate *Water Quality Regulations*. *See Rhode Island Water Quality Regulations, Rule 8*, (Ex. 5). By itself, Rule 20.10 does not lay the "necessary groundwork" for EPA to conclude that Rhode Island has authorized inclusion of compliance schedules for water quality-based effluent limitations in NPDES permits. *See Star-Kist, supra*, 3 E.A.D. at 177. By contrast, Massachusetts has chosen to allow compliance schedules to meet water quality-based effluent limitations within permits. To make its preference clear, Massachusetts included this authorization directly in its water quality standards regulations. *See Massachusetts Surface Water Quality Standards*, 314 C.M.R. § 4.03(1)(b), (Ex. 4).

To the extent there is any ambiguity regarding this issue in Rhode Island's regulatory framework, RIDEM has stated, as *amicus curiae*, that it does not interpret its regulations to allow compliance schedules in permits to meet water quality-based effluent limitations. Furthermore, the state's longstanding practice has been to include schedules for compliance with water quality-based effluent limitations in separate administrative orders.

The Region has appropriately interpreted federal law and Rhode Island's regulations. As is detailed in the record, the Region continues to be willing to include an

appropriate schedule in an administrative order as we have done for many permittees faced with new, more stringent effluent limitations.

II. The Phosphorus Limit: Petitioners Raise No Issues Warranting Review.

A. CLF Failed to Preserve Arguments that the Phosphorus Limit is Inadequate.

CLF failed to preserve the argument that the phosphorus limit should be based on the *Gold Book* recommended value of 0.05 mg/l (applicable to streams discharging to a lake or reservoir) rather than the recommended value of 0.1 mg/l (applicable to streams not discharging directly to lakes or impoundments). As the Region pointed out in its opposition, CLF nowhere raised this argument in its comments on the draft permit. *Region's Opposition* at 104. In reply, CLF contends the Region should have intuited its concern based on the following statement in CLF's comments on the draft permit: "[O]ur principle concern is with the draft Permit's limit on total nitrogen and on total phosphorus." *CLF's Reply* at 11. Yet, CLF's comments **nowhere mention the *Gold Book***, let alone suggest that the Region should have selected one recommended *Gold Book* value over another. *See CLF's Comments*.[3] To the contrary, CLF's comments suggested CLF in fact supported the phosphorus limit: "[T]he total phosphorus limit should be no higher than 0.1 mg/l." *Id.* at 2. CLF's new argument was clearly available during the public comment period on the draft permit: the Region fully explained its approach to establishment of the phosphorus limit in the Fact Sheet, including its consideration of the *Gold Book* recommended value of 0.1 mg/l, together with peer-

[3] CLF filed a copy of its comments with the Board on September 30, 2008. *See* Docket at Filing #11.

reviewed literature and national guidance materials. CLF failed to preserve this issue by not raising it in comments on the draft permit. Review should be denied.

B. The Phosphorus Limit in the Expired Permit (0.75 mg/l) Will Not Meet State Water Quality Standards.

The District re-asserts its claim that the limit of 0.75 mg/l in the expired permit may, in fact, be enough to meet water quality standards. In the District's view, the Region must first await completion of current upgrades to meet the limit in the expired permit and then evaluate the response of the River to these upgrades before imposing a more stringent limit. To support this theory, the District argues that site-specific data collected before completion of current upgrades (such as the 2003 study by the U.S. Army Corps) should be tossed aside. *See District's Reply* at 4. The District's "wait and see" approach is not appropriate where, as here, it is clear that the old limit is inadequate to meet standards.

In development of the phosphorus limit, the Region appropriately considered available site-specific data, including the 2003 studies that the District seeks to discard. The Region does not dispute that the District has not consistently met the 0.75 mg/l in its expired permit. Yet, even during periods where the District has managed to reduce its loadings as it makes treatment upgrades, the River demonstrates severe and substantial impairment, including almost 100% cover of the river bottom with macrophytic growth immediately downstream from the District's discharge, substantial filamentous algae farther downstream, low DO, unpleasant odors and an unhealthy benthic community. *See Region's Opposition* at 8-9, 86-87. The Region concluded that reductions of loadings to

0.1 mg/l were necessary to address these impairments and to restore the aquatic community and recreational uses of the River. *See Fact Sheet* at 10. *See also RTC* at 113-14 (describing the benefits anticipated from the phosphorus reduction to 0.1 mg/l).

The District's argument also completely ignores that the loadings allowed under its expired permit result in an in-stream concentration that is well in excess of the recommended range of in-stream values in EPA guidance and peer-reviewed literature published since the issuance of the old permit. The District does not dispute that the total phosphorus limit of 0.75 mg/l (750 ug/l) in the expired permit would result an in-stream concentration of 0.682 mg/l (682 ug/l) at critical low flow conditions. *See Fact Sheet* at 9-10 (Ex. 1). This amount far exceeds the in-stream phosphorus values ranging from 0.01 mg/l (10 ug/l) to 0.1 mg/l (100 ug/l) that are recommended in EPA guidance documents and peer-reviewed literature as sufficiently stringent to control cultural eutrophication and adverse nutrient-related impacts. *Id.*

With regard to the District's new theory that the blanket of macrophytic growth downstream of its discharge observed in 2003 is attributable solely to historical discharges from its facility that have accumulated in sediments, *see District's Reply* at 5, such a fact, if true, would not counsel in favor of a less stringent limit. *See Marlborough, supra, 12 E.A.D.* at 251 (where the permit writer concludes that loadings from sediments may prevent attainment of standards, either the POTW limit needs to be more stringent or the sediment source must be addressed to ensure standards are met.) Having had the

opportunity to file an initial petition, a supplemental petition and now a reply, the District is well past the point of offering new theories for the Board's review. *See Keene, supra.*

C. The 2001 Order of Compliance and Settlement Agreement Resolving The District's Appeal of the 1999 Permit Nowhere Restrict the Region From Imposing New Permit Limits at this Time.

The District suggests that the compliance schedule negotiated as part of the settlement of the District's appeal of the expired permit prohibits the Region from issuance of more stringent nutrient limits at this time. *See District's Reply* at 16. The District backstops this claim by arguing that the timing of the new permit will frustrate effective planning for capital investments and further treatment upgrades. *Id.*

Nothing in the Settlement Agreement or Compliance Order prohibits this permit issuance. Indeed, this would be contrary to the requirement in the CWA that permits are subject to regular, periodic review every five years. The best the District can muster in support of its theory is its claim that the Region failed to sufficiently involve stakeholders in development of the new permit as was contemplated in the Settlement Agreement. *See District's Reply* at 16. Not only is this claim utterly unsupported by the record, this new argument should be rejected outright as an improper supplementation of the District's petition. *See Keene, supra.*

The Region recognizes the financial and technical challenges that can arise when permit limits are tightened as a result of a permit modification or reissuance. For this reason, the Region tries to facilitate cost-effective planning by cautioning permittees when it believes limits may become more stringent in the future. During the proceedings

surrounding issuance of the expired permit, for instance, the Region urged the District to evaluate the potential for more stringent nutrient limits as part of the design for treatment upgrades. *See Fact Sheet for the 1998 Draft Permit* at 6 (AR 76); *See 1999 Response to Comments* at 4-5 (Ex. 23; AR 74). As soon as the Region knew the specific nutrient limits it believed necessary to meet water quality standards, it issued a draft permit including a nitrogen limit of 5.0 mg/l and a phosphorus limit of 0.1 mg/l. *See Draft Permit* dated March 23, 2007. While the ongoing upgrades to the District's biological treatment system may achieve even better performance than that required by the expired permit, there is no dispute that biological treatment alone cannot meet the new limits.

That the District will need to make further adjustments to treatment is not relevant to whether the limits themselves have been appropriately set. As is detailed in the Region's Opposition, costs and other technical considerations play no role in the ***establishment*** of water quality-based effluent limitations. Therefore, they cannot be a basis to delay setting the limits. But, as the Region has acknowledged, concerns related to cost can be taken into account in the establishment of a compliance schedule (in this case, in an administrative order). For instance, the Region has noted that it may be appropriate to allow some period of time to operate following the current upgrades before making a final decision on all aspects of additional treatment facilities to enable the District and its consultants to determine the most cost-effective technologies for achieving the new limits. *See Region's Opposition* at 118.

The settlement and compliance order related to the expired permit do not preclude issuance of more stringent nutrient limits here. Review should be denied.

III. The Region Appropriately Included the Satellite Collection Systems as Co-Permittees.

In its challenge to the "co-permittee" provisions of the permit, the District inappropriately supplements its appeal with two new arguments. First, after arguing in its petition that the Region should have issued separate NPDES permits to the District and the sewage collection systems that send their waste to the District ("the satellite systems"), the District now claims in its reply that the Region does not have authority to regulate the satellite systems through a permit at all. Second, the District inappropriately adds additional documents to the record – compliance reports from EPA's ECHO database for another POTW, the Greater Lawrence Sanitary Sewer District.

In its petition for review, the District asserted three arguments in support of its claim that the satellite systems should not be included as "co-permittees" in this permit: 1) that the co-permittee provisions of the permit made the District somehow responsible for operation and maintenance activities in the satellite systems; 2) that the Region should have required the co-permittees to submit a permit application before including them in the permit; and 3) that the District might be unfairly held accountable for violations attributable solely to the co-permittees.

In its reply, the District now asserts a new theory: that the Region cannot regulate the satellites through this NPDES permit as the wastewater from these collection systems passes through the District's treatment plant before reaching the Blackstone River. *See*

District's Reply at 9-10. The District hinges its theory on the definition of "discharge of pollutants" in Section 502(12) of the CWA, which defines the term as the "addition of any pollutant to navigable waters from any point source...." Not only did the District fail to raise this argument in its petition, it conceded that the CWA does in fact authorize the Region to regulate the satellite collection systems. In its petition, the District argued that the Region should issue **separate** permits to the District and the satellites. *See District's Petition* at 62 (arguing that, because of the separate legal ownership of the collection and treatment systems in this matter, "EPA must issue separate permits to the District and the 'co-permittees.'"). The District nowhere reconciles its conflicting interpretations of the CWA.

Making matters worse, there is no question the District's new argument was available to it prior to filing its petition. In fact, the District's attorneys submitted comments on the draft permit questioning the Region's authority under the CWA to regulate the satellite systems. *RTC* at 83 (Comment #F45). In its response, the Region walked through the applicable statutory and regulatory provisions that authorize the Region to regulate the entirety of a publicly-owned treatment works, which in this instance includes the treatment plant (owned and operated by the District) and the collection systems (owned and operated by the satellites). *RTC* at 84-86 (Response #F45). The District's argument is both in error and too late.

The District's assertion that the co-permittees must submit separate permit applications is not relevant to the context here: the Region is exercising its authority to

ensure proper operation and maintenance through an NPDES permit of the *entire* POTW, not only a portion of it. The Region explained that this comprehensive approach is necessitated by the need to address excessive inflow and infiltration. *RTC* at 87. About 15 million gallons per day (out of a daily average of 37 million gallons per day) of flow that reaches the District's plant is inflow and infiltration, the vast majority of which is from the separate sewer areas of the satellite systems. *Id.* at 34. Treating and handling all this excess flow unnecessarily consumes a substantial amount of chemicals and energy, and excess flow can cause overflows in separate sewer systems. *See Region's Opposition* at 145. Furthermore, the District has repeatedly asserted that its enabling legislation does not authorize it to require its members to undertake appropriate operation and maintenance or to otherwise reduce inflow/infiltration in their collection systems. Accordingly, rather than require the District to undertake these activities (or to seek to amend its enabling legislation to obtain the requisite authority to do so), the Region determined to make the collection systems directly responsible for these activities in the permit.

To the extent the District contends the Region's approach of including both the treatment facility and collection systems in a single permit will render the District responsible for the permit obligations of its member communities, *see District's Reply* at 10 & 14, it is concerned about a liability that does not exist. The permit nowhere makes the District responsible for the co-permittees' collection systems. *See Region's Opposition* at 147-48. Rather, the permit specifically identifies the respective

responsibilities of the District (as the owner and operator of the treatment facility) and the satellite systems (as the owners and operators of the sewage collection systems). The Region's approach honors, rather than undermines, the District's assertions regarding the limited legal authority it has over its members.

The District also inappropriately seeks to supplement the record and its petition by submitting selected pages from EPA's ECHO system for the Greater Lawrence Sewer District. The District contends that these materials support its concerns that the violations of co-permittees will be imputed to the District. *See District's Reply* at 13. The District adds that the "[r]eassurances from the Region that the database can be adjusted …rings hollow in light of the continued failure of the database to accurately report the daily monitoring reports submitted by permittees." *Id.* at n.3. Considering no party has ever mentioned the ECHO system until now, the District's reference to "reassurances" from the Region on this subject is far from clear. In addition, the District's arguments regarding the database were available at the time it filed its petition and, therefore, are untimely and should be rejected by the Board. *See Keene, supra*. Furthermore, the merits or flaws of a compliance database are irrelevant to whether it is legally permissible to include the satellite collection systems as co-permittees. In light of the District's argument, however, the Region will review whether any changes need to be made to data entry to the ECHO system.

Conclusion.

The District and CLF have raised no issues in reply warranting review. The Board should deny both petitions.

Respectfully submitted by EPA-Region 1,

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