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May 11, 2007

Clerk of the Board
Environmental Appeals Board
U.S. Environmental Protection Agency
Colorado Building
1341 G Street, NW
Suite 600
Washington, D.C. 20005

RE: In re: City of Portsmouth, New Hampshire Peirce Island Wastewater Treatment
Facility and Combined Sewer Overflows
NPDES Permit No. NH0100234

Dear Sir/Madam:

Enclosed please find an original plus five copies of the Conservation Law
Foundation's Petition for Review relative to the above-referenced matter.

Please feel free to contact me at (603) 225-3060 with any questions or concerns.

Thank you for your assistance in this matter.

Very truly yours,

Thomas F. Irwin
Staff Attorney

TFI/dlh

Encls.

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

ENVIR. APPEALS BOARD

In re: City of Portsmouth, New Hampshire)
Peirce Island Wastewater Treatment Facility)
and Combined Sewer Overflows)
NPDES Permit No. NH0100234)

NPDES Appeal No. _____

PETITION FOR REVIEW

SUBMITTED ON BEHALF OF
CONSERVATION LAW FOUNDATION

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INTRODUCTION

The Conservation Law Foundation (“Petitioner”) seeks review of an April 10, 2007 National Pollutant Discharge Elimination System permit (“NPDES Permit” or “Permit”) issued by the Environmental Protection Agency, Region 1 (“Region 1”) to the City of Portsmouth, New Hampshire (“City”).

Located on Peirce Island, in the Piscataqua River, the Peirce Island wastewater treatment facility (“WWTF” or “Plant”) is designed to discharge a maximum of twenty-two million gallons per day (“mgd”), and an average monthly flow of 4.8 mgd, into the Piscataqua River—a tidal body comprising part of the Great Bay estuarine system. In 1985, Region 1 first granted the City a Section 301(h) waiver from the secondary treatment requirements of the Clean Water Act (“CWA”), 33 U.S.C. § 1251 *et seq.*, as well as a NPDES permit requiring only primary treatment. Exhibit A. Despite ongoing violations in connection with the Plant’s discharge,¹ the Peirce Island WWTF continued to operate under the 1985 waiver and NPDES permit for more than twenty years, discharging primary treated effluent into the Piscataqua River.

On February 14, 2005, Region 1 issued a draft NPDES permit that proposed to continue the Plant’s 301(h) waiver from secondary treatment. Following comments by Petitioner and others, the Region reversed course and issued (1) a final decision denying the City’s request for a Section 301(h) waiver (Exhibit D), and (2) a new Permit for the Plant and four combined sewer

¹ See Correspondence from Region 1 to the City dated Aug. 5, 1998 (Exhibit B) (stating at page 3: “It appears from a review of this POTW’s past history that trying to meet the requirements of a Section 301(h) waiver has been an outstanding issue for some time. If, as it appears, this POTW cannot be configured and operated in such a manner as to meet those waiver requirements, EPA will have not choice but to reissue the City’s NPDES permit based on Secondary Treatment Standards. . . .”); Correspondence from Region 1 to the City dated June 26, 2001 (Exhibit C) (“This letter is to inform you that after review of your permit application, your Section 301(h) waiver application, your compliance history, and other relevant information, it does not appear to EPA-New England that the Portsmouth Wastewater Treatment Facility will be able to meet the waiver requirements pursuant to Section 301(h) of the Clean Water Act. . . .”).

overloads (Exhibit E). The NPDES Permit requires secondary treatment. Exhibit E. Upon information and belief, Region 1 does not intend to require implementation of secondary treatment within the five-year term of the Permit. Moreover, the Region failed to include any limit on total nitrogen, despite Petitioner's comments describing observed and predicted water quality impacts related to nitrogen loading from wastewater treatment facilities, including the Plant, to the Great Bay estuarine system.

The Environmental Appeals Board's ("Board" or "EAB") review is warranted on the following grounds. First, the Region failed properly to address significant concerns regarding nitrogen in the Great Bay estuary. In doing so, Region 1 ignored important evidence, presented by Dr. Frederick T. Short of the Jackson Estuarine Laboratory, and documented in the New Hampshire Estuaries Project's ("NHEP") 2006 *State of the Estuaries* report, that nitrogen levels in the estuary are increasing significantly, and nitrogen-induced impacts in the Great Bay estuary already are occurring in the form of nuisance algae and declining eelgrass. The Region also ignored an important narrative water quality standard as well as New Hampshire's antidegradation regulations. Region 1's failure to impose permit conditions addressing nitrogen discharges that "are or *may be* discharged at a level which will cause, or have the *reasonable potential to cause, or contribute to,*" 40 C.F.R. § 122.4(d)(1)(i) (emphasis added), an excursion above New Hampshire's water quality standards was based on clearly erroneous findings of fact and conclusions of law and implicates important policy considerations.

Second, Region 1's apparent plans to allow the Peirce Island WWTF to continue operations with only enhanced primary treatment for a period beyond the five year permit term amounts to a constructive grant of the 301(h) waiver in violation of the CWA. Further, the Region lacks authority effectively to extend the statutory secondary treatment standards

deadlines. *See* 33 U.S.C. § 1311(i) (requiring publicly owned treatment works to achieve secondary treatment no later than July 1, 1988); *U.S. v. City of Hoboken*, 675 F Supp. 189, 194 (D. N. J. 1987).

In light of these clear factual and legal errors, the Permit for the Peirce Island Plant is not valid and must be remanded to Region 1 to include provisions adequately addressing the WWTF's nitrogen discharges and requiring the prompt implementation of secondary treatment.

THRESHOLD PROCEDURAL REQUIREMENTS

Petitioner satisfies the threshold requirements of 40 C.F.R. Part 124 for filing this petition. Petitioner has standing to seek review of the Permit decision because Petitioner presented comments to Region 1 throughout the public comment process. *See* 40 C.F.R. § 124.19(a); Exhibits F, G, H. The issues presented in this petition were raised during the public comment period by Petitioner and others and, therefore, were preserved for review. *See* Exhibits G, H, I, J.

FACTUAL AND PROCEDURAL BACKGROUND

The Great Bay Estuary

The Great Bay estuary is a large, inland, tidally-dominated estuarine system comprised of several important water bodies, including two major embayments—Great Bay and Little Bay—and the Piscataqua River. The Piscataqua River provides the sole hydrologic and migratory connection between the inland embayments and the Gulf of Maine. Great Bay has been recognized “as an estuarine system of national significance.” NHEP Management Plan 2000 (Exhibit K). It is part of the National Estuarine Research Reserve and the National Estuary

Program² and, pursuant to the latter, is the subject of ongoing management efforts by the New Hampshire Estuaries Project (NHEP).³ *Id.* at 2-5. The Great Bay estuary is included in both the National Estuary Program, and the New Hampshire Estuaries Project (“NHEP”).

The Great Bay estuary contains eelgrass, salt marshes, mudflats, channel bottom, and rocky intertidal zones that provide diverse habitats for a broad range of species. Eelgrass beds play an especially important role, providing breeding and nursery grounds for fish, shellfish and other invertebrates, and “feeding grounds for many fish, invertebrates and birds.” *Id.* at 2-19. Eelgrass also “stabilizes bottom sediments, and may also filter nutrients, suspended sediments, and contaminants from estuarine waters.” *Id.* at 2-19. The estuary has been designated Essential Fish Habitat for numerous fish species, including but not limited to Atlantic Salmon, Atlantic cod and Atlantic herring, in various stages of their life cycles. Exhibit L.

Nitrogen Concerns in the Great Bay Estuary

In recent years, knowledge regarding the levels of nitrogen in the Great Bay estuary, and the impacts thereof, has evolved significantly. The evolution of this knowledge can be traced through four important documents, starting with NHEP’s publication of its Management Plan in 2000 – in which nutrients were identified as an important concern – and culminating with NHEP’s 2006 *State of the Estuaries* report, which documented significant observations of adverse, nitrogen-related impacts occurring within the estuary. These documents consist of NHEP’s *Management Plan* (2000) (Exhibit K); NHEP’s 2003 *State of the Estuaries* report (Exhibit M); a December 2003 report prepared for NHEP and the New Hampshire Department of

² The National Estuary Program is a “state grant program within the U.S. Environmental Protection Agency established to designate estuaries of national significance and to assist local stakeholders in the preparation of a *Comprehensive Conservation and Management Plan* for the designated estuaries.” NHEP Management Plan (2000) (Exhibit K), at AP-7.

³ Great Bay is also home to the Great Bay National Estuarine Research Reserve and the University of New Hampshire’s Jackson Estuarine Laboratory.

Environmental Services (NHDES) evaluating pollutant loadings from WWTFs in New Hampshire's estuaries (Exhibit N); and NHEP's 2006 *State of the Estuaries* report (Exhibit O).⁴

In its 2000 Management Plan, NHEP reported that although all of New Hampshire's estuaries are subject to nutrient loading, "nutrient concentrations in Great Bay have been largely stable over the last 20 years. No widespread eutrophication has been observed." NHEP *Management Plan* (2000) (Exhibit K) at 4-4. It nonetheless identified as a high priority the need to evaluate the effects of wastewater treatment facility discharges on estuarine water quality, and to "seek practical options at the state level for secondary and tertiary or alternative treatment where appropriate."⁵ *Id.* at 4-17. NHEP further established water quality program objectives addressing nutrients and eutrophication, including the management objective of maintaining, *inter alia*, "inorganic nutrients, nitrogen, phosphorous, and chlorophyll-a in Great Bay, Hampton Harbor and their tributaries at 1998-2000 NERR baseline levels." *Id.* at 11-5.

In 2003, NHEP published its first *State of the Estuaries* report. There, NHEP reported that nitrogen concentrations in Great Bay were increasing. NHEP 2003 *State of the Estuaries* (Exhibit M) at 8. The report explained that, despite increasing nitrogen concentrations in the estuary, there have not yet been "any significant trends for the typical indicators of eutrophication: dissolved oxygen and chlorophyll-a concentrations. Therefore, the load of

⁴ NHEP's 2000 *Management Plan* and 2003 *State of the Estuaries* report are part of the administrative record (both were submitted by Petitioner). *Most*, but not all, of the December 2003 "Evaluation of Effects of Wastewater treatment Discharge on Estuarine Water Quality" are contained in the administrative record. Pages 19 through 25, as contained in Exhibit N, apparently were not part of the administrative record. Similarly, certain portions of NHEP's 2006 *State of the Estuaries* report are contained in Region 1's record. Given the public availability of these reports, as well as Region 1's reliance on them, all pages of these documents should be subject to the Board's review. 40 C.F.R. § 124.17(b) ("For EPA-issued permits, any documents cited in the response to comments shall be included in the administrative record for the final permit decision as defined in § 124.18 . . .").

⁵ The NHEP Management Plan ranked Action items as either "Highest," "High," or "Priority." NHEP Management Plan (2000) (Exhibit K) at 4-16.

nitrate+nitrite to the bay appears to have not yet reached the level at which the undesirable effects of eutrophication occur.” *Id.* NHEP further reported that eelgrass habitat in Great Bay had, over the prior 10 years, remained relatively constant. *Id.* at 16.

In December 2003, researchers engaged by NHEP and NHDES published a final report evaluating the effects of wastewater treatment discharge on estuarine water quality. Bolster, Carl H. *et al.*, “Evaluation of Effects of Wastewater Treatment Discharge on Estuarine Water Quality” (Dec. 2003) (Exhibit N). According to the report, WWTFs were estimated to contribute “41% of the total nitrogen loading to the Great Bay Estuary.” *Id.* at 5. The Peirce Island Plant was found to be the WWTF with the greatest annual loading of total nitrogen to the estuary.⁶ *Id.* at 2, 5, 24. The report advised that, “with the potential for increased nutrient loading to occur from point and nonpoint sources as the human population in the Seacoast increases, continued assessments of water quality are necessary to track any possible changes that may occur.” *Id.* at 5.

In 2006, NHEP published its second *State of the Estuaries*. That report, appended as Exhibit O, provided critically important new information about rising nitrogen levels in the estuary and, unlike prior reports, described nitrogen-related changes that presently are being

⁶ The report states that the Peirce Island WWTF is located “near the mouth of the Piscataqua River and therefore only a portion of the nutrients are likely to be transported back into the upper portions of the Great Bay Estuary.” Bolster, *et al.* (Exhibit N) at 2. However, the report did not study the fate (or impact) of nitrogen discharged from the Peirce Island and other WWTFs. As the report explains:

Few past (Jones and Langan, 1994; Mitnik and Valleau, 1996) and no recent studies have documented impacts and fate of WWTF-discharged nutrients to NH surface waters. With increasing development and human population increases, the potential for impairment is not well understood. Further field studied on effluent loading rates and the fate and effects of discharged nutrients in receiving waters would help to address this potential issue. Such work would require assessment of all nutrient sources for any area around a WWTF, including urban stormwater, agricultural runoff, tributary and river freshwater loading, etc., in order to attribute water quality impacts to any single source.

Id. at 13.

observed in the estuary. More specifically, NHEP explained in its 2006 report that dissolved inorganic nitrogen concentrations had “increased in Great Bay by 59 percent in the past 25 years.” NHEP 2006 State of the Estuaries (Exhibit O) at 12. The report documented that nitrogen concentrations in Great Bay had reached the same levels that had been shown to cause negative effects in other estuaries, and described troubling changes that were now being observed:

So far, the typical effects of excess nitrogen have not been observed in Great Bay, although DIN concentrations in Great Bay are similar to concentrations in other estuaries where negative effects have been clearly observed. The only increasing trend for chlorophyll-a, a surrogate for algae, was observed at a station with very low concentrations. Low dissolved oxygen concentrations only have been found in the tributaries to the Bay, not the Bay itself. *However, changes in other parts of the ecosystem, particularly eelgrass cover and biomass, have been observed. There also have been anecdotal reports of increasing populations of nuisance macroalgae in some areas of Great Bay. While precise threshold for DIN effects is not known, it is certain that the estuary cannot continue to receive increasing nitrogen loads indefinitely without experiencing a lowering of water quality and ecosystem changes.*

Id. (emphasis added). The 2006 *State of the Estuaries* report, as compared to the 2003 report, also described a disturbing new trend in the decline of eelgrass in the estuary:

Throughout the 1990s, the total eelgrass cover in Great Bay was relatively constant at approximately 2,000 acres. In 1988 and 1989, there was a dramatic crash of the eelgrass beds down to 300 acres (15 percent of normal levels). The cause of this crash was an infestation of a slime mold, *Labryinthula zosterae*, commonly called “wasting disease.” The greatest extent of eelgrass was observed in 1996 (2,421 acres) after recovery from the wasting disease. The current (2004) extent of eelgrass in Great Bay is 2,008 acres, which is 17 percent less than the maximum extent observed in 1996.

The biomass of eelgrass in Great Bay has experienced a more significant decline relative to the levels observed in 1996. Biomass is the combined weight of eelgrass plants in the bay. In 1990, 1991, and 1995, biomass was low due to wasting disease events. Superimposed on these rapid events has been a gradual, decreasing trend in eelgrass biomass that does not appear to be related to wasting disease. The current eelgrass biomass level for Great Bay is 948 metric tons, which is 41 percent lower than the biomass observed in 1996.

The specific cause of the decline in eelgrass cover and biomass is unclear, but appears to be related to a reduction in the amount of light reaching the plants. *Eelgrass is sensitive*

to water quality, especially water clarity. The observed changes in eelgrass cannot be linked directly to a water quality trend in Great Bay, although increasing concentrations of suspended solids have been observed at Adams Point. The effects of the wasting disease are easily observed on the plants and the gradual decline of the past decade is not consistent with a wasting disease event. There have been anecdotal reports of increasing populations of nuisance macroalgae and epiphytic growth on eelgrass leaves, which may be related to increasing nitrogen concentrations in the Bay. Macroalgae can compete with and smother eelgrass, and heavy epiphyte loads can decrease eelgrass growth, reducing eelgrass biomass and cover.

Id. at 20 (emphases added). NHEP reports that “loss of water clarity, disease, excess nitrogen, and nuisance macroalgae,” are all factors contributing, to eelgrass decline. *Id.* at 4.

The Peirce Island WWTF Permitting Process and Final NPDES Permit

On February 14, 2005, Region 1 published a joint public notice of (1) a tentative decision to grant a Section 301(h) waiver for the Peirce Island plant, and (2) a draft NPDES for the plant and four combined sewer overflows. On March 14, 2005, Petitioner formally requested that Region 1 conduct a public hearing on the tentative decision and draft permit. Petitioner followed this request with written comments dated March 15, 2005, urging denial of a Section 301(h) waiver. Exhibit F.

On May 9, 2005, Region 1 conducted a public hearing in Portsmouth. Petitioner submitted both written and oral comments at the hearing. Exhibit G. Petitioner’s written comments urged denial of a Section 301(h) waiver and specifically raised concerns with increasing nitrogen concentrations in the Great Bay estuary. *Id.* Petitioner’s comments included correspondence from Frederick T. Short, Ph.D., a researcher at the University of New Hampshire’s Jackson Estuarine Laboratory with more than twenty years’ experience working on Great Bay, describing significant nitrogen-related concerns. *Id.* (Attachment 1). Among those concerns, Dr. Short explained that:

- “The Great Bay Estuary is a stressed ecosystem as a result of high loading of nitrogen into the estuary from many sewage treatment plants and from non-point sources as well”;
- The Peirce Island plant “is the largest input of nitrogen to the estuary, and, despite the discharge location . . . , half the time sewage input goes up the estuary rather than seaward, due to the strong tidal influence”;
- When nitrogen from the plant “is flushed into the Great Bay Estuary, it enriches the water, producing excess macroalgae” which are detrimental to the health of the estuarine system; and
- The increased nitrogen levels documented in the 2003 *State of the Estuaries* report are “accompanied by more abundant nuisance algae growth throughout the estuary, an indicator of eutrophication from nutrient over-enrichment.”

Id. Dr. Short’s written comments further describe his development of a Nutrient Pollutant Indicator which “clearly demonstrates elevated nitrogen levels in the area of the Portsmouth sewage treatment plant,” and from which “it is clear that the primary treated sewage from the Portsmouth plant makes a detectable contribution to the degradation of the Great Bay Estuary.”

Id. Dr. Short concluded unequivocally that “the Great Bay Estuary is suffering from excess nitrogen inputs, with contributions from the Portsmouth sewage treatment plant representing a large portion of the excess.” *Id.* In addition to Dr. Short’s correspondence, Petitioner’s comments also included similar observations and conclusions from the Jackson Estuarine Laboratory’s Professor Arthur C. Mathieson, regarding nuisance algae, including epiphytic algae on eelgrass. *Id.* (p. 7).

At the May 9 public hearing, Dr. Short expanded on the observations and opinions set forth in Petitioner's May 9 written comments . Exhibit J. Of particular note, he explained:

Increasing nitrogen levels in an estuary are a problem because it increases gradually and suddenly – all of the sudden you get a change in the system, a dynamic turnover in the system. And the prime example of that is Chesapeake Bay, where in the 1980s the Chesapeake Bay estuary ecosystem collapsed. It lost its eelgrass, it lost its blue crabs, its oysters, because the system was too heavily loaded with nitrogen and the system fell apart. And I'm concerned at the levels of nitrogen that we're seeing here in the Great Bay estuary.

Being a professor, I brought my references. The State of New Hampshire put out the state of the estuary report in 2003 and it shows a significant increase in nitrate levels in the Great Bay estuary. And I looked up those nitrogen levels and compared them to what the levels were in Chesapeake Bay in the 1980s, at the time of the collapse, and we are as high or higher than the levels were in Chesapeake Bay, so I think that's a concern.

Id. at 45.

On July 25, 2006, Region 1 published a joint public notice of (1) a tentative decision to deny a Section 301(h) waiver for the Pierce Island Plant, (2) a draft NPDES permit for the Plant and four combined sewer overflows, and (3) a public hearing to be held on September 7, 2006. On September 7, 2006, Petitioner submitted written and oral comments to Region 1 supporting the tentative denial of a Section 301(h) waiver, urging an aggressive schedule for implementation of secondary treatment, and requesting that the draft NPDES permit be amended to include limits on total nitrogen and ammonium nitrogen.⁷ Exhibits H, I.

On April 10, 2007, more than twenty-two years after issuance of the City's 1985 waiver and NPDES permit, Region 1 issued (1) a final decision denying a Section 301(h) waiver, and (2) a final NPDES permit for the Peirce Island plant and four combined sewer overflows.

⁷ The Permit includes a reporting requirement for "Ammonium Nitrogen as Nitrogen." Region 1 has not specifically addressed in its Response to Comments its decision not to impose, as urged by Petitioner, effluent limits for ammonium nitrogen in addition to monitoring and reporting requirements. Rather, Region 1 addressed the issue of nitrogen more generally. Petitioner reiterates and incorporates into this Petition its concern with respect to the Permit's failure to include limits for ammonia nitrogen.

Exhibits D, E. Consistent with the Region's decision denying a Section 301(h) waiver, the final Permit requires secondary treatment. Upon information and belief, Region 1 intends to allow the City a period in excess of the five-year permit term to implement secondary treatment. The final permit also contains no conditions regulating total nitrogen and, like the draft permit, contains only a reporting requirement for ammonium nitrogen. Exhibit E.

ARGUMENT

I. Standard of Review

In proceedings properly commenced pursuant to 40 C.F.R. § 124.19(a), a petitioner bears the burden of establishing that review by the EAB is warranted. *In Re: City of Marlborough, Massachusetts Easterly Wastewater Treatment Facility*, NPDES Appeal No. 04-13, slip op. at 7-8 (EAB, Aug. 11, 2005). Where, as here, a petition to the Board involves a NPDES permit, review is warranted when the challenged permit is based on "a finding of fact or conclusion of law which is clearly erroneous." 40 C.F.R. § 124.19(a). The Board may also, in its discretion, review important policy considerations or the Region's exercise of discretion. 40 C.F.R. § 124.19(a)(2). As set forth *infra*, the EAB should grant review of the subject NPDES permit, as well as Petitioner's requested relief, because the permit is based on clearly erroneous findings of fact and conclusions of law, and because it implicates important policy considerations.

II. The Region's Failure to Impose Permit Conditions To Address Nitrogen Was Based on Clearly Erroneous Findings of Fact and Conclusions of Law, and Implicates Important Policy Considerations That Warrant Review

"[E]ach NPDES permit "shall include . . . any requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards . . . necessary to (1) Achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality." 40 C.F.R. § 122.44(d). *See also* 40 C.F.R. § 122.4 ("No

permit may be issued: . . . (d) when the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States.”). The regulations further mandate:

Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or *may be* discharged at a level which will cause, *have the reasonable potential to cause, or contribute to* an excursion above any State water quality standard, including State narrative criteria for water quality.

40 C.F.R. § 122.4(d)(1)(i) (emphasis supplied).

Petitioner’s comments raised significant concerns about water quality impacts related to nitrogen discharges, including expert opinion that nitrogen loading from wastewater treatment plants, including the Peirce Island WWTF, is contributing to ecosystem stress. Evidence in the record establishes that (1) nitrogen concentrations in the estuary have reached the same levels that caused the collapse of the Chesapeake Bay ecosystem and problems in other estuaries (*see* oral testimony of Dr. Short (Exhibit J) at 45; Exhibit O); (2) recent data reveal declines in eelgrass cover and biomass (*see* Exhibit O); and (3) nuisance algae have been observed as a growing problem (*see* Exhibits G, J, O). Despite these facts, and despite Region 1’s regulatory duty to ensure the achievement and maintenance of water quality standards, the final permit contains no conditions whatsoever related to total nitrogen.

In defense of the Permit’s failure to limit or otherwise address total nitrogen discharge, Region 1 reasoned that such conditions (1) are not required pursuant to the Clean Water Act’s technology-based requirements, and (2) are not justified as a result of water-quality based considerations. Region 1 concluded that information identified by Petitioner in the comment process is insufficient to indicate that the Plant’s current or future discharge will cause, has the reasonable potential to cause, or contributes to an excursion of water quality standards.

Response to Comments (Exhibit P) at 19. Yet, Region 1 recommends that it would be “prudent” for the City to install, in any upgrade to the Peirce Island plant, denitrification capability, in anticipation of “new data that indicate the potential to cause or contribute to a violation of the narrative criterion,” and/or in the event that numeric criteria are developed. *Id.* at 20.

As discussed *infra*, Region 1’s exclusion of nitrogen conditions from the final NPDES permit is premised on a clearly erroneous analysis of nitrogen issues, is contrary to the requirement that permits include the requirements necessary to achieve and maintain water quality standards, and implicates important policy considerations.

A. **Region 1 ignored important evidence of existing nitrogen-related water quality impacts in the Great Bay estuary and its failure to regulate total nitrogen is based on clearly erroneous findings of fact.**

Region 1 concluded that water quality-based considerations did not warrant the imposition of nitrogen-related permit conditions because, *inter alia*, nitrogen-induced conditions in the form of algae blooms and low dissolved oxygen levels were not evident in the Piscataqua River and Great Bay. Response to Comments (Exhibit P) at 19. That conclusion, however, completely ignores important evidence that nitrogen levels in the estuary already are contributing to (1) the presence of nuisance algae, and (2) declines in eelgrass cover and biomass.

As discussed *supra*, the record contains important evidence that nuisance algae already exist in and threaten the estuary. Region 1’s analysis turns a blind eye to these facts and fails to in any way consider the impacts of these nuisance algae, and the manner and extent to which nitrogen from the Peirce Island plant contributes to their existence and propagation.

With respect to eelgrass, the 2006 *State of the Estuaries* report states in its discussion of nitrogen: “[C]hanges in other parts of the ecosystem, particularly eelgrass cover and biomass, have been observed.” 2006 *State of the Estuaries* (Exhibit O) at 12. The report further explains

that (1) eelgrass cover in the Great Bay declined 17% between 1996 and 2004, *id.* at 5, 20; (2) eelgrass *biomass* in Great Bay declined 41% as compared to 1996 levels, *id.* at 20; and (3) “[t]he causes of these declines are uncertain, but loss of water clarity, disease, *excess nitrogen*, and *nuisance macroalgae* are all contributing factors.” *Id.* at 4 (emphases added). *See also id.* at 20. Although explicitly relying on the 2006 *State of the Estuaries* report to justify its decision *not* to impose nitrogen-related permit conditions, Region 1 failed to consider the ongoing loss of eelgrass in Great Bay (as documented in that report), including the extent to which the Peirce Island WWTF may be contributing to those losses.

The record does not “demonstrate[] that the Region duly considered the issues raised in the comments,” and the approach adopted by Region 1 here plainly is not “rational in light of the information in the record.” *In re: City of Marlborough, Massachusetts Easterly Wastewater Treatment Facility*, NPDES Appeal No. 04-13, slip op. at 23 (EAB, Aug. 11, 2005) (remanding permit in part where record did not establish that Region’s 0.1 mg/l summer phosphorous limit would ensure compliance with applicable Massachusetts water quality standards).⁸

These deficiencies render Region 1’s fact-finding related to nitrogen incomplete and erroneous. Because the Permit is based on this erroneous factual analysis, it cannot satisfy Region 1’s duties to ensure achievement and maintenance of water quality standards. *See* 40 C.F.R. 122.44(d)(1).

⁸ The Region’s failure to address nitrogen in the Peirce Island WWTF Permit appears particularly to be without rational basis when considered in light of the fact that the new NPDES permit recently issued to the Farmington, New Hampshire WWTF, located near Portsmouth, that discharges to the Cocheco river (which flows into the Great Bay estuarine system) contains monitoring and reporting requirements for total nitrogen. *See* Exhibit Q (page 2); Exhibit R (p. 11). The inconsistent manner in which Region 1 has addressed nitrogen in these permits, and in the respective Response to Comments (the Farmington Response to Comments were issued on the *same day* as the Peirce Island WWTF Response to Comments) is arbitrary and capricious.

B. Region 1 ignored a relevant and applicable New Hampshire narrative water quality standard aimed at protecting the integrity of biological and aquatic communities, thereby resulting in the clearly erroneous factual and legal determination that achievement of water quality standards can be ensured without addressing total nitrogen discharges.

EPA's regulations require that permits ensure the achievement and maintenance of *all* state water quality standards, including narrative standards. *See* 40 C.F.R. § 122.44(d)(1)(i); 40 C.F.R. § 122.4(d). New Hampshire's water quality standards include the following narrative standard designed to protect biological and aquatic community integrity:

Biological and Aquatic Community Integrity.

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

Rule Env-Ws 1703.19 ("BACI Standard").⁹

There is no evidence whatsoever that Region 1 ever considered New Hampshire's BACI narrative standard.¹⁰ As a result, Region 1 neglected to consider the structure and integrity of the Great Bay estuary's biological and aquatic communities (and to do so in comparison to other comparable ecosystems under more natural conditions), and the nitrogen impacts of the Peirce Island WWTF on such communities. Had Region 1 conducted such an analysis it would have assessed, for example, the structure and integrity of eelgrass beds within the estuary, their critical

⁹ In addition to the BACI standard, New Hampshire's water quality standards include the following definitional language: "biological integrity' means the ability of an aquatic ecosystem to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region." Rule Env-Ws 1702.07.

¹⁰ Nor is there evidence that NHDES ever considered this narrative standard. *See* Affidavit of Thomas F. Irwin (Exhibit S). This, despite the fact that NHDES historically has specifically addressed the BACI narrative standard in Section 401 Water Quality Certificates issued for other projects. *See* Exhibit T (p. 2) and Exhibit U (p. 4), and *compare with* Exhibit V.

habitat value for other species, and the nitrogen impacts of the WWTF on biological and aquatic communities. Region 1's conclusion that nitrogen discharges from the WWTF will not violate state water quality standards failed to take into account the BACI standard and therefore constitutes clear factual and legal error.

C. **Region 1's failure to consider the requirement to ensure antidegradation constitutes clear legal error.**

As discussed *supra*, EPA's regulations require that permits ensure the achievement and maintenance of *all* state water quality standards and requirements. 40 C.F.R. § 122.44(d)(1)(i); 40 C.F.R. § 122.4(d). The CWA and regulations promulgated pursuant thereto, require states to develop and adopt an antidegradation policy. 40 C.F.R. § 131.12. The substance and implementation of state antidegradation policies must be consistent with the following relevant regulatory requirements.

(1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

(2) Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, *that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.* In allowing such degradation or lower water quality, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

40 C.F.R. § 131.12 (emphasis added). *See also PUD No. 1 of Jefferson County v. Washington Dept. of Ecology*, 511 U.S. 700, 705 (1994) (discussing statutory and regulatory antidegradation provisions).

Consistent with the mandates of the CWA and 40 C.F.R. § 131.12, NHDES has adopted antidegradation regulations. Part Env-Ws 1708. The purpose of these regulations "is to ensure

that the [above-quoted] provisions of 40 CFR § 131.12 are met. . . .” Rule Env-Ws 1708.1. New Hampshire’s antidegradation provisions play an essential role in protecting *existing* water uses, and the water quality necessary to protect such existing uses, including in circumstances where existing water quality *exceeds* what is necessary to support propagation of fish and other wildlife, and recreation.

Region 1’s analysis of nitrogen-related issues emphasized that there currently are no numeric criteria for nitrogen, and that there is no evidence of certain adverse impacts associated with nitrogen-enriched waters. Response to Comments (Exhibit P) at 19. The record contains no evidence that Region 1 considered the extent to which affected waters in the estuary – if not *impaired* by nitrogen – may nonetheless be affected in a way that violates federal and state antidegradation requirements. Nor is there any evidence that NHDES, in issuing a Section 401 Water Quality Certification, considered antidegradation. Region 1’s conclusion that discharges from the WWTF will not violate state water quality standards and requirements is premised on an incomplete analysis and, therefore, is erroneous as a matter of both fact and law.

D. The Region improperly shifted the burden of proof to Petitioner

Responding to Petitioner’s comments concerning nitrogen, Region 1 stated, in pertinent part:

While the commenter has submitted information indicating that the trend of dissolved inorganic nitrogen concentrations in the Great Bay estuary is generally upward, *this information is insufficient to indicate that the City of Portsmouth’s current or future discharge will cause, has the reasonable potential to cause, or contributes to an excursion of water quality standards.* Therefore, at the current time, EPA does not have sufficient justification to impose a nitrogen limit for this discharge.

Response to Comments (Exhibit P) at 19 (emphasis added). Contrary to Region 1’s approach, it is the *permitting authority’s*—not Petitioner’s—burden to ensure that the permit includes the necessary requirements to achieve water quality standards. *See* 40 C.F.R. § 122.44(d)(1)(i) –

(vii).¹¹ Petitioner had no duty to prove affirmatively that the permitted activity will *not* ensure the achievement and maintenance of water quality standards. The Region's attempt to shift the burden of proof only belies its failure to engage in the review necessary to determine whether discharges from the WWTF, as permitted, will cause, or have the reasonable potential to cause, or contribute to, an excursion from water quality standards.

E. The Region's failure to address nitrogen in the Peirce Island WWTF Permit raises important policy implications warranting EAB review

The Great Bay estuary is a resource of national significance and, through the EPA-administered National Estuaries Program, has been the subject of intense study and management planning. As reported by NHEP, as part of the National Estuaries Program, nitrogen concentrations in Great Bay have reached levels that have caused problems in other estuaries; eelgrass beds, which provide essential habitat and water quality functions, are now in decline in the estuary; and nuisance algae have been observed as a growing problem. NHEP 2006 *State of the Estuaries* (Exhibit O). *See also* Exhibit G, J. In light of these facts, nitrogen contributions from the Peirce Island Plant – the WWTF with the single largest nitrogen contribution to the

¹¹ Consistent with the regulation's imposition of this burden on the permitting authority, the U.S. Court of Appeals for the First Circuit has observed with respect to the public comment process for NPDES permits:

The purpose of the regulation requiring participants to raise ascertainable issues . . . is not to foreclose participation in the process, but to provide notice to the EPA so that it can address issues in the early stages of the administrative process. *See* 44 Fed. Reg. 32,885 (1979); *In the Matter of Broward County, Florida*, NPDES Appeal No. 92-11, 11 (1993). It would be inconsistent with the general purpose of the public participation regulations to construe the regulations strictly. Such a strict construction would have the effect of cutting off a participant's ability to challenge a final permit by virtue of imposing a scientific and legal burden on general members of the public who, initially, simply wish to raise their legitimate concerns regarding a wastewater facility that will affect their community, in the most accessible and informal public stage of the administrative process, where there is presumably some room for give and take between the public and the agency.

Adams v. U.S. EPA, 38 F.3d 43, 52 (1st Cir. 1994).

estuary – is a critically important policy matter warranting EAB review and enhanced protections in the NPDES Permit.

Region 1's approach with respect to nitrogen – to await either the development of nitrogen criteria, or even more dramatic nutrient-induced changes in the estuary – is untenable, and places the Great Bay estuary at risk. As a matter of sound policy, Region 1 should affirmatively address the problem of nitrogen in the estuary *now*, in *this* NPDES permit, as opposed to waiting for further degradation. Affirmatively addressing this issue now is especially important not only in light of the significant nitrogen-related issues facing this estuary of national significance, but also in light of the time period—in excess of two decades—during which Region 1 allowed the Peirce Island WWTF's 1985 primary treatment permit to remain in effect. The important efforts of the EPA-administered National Estuaries Program – through the ongoing work of NHEP – also demand that Region 1 affirmatively address the issue of nitrogen in the Plant's permit. As a matter of policy, Region 1 should leverage EPA's investment in the National Estuaries Program by proactively addressing the serious nitrogen-related findings of the NHEP. Failure to take action now with respect to the Plant's nitrogen discharge would contradict the policy of precaution embodied in the CWA's antidegradation framework.

III. The Permit Constitutes An Unlawful Constructive 301(h) Waiver, and Violates Strict Deadlines in the CWA, Because, Upon Information and Belief, the Region Does Not Intend to Require Implementation of Secondary Treatment Within the Five-Year Permit Term

Section 301(h) of the CWA unambiguously prohibits the issuance of a waiver from secondary treatment for WWTF discharges into saline waters

which do not support a balanced indigenous population of shellfish, fish and wildlife, or allow recreation in and on the waters or which exhibit ambient water quality below applicable water quality standards adopted for the protection of public water supplies,

shellfish, fish and wildlife or recreational activities or such other standards necessary to assure support and protection of such uses.

33 U.S.C. § 1311(h)(9). Region 1 properly determined, in light of this prohibition, that it could not lawfully grant another Section 301(h) waiver for the Peirce Island WWTF and, therefore, that the final NPDES permit for the plant must include requirements based on secondary treatment.

The Peirce Island WWTF currently is operating with only enhanced primary treatment. According to the Response to Comments accompanying the Permit, Region 1 intends to (1) issue an administrative order establishing a schedule for the City to study alternative sites and designs to achieve secondary treatment, and (2) enter a judicial consent decree establishing a schedule for the construction and commencement of operation of the alternative and design selected by the City. Upon information and belief, Region 1 intends to allow the City a total of more than five years (*i.e.*, a period in excess of the term of the Permit) to complete its alternatives study and construction, and commence secondary treatment. During this time, the WWTF will continue to discharge wastewater that receives only enhanced primary treatment.

The Region's tacit authorization of primary treatment at the Plant for a period likely in excess of five years effectively constitutes an unlawful, constructive grant of a Section 301(h) waiver. As Region 1 has acknowledged through its denial of the City's waiver request, Section 301(h) of the CWA prohibits any exemption of the Peirce Island WWTF from secondary treatment.

Moreover, the Region lacks authority to extend statutorily mandated secondary treatment standard deadlines. See 33 U.S.C. § 1311(b)(1)(B) (requiring publicly owned treatment works to provide secondary treatment by July 1, 1977); 33 U.S.C. 1311(i) (providing that time extensions for achieving secondary treatment may "in no event" be later than July 1, 1988); *Hawaii's Thousand Friends v. City and County of Honolulu*, 821 F.Supp. 1368 (D. Haw. 1993) (holding

that EPA and state permitting authority had no authority “to extend secondary treatment deadlines or grant permits to discharge at less than secondary levels beyond July 1, 1988.”); *U.S. v. City of Hoboken*, 675 F. Supp. 189, 194 (D. N. J. 1987) (same).

REQUEST FOR RELIEF

For the foregoing reasons, Petitioner requests that the Environmental Appeals Board:

- A. Grant review of the Permit that is the subject of this petition, including the opportunity for further briefing and oral argument;
- B. Remand the Permit with the requirement that Region I cure the above-described deficiencies; and
- C. Grant such other relief as it deems appropriate.

Respectfully submitted,

Conservation Law Foundation

By: _____

Thomas E. Irwin, Staff Attorney
Melissa A. Hoffer, Vice President, Director of
New Hampshire Advocacy Center

Date: May 11, 2007

EXHIBITS LIST

NPDES Permit No. NH0100234 (January 18, 1985)A

Correspondence from EPA Region 1 to City of Portsmouth
(Aug. 5, 1998)B

Correspondence from EPA Region 1 to City of Portsmouth
(June 26, 2001).....C

EPA Region 1 Final Decision Denying § 301(h) Waiver
(April 10, 2007)D

NPDES Permit No. NH0100234 (April 10, 2007)E

Comments of Petitioner Conservation Law Foundation
(March 15, 2005) (without attachments)F

Comments of Petitioner Conservation Law Foundation
(May 9, 2005) (with single attachment – correspondence of
Frederick T. Short, Ph.D.; other attachments not included)G

Comments of Petitioner Conservation Law Foundation
(Sept. 7, 2006).....H

September 7, 2006 Public Hearing Transcript (Excerpt).....I

May 9, 2005 Public Hearing Transcript (Excerpt).....J

N.H. Estuaries Project, *Management Plan* (2000) (Excerpts)K

Correspondence from EPA Region 1 to National Marine
Fisheries Service (Feb. 17, 2005)L

N.H. Estuaries Project, *2003 State of the Estuaries*.....M

Bolster, *et al.*, “Evaluation of Effects of Wastewater
Treatment Discharge on Estuarine Water Quality” (Dec. 2003)
(under cover of Email from Peter Whelan to EPA Region 1) (Excerpt)N

N.H. Estuaries Project, *2006 State of the Estuaries*.....O

Response to Comments Document Re: NPDES
Permit No. NH0100234, EPA Region 1P

NPDES Permit No. NH0100854 (Town of Farmington, NH).....Q

Response to Comments Re: NPDES Permit No. NH0100854
(Town of Farmington, NH).....R

Affidavit of Thomas F. Irwin.....S

401 Water Quality Certificate No. 2003-001 for
Falls Way Subdivision (July 17, 2003).....T

401 Water Quality Certificate No. 2002-007 for
Interstate 93 Improvements (May 2, 2006).....U

Correspondence from N.H. Dept. of Environmental Services
to EPA Region 1, Granting Section 401 Water Quality Certification
(March 30, 2007)V