

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

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In Re: )  
)  
)  
Springfield Water and Sewer Commission, )  
Springfield Regional Wastewater Treatment )  
Facility )  
)  
Reissuance of NPDES Permit No. )  
MA0101613 )  
)  
NPDES Appeal No. 20-07 )  

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**AMICUS BRIEF OF THE  
CONNECTICUT DEPARTMENT OF ENERGY  
AND ENVIRONMENTAL PROTECTION**

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## INTRODUCTION

The estuary known as Long Island Sound lies partly within the territorial limits of the State of Connecticut, and provides immense economic, recreational, and scenic value to Connecticut residents and visitors. The Sound was designated as an Estuary of National Significance in 1987. *See* 33 U.S.C. § 1330(a)(2)(B) (2020). The watershed of the Sound drains an area of more than 16,000 square miles, encompassing virtually all of Connecticut, portions of Massachusetts, New Hampshire, and Vermont, all the way to the source of the Connecticut River in Canada.

Long Island Sound has been plagued for decades by hypoxia, a condition of low dissolved oxygen in the water, which is exacerbated by the release of nitrogen and other nutrients through sanitary sewer discharges and combined sewer overflows directly into the Sound or its tributaries. One such tributary is the Connecticut River, the longest and largest interstate river in New England. The Springfield Regional Wastewater Treatment Plant (the “Springfield Plant”), just north of the Connecticut border, discharges into the Connecticut River, and those discharges quickly enter Connecticut territorial waters. Scientific analysis has concluded that very little to no attenuation of nitrogen occurs in the Connecticut River; therefore, discharges from the Springfield Plant directly affect the water quality and health of both the Connecticut River and Long Island Sound.

Accordingly, the Connecticut Department of Energy and Environmental Protection (the “CT DEEP”) actively participated in the administrative proceedings before EPA Region 1 concerning the Springfield Plant’s National Pollutant Discharge Elimination System (“NPDES”) Permit No. MA0101613N. The CT DEEP submitted written comments on February 7, 2018, April 27, 2018, and October 15, 2018. In addition, Denise Ruzicka, director of the Water

Planning and Management Division of the Bureau of Land Protection and Water Reuse, testified at the public hearing on April 24, 2018. *See* Pet. for Review, Exhibit 7, §§ XIII through XVI. As part of its submission, the CT DEEP urged the EPA to implement a total nitrogen load limit on the Springfield Plant of 1,648 lbs/day. In its final permit decision, EPA imposed a total nitrogen load limit of 2,794 lbs/day. Pet. for Review, Exhibit 1 at 8.

Because the Springfield Water and Sewer Commission has petitioned for review of the NPDES permit issued on September 30, 2020, the CT DEEP respectfully submits this amicus brief for consideration by the Environmental Appeals Board pursuant to 40 C.F.R. § 124.19(e) and the Environmental Appeals Board Practice Manual § IV.D.5.

### **ISSUES PRESENTED FOR REVIEW**

The petitioner presents for review fifteen issues regarding various provisions of the permit. Petitioner's Petition for Review ("Petition") at pp. 1-2. Of these, the CT DEEP addresses in this amicus brief only the first, concerning the total nitrogen limit applicable to the Springfield Plant. Petitioner seeks to have the total nitrogen limit eliminated altogether. Petition at p. 7. Although the CT DEEP maintains that a total nitrogen load limit of 1,648 lbs/day is justified, the CT DEEP supports the EPA's implementation of an enforceable total nitrogen limit through the permit, and strongly opposes the elimination of such a limit.

### **FACTUAL AND PROCEDURAL BACKGROUND**

The CT DEEP adopts the petitioner's recital of the factual and procedural background in § III.A., C., and D. In addition, it notes that in response to the November 20, 2020 motion of Save the Sound, Inc. and Connecticut River Watershed Council, Inc., the Environmental Appeals Board extended the deadline for the filing of amicus briefs to December 16, 2020. *See* Filing No. 6.

The CT DEEP wishes to highlight the significance of the Total Maximum Daily Load (TMDL) in the process of the long-term improvement of the Sound's water quality. In 1985, the Long Island Sound Study (LISS) was established to enable the EPA to implement a program to research, monitor, and assess the water quality of the Sound. In 1988, a Management Conference, consisting of federal, state, interstate and local agencies, universities, environmental groups, industry, and the public, convened to develop a Comprehensive Conservation and Management Plan (CCMP) to protect and improve the environmental quality of the Sound while ensuring compatible human uses. The CCMP, approved in 1994 and revised in 2015, addresses several challenges facing the Sound, but identifies as one of the more pressing issues the eutrophication and hypoxia that affect the Sound in late summer.

Nitrogen is necessary for plant life, but excess nitrogen causes eutrophication—accelerated and overactive aquatic plant growth. Eutrophication reduces water clarity and induces the growth of nuisance and harmful algae, which interfere with swimming, boating, and water sports. In addition, harmful algae present a possible health detriment to humans and animals, including domesticated pets. Eutrophication also damages tidal wetland plants, reducing the capacity of tidal wetlands to mitigate the adverse impacts of flooding, excessive high tides, and storm surge. The aquatic plants cultivated through eutrophication ultimately die, sink to the bottom, and decay, a process that depletes the oxygen in the water. That results in hypoxia, low dissolved oxygen in the water, that can cause the death of marine life.

Wastewater treatment plants are a significant source of the nitrogen that is discharged into the Sound, either directly or through its tributaries. To address hypoxia, the LISS developed a nitrogen reduction strategy premised on the implementation of phases, during which

information would be gathered and analyzed in one phase to determine the nature and extent of nitrogen reductions in the successive phase.

Connecticut and New York jointly developed a TMDL for nitrogen, which the EPA approved in April 2001. Phase III of the strategy targeted a 58.5% reduction from Connecticut and New York wastewater treatment plants over fourteen years through the implementation of the TMDL. More than \$2.5 billion invested in improvements to Connecticut and New York wastewater treatment plants achieved the nitrogen reduction target in 2017.

The TMDL also specifies a 25% reduction in estimated baseline nitrogen load from the upriver states of Massachusetts, New Hampshire, and Vermont. The baseline load was by necessity theoretical and, consequently, grossly overestimated. It factored an average discharge concentration of 15 mg/L with plant design flows, as accurate monitoring data was unavailable at the time. Actual monitoring data for the Springfield Plant for 2004 and 2005 showed the load to be 1,648 lbs/day. Therefore, the actual baseline nitrogen load for the Springfield Plant should be 1,648 lbs/day or lower. Phase IV now appropriately implements that TMDL in those states, encompassing the Springfield Plant, which is the largest and closest discharger of nitrogen to the Connecticut River. Pet. for Review, Exhibit 2 at 87.

A study of nitrogen loading trends to Long Island Sound from New England states found that approximately 50% of the nitrogen load to the Sound comes from areas north of Connecticut. Mullaney, J.R., and Schwarz, G.E., 2013, "Estimated nitrogen loads from selected tributaries in Connecticut draining to Long Island Sound, 1999–2009," U.S. Geological Survey Scientific Investigations Report 2013–5171, at 65. Very little to no attenuation occurs in the Connecticut River. See Smith, T.E., A.E. Laursen, J.R. and Deacon. 2008, "Nitrogen attenuation in the Connecticut River, Northeastern USA; A comparison of Mass balance and N<sub>2</sub> production

modeling approaches,” *Biogeochemistry*, Vol. 87, Issue 3 at 311–23. Consequently, this total, upriver nitrogen load flows directly into the Sound, and directly adversely impacts Connecticut’s water quality.

The TMDL is the product of decades of research, analysis, and planning, and a critical tool in the long-term improvement of the Sound. It therefore should serve as the touchstone for the EPA’s permitting of the Springfield Plant.

## **ARGUMENT**

### **I. THE EPA PROPERLY ESTABLISHED A TOTAL NITROGEN LOAD LIMIT IN THE FINAL PERMIT**

The final discharge permit for the Springfield Plant includes a nitrogen load limit of 2,794 lbs/day. Pet. for Review, Exh. 1 at 4. In its petition, the Petitioner argues that the EPA erred in establishing a total nitrogen limit for Springfield through a “new approach.” Pet. for Review at 6-7. In addition, the petitioner argues that the establishment of a total nitrogen limit based on a concentration target of five milligrams per liter is arbitrary and bears no rational relation to the waste load allocations established in the TMDL. Pet. for Review at 7. The petitioner accordingly asks the Board to remand the permit with instructions to remove the total nitrogen limit. Pet. for Review at 7. The petitioner’s arguments fail because they ignore the petitioner’s contribution to the Sound’s total nitrogen load, discount the significance of the TMDL, and overlook the fact that the Springfield Plant has not yet had an enforceable nitrogen limit in any of its NPDES permits.

Through its comments and testimony presented in the administrative proceedings before the EPA, the CT DEEP persuasively demonstrated why the Springfield Plant should be subject to an enforceable permit limit, rather than a “benchmark,” and that limit be set as 1,648 lbs/day. *See* Pet. for Review, Exhibit 7, §§ XIII through XVI. The EPA was willing to implement an



enforceable limit but proposed a limit of 2,279 lbs/day in the first draft permit and an even higher limit of 2,534 lbs/day in the second draft permit. *See* Pet. for Review, Exh. 3 at 20-21 and Exh. 2 at 4, respectively.

Ultimately, the EPA finalized the limit at 2,794 lbs/day, which exceeds the second draft permit by 10.26%, the first draft permit by 22.6%, and the CT DEEP's advocated limit by an astounding 41%. Although the CT DEEP disagrees with the specific final limit, it vociferously defends the EPA's incorporation of the limit as an enforceable provision of the permit, nearly twenty years after the EPA's approval of the TMDL, and fifteen years after the Springfield Plant's current permit expired. The EPA's 2001 approval of the TMDL provided the petitioner with nearly twenty years' notice that a plantwide load limit was contemplated.

In 2019, the EPA developed a permitting strategy for sources in upriver states, a strategy that allows for nitrogen discharges in pounds per day beyond the "cap" and average annual nitrogen loads derived from wastewater treatment plant data. The EPA rightfully employed this strategy to establish the nitrogen load limit in the final permit to achieve critical, real-world reductions in discharges of nitrogen.

The Springfield Plant has demonstrated ability to maintain its nitrogen loading below the final permit limit, which is 41% above that proposed by Connecticut, 1,648 lbs/day. The petitioner has not justified why the Springfield Plant cannot meet a nitrogen permit limit that is higher than the baseline cap as well as the annual average of fifteen years of data (from 2001 to 2016). It is important to note that the current nitrogen load from the Springfield Plant, as well as the allowable increase from the permit limit, represents an additional nitrogen load to the Connecticut River and the Sound above baseline conditions and not a 25% reduction as anticipated in the TMDL. Despite the 2004-2005 baseline cap of 1,648 lbs/day, the long-term

record of data (2001-2016) reveals that the Springfield Plant has increased its nitrogen load by approximately 631 lbs/day to an average of 2,279 lbs/day. Pet. for Review, Exh. 2 at 87. This increased nitrogen load will further adversely affect the Connecticut River and the Sound.

Given the critical relationship between nitrogen loading and hypoxia in the Sound, an enforceable twelve-month rolling average nitrogen load limit is justifiable and achievable by the Springfield Plant. Indeed, it is essential. Connecticut has spent approximately \$1 billion to address its nitrogen loading affecting the Connecticut River and the Sound. All of that is for naught if the Springfield Plant can simply dump nitrogen into the Connecticut River and undo all of the costly and hard work of Connecticut and New York in reducing nitrogen levels in the Sound. Establishing a set limit is critical to implementation of Phase IV nitrogen reductions and directly linked to the protection of the Sound.

### **CONCLUSION**

For the foregoing reasons, the Environmental Appeals Board should deny the petitioner's request to remove or raise the nitrogen limit in the final Springfield Plant permit.

**FOR THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION**

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**STATEMENT OF COMPLIANCE WITH THE WORD/PAGE LIMITATION**

In accordance with 40 C.F.R. § 124.19(d)(1)(iv) & (e), I hereby certify that this amicus brief does not exceed fifteen pages.

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## **CERTIFICATE OF SERVICE**

I hereby certify that on December 16, 2020, a copy of the foregoing amicus brief was filed and served on the following persons by electronic mail at the address specified for each recipient.

### **By electronic filing to:**

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