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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
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BOSTON, MASSACHUSETTS 02114-2023

August 5, 2005

John MacDonald, Vice President Operations
Public Service Company of New Hampshire
P.O. Box 330
Manchester, NH 03105-0330

Re: Merrimack Station, National Pollutant Discharge Elimination System Permit No. NH0001465, Proposal for Information Collection

Dear Mr. MacDonald:

On May 2, 2005, the Public Service Company of New Hampshire's (PSNH) submitted a Proposal for Information Collection (PIC) for Merrimack Station located in Bow, New Hampshire (the Station), pursuant to requirements under the Phase II Regulations promulgated by EPA under Section 316(b) of the Clean Water Act (the Phase II Regulations). EPA has reviewed the Station's PIC and this letter addresses (1) issues raised in the PIC regarding the application of the Phase II Regulations to the Station, (2) changes that PSNH must make to the monitoring program proposed in the PIC, and (3) PSNH's request for authorization to promptly implement the new impingement monitoring program proposed in the PIC in lieu of the impingement monitoring requirements currently specified in Part I.A.10.b of the Station's existing National Pollutant Discharge Elimination System (NPDES) permit.

Application of the Phase II Regulations' Standards for Entrainment Reduction

In the PIC, PSNH argues that the Station should not be subject to the entrainment reduction requirements of the Phase II Regulations because each of the Station's two generating units, *separately*, use less than five percent of the mean annual flow of the Merrimack River for once-through condenser cooling water based on the *actual* intake flows for each Unit. EPA has considered PSNH's argument, but determined that it represents an incorrect reading of the Phase II Regulations and that the entrainment reduction standards in the regulations do, in fact, apply to the Station.

The regulations specify that a permittee is subject to entrainment performance standards if "your **facility** uses cooling water withdrawn from a freshwater river or stream and the **design intake flow** of your cooling water **intake structures** is greater than five percent of the mean annual flow" (emphasis added). 40 C.F.R. § 125.94(b)(ii)(B). This regulatory language indicates that the percentage of the mean annual stream flow used by a facility is to be determined based on the *facility as a whole* and the flow through *all of its intake structures*, rather than based on the flow through individual intake structures assessed separately. Furthermore, the regulation indicates that the percentage of mean annual stream flow used by a facility is to be calculated based on "design intake flow," rather than on actual flow.

This reading of the plain language of the regulations is also supported by EPA's discussion in the preamble to the Phase II Regulations. While the preamble states that a facility may calculate its *capacity utilization rate* separately for each intake structure, it specifically notes that even where a facility calculates its capacity utilization rate in this manner, "you would still be required to consider the total design intake flow at all structures **combined** in determining whether your design intake flow exceeds 5 percent of the mean annual flow of a freshwater river or stream" (emphasis added). 69 Fed. Reg. 41636 (July 9, 2004).

Merrimack Station's design intake flow for all of its intake structures considered together is approximately nine percent of the mean annual flow of the Merrimack River. Therefore, the Station is subject to the entrainment reduction requirements of the Phase II Regulations. As a result, EPA must hereby require PSNH to modify its PIC to include a proposal for entrainment sampling. Furthermore, EPA requires PSNH to modify its PIC to include proposed technologies and operational measures that would demonstrate compliance with the performance standards specified in the Phase II Regulations for reducing entrainment from a properly derived calculation baseline. The modified PIC shall be submitted to the EPA within 90 days of the date of this letter.

Calculation Baseline

The Phase II Regulations dictate that the Station must reduce impingement mortality by 80 to 95 percent, and reduce entrainment by 60 to 90 percent, of the facility's "calculation baseline." 40 C.F.R. § 125.94(b). PSNH indicates that intake flow reductions resulting from pump differentials, maintenance outages, and the use of heated condenser cooling water for de-icing in the winter result in lower impingement mortality and entrainment levels than would occur without these operational measures. The company urges that the facility's calculation baseline should be based on an estimate of the impingement mortality and entrainment that would occur without these measures. Thus, PSNH argues that these steps should be considered operational measures already being implemented at Merrimack Station to reduce impingement mortality and entrainment from the Station's calculation baseline.

EPA must disagree. The calculation baseline for the Station must be based on impingement mortality and entrainment levels that reflect these existing operational steps. The calculation baseline is defined in 40 C.F.R. § 125.93 as "...an estimate of impingement mortality and entrainment that would occur at your site assuming that ... [,among other things,] the baseline practices, procedures, and structural configuration are those that your facility would maintain in the absence of any structural or operational controls, including flow or velocity reductions, implemented in whole or in part for the purposes of reducing impingement mortality and entrainment." The above-mentioned pump differentials, maintenance outages, and use of heated condenser water for de-icing are all baseline operational practices that the Station has historically implemented for power plant operational reasons and not for the purpose (or partial purpose of) reducing impingement mortality and entrainment.[1] As a result of these practices, Merrimack

[1] Lower flow due to pump differentials occurs because "...Hooksett Pool is maintained at a lower elevation than the design head for the intake pumps at each Unit." All power plants have

Station has historically operated at an actual intake flow lower than the design intake flow, and impingement mortality and entrainment levels based on this lower actual flow constitute the calculation baseline for the facility.[2]

Impingement Monitoring Program

EPA has reviewed the proposed impingement monitoring program included in your PIC and consulted with the U.S. Fish and Wildlife Service, the New Hampshire Fish and Game Department, and the New Hampshire Department of Environmental Services (NH DES). On the basis of this evaluation, EPA requires that the following changes be made to the impingement monitoring program set forth in the PIC.

1. Descriptions of Unit 1 and 2 (PIC, Sections 2.1.1 and 2.1.2)

According to the descriptions provided for Units 1 and 2, each screen has a single-pressure spray header to wash fish and debris into a trough. Please provide the pressure at which these spray headers normally operate. The PIC provides the distance between the location where fish are discharged from the fish return system and the edge of the river based on the full "pond" elevation of 190 feet. Please also provide the distance from the point of discharge to the river, as well as the height of the pond elevation, during average flow conditions in August.

2. Sampling schedules (PIC, Sections 2.2)

The proposed 24-hour and 6-day sampling are acceptable as described in Section 2.2. The 13-day sampling period, however, is too long for organisms to remain intact and readily identifiable, even during the cold weather period from November 1 to mid-March. Instead, sampling should commence one week into each biweekly sampling period and run 6 days.

3. Collecting the 24-Hour Impingement Sample (PIC, Sections 2.4.2.2)

All fish shall be identified to the species level.

4. Long-Interval (6-Day) Samples (PIC, Sections 2.4.2.3)

All fish shall be identified to the species level and enumerated, instead of enumerating only four

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periodic maintenance outages to ensure proper operations, and the Station must periodically undertake de-icing steps to ensure proper operations during the winter.

[2] The answer might be different if, for example, regular maintenance outages were mandated to take place during the spawning season of a certain fish species in order to achieve a regular reduction in impingement mortality and entrainment of that species. In the example, the maintenance outage would be undertaken both for plant operational purposes and for impingement and entrainment reduction purposes and credit for reducing impingement mortality and/or entrainment could be applied.