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The Northeast Utilities System

John M. MacDonald  
Vice President - Operations

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June 30, 2004

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Mr. John P. King  
US Environmental Protection Agency  
Region 1: New England  
Office of Ecosystem Protection  
NPDES Task Force (CPE)  
1 Congress Street, Suite 1100  
Boston, MA 02114-2023

Subject: Merrimack Station NPDES Permit No. 0001465

Dear Mr. King:

Consistent with our discussion on June 23, 2004, enclosed please find June 29, 2004 correspondence from Normandeau Associates, Inc. ("NAI"), informing Public Service of New Hampshire ("PSNH") that it has identified two significant errors in its April 1996 report, entitled "Merrimack Station (Bow) Fisheries Study" (the "Report"). As you are aware, PSNH had submitted the Report to the United States Environmental Protection Agency ("EPA") in conjunction with your office's review of the Station's pending National Pollutant Discharge Elimination System ("NPDES")-permit renewal application for Merrimack Station in Bow, New Hampshire (the "Station"). The Report also was submitted to the New Hampshire Department of Environmental Services ("NHDES").

As your office is relying heavily on the Report in its consideration of the Station's NPDES application and in developing a draft NPDES permit, PSNH believes that bringing these errors to your attention is critical to enabling appropriate correction of the administrative record and, therefore, to ensuring that any draft permit is based both on accurate facts and appropriately reflects and responds to fisheries conditions in a manner consistent with applicable law and PSNH's long-standing commitment to the environment. While NAI is still in the midst of performing the work necessary to fully detail the magnitude of the errors, preliminary indications are that the corrections may be significant. Accordingly, we felt it important to promptly notify you of this situation to allow your office to appropriately manage its permitting effort and to correct the existing administrative record.

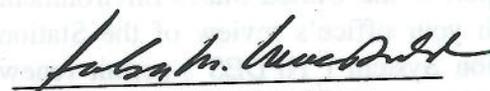
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While NAI's correspondence details the errors, briefly, each significantly affects the "trap net" results that underpin the Report. Thus, the errors have the potential to mistakenly give EPA, as well as NHDES, an inappropriately negative impression of the Station's potential impact on fisheries communities in the River. As indicated above, NAI is currently estimating the magnitude of the errors; however, the field studies to fully verify that assessment will not be completed until the end of this year.

Consistent with this correspondence, and to ensure your office's complete understanding of an accurate record, we gladly will meet with you and the permit team to provide an overview of the errors in the Report and to detail the corrections to the administrative record. NAI plans to develop a trap net correction factor through the late summer months when the greatest difference in catch rates between the two net mesh sizes will most likely occur (when the smaller fish are available for capture). We suggest a meeting at your office this Fall would be an appropriate time to provide the interim results on the effects of the net mesh size error and the CPUE corrections, ideally with NHDES staff also present. This meeting will also allow us to provide the results of other recent biological assessments, performed in conjunction with our Merrimack River Hydroelectric Project relicensing, which may augment the existing record relating to the River and fisheries conditions that were not available at our last technical meeting in July 2002. A revised Report with the entire year of sampling (April through December 2004) will be available by March 2005.

Finally, we apologize for any inconvenience these errors may have caused your office and NHDES, and look forward to correcting the record and moving forward to achieve an appropriate renewed NPDES permit. As always, should you have any questions or concerns, please do not hesitate to telephone Allan Palmer at (603)634-2439.

Very truly yours,



Mr. John M. MacDonald  
Vice President - Operations

cc: David M. Webster, USEPA  
Carl DeLoi, USEPA  
Eric Nelson, USEPA  
Harry Stewart, NHDES  
Paul Currier, NHDES  
George Berlandi, NHDES  
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**NORMANDEAU ASSOCIATES, INC.**

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Mr. Allan Palmer  
Public Service Company of New Hampshire  
780 North Commercial Street  
Manchester, NH 03105

June 29, 2004

Dear Mr. Palmer:

In reviewing the historical fisheries data collected at Public Services Corporation of New Hampshire's ("PSNH's") Merrimack Station since the late 1960s, Normandeau has discovered two serious errors in our report *Merrimack Station (Bow) Fisheries Study*, completed in April 1996 (the "Report").

Both errors significantly affect the trap net results presented in the Report. The first serious error pertains to the mesh size of the trap nets and how that net size was accounted for in the Report. The two-inch stretch mesh size of the trap nets used in the 1994/1995 fisheries study was much greater than the ¾-inch stretch mesh size used in the 1960s and 1970s. However, the Report did not make appropriate adjustments to account for this critical difference, thus impairing the accuracy of any comparisons between historical trap net catch data and the data collected in 1995. This error is a critical one because data regarding trap net catches from the early years cannot be compared with the data from the 1995 trap net catches, because the larger mesh size used in 1995 would have allowed many of the smaller fish to escape through the nets' mesh, reducing the total number of fish captured.

The significant early report from the New Hampshire Fish and Game Department (Wightman 1971) and Normandeau's fish reports for Merrimack Station from the 1970s did not include information on the mesh size of the trap nets used in the sampling efforts documented in those reports. When the Merrimack Station fish sampling work (which was originally completed in 1978) resumed in 1994, new trap nets were purchased and deployed that utilized a two-inch mesh size, which is commonly used in fisheries studies. However, in reviewing the historic data, one of Normandeau's fish biologists recalled that he had used the old trap nets from the PSNH studies on other jobs throughout the 1980s, and was sure the nets used in the 1970s sampling efforts had a smaller mesh size than two inches. He was able to produce a 1983 picture of one of these trap nets, during its use in a Penobscot River fish survey, and the mesh size in the picture is obviously smaller than the two-inch stretch mesh used in the 1995 study. Moreover, the fish report from the 1983 Penobscot River study indicated that the mesh size of the trap nets used was ¾-inch stretch.

The second error affects the accuracy of Table 3-3, Catch and Effort Data Adjusted to a "Standard" June-September Fishing Season (this table appears on page 14 of the Report). The 1995 effort reported in Table 3-3 lists 96 as the number of trap net samples used to calculate catch per unit effort ("CPUE"), but the effort was actually 64 trap net samples, which is the same effort expended between 1973 and 1978. A total of 96 trap net samples were collected in 1995, but this included 32 trap net samples collected from the power canal. In calculating the 1995 CPUE, Normandeau removed the number of fish captured in the 32 power canal trap net samples from the data set, but mistakenly kept the effort at 96 instead of correctly reducing it to 64 samples. This error lowered CPUE values for the four fish species presented in Table 3-3. For instance, CPUE of smallmouth bass is presented as 0.40 in Table 3-3, but the correct value is 0.60. Similarly, largemouth bass CPUE is presented as 0.08, but the correct value is 0.13; pumpkinseed CPUE is presented as 0.13, but the correct value is 0.20 and yellow perch CPUE of 0.06 is actually 0.10.

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The Report is one of the key documents being used by EPA and NHDES for the renewal of Merrimack Station's NPDES permit, and the errors that we have discovered are substantial enough that decisions based on the data presented in the Report will be flawed. Because the 1995 trap net data contains the errors described above, Normandeau is currently repeating the fisheries study at Merrimack Station using the same sampling stations and months fished in prior years, and we have devised a sampling program that will enable us to compare the 1995 trap net catch data with the trap net catch data from all years. Trap nets with  $\frac{3}{4}$ -inch mesh will be used as the primary sampling gear for the 2004 fisheries study. However, to enable comparison of data among sampling years, a gear comparison study is now being conducted. For the 2004 study, the 96 principal trap net samples will be collected with the  $\frac{3}{4}$ -inch stretch mesh at the same station locations fished across the years. In addition, 32 comparison samples will be collected using the 2-inch stretch mesh at randomly selected river stations. The object of this net comparison study is to determine how the species composition and length distributions of individual species compare between the two trap net gear types. The field work for this study began in April 2004 and will be completed by December 2004. We plan to provide the results of this study to EPA and NHDES in order to correct the factual record for the permit.

In addition, Normandeau has gone back into the historic fisheries data to calculate electrofishing CPUE across all years to see if these data show a significant drop in fish abundance for certain species in 1995 compared to the earlier years (as the flawed trap net data does). We have summarized these data in a report entitled *Merrimack Station Summary of the Historic Electrofishing and Fyke Net Data Collected 1967-1969, 1972-1978 and 1994-1995* (we completed this report in March 2004 and intend to provide it to EPA and NHDES so that they will have all of the relevant information needed to prepare a factually accurate permit). The electrofishing CPUE demonstrates that catches of key fish species, including pumpkinseed, yellow perch, redbreast sunfish and smallmouth bass, were low in the 1960s compared to catches in the 1970s. Electrofishing CPUE for largemouth bass increased by 1995, and catches of redbreast sunfish and smallmouth bass in 1995 were comparable with prior years. While catches of yellow perch and pumpkinseed did decline by 1995 compared to previous years, the decline in numbers for these two species may be related to competition with other fish species that have recently appeared in the fish assemblage. One of the largest changes in the fish community noted in the 1995 study was the large increase in bluegill abundance. Bluegill were only captured in small numbers in 1972, but when sampling resumed in 1994, they were third in abundance in the electrofishing catches, with a CPUE of 10.8 fish per 1000 ft of shoreline sampled.

We also note there has been extensive water quality work done for the recent relicensing of the Merrimack River Hydroelectric Project, and the recent salmon smolt study conducted in the vicinity of Merrimack Station in spring 2003. The salmon smolt study describes the effects of the Station's thermal plume on the downstream salmon smolt migration. Given the concerns that the agencies expressed to PSNH in 2002, this report is critical to their evaluation of the impacts of the thermal plume on the downstream smolt migration. Other recent data from the relicensing includes the documented successful spawning of American shad in Hooksett Pool (the water body from which Merrimack Station draws its cooling water) during 2002. These data are particularly important because river flows in 2002 were extremely low (approaching the 100-year drought), and therefore represent a worse-case scenario for shad spawning because water temperatures were higher than normal due to low flows.



**NORMANDEAU ASSOCIATES, INC.**

Because of the significant errors contained in the Report, and the additional biological reports and data that have recently been collected, we think it is imperative that we meet soon with agency representatives to discuss these findings as they relate to Merrimack Station.

Sincerely  
Normandeau Associates, Inc

Richard Simmons  
Senior Fisheries Biologist

