



Northeast  
Utilities System

NA1000/465

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August 12, 1999

D14754

William J. Nadeau  
Vice President - Fossil/Hydro Engineering  
and Operations

Mr. William C. Ingham, Jr.  
New Hampshire Fish and Game Department  
2 Hazen Drive  
Concord, NH 03301

Subject: June 2, 1999, Fish Mortality Event at Merrimack Station

Dear Mr. Ingham:

As requested in your letter dated June 28, 1999, Curt Mooney and Allan Palmer of Public Service Company of New Hampshire (PSNH) met with you and Jon Greenwood of the New Hampshire Fish and Game Department (NHFGD) on Tuesday, August 3, 1999, to discuss the June 2 fish mortality event at PSNH's Merrimack Station. To summarize, approximately 50-100 warm water species of fish were found deceased on the shoreline of the cooling water canal; the majority of which were Redbreasted Sunfish (*Lepomis auritus*). There were also a few (1-5) Smallmouth Bass (*Micropterus dolomieu*), Black Crappie (*Pomoxis nigromaculatus*), Yellow Perch (*Perca flavescens*) and Brown Bullhead (*Ictalurus nebulosus*).

As originally reported, thermal shock is the suspected cause of mortality. Unit 1 had been off line since May 1 for an annual outage and Unit 2 was taken off line May 26 for an emergency shutdown. With both units off line the cooling canal water was stagnant for three days. It is a highly uncommon occurrence for both units to be down at the same time and for no cooling water pumps to be operating. Above normal ambient temperatures were also experienced during this period due to an extended heat wave and unseasonally low precipitation. In addition to these unusual conditions, Unit 2 came back on line Sunday morning, May 30, 1999, with only one of two cooling water pumps operating; the second pump was inoperable due to an equipment failure and had been sent out for repair. The initial surge of cooling water may have trapped fish in a section of the canal inlet and elevated the temperatures above those tolerable for indigenous fish.

The NHFGD letter questioned whether the water was appropriately cooled prior to discharge and if the power spray modules (PSMs) were operating in accordance with the NPDES permit. As described above, it appears that PSM operation played no role in the event as the fish were trapped in the inlet area to the canal prior to the first bank of modules. A review of station records indicates that the PSMs were operated properly.

Mr. W. Ingham, Jr.  
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NHFGD personnel were also concerned with the pending sale of Merrimack Station, and specifically that the future owners respond to such events in an appropriate manner. PSNH is documenting this event and revising the PSM Operating Procedure and the Operating Log Sheet. Annual refresher training with the operators will stress the importance of recognizing station conditions that can affect the canal environment and that mitigating actions may be necessary.

PSNH also noted that there is no specific NPDES permit requirement for fish kill notifications other than for impingement events. Internal PSNH policy has been to report any event where 50 or more fish of any size and species are observed in distress or deceased. NHFGD agreed that approximately 50 fish is an appropriate cutoff.

If you have any questions, please call Curt Mooney, Associate Scientist, at 634-2383 or Allan Palmer, Senior Engineer, at 634-2439.

Very truly yours,

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

  
\_\_\_\_\_  
William J. Nadeau  
Vice President

cc: Mr. John Warner  
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22 Bridge Street  
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Mr. Joseph F. McKeon  
US Fish and Wildlife Service  
Federal Building, Room 124  
Laconia, NH 03246

Ms. Joy Palmer  
NPDES Program Operations Section (WCP-2109)  
US Environmental Protection Agency  
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Mr. Jeffrey G. Andrews  
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June 4, 1999

D14467

Dennis E. Welch  
Vice President - Environmental, Safety and Ethics

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Federal Building, Room 124  
Laconia, NH 03246

Dear Sir:

Merrimack Station  
NPDES Permit No. NH0001465  
Report of Fish Mortality Event

In compliance with Merrimack Station's NPDES Permit, Public Service Company of New Hampshire (PSNH) herein submits this written report of a fish mortality event. Verbal notification was given to the N.H. Fish and Game Department, U.S. Fish and Wildlife Service, N.H. Department of Environmental Services, and the U.S. Environmental Protection Agency Thursday morning, June 3, 1999, by Curt Mooney and Allan Palmer of PSNH.

On June 2, 1999, station personnel discovered approximately 50 to 100 warm water species of fish deceased on the shoreline of the Merrimack Station cooling water canal. The majority of fish found were Redbreasted Sunfish (*Lepomis auritus*). There were also a few (1 to 5) Smallmouth Bass (*Micropterus dolomieu*), Black Crappie (*Pomoxis nigromaculatus*), Yellow Perch (*Perca flavescens*) and Brown Bullhead (*Ictalurus nebulosus*). The condition of the fish indicated that they had been dead for 2 to 3 days.

Mr. William C. Ingham, Jr.

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June 4, 1999

Thermal shock is the suspected cause of mortality. Unit 1 has been off line since May 1, 1999, for an annual outage and Unit 2 was taken off line Wednesday, May 26, for an emergency shutdown. Following repairs, Unit 2 was restarted on Sunday morning, May 30, 1999. It is believed that the quick introduction of heated water into the canal that had cooled to ambient conditions trapped these fish in the thermal plume. PSNH is continuing to research the matter and will provide you with any additional findings as they become available.

Should you have any questions, please contact Curt Mooney, Associate Scientist, at (603) 634-2383 or Allan Palmer, Senior Engineer, at (603) 634-2439.

Very truly yours,

PUBLIC SERVICE OF NEW HAMPSHIRE



Dennis E. Welch

JUN 7 1999

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