



November 30, 2001

D17937

Mr. Fred Gay (CPE)
EPA New England
Region I
1 Congress Street, Suite 1100
Boston, MA 02114-2023

Dear Mr. Gay:

Merrimack Station
NPDES Permit No. NH0001465
2000 Annual Fish Impingement Report

This report is submitted pursuant to Part 1, Section A.10.b of the Merrimack Station NPDES Permit (No. NH0001465). This permit requires Public Service of New Hampshire (PSNH) to conduct impingement monitoring at Merrimack Station according to the provisions below.

- PSNH shall provide impingement monitoring at Merrimack Station when flows from Garvins Falls Hydroelectric Station are less than 900 cfs during any period from July 1 through October 15.
- PSNH shall collect all fish from both MK-1 and MK-2 traveling screen washes during one continuous 48-hour period per week when the conditions outlined above are met.
- PSNH shall report in writing to the New Hampshire Fish & Game Department (NHFGD), United States Fish and Wildlife Service (USFWS), New Hampshire Department of Environmental Services (NHDES) and the United States Environmental Protection Agency (USEPA) my Extraordinary Impingement Event (EIE) at Merrimack Station. An EIE is defined as an event when 50 or more fish at any one time, of any size or species, are either distressed or killed as a result of impingement.

Based on river flows, Merrimack Station was required to collect three samples from the intake screens of Unit 1 and Unit 2 between July 1 and October 15, 2000, see Table 1. A total of 20 fish were collected in these samples. There were no extraordinary impingement events during the 2000 monitoring period.

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Impingement rates for the sampling periods were calculated by dividing the total number of fish collected by the total volume of water withdrawn by the units during the 48 hour monitoring period. The total volume of water is based on the circulating pump capacity and the number of pumps operating during each screen wash cycle. Each operating unit has two pumps; the pumps servicing Unit 1 are rated at 63 cfs each (126 cfs total), the pumps servicing Unit 2 are rated at 144.5 cfs each (289 cfs total). Table 1 shows the total number of fish collected and the impingement rate for each sampling period. The average impingement rate for the 2000 monitoring program was 0.09 fish per million cubic feet of screen water. This rate is consistent with historical results and continues to reflect a very low rate of fish impingement under worse case conditions, i.e., when river flows are less than 900 cfs.

Table 2 identifies the impinged fish that were collected by common name, and includes the total length when possible. Table 3 provides common and scientific names of fish species commonly found in this section of the Merrimack River.

Should you have any questions, please call Mr. Allan G. Palmer at (603) 634-2439.

Very truly yours,



John M. MacDonald
Vice President

cc: NH Department of Environmental Services
Water Division.
Wastewater Engineering Bureau
Permits and Compliance Section
6 Hazen Drive, P.O. Box 95
Concord, N.H. 03302 - 0095

Mr. Joseph F. McKeon
US Fish and Wildlife Service
Federal Building, Room 124
Laconia, NH 03246

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

TABLE 1

Merrimack Station
 Fish Impingement Monitoring Program
2000 Schedule & Impingement Rates

Sample Dates	Unit(s) Sampled	48 hour flow through Units	Impingement Rate	Fish Count
9/9-9/11	1&2	71,712,000 cu. ft.	0.06/million cu. ft.	4
9/13-9/15	1&2	71,712,000 cu. ft.	0.11/million cu. ft.	8*
10/3-10/5	1&2	71,191,800 cu. ft.	0.11/million cu. ft.	8

* One fish (24 cm creek chub) was decayed, obviously dead prior to impingement.

The average impingement rate for the ten sampling periods is 0.09 fish per million cu. ft. of screened water.

TABLE 2

Merrimack Station
Fish Species Collected During Impingement Monitoring
July 1 - October 15, 2000

<u>Sampling Period</u>	<u>Fish Species Collected</u>	<u>Total Length</u>
9/9-9/11	Alewife	6.5 cm
	Brown Bullhead	9.0 cm
	Sunfish	6.0 cm
	Smallmouth Bass	7.0 cm
9/13-9/15	Redbreast Sunfish	4.0 cm
	Creek Chub*	24.0 cm
	Redbreast Sunfish	7.0 cm
	Redbreast Sunfish	14.5 cm
	Redbreast Sunfish	4.0 cm
	Bluegill Sunfish	9.0 cm
	Bluegill Sunfish	9.5 cm
Bluegill Sunfish	10.0 cm	
10/3-10/5	Redbreast Sunfish	13.0 cm
	Alewife	7.8 cm
	Alewife	8.5 cm
	Alewife	8.9 cm
	Alewife	7.9 cm
	Redbreast Sunfish	11.7 cm
	Redbreast Sunfish	11.9 cm
	Redbreast Sunfish	17.4 cm

* Creek chub found decaying, obviously dead prior to impingement.

TABLE 3

Scientific Names of Species Common in the Merrimack River

Smallmouth Bass	<i>Micropterus dolomieu</i>
Largemouth Bass	<i>Micropterus salmoides</i>
Bluegill Sunfish	<i>Lepomis macrochirus</i>
Pumpkinseed Sunfish	<i>Lepomis gibbosus</i>
Redbreast Sunfish	<i>Lepomis auritus</i>
Brown Bullhead	<i>Ictalurus nebulosus</i>
White Sucker	<i>Catostomus commersoni</i>
Yellow Perch	<i>Perca flavescens</i>
Common Shiner	<i>Notropis cornutus</i>
Spottail Shiner	<i>Notropis hudsonius</i>
Alewife	<i>Alosa pseudoharengus</i>
Chain Pickerel	<i>Esox niger</i>
Creek Chub	<i>Semotilus atromaculatus</i>