Admin # 288

Northeast Utilities System

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March 13, 2000

D15578

NH0001465

Mr. Fred B. Gay
U.S. Environmental Protection Agency
Region 1
J.F. Kennedy Building
Boston, MA 02203-2211

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

RECEIVED
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MAINE - NEW HAMPSHIRE
PERMITS TASK FORCE

Dear Mr. Gay:

Merrimack Station
1999 Annual Fish Impingement Report

This report is submitted pursuant to Part 1, Section A.10.b of Merrimack Station's 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) any 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.

Ten samples were collected from the intake screens of Unit 1 and Unit 2 between July 1 and October 15, 1999 (see Table 1). A total of 9 fish were collected in these samples. There were no extraordinary impingement events during the 1999 monitoring period.

A cooperative fishery management effort between the USFWS, NHFGD and the U.S. Forest Service to enhance river herring populations in the Merrimack River began in 1995. Approximately 8,500 adult fish (alewife and blueback herring) were stocked in the Merrimack River Watershed during the spring of 1999.

Impingement rates for the sampling periods were calculated by dividing the total number of fish collected by the total volume of water entrained through the units. The total volume of water is based on the circulating pump capacity and the pump(s) 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 (mean) average impingement rate for the 1999 monitoring program was 0.01 fish per million cubic feet of screen water (Table 2). This rate is lower than the 0.89 fish per million cubic feet of screen water recorded in 1998. Impingement rates are based upon data collected during worse case conditions (river flows <900cfs); therefore, the actual impingement rate for the station is much lower than this.

Table 2 identifies the impinged fish that were collected by common name and includes the total length (TL) 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. Curtis R. Mooney at (603) 634-2383.

Very truly yours,
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

William J. Nadeau

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
1999 Schedule & Impingement Rates

24 Hour Sample Dates	Unit(s) Sampled	48 hour flow through Units	Impingement Rate	Fish Count
7/1-7/3	1&2	71,712,000 cu. ft.	0	0
7/15-7/17	1&2	71,712,000 cu. ft.	0	0
7/20-7/22	1&2	71,712,000 cu. ft.	0	0
7/25-7/27	1&2	71,712,000 cu. ft.	0	0
8/1-8/3	1&2	71,712,000 cu. ft.	0	0
8/8-8/10	1&2	71,712,000 cu. ft.	0	0
8/16-8/18	1&2	71,712,000 cu. ft.	0.07/million cu. ft.	5
8/22-8/24	1&2	71,712,000 cu. ft.	0	0
8/29-8/31	1&2	71,712,000 cu. ft.	0.06/million cu. ft.	4
9/5-9/7	1	21,772,800 cu. ft.*	0	0

The average impingement rate for the ten sampling periods is 0.01 fish per million cu. ft. of screened water.

* Unit 2 off-line for annual outage

TABLE 2

Merrimack Station
Fish Species Collected During Impingement Monitoring
July 1 - October 15, 1999

Impingement Sampling Period	Fish Species Collected	Total Length (TL)
7/1-7/3	none	
7/15-7/17	none	
7/20-7/22	none	
7/25-7/27	none	
8/1-8/3	none	
8/8-8/10	none	
8/16-8/18	Smallmouth bass	6.0 cm
	Smallmouth bass	14.0 cm
	Smallmouth bass	6.0 cm
	Smallmouth bass	4.5 cm
	Smallmouth bass	3.0 cm
8/22-8/24	none	
8/29-8/31	Redbreast sunfish	5.4 cm
	Redbreast sunfish	6.7 cm
	Redbreast sunfish	5.4 cm
	Rock bass	24.5 cm
9/5-9/7	none	

TABLE 3

Scientific Names of Species Common in the Merrimack River

Smallmouth Bass	*Micropterus dolomieui*
Largemouth Bass	*Micropterus salmoides*
Bluegill Sunfish	*Lepomis macrochirus*
Pumpkinseed Sunfish	*Lepomis gibbosus*
Redbreast Sunfish	*Lepomis auritus*
Brown Bullhead	*Ictalurus nebulosus*
White Sucker	*Catastomus commersoni*
Yellow Perch	*Perca flavescens*
Common Shiner	*Notropis cornutus*
Spottail Shiner	*Notropis hudsonius*
Alewife	*Alosa pseudoharengus*
Chain Pickerel	*Esox niger*