

STATE OF NEW HAMPSHIRE
FISH AND GAME DEPARTMENT

BOX 2003
34 BRIDGE STREET
CONCORD, N. H. 03301

December 22, 1975

Bow Plant

Admin #397

MK II



BERNARD W. CORSON
DIRECTOR

Mr. Bruce Smith
Staff Biologist
Public Service Company of New Hampshire
1000 Elm Street
Manchester, New Hampshire

Dear Bruce:

In response to your request for comments dated September 12, 1975, our Fisheries Division has reviewed the Bow Steam Plant Report entitled, "Merrimack River Monitoring Program 1974" with the following comments: Data presented on Page 8 particularly in paragraph 1, indicates rather clearly that Public Service Company of New Hampshire is still not coming any closer to meeting the requirements set forth in the existing permit to discharge. Its rather disturbing to us to see such a wide discrepancy after so many years of operation. On the same page in Table 2, we do not believe that the expression of temperature in terms of the monthly means of the daily minima and maxima are at all indicative of the true temperature regime. They are of no biological value and are not considered by our office to be an acceptable means of reporting temperatures.

On pages 20-24, in the section entitled, "Summary and Conclusions," it is stated that flows as low as 418 cfs were recorded in August. It is our understanding that 440 cfs is required to provide cooling for the Bow Plant. At times such as this when inadequate flows are available for condenser cooling and proper dilution, problems will be created which would be disastrous to the aquatic environment, we feel that at such times the plant production must be curtailed or facilities for closed cycle operation must be constructed.

Since hot water has a tendency to skate or float, the last sentence on Page 24 appears to be rather a "hollow victory" for, if water quality criteria were complied with, no temperature increase would be expected at anytime in the bottom waters.

On pages 75 through 78, it appears that the less desirable, more heat-tolerant species are continuing to replace the more desirable game species such as smallmouth bass in that area downstream from the plant. This, of course, is another undesirable aspect of continuing operation of the open canal spray module type of cooling system.

Since our Anadromous Fish Program is continuing in cooperation with the State of Massachusetts and the federal government and since we have proven that the upstream

reaches of the river are currently suitable to the production of American shad and Atlantic salmon, the latter of which is currently doing quite well in the Mad River, we are highly concerned with the maintenance of suitable water quality in this critical portion of the Merrimack River. We realize that the E.P.A. permit grants Public Service Company of New Hampshire until January 1, 1977 to demonstrate either compliance with the thermal limitations of the permit or that the discharge will not interfere with the resident and migratory fish. It is our opinion that pre- and post-operational studies through 1974 clearly demonstrate that the discharge is in fact having an adverse affect upon the existing warmwater fish population. We believe that Public Service Company of New Hampshire should be prepared to develop the capabilities for closed cycle operation as soon as possible after January 1, 1977.

This recommended action was reviewed and approved by the Fish and Game Commission at their meeting on December 19, 1975.

Sincerely yours,

Arthur E. Newell, Supervisor
Fisheries Research
Inland & Marine Fisheries Division

cc: His Excellency Meldrim Thomson, Jr.
N.H. Water Supply and Pollution Control Commission

AEN:dcs