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March 4, 1998

Ronald G. Chevalier  
Vice President - Fossil/Hydro Engineering  
and Operations

D12113

Mr. Kendall L. Perkins Jr., Environmental Inspector  
NH Department of Environmental Services  
Surface Water Quality Bureau  
64 No. Main Street, P.O. Box 2008  
Concord, New Hampshire 03302-2008

Reference: Merrimack Station Compliance Sampling Inspection Report (C07862),  
K. L. Perkins to A. G. Palmer dated December 26, 1997.

Dear Mr. Perkins:

Merrimack Station  
NPDES Permit No. NH0001465

In the December 26, 1997 Compliance Sampling Inspection (CSI) Report, Reference, you cite a pH excursion from the data tables submitted with the March 1997 Discharge Monitoring Report, and request more information to determine if the pH excursion constitutes a permit violation of the 6.5 SU limit. On March 25, a minimum pH of 6.44 SU was reported at Outfall 003 (Station S-0) while the minimum pH at the river inlet (Station N-5) was 6.87 SU. A summary of the data for the time frame in question is contained in the following table (All other values for the day were in the 6.8 range):

Merrimack Station River Monitoring Program March 25, 1997		
Time	pH at Station N-5	pH at Station S-0
12:45	6.89	6.77
13:00	6.89	6.77
13:15	6.87	6.77
13:30	6.88	6.78
13:45	6.88	<b>6.50</b>
14:00	6.88	<b>6.44</b>
14:15	6.88	6.76
14:30	6.88	6.79
14:45	6.88	6.80

As the data illustrate, two Station S-0 readings dropped sharply from an established baseline of 6.8 SU, falling to the minimum reading of 6.44 SU. There were no pH excursions at Station N-5. PSNH believes the two readings were likely due to a malfunction, e.g., debris on the in-situ probe, and do not represent a true pH concentration. Also, per EPA regulations 40 CFR Part 401.17, this event does not represent a permit violation since it was the only recorded excursion for the month and it did not exceed 60 minutes in duration.

PSNH would like to take this opportunity to review several observations we have made in the nearly thirty years of operating this extensive ambient monitoring program:

- River conditions are "seasonally stable". It is typical for the ambient pH of the river to fall below our discharge permit limit of 6.5 SU.
- The only impact from Merrimack Station on pH and dissolved oxygen, are from temperature increases and summertime aeration of the spray modules. There are brief periods during the year when, due to ambient conditions, the thermal and aeration process will cause the pH to decrease *or increase* by marginal amounts, typically 0.2 to 0.3 units. The Technical Advisory Committee has acknowledged that such temperature-induced impacts are fully permissible, and that existing monitoring is probably excessive.
- pH readings can vary significantly depending upon the water depth of the in-situ probe. Also, fluctuations on the order of 0.2 to 0.3 units can be expected based on the relative instrument uncertainty and drift of the monitoring equipment.
- Thermal impacts are considerable and should continue to be monitored.
- Equipment malfunctions that generate invalid data sometimes occur. Since use of malfunctioning equipment is not prescribed methodology for gathering data, such invalid data should be discarded rather than reported.

PSNH in its NPDES permit renewal application has requested that this monitoring program be reduced from continuous monitoring to periodic grab sampling because of the various issues discussed above. The request to downsize this program was based on our historical record, and on the potential of minimal impact to the river conditions. Beyond the established thermal affects, standard practices at Merrimack Station and the wastewater treatment capability make it highly unlikely that ordinary activities could alter the pH or dissolved oxygen concentrations of the enormous volumes of cooling water.

As you know, PSNH considers environmental affairs as a top priority and sets a goal of absolute compliance. We hope this letter provides you all of your requested information. Allan G. Palmer, PSNH Fossil/Hydro, will call you to arrange a meeting to discuss these important matters further.

Very truly yours,  
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

  
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R.G. Chevalier

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