



**Public Service
of New Hampshire**

RECEIVED

DEC 27 2004

DES-WEB

PSNH Energy Park
780 North Commercial Street, Manchester, NH 03101

Public Service Company of New Hampshire
P.O. Box 330
Manchester, NH 03105-0330
(603) 669-4000
www.psnh.com

The Northeast Utilities System

December 22, 2004

D21944

Ms. Joy J. Hilton
U.S. Environmental Protection Agency
Region I
1 Congress Street, Suite 1100 (SEW)
Boston, MA 02114-2023

- References:
1. NPDES Permit No. NH0001473, Schiller Station, Public Service Company of New Hampshire, issued September 11, 1990; modified May 31, 1991; modified January 24, 1995.
 2. Noncompliance Notification (D21803), WH Smagula to JJ Hilton, dated November 24, 2004.

Dear Ms. Hilton:

In compliance with Part II, Section D.1.e., of the NPDES Permit (Reference 1.), Public Service Company of New Hampshire (PSNH) filed a noncompliance notification (Reference 2.) for high differential temperatures in the cooling water at Schiller Station located in Portsmouth, NH. This letter serves as a follow-up final report of our findings.

As noted in our previous correspondence, station operators noticed that daily reports from the data acquisition computer contained some incorrect information. Upon further review, it was learned that some of the data outputs had been frozen on the same readings for the last few days. This data included the cooling water differential temperatures for all three units. For further understanding, a description of the computer system and the temperature calculations are provided.

System instrumentation utilized throughout the station accumulates data, e.g., flow, temperature, pressure, and sends it to the data acquisition computer. The computer stores the data and in some cases, performs simple calculations such as averaging values. The plant computer continuously records all vital plant operation information on a 24 hour daily basis. On every midnight, all of the hourly data readings and calculated values are automatically printed for hard copy records of the day's operational data. Alarm values are established on some of the monitoring parameters to alert operators of potential malfunctions or deviations from normal conditions.

In the case of cooling water temperatures, the computer receives a reading every 30 seconds from each inlet and outlet side of the condenser piping. A calculation is performed to determine the average temperature based on the last 30 second reading. The differential temperature is then calculated. If the differential temperature value approaches 25°F, then an alarm will alert the Control Room Operator.

Ms Joy J. Hilton
D21944/Page 2.
December 22, 2004

In this specific event, the values that are calculated by the computer "froze" at 16:00 on November 18. Consequently, the cooling water differential temperature for Unit 5 stayed at 22.9°F and the alarm never activated. The malfunction was not discovered until the midnight printout on November 22. Once the problem was identified, the computer was re-booted which cleared the computer fault. Instantly the alarm sounded signifying that the Unit 5 cooling water temperature differential was above 25°F. Operators took immediate action to reduce load and clean the condenser inlet boxes. These actions proved successful and the differential temperatures returned to normal, and below the permit limits.

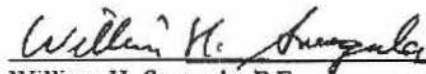
Following the event, it was determined that the readings that are collected every 30 seconds were no longer available, but the database did still contain single hourly inlet and outlet cooling water temperature readings. These readings were used to manually calculate the hourly temperature differentials over the time period in question, which is still in compliance with the permit monitoring requirement. This data showed that although Unit 5 was in exceedance of the permit limit on a considerable number of occasions, the differential climbed above 27°F for only four hours, with 29°F being the highest calculated value.

Station personnel, along with IT technicians have reviewed the data acquisition computer to determine the cause of the malfunction. While the initial reaction was thought to be a faulty input, further examination has proven inconclusive. Although a definitive cause of the malfunction cannot be identified, we have learned as a result of the review that if a calculation function freezes, alarms are not possible and the last calculated value remains displayed on the screen.

To provide a backup system, the present data acquisition computer will be augmented with an additional resistance thermal device (RTD) that will be placed in the individual inlet and outlet legs of the condensers. The RTD will be configured to trigger an alarm directly to the pump room operator in the event that the individual leg temperatures begin to approach a differential temperature of 25°F. To date, two different types of RTD units have been ordered to test in the field. As an interim measure, and until the installation of the RTDs is complete, the operations staff is performing temperature readings and average rise calculations manually, on an hourly basis, to insure that the average rise does not exceed the hourly calculated permit limit.

If you have any questions regarding this matter, please contact Allan Palmer, Senior Engineer at (603)634-2439.

Very truly yours,


William H. Smagula, P.E.
Director - Generation

cc: Ms. Stephanie Larson
N.H. Department of Environmental Services
Water Division
Wastewater Engineering Bureau
Permits and Compliance Section
29 Hazen Drive, PO Box 95
Concord, NH 03302-0095