

New Hampshire
Yankee

Ted C. Feigenbaum
President and
Chief Executive Officer

NYN- 92033

March 20, 1992

United States Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Document Control Desk

Reference: Facility Operating License No. NPF-86, Docket No. 50-443

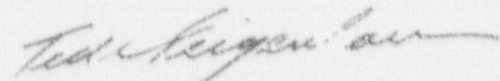
Subject: 1991 Secondary Chemistry Annual Report

Gentlemen:

Enclosed is the Seabrook Station Secondary Chemistry Annual Report for 1991. This report, submitted in accordance with Branch Technical Position MTEB 5.3, summarizes and evaluates the 1991 condensate, feedwater, and steam generator water chemistry operating experience and reports the total time secondary water chemistry parameters were out of specification.

Should you have any questions regarding this report, please contact Mr. James M. Peschel, Regulatory Compliance Manager, at (603) 474-9521, extension 3777.

Very truly yours,


Ted C. Feigenbaum

Enclosure(s)

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New Hampshire Yankee
March 20, 1992

ENCLOSURE TO NYN-92033
SECONDARY CHEMISTRY ANNUAL REPORT

1291

The Secondary Chemistry Annual Report for 1991 summarizes and evaluates the condensate, feedwater, main steam and steam generator chemistry, as well as documenting total out-of-specification hours on these systems.

I. COMMERCIAL POWER OPERATION - CYCLE 1

The evaluation of secondary chemistry for this operational period is from January 1, 1991 to July 25, 1991 at which point rampdown commenced for refueling. The total out-of-specification hours for the steam generators, condensate, feedwater and main steam during this time period are listed below.

1) Steam Generators	-	2280.9 hrs
2) Condensate	-	245.5 hrs
3) Feedwater	-	694.6 hrs
4) Main Steam	-	743.0 hrs

The majority of out-of-specification hours were attributed to either specific excursions of short duration or to maintenance work requiring such activities as steam generator blowdown isolation or operational problems. No significant chemistry trends were noted during this second half of Cycle 1.

The Chemistry Performance Index (CPI) averaged 0.35. Steam Generator blowdown cation conductivity and sodium averaged 0.44 μ mhos and 2.4 ppb respectively. The mean condensate pump discharge dissolved oxygen was 3.8 ppb. Values were calculated from plant data at a power level greater than 30% utilizing monthly averages.

II. REFUELING

On July 25, 1991 at 1125 hrs, Seabrook Station began shutdown in preparation for refueling (RF01). The rampdown commenced a day early due to the detection of an unidentified leak from the RCS which was later determined to have occurred at a cryofit connection in the pressurizer steam space sample line.

A. Hideout Return Study

On July 25, 1991 at 1200 hrs, the Chemistry Department began a hideout return study on its model F steam generators. Program sampling ended at 1500 hrs on July 26, 1991. Total cumulative contaminant return and total cumulative grams removed via blowdown, from all the steam generators for all impurities was 796 g and 360 g, respectively.

B. Sludge Lancing, Foreign Objects Search and Retrieval (FOSAR) and Inspections

In preparation for RF01 maintenance and repair activities, the condensate and feedwater systems were drained and left dry. The steam generators were drained and refilled several times, without chemical addition, to aid in steam generator cooldown and removal of hideout return bulk water impurities. The generators were left dry in preparation for sludge lancing.

From July 29 to August 8, 1991 sludge lancing and FOSAR were performed on Seabrook Station's four steam generators. High pressure lancing using camera guided jets to spray between columns enabled the removal of 143.5 pounds of sludge total from all four steam generators.

A small object was found lodged in the "C" steam generator and could not be removed. The four tubes surrounding the object were plugged to obviate potential leaks. Also performed was a blowdown lane/tubesheet, upper flow distribution baffle and first support plate inspections on "C" steam generator. Future outage inspections will be scheduled to document and track any potential concerns.

C. Wet Lay-up

Wet lay up chemicals were added to the generators on August 21, 1991 and August 22, 1991. Delays in the filling and chemical addition to the steam generators were caused by master system tagout overlaps, system component maintenance and major electrical panel outages. On August 23, 1991 the ability to recirculate the steam generators was lost due to an electrical panel outage.

Out-of-specification hours attributed to the wet lay up delays and inadequate recirculation are as follows:

- 1) Hydrazine \leq 75 ppm = 1668.3 hrs
- 2) pH \leq 9.8 = 1317.7 hrs

III. CYCLE 2 - START-UP FROM RF01

The condensate system was filled on September 15, 1991 and placed on long path recirculation the following day. The first hydrazine addition was made on September 16, 1991. Numerous hotwell dumps were performed for system purification. The Operations Department began drawing a vacuum on September 18, 1991.

Draining and filling of the "A" and "C" steam generators commenced on September 29, 1991 and on October 3, 1991 for the "B" and "D" steam generators. The process was complicated by contamination of the Demineralization Water System which occurred on September 30, 1991. An outside water treatment vendor was contracted to supply demineralized water for start up while clean-up of the contaminated systems occurred.

The plant entered Mode 4 on October 5, 1991 at 2210 and Mode 3 on October 6, 1991 at 1900. Blowdown was established at 2300 on October 7, 1991 but was limited to 20 gpm per steam generator due to physics testing and water inventory. Criticality (Mode 2) was achieved on October 9, 1991 and Mode 1 attained on October 12 at 1256. Blowdown was increased to 70 gpm per steam generator. The remainder of the start-up was facilitated by having maximum blowdown, made possible by the contracted vendor.

Power escalation continued through the month. The plant reached 100% power on October 29, 1991. The total out-of-specification hours for steam generators, condensate, feedwater and mainsteam during startup and power escalation are listed below:

1. Steam generators - 566.5 hrs
2. Condensate - 417.4 hrs
3. Feedwater - 555.6 hrs
4. Main Steam - 232.0 hrs

IV. COMMERCIAL POWER OPERATION - CYCLE 2

The evaluation of secondary chemistry for this operational mode is from October 29, 1991 to December 31, 1991 for out-of-specification hours and from October 19, 1991 when power ascended above 30%, to December 31, 1991 for plant performance parameters. The total out-of-specification hours for the steam generators, condensate, feedwater and main steam are listed below.

1. Steam Generators - 160.6 hrs
2. Condensate - 40.0 hrs
3. Feedwater - 140.0 hrs
4. Main Steam - 68.0 hrs

The majority of out-of-specification hours were attributed to a specific excursion caused by sulfate intrusion following a demineralizer being returned to service, or maintenance performed on plant systems. With the exception of the aforementioned instances, secondary system parameters displayed downward trends following startup.

The Chemistry Performance Index averaged 0.43. Steam generator blowdown cation conductivity and sodium averaged 0.36 μ hos and 2.8 ppb respectively. The mean condensate pump discharge dissolved oxygen was 6.9 ppb. Values were calculated utilizing monthly averages.