

# New Hampshire Yankee

Ted C. Feigenbaum  
President and  
Chief Executive Officer

NYN-91084

May 24, 1991

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

Attention: Document Control Desk

References: (a) Facility Operating License No. NPF-86, Docket No. 50-443  
(b) New Hampshire Yankee Letter NYN-90009, dated January 8, 1990,  
"Future FSAR Submittals," T. C. Feigenbaum to USNRC

Subject: Submittal of Seabrook Station Updated Final Safety Analysis Report

Gentlemen:

Pursuant to the requirements of 10CFR50.71(e), New Hampshire Yankee is submitting the Updated Final Safety Analysis Report (UFSAR). New Hampshire Yankee committed in Reference (b) to submit the UFSAR on or before May 26, 1991. Development of the UFSAR was in accordance with guidance provided in Generic Letter 81-06, dated February 26, 1981. All of the incorporated changes to the UFSAR have been subject to review in accordance with 10CFR50.59. They neither constitute unreviewed safety questions, nor alter the staff's conclusions as documented in the original Safety Evaluation Report or its supplements. A summary of the major revisions that have been incorporated as part of the UFSAR is attached as Enclosure 1.

The UFSAR is up-to-date as of December 1, 1990 and presents changes made since the submittal of Amendment 63 on April 11, 1990, necessary to reflect information and analyses submitted to the Commission or prepared pursuant to Commission requirements. Changes to the UFSAR that were previously reported in New Hampshire Yankee's Quarterly 10CFR50.59 Reports are identified with a asterisk in Enclosure 1. New Hampshire Yankee requests that this UFSAR submittal, specifically Chapter 17 and Appendix 17A, satisfy the reporting requirements pursuant to 10CFR50.54(a).

New Hampshire Yankee is submitting the signed original and ten copies to the Document Control Desk, Washington, D.C., along with a copy to the Regional Office, King of Prussia, PA and a copy to the Resident Inspector at Seabrook Station. This distribution complies with the requirements of 10CFR50.4(b)(6).

New Hampshire Yankee Division of Public Service Company of New Hampshire  
P.O. Box 300 • Seabrook, NH 03874 • Telephone (603) 474-9521

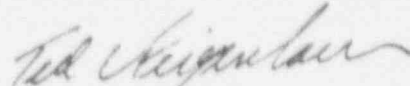
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If you have any questions regarding the UFSAR submittal, please contact Mr. Terry L. Harpster, Director of Licensing Services at (603) 474-9521, extension 2765.

Very truly yours,

  
Ted C. Feigenbaum


TCF:TGP/ssl

STATE OF NEW HAMPSHIRE

Rockingham, ss.

May 24, 1990

Then personally appeared before me, the above-named Ted C. Feigenbaum, being duly sworn, did state that he is President & Chief Executive Officer of the New Hampshire Yankee Division of Public Service Company of New Hampshire, that he is duly authorized to execute and file the foregoing information in the name and on the behalf of New Hampshire Yankee Division of the Public Service Company and that the statements therein are true to the best of his knowledge and belief.

  
Beverly E. Siloway, Notary Public  
My Commission Expires: February 28, 1995

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cc: Mr. Thomas T. Martin  
Regional Administrator  
United States Nuclear Regulatory Commission  
Region 1  
475 Allendale Road  
King of Prussia, PA 19406

Mr. Gordon E. Edison, Sr. Project Manager  
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Mr. Noel Dudley  
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New Hampshire Yankee  
May 24, 1991

ENCLOSURE 1 TO NYN-91084

SUMMARY OF UPDATED FSAR CHANGES

### Format

The format of the Updated FSAR is consistent with the original FSAR with the following exceptions:

- The original FSAR contained two volumes of Requests for Additional Information (RAIs) and their subsequent responses. The RAIs were the result of the Commission's questions pertaining to New Hampshire Yankee's (NHY) application for an Operating License. Information from the RAIs has been incorporated into the Updated FSAR, as applicable, and thus is no longer needed as a stand-alone document.
- Additionally, certain Appendices, identified by asterisks on the UFSAR Effective Page Listing were not revised, and are provided in the Updated FSAR for historical information.

### Generic Changes Applicable to All Chapters

The following generic changes are applicable to all chapters of the Updated FSAR (UFSAR):

- References to Unit 2, have been eliminated wherever possible. Unit 2 was cancelled in 1984. The Unit 2 construction permit was allowed to expire in October 1988. It was necessary to retain Unit 2 references in certain places that involved descriptions or calculations based on both units, e.g., the Exclusion Area boundary is defined as the 3000 foot radius around the Unit 1 and Unit 2 centerlines, and calculations such as in Tables 12.2-1 through 12.2-37.
- Editorial revisions reflect the completion of plant construction activities and the commencement of plant operations. Terminology and typographical errors have also been corrected.

### Major Revisions by Chapter

#### Chapter 1

- Section 1.2.2, Facility Arrangement

Revisions to General Arrangement (GA) Drawings. The GA drawings are included in the FSAR as Figures 1.2-1 through 1.2-59. Change documents affecting the GA drawings have been tracked in the Controlled Document Tracking (CDT) System. NHY incorporated all outstanding revisions to GA drawings for this UFSAR submittal.

- Section 1.3, Comparison Tables to Similar Facilities and Design Changes Since PSAR.

NRC guidance for Updated FSARs indicates that this section need not be updated. A note has been added to this section stating that the tables have

not been updated for the UFSAR, but are included for consistency with the FSAR.

- Section 1.7, Drawings and Other Detailed Information

The FSAR contained a listing of design drawings, including their revision numbers and date. Because NHY is regularly updating some categories of design drawings, this FSAR listing was not a reliable source for drawing status information and has been deleted. A brief description has been added to Section 1.7 explaining the NHY drawing program.

## Chapter 2

- Section 2.2.2.5(b), Pease Air Force Base Description

This section has been revised to update the status of the base in response to its closure in accordance with the Base Closure and Realignment Act. Information provided in this section provides the basis for containment design and other Seabrook Station design criteria and has been retained in its entirety. The air traffic pattern at Pease is projected to be limited to the New Hampshire Air National Guard and will be significantly reduced from previous activity.

- • Section 2.3.3.3, Meteorological Monitoring System

A description of the Backup Meteorological Monitoring System was added. The system description identifies locations, capability of its monitoring equipment, and power source independence from the Primary Meteorological Monitoring System.

## Chapter 3

- • Section 3.7(B).4.2, Seismic Instrumentation

Triaxial Response Spectrum Recorder XR6708 was relocated from the Service Water Pumphouse (SWPH) foundation south corner to the SWPH electrical room, west wall, north of column 12, elevation 22'-0".

- • 3.8.2.1.(f), Description of the Containment Penetrations

The description of the fuel transfer tube assembly was revised to identify the design and fabrication codes for the new "quick closure" fuel transfer tube hatch, located on the refueling canal side. This change also corrects the

ASME code class and subsection applicable to the fuel transfer tube and its flanges.

#### Chapter 4

- Section 4.3.2.6, Criticality of the Reactor During Refueling and Criticality of the Fuel Assemblies

The FSAR was revised to correctly refer to the YAEC discussion of criticality of the reactor during refueling and criticality of fuel assemblies in UFSAR, Section 9.1. The Westinghouse discussion is deleted.

#### Chapter 5

- 5.2.5.3, Leakage Detection Methods

Reference was added to installation of a containment gaseous radiation backup monitor, which will act as a backup to the regular monitors. The backup monitor, along with containment sump level channel, will provide a minimum of two out of three channels required by the Technical Specifications.

- Figure 5.1-1, Reactor Coolant System

Drawings were updated to show reference leg connections for mid-loop operation level transmitters and new residual heat removal pump suction pressure transmitters. Instrumentation enhancements are per Generic Letter 88-17, "Loss of Decay Heat Removal."

#### Chapter 6

- Table 6.2-92, Containment Liner Penetrations

This table is revised to add penetrations X-77 and X-78 as "essential" penetrations. These penetrations are the RVLIS tubing penetrations used for RCS wide range pressure and for the RVLIS function for post-accident monitoring.

- Section 6.3.5.3, Emergency Core Cooling System Flow Indications

The FSAR contained a description of Residual Heat Removal (RHR) pump hot leg injection flow instrumentation. The Seabrook system design does not



include RHR pump hot leg injection/recirculation flow instrumentation. Table 6.3-5 is also revised as a result of this change.

- Section 6.4.2.2, Habitability Systems

The smoke monitoring instrumentation system is revised to identify that it is not powered or controlled from the emergency electrical distribution and is not ensured of power during all modes of operation as stated in the FSAR.

- Section 6.6.6, In-Service Inspection Examination Results

This section is revised to update the references to the ASME Code sections and to reflect the current status of the In-Service Inspection (ISI) Program.

## Chapter 7

- Section 7.1.2.5, Conformance of Regulatory Guide and Section 7.3.2.2

These sections were revised to identify additional equipment that should not be tested at power so as not to damage plant equipment.

- • Table 7.5-1, Accident Monitoring Instruction List

Temperature elements for indicating the area temperature in Battery Rooms A&B were added and these elements are listed on Table 7.5-1.

- • Section 7.6.12, ATWS Mitigation System

A new section, 7.6.12 Describes the ATWS Mitigation System. Figures were updated to support the new description.

- • Figures 7.2-1 Functional Diagrams

This revision added lag cards to the steam generator level control loops. The lag period on the output of the steam flow/feed flow summer will provide for more stable steam generator and feed regulation valve operation.



## Chapter 8

- Section 8.2, Offsite Power Systems

This revision reflects the installation of the Tewksbury line. The text referred to the installation of two lines prior to startup of Unit 1 with the third line installed prior to startup of Unit 2. All three lines were installed prior to Unit 1 operation. Therefore, the text was revised to show the actual configuration and descriptions. The forced outage rates and grid availability data are being revised to reflect the current data. The 1989 data and analysis conclude that the availability factors have improved.

- Section 8.2.1.5, Compliance with General Design Criterion 17 and NRC Regulatory Guide 1.32

This description was modified to clarify the two independent circuit paths as required by GDC-17. This change is required to clearly define the different connections that can be made between the UATs and the RATs to the onsite distribution system to meet the regulatory intent. This revision does not alter the original design intent and is supported by the existing Technical Specifications.

- • Tables 8.3-1 & 8.3-2, Diesel Generator Loading Sequence

The diesel generator tables were revised to account for replacing the existing nonsafety-related single-phase Uninterruptable Power Supply (UPS) 1-4 with a three-phase UPS.

## Chapter 9

- Tables 9.1-1, 9.2-4, and 9.2-5, Spent Fuel Pool

These tables were updated to provide revised design information on spent fuel pool heat loading according to the current design calculations.

- Section 9.3.3, Equipment and Floor Drainage System

Based on a review of the Station Chemistry Manual, the FSAR was updated to reflect present policy not to use chromates in the plant, because chromates are categorized as hazardous waste.

- 9.3.1.2, Plant Compressed Air Subsystem

A discussion of the plant compressed air centrifugal compressor is added to the permanent plant design has been incorporated into this section.

- 9.5.1, Fire Protection System

The Fire Protection System description was corrected to identify that there are two (one functioning as a spare) 1500-gpm diesel engine-driven centrifugal fire pumps. This correction provides conformance with actual plant design.

- Section 9.3.6, Equipment Vent System

The hydrogenated vent header system description has been revised to indicate that gas from the letdown degasifier and the primary drain tank degasifier is collected.

- Table 9.5-9, Listing of Unusually Hazardous Materials

The table was updated to include the sodium hypochlorite storage tanks in the chlorination building on the hazardous material storage listing. This table was also updated to reflect the current onsite gas inventory evaluation as documented by SBP-90-031.

## Chapter 10

- Section 10.2.2, Automatic Controls for Turbine Trip

This section was revised to incorporate an interlock to the main generator breaker trip, so that a manual control switch trip of the breaker causes an immediate trip of the turbine.

- Section 10.4.4, Steam Dump System

Valve stroke time for steam dump valves was modified from three to five seconds for operation of full-closed to full-open. This change was the result of modifications to the valves stem/bushing hardness to eliminate galling.

- Section 10.4.5, Circulatory Water System

This section was modified to include two additional hypochlorite storage tanks for chlorination when the generating cells are secured.

## Chapter 11

- Section 11.3, Radioactive Gaseous Waste System

This section states that hydrogen concentration is monitored in cubicles containing RGWS components to detect a leak in the system. Statements have been added to clarify that monitoring is not required when the RGWS is inerted with nitrogen. This situation is acceptable since there is no potential for an explosive mixture forming in the cubicles from RGWS leakage when the system is inerted with nitrogen.

- Section 11.4, Solid Waste Management System

This section was revised to document the fact that an asphalt wasteform qualification program has been completed and the results accepted by the NRC.

- Section 11.5, Process and Effluent Radiological Monitoring and Sampling System

This section has had numerous updates as a result of a Design Basis Document (DBD) review. Minor revisions were made throughout, including Table 11.5-1.

## Chapter 12

- Section 12.1.2.3, Reduction of Radiological Conditions

Subsection k was revised to reflect that the Key Card Entry System is supplemented by barricading and/or locking to control access.

- Section 12.2, Radiation Sources

A paragraph was added to identify which tables (Tables 12.2-1 through 12.2-37) represent information for 1- or 2-Unit operation. These tables were not revised but may be the subject for reanalysis in the future.

- • Section 12.3.4, Area Radiation and Airborne Radioactivity Monitoring Instrumentation

The discussion of the spectral correctional monitor was deleted since it is no longer used. A portable air pump and ionization chamber detector is now used as the WRGM backup.

- Section 12.5.2, Equipment, Instrumentation and Facilities

A new paragraph was added to describe the potential use of alternate health physics control points for control of personnel access and radioactive materials in addition to the established RCA control point.

- Section 12.5.3.7, Storage and Handling of Radioactive Sources

This section was rewritten to describe the manner in which radioactive sources are controlled, leak-checked and inventoried.

### Chapter 13

- Section 13.1, Organizational Structure

The entire section was revised to incorporate the latest organizational changes.

- Section 13.2, Training

The training section was revised to clarify and to provide the necessary changes to the training program in transition from the construction stage to the operational stage.

- Appendices A, B & D

These appendices were deleted. Resumes for Corporate Staff (13A), Training Center Staff (13B) and Key Seabrook Station Staff (13D) are all available upon request through the Employee Relations Department.

### Chapter 14

- Section 14.2.7, Conformance of Test Programs with Regulatory Guides

Regulatory Guide 1.79, Revision 1, Preoperational Testing of Emergency Core Cooling System for Pressurized Water Reactors; Exception to Section C.1.b.(2), was deleted. Testing of both trains of containment sump recirculation was performed instead of only one train as identified in the exception.

- Table 14.2-5, Startup Test Abstracts

Sheets No. 31 "Calibration of Steam and Feedwater Flow Instrumentation" and Sheet No. 45 "Water Chemistry Control" were revised as requested in NRC

## Chapter 15

- Subsection 15.0.1.4, Condition IV - Limiting Faults

Reference to a steam generator tube rupture (Subsection 15.6.3) as a Condition IV limiting fault was added. This event has always been considered a condition IV limiting fault but was not listed.

- Tables 15.0-9 through 15.0-12, Operator Actions for Different Accident Scenarios

Tables 15.0-9 through 15.0-12 were removed because the level of detail is greater than what is required in the FSAR. These tables represent operator actions to be taken in the event of different accident scenarios. The information in these tables is in the Emergency Operating Procedures (EOP) as reformed in FSAR Subsection 13.5.2.3. The EOPs use the Westinghouse Owners Group derived set of guidelines as their basis.

- Section 15.4.6.3, Boron Dilution Accident during Refueling

This change revised the minimum time the shutdown margin would be lost to 75.9 minutes and the time for the shutdown monitor system to alarm to 32.3 minutes.

- Section 15.4.8.2(e)

This revision corrected the boron concentration injected into the RCS for reactivity control. The previous amount (20,000 ppm) was changed to 2,000 ppm. This change reflects the deletion of the Boron Injection Tank (BIT) as supported by NAH 90-3634, dated July 17, 1990.

## Chapter 16

- Section 16.3, Technical Specification Improvement Program

This section was revised to incorporate latest changes to the Production Technical Requirements Manual, Revision 17, Effective 3-20-91.

## Chapter 17

- Section 17.2.1, Organization

This section was revised to reflect the most current organization for Seabrook Station.

### Appendix 17A, Exceptions, Alternatives and Clarifications to Program Standards, Industry Codes, Federal Regulations and Guides

- Regulatory Guide 1.116 that endorses ANSI N45.2.8-1975 was revised to add a new clarification relating to the term Acceptance Criteria as used with these two documents.
- Regulatory Guide 1.123 that endorses ANSI 45.2.13-1976 was revised to add an additional clarification to resolve a conflict between the guidelines of Reg. Guide 1.123, Position C.6.e and Generic Letter 89-02 that endorsed guidance contained in EPRI NP-5652.

NOTE: \* Indicates those changes previously identified in Quarterly 10CFR50.59 Reports.

# New Hampshire Yankee

MEMORANDUM LIC# 910549

SUBJECT RECALL OF THE ORIGINAL FSAR AND ISSUANCE OF THE NEW UPDATED  
FSAR (UFSAR)

FROM A. M. Callendrello DATE May 22, 1991

TO F. G. King 02-84

In response to the requirements of 10CFR 50.71(e), New Hampshire Yankee performed a complete review and update to the Final Safety Analysis Report (FSAR). As a result of this review a new Updated Final Safety Analysis Report (UFSAR) was developed. The UFSAR is a complete revision of the original FSAR, including new binders, tabs, text, tables and figures. The original FSAR, Volumes 1-15, are to be removed from service and recycled in accordance with the New Hampshire Yankee Recycle Program.

Should you have any questions, please contact T. G. Pucko at extension 4428.

  
A. M. Callendrello

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cc: File 0061 01-48  
RMD 02-06

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INSTRUCTION

UPON COMPLETION OF REVIEW OF THE ATTACHED COVER  
LETTER, THE LETTER SHOULD BE PLACED IN VOLUME 13,  
UNDER AMENDMENT HISTORY TAB.