



April 15, 1993
LD-93-060

Docket No. 52-002

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Combustion Engineering Standard Safety Analysis
Report - Design Certification, Amendment N

Dear Sirs:

This letter transmits thirty-seven (37) formally printed copies of Amendment N to the Combustion Engineering Standard Safety Analysis Report - Design Certification (CESSAR-DC) and the affidavit, as required by 10CFR50.4(b) and 10CFR50.30(b). Attachment 1 summarizes the changes in Amendment N.

If you have any questions, please call me or Mr. Stanley Ritterbusch of my staff at (203) 285-5206.

Very truly yours,

C. B. Brinkman
Acting Director
Nuclear Systems Licensing

ser/lw

Attachment: As Stated
Enclosure: As Stated

cc: w/o enclosures:
P. Lang (DOE)
J. Trotter (EPRI)

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ABB Combustion Engineering Nuclear Power

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of:)
)
Combustion Engineering, Inc.)
)
Standard Plant Design)

APPLICATION FOR REVIEW OF
"COMBUSTION ENGINEERING STANDARD
SAFETY ANALYSIS REPORT -
DESIGN CERTIFICATION"

Regis A. Matzie, being duly sworn, states that he is the Vice President, ABB Combustion Engineering Nuclear Systems Development, of Combustion Engineering, Inc.; that he is authorized on the part of said corporation to sign and file with the Nuclear Regulatory Commission this document; and that all statements made and matters set forth therein are true and correct to the best of his knowledge, information, and belief.

COMBUSTION ENGINEERING, INC.

By: Regis A. Matzie
Regis A. Matzie
Vice President
ABB Combustion Engineering
Nuclear Systems Development

Subscribed and sworn to
before me this 15th day
of April, 1993.

Laurie J. White

Notary Public

My Commission Expires: 3/31/94

CESSAR-DC Amendment N Overview

Chapter 1

1. The general plant description in sections 1.2 and 1.3 was revised, including the increased power level, the addition of structures outside the Nuclear Annex to the scope of the certified design, and a description of the process for incorporating design and operating experience into System 80+.
2. The list of Regulatory Guides and the list of deviations from the Standard Review Plan in Section 1.8 was updated to reflect DSER responses.
3. The list of design interfaces in Section 1.9 was revised to reflect the increased scope of the System 80+ design.

Chapter 2

1. Section 2.3 was revised to reflect more conservative radiological dilution factors used in the safety analysis, in response to DSER issues.
2. Section 2.5 was revised, per our commitment in responding to the DSER, to include the three earthquake control motions considered in the seismic design.

Chapter 3

1. Table 3.2-1 was revised to identify the quality requirements for structures, systems, and components (i.e., graded QA specification) in response to a DSER issue.
2. Sections 3.3, 3.4, and 3.5 have minor revisions to reflect DSER responses.
3. Section 3.6 was revised to reflect resolution of DSER issues on dynamic analysis of piping systems.
4. Sections 3.7 and 3.8 and Appendices 3.7A and 3.7B were revised to incorporate resolutions to DSER issues on seismic analysis. These revisions reflect the deletion of the Operating Basis Earthquake from the design, as discussed previously with NRC staff.
5. Section 3.9 was revised to incorporate DSER responses, primarily identification of transients used in stress analysis (Table 3.9-1) and a description of the program for inservice testing of pumps and valves (Table 3.9-15).
6. Section 3.11 (environmental design of equipment) was revised

to reflect DSER resolutions.

Chapter 4

1. Section 4.2 (fuel system design) was revised to incorporate the use of erbia as a burnable poison. Also, very minor changes and clarifications were incorporated for the fuel assembly mechanical design. All changes are identified by a bar in the right margin, and it is believed that these changes do not affect the NRC review performed to date.
2. Section 4.3 (nuclear design) was revised to reflect the use of erbia burnable poison and the increased core power level (from 3800 to 3914 MWt). Tables 4.3-14 to 4.3-17 which showed comparisons of calculated and measured parameters were replaced by descriptions and formulae in the text. Predicted power distributions and other core nuclear design parameters in Section 4.3 are very similar to values reported in the previous amendment, as expected, since the increased power was achieved by replacing burnable poison rods with fuel-bearing rods.
3. Section 4.4 (thermal and hydraulic design) was revised to reflect the increased power level. Changes are not significant and it is expected that previous NRC review remains unaffected.

Chapter 5

1. Section 5.1 (summary description) was revised to provide minor revisions to coolant temperatures and volumes resulting from the increase in power.
2. Section 5.2 (integrity of the RCS pressure boundary) was revised to incorporate DSER issues related to overpressure protection, material specifications, water chemistry, and in-service inspection.
3. Section 5.3 (reactor vessel) was revised to resolve DSER issues related to pressure-temperature limits.
4. Section 5.4 (component design) was revised to resolve minor issues related to the design of the reactor coolant pump, shutdown cooling system, and pressurizer.
5. Appendix 5D was added to document the natural circulation cooldown analysis for System 80+. This analysis was submitted in response to a DSER issue.

Chapter 6

1. Sections 6.2 (containment systems) and 6.3 (safety injection system) include revisions to the containment overpressure analysis and LOCA analysis to reflect the increased power.
2. Section 6.5 (containment spray system) has been revised to reflect spray system effectiveness, consistent with the new radiological source term technology.
3. Sections 6.6 (inservice inspection), 6.7 (safety depressurization system), and 6.8 (in-containment water storage system) were revised to reflect DSER responses.

Chapter 7

Chapter 7 was revised in response to DSER open items, including the addition of hard-wired backups to critical instrumentation, new instrumentation to monitor reactor coolant system water level during shutdown operations, and previous RAI responses.

Chapter 9

1. Section 9.1 was revised to reflect minor changes to the fuel handling system.
2. Section 9.2 was revised to reflect inclusion of the Component Cooling Water Heat Exchanger Structure in the scope of the System 80+ design.
3. Section 9.5 was revised to include a description of the Fire Pump House and to provide minor revisions to the Lighting System and Diesel Generator Fuel Oil System.

Chapter 10

Chapter 10 was revised to reflect the increased power output (3931 MWt), responses to DSER open items, and an additional stage of feedwater heating.

Chapter 11

Chapter 11 was revised to reflect minor changes in response to the DSER (compliance with Regulatory Guide 1.143).

Chapter 15

The safety analysis was revised to reflect the removal of the time delay between turbine trip and loss of offsite power, the increased core power level, the new source term for radiological dose predictions, and other responses to DSER items.

Chapter 16

The definition of rated thermal power was changed to reflect the increased power level.

Chapter 17

Minor wording revisions were made to the description of the Reliability Assurance Program at the request of the NRC reviewer.

Chapter 18

Significant revisions were made throughout the chapter to incorporate responses to DSER open issues. All of these changes have been discussed with and agreed upon with the NRC reviewer.

Chapter 19

1. Section 19.11 was added to present the entire report on severe accident phenomenology and containment performance. This section is consistent with resolutions to NRC review issues discussed at recent meetings.
2. Section 19.12 was added to present the revised Level 2 (containment performance) PRA results.
3. Section 19.13 was added to present the revised Level 3 (offsite consequence analysis) PRA results.