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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 "T"

Dear Sirs:

This letter transmits thirty-seven (37) formally printed copies of Amendment T 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). Amendment T includes revisions previously transmitted as draft marked-up pages of CESSAR-DC and other material discussed with the NRC staff in recent meetings. In addition, changes to CESSAR-DC to be consistent with System 80+™ ITAAC are contained in this amendment. Changes to CESSAR-DC are summarized in the Attachment.

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

Very truly yours,
COMBUSTION ENGINEERING, INC.

C. B. Brinkman
Acting Director
Nuclear Systems Licensing

060017

CBB/vp

Attachment: As Stated
Enclosure: As Stated

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Chapter 1 - Introduction and General Plant Description

Section 1.2.11 was revised for consistency with ITAAC and to define those portions of the Potable and Sanitary Water Systems that are within the scope of the certified design. Editorial changes were made to Section 1.2.14.

Tables 1.8-1, 1.8-2 and 1.8-3 were updated. Table 1.8-6 was revised in response to DSER open item resolution.

Interface requirements for Laboratory Facilities and for Onsite Decontamination Facilities were added to Table 1.9-1 in response to Open Item 13.3-1.

COL Licensee items specified by engineering were added to Table 1.10-1. An overall review of CESSAR-DC for all COL action items will be performed for Amendment U.

Chapter 2 - Site Envelope Characteristics

Table 2.3-7, Unit Vent Release Point Characteristics, was added.

Chapter 3 - Design of Structures, Components, Equipment and Systems

Table 3.2-1 was updated for consistency with ITAAC. Fire protection and instrumentation equipment information was added to Tbl 3.2-1. The Unit Vent classification will be corrected in Amendment "U."

Editorial revisions were made to Section 3.3.2, tornado loadings, and to Section 3.6.

Appendix 3.6A, Pipe Whip Restraints, was updated to reflect agreement with NRC reviewers.

Sections 3.7.2.3.4.1 and 3.7.2.6.1 were revised to close Open Item 3.7.3-3. Section 3.7.3 was revised to close OI 3.7.3-8. Revised Section 3.7.5, Seismic Category I Tanks, per agreement with NRC reviewers.

Editorial changes were made to Appendices 3.7A and 3.7D. Appendix 3.7A was revised to close Open Item 3.7.3-12.

Editorial changes were made in Sections 3.8.2, 3.8.3 and 3.8.4. Sections 3.8.4.1.6 and 3.8.4.1.11 were revised to agree with Fig 1.2-1 changes. Revised mesh views were incorporated into Figure 3.8-3. Sections 3.8.4.1.4, 3.8.4.1.5, 3.8.4.1.8 were revised for consistency with ITAAC. Appendix 3.8A, Structural Design Criteria, was completely revised.

Editorial changes were made to Section 3.9.2.1, and to 3.9.2.3.5.2 in response to RAI 210.52. Revised Section 3.9 text and Tables 3.9-13 & -14 per DSER open items. Tables 3.9-15 & 3.9-16 were updated based on technical agreements with NRC reviewers and resolution of Open Item 3.9.6-1. Instrument Air Testing for Safety-Related Equipment was added to Tbl 3.9-15. Figure 3.9-16, Typical Inservice Testing Connections, was updated.

Information on expansion joints was added and editorial changes were made to Appendix 3.9A LBB Piping Analysis based on agreements with NRC reviewers. Editorial changes were made to Table 3.11A-1. Non-safety related SDS items were deleted from Tbl 3.11B-2.

Chapter 4 - Reactor

Section 4.1 was updated to reflect actual SU test conditions. Section 4.1.1; Tbls 4.1-1 & 4.1-2 were added to define permissible fuel/core changes for consistency with ITAAC. Section 4.3.2.4.3 and Tbl 4.3-3 were updated for consistency. The CEA scram acceptance curve and test curve in Fig 4B-4 was revised.

Chapter 5 - Reactor Coolant System and Connected Systems

Editorial revisions were made to Section 5.2.2.10, SCS, for consistency with ITAAC. Table 5.2-2 was revised for material consistency. Figure 5.3-5, PT-limit curves, was revised based on new instrument accuracies. Figure 5.3-7, Section 5.4.1.4 and Tbl 5.4.1-1 were updated based on agreements with NRC reviewers resulting from ITAAC evaluations.

The maximum surge line length was added to Section 5.4. Section 5.4.1 was updated to specify LBB size for RCP overspeed evaluation and to correct the RCP seal bypass flowrate. Editorial changes to the SG design bases were made in Section 5.4.2. SCS flow testing in Section 5.4.7, also Table 5.4.7-1 were modified per ITAAC. Editorial changes were made to App 5A to specify safety valve blowdown, and to App 5B, SG Line Break Outside Containment.

Chapter 6 - Engineered Safety Features

ESF pressure-retaining plate material was changed from Inconel 600 to 690 in Tbl 6.1-1. Figure 6.2.3-1 was updated. ITAAC-related changes to containment isolation valves were made in Section 6.2.4. Table 6.2.4-1 was updated. Section 6.2.5 was revised to discuss relieving of containment pressure during severe accidents. Editorial changes were made for consistency with ITAAC in SIS Section 6.3.1, also 6.3.2, 6.3.4. Table 6.3.2-1 was updated. Section 6.5 was changed to incorporate trisodium phosphate dodecahydrate. Table 6.3.2-5, SIS flow delivery to the RCS, was added.

Editorial revisions were made to Section 6.4, Habitability Systems, to be consistent with ITAAC. Section 6.7.1 was revised in response to DSER OI 6.7.1-2 & 6.7.2-2; editorial changes were made to Section 6.7.4 per ITAAC agreements with NRC reviewers. Section 6.8 was updated to incorporate trisodium phosphate dodecahydrate. The minimum IRWST volume was added to Tbl 6.8-1.

Chapter 7 - Instrumentation and Controls

Section 7.1.2 was updated to conform with RG 1.45. Section 7.2.1 incorporates editorial changes regarding equipment subject to EMI to be consistent with ITAAC. Section 7.5.1 was revised to incorporate editorial changes regarding SIAS channel diversity.

Section 7.7.1 was revised to discuss loss of electric power to DIAS, DPS for consistency with ITAAC. Redundant Figures 7.7-16 and 7A.2-1 were deleted. Figures 7.5-1 and 7.7-17 were revised.

Chapter 8 - Electric Power

Section 8.1.4, Diesel Generator Maintenance, was revised to be in compliance with Reg Guide 1.160. Section 8.1.4.5 was revised to incorporate a COL action item requirement concerning compliance with IEEE 141.

Demonstration of the grid stability analysis as applied to the RCP motors was added to Section 8.2.2. Electrical separation requirements, personnel training requirements, IEEE code requirements, compliance with BTP ICSB-18, and cable separation requirements were added to Section 8.3.1. Table 8.3.1-2, sheet 14 was updated to correct the load on the DG.

Section 8.3.2, DC Power Systems, and Figure 8.3.2-2 were revised.

Chapter 9 - Auxiliary Systems

Editorial changes were made to Sections 9.2.1, 9.2.2, 9.2.9 and Tbl 9.2.1-3. Section 9.2.2 was updated to close COL Action Item 9.2.2-2. CCW loads in Tbl 9.2.2-3 were updated. Revisions were made to Section 9.2.3, Demineralized Water Makeup System, Section 9.2.4, Water Systems, Section 9.2.8, Turbine Bldg Cooling Water System, and Section 9.2.10, Turbine Bldg Service Water System, for consistency with ITAAC. CCW flow diagrams, Figures 9.2.2-1, 9.2.3-1, 9.2.8-1 and 9.2.10-1 were revised.

Revisions were made to Section 9.3.2, Primary Sampling System, and to Section 9.3.2.5.1, Process Radiation Monitor. Table 9.3.4-7, CVCS Active Valves, was updated.

Air conditioning, heating, cooling and ventilation systems described in Section 9.4 were revised to conform with ITAAC. Section 9.4.10 incorporates ITAAC changes to the CCWHX structure ventilation system. Figures 9.4-1, 9.4-2, 9.4-3, 9.4-5, 9.4-6, 9.4-7, 9.4-8, 9.4-9 and 9.4-10 were revised.

Sections 9.5.1, Fire Protection System, and 9.5.3, Lighting Systems, were modified for consistency with ITAAC.

Chapter 10 - Steam and Power Conversion

The turbine generator design bases, Section 10.2.1, was expanded and revised based on agreements with NRC reviewers. Section 10.2.3, Turbine Assembly, incorporates additional information on turbine fracture toughness and stress corrosion cracking. Chemical and material properties for chromium-nickel-molybdenum-vanadium alloy were specified in Table 10.2.3-1. Section 10.2.5, Turbine Test and Inspection Requirements, was updated.

Section 10.3.2 was revised to include ITAAC changes to the main steam supply system. Figure 10.3.2-1 was revised.

Section 10.4.4 was revised to incorporate ITAAC changes to the turbine bypass system. Section 10.4.7 was revised to include ITAAC changes to the condensate and feedwater systems. Section 10.4.9 was changed to include ITAAC changes to the emergency feedwater system.

Chapter 11 - Radioactive Waste Management

Editorial changes were made to Tbl 11.2-1. Section 11.3.1 was updated to include ITAAC changes to the gaseous waste management system. Tables 11.5-1, 11.5-4, 11.5-5, 11.5-6, and 11.5-7 were updated. Figures 11.3-1 and 11.4-1 were revised.

Chapter 12 - Radiation Protection

Section 12.1, ALARA Techniques, was updated. Section 12.2, Radiation Sources, and 12.3, Radiation Protection Design Features, were revised to be consistent with the ITAAC. Tables 12.3-2, 12.3-4, 12.3-5 and 12.3-6 were updated. Figures 12.3-12, -13, and -15 were revised.

Section 12.4.2, Industry Average Occupational Exposure, and Tbl 12.4-4 were updated.

Chapter 13 - Conduct of Operations

Sections 13.5.1 & 13.5.2 were changed per agreement with NRC reviewers. Section 13.6.1 was revised to close DSFR OI 13.6.2-2.

Sabotage Protection, Appendix 13A, was revised to close OI 13.6-2. Text changes to page 13A-1

were made to close OI 13.6-4. App 13A was revised to include an Insider Vulnerability Analysis. Changes were made to App 13B, Tbl 13B-24, -27, -28, -30 to close OI 13.6-2.

Chapter 14 - Initial Test Program

Section 14.2.7 was changed to incorporate NRC comments. Section 14.2.12 was changed to incorporate NRC comments. Section 14.2.12.1, Flow Limiter Testing, was revised to be consistent with ITAAC requirements. Section 14.2.12.1, SIS, was revised per ITAAC requirements. An editorial correction was made to the ACI Code listed in Section 14.2.12.4.

Chapter 15 - Accident Analyses

RPS trip times contained in Tbl 15.0-2 were clarified. Editorial changes were made to Section 15.7.3.1.

Chapter 16 - Technical Specifications; Chapter 17 - Quality Assurance;

Chapter 18 - Human Factors Engineering

No changes to these Chapters.

Chapter 19 - Probabilistic Risk Assessment

The SGTR event sequence model was revised in response to a follow-on question to DSER Open Item 19.1.2.1.1.5-2. As a result of this change, Sections 19.4.4.3.8, 19.4.4.5.2, 19.4.13.2.12, and 19.4.13.4.2 were revised, the text in Sections 19.4.4.3.6 and 19.4.13.2.11 was deleted, and Table 19.9.2.13-1 was updated. A new sensitivity analysis was performed and Section 19.10.12 and Table 19.10-7 were added. Section 19.15.2.1.4.2 was revised to add text pertaining to the sensitivity analyses and Table 19.15.2-4A was added.

The Level 1 importance analyses in Sections 19.9.4 and 19.15.2.1.4.3, and the Level 1 sensitivity analyses in Sections 19.10 and 19.15.2.1.4.2 were revised to reflect the changes in the Level 1 analyses resulting from responses to the DSER open items and follow-on questions. These revisions included changes to Tables 19.9.4-1, 19.9.4-2, 19.10-1, 19.10-2, 19.10-3, 19.10-4, 19.10-5, 19.15.2-4, 19.15.2-5 and 19.15.2-6.

Editorial changes and corrections were made in Appendix 19.5E and Section 19.9.1. Table 19.3.3-2 was revised to be consistent with Section 19.4.14.3.

Section 19.12.2.2.8.3.2.1 was revised to respond to an action item from the September, 1993 PRA meeting with NRC reviewers.

The Level 2 PRA analyses were requantified to reflect the Level 1 analyses changes resulting from responses to DSER open items and follow-on questions. This requantification resulted in changes to Sections 19.12.1.4.1, 19.12.2.3, and 19.12.3.2. Tables 19.12.1-5, 19.12.1-6, 19.12.1-7, 19.12.2.3-3, 19.12.2.3-5, 19.12.2.3-6, 19.12.2.3-7, Tables 19.12.2.3-9 through 19.12.2.3-20, 19.12.3-1 and 19.12.3-2 were revised, and Tables 19.12.2.3-5A, 19.12.2.3-6A, 19.12.2.3-12A, 19.12.2.3-16A, 19.12.2.3-17A, and 19.12.2.3-18A were added.

Appendix A - Closure of Unresolved and Generic Safety Issues

Editorial changes were made to DG testing to be consistent with Reg Guide requirements. An overall review and update of this appendix will be performed for Amendment U.