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Subject: APR1400 Design Certification Application RAI 508-8592 (16 - Technical Specifications)
Attachments: APR1400 DC RAI 508 SPSB 8592.pdf

KHNP,

The attachment contains the subject request for additional information (RAI). This RAI was sent to you in draft form. Your licensing review schedule assumes technically correct and complete responses within 30 days of receipt of RAIs.

Please submit your RAI response to the NRC Document Control Desk.

Thank you,

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United States Nuclear Regulatory Commission
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REQUEST FOR ADDITIONAL INFORMATION 508-8592

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Application Title: APR1400 Design Certification Review – 52-046
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.
Docket No. 52-046
Review Section: 16 - Technical Specifications
Application Section:

QUESTIONS

16-178

Paragraph (a)(11) of 10 CFR 52.47 states that a design certification (DC) applicant is to propose Technical Specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. NUREG-1432, "Standard Technical Specifications (STS)-Combustion Engineering Plants," Rev. 4, provides NRC guidance on format and content of technical specifications as one acceptable means to meet 10 CFR 50.36 requirements. Staff needs to evaluate all technical differences from standard TS (STS) NUREG-1432, STS Combustion Engineering Plants, Rev. 4, which is referenced by the DC applicant in DCD Tier 2 Section 16.1, and the docketed rationale for each difference because conformance to STS provisions is used in the safety review as the initial point of guidance for evaluating the adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

The Writer's Guide for Plant-Specific Improved Technical Specifications (TSTF-GG-05-01) also provides guidance for the format and content of the TS. There are format and content differences between the DCD and the Writer's Guide. These following corrections are necessary to ensure the completeness and accuracy of the TS and Bases.

Correct the following editorial errors within the Bases for Technical Specification 3.1.1.

Section 3.2.2.a of the Writer's Guide for Plant Specific Improved Technical Specifications states: "Upon the first reference in each Specification or Bases to a phrase for which an abbreviation is desired to be used (except as allowed in Writer's Guide Section 3.2.2.b below), use the full phrase followed by the acronym or initialism set off by parenthesis. Use the abbreviation alone on all subsequent references in that Specification or Bases."

- In the second paragraph of the Background section, the abbreviation "RCS" is used without defining it prior to its use.
- In the second paragraph of the Applicable Safety Analysis section, the abbreviation "k_{N-1}" is used without defining it prior to its use. This also occurs on page B3.1.2-2 in the final paragraph on the page.
- In the second paragraph of the Actions A.1 section, the abbreviation "IRWST" is used without defining it prior to its use.

These corrections are required to ensure the accuracy and completeness of the Bases and to align the text with the guidance contained in the Writer's Guide.

16-179

Paragraph (a)(11) of 10 CFR 52.47 states that a design certification (DC) applicant is to propose Technical Specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. NUREG-1432, "Standard Technical Specifications (STS)-Combustion Engineering Plants," Rev. 4, provides NRC guidance on format and content of technical specifications as one acceptable means to meet 10 CFR 50.36 requirements. Staff needs to evaluate all technical differences from standard TS (STS) NUREG-1432, STS Combustion Engineering Plants, Rev. 4, which is referenced by the DC applicant in DCD Tier 2 Section 16.1, and the docketed rationale for each difference because conformance to STS provisions is used in the safety review as the initial point of guidance for evaluating the adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

The Writer's Guide for Plant-Specific Improved Technical Specifications (TSTF-GG-05-01) also provides guidance for the format and content of the TS. There are format and content differences between the DCD and the Writer's Guide. These following corrections are necessary to ensure the completeness and accuracy of the TS and Bases.

Clarify the deviation from the STS in the Bases for Technical Specification (TS) 3.1.4 Moderator Temperature Coefficient (MTC).

In the second paragraph of the Background section, the STS states “The reactor is designed to operate with a negative MTC over the largest possible range of fuel cycle operation.” The same sentence in the APR1400 Bases states “The reactor is designed to operate with a non-positive MTC over the largest possible range of fuel cycle operation.” The adjective “non-positive” is not as clear as the term “negative”.

The clarification is required to ensure the accuracy and completeness of the TS Bases.

16-180

Paragraph (a)(11) of 10 CFR 52.47 states that a design certification (DC) applicant is to propose Technical Specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. NUREG-1432, “Standard Technical Specifications (STS)-Combustion Engineering Plants,” Rev. 4, provides NRC guidance on format and content of technical specifications as one acceptable means to meet 10 CFR 50.36 requirements. Staff needs to evaluate all technical differences from standard TS (STS) NUREG-1432, STS Combustion Engineering Plants, Rev. 4, which is referenced by the DC applicant in DCD Tier 2 Section 16.1, and the docketed rationale for each difference because conformance to STS provisions is used in the safety review as the initial point of guidance for evaluating the adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

The Writer’s Guide for Plant-Specific Improved Technical Specifications (TSTF-GG-05-01) also provides guidance for the format and content of the TS. There are format and content differences between the DCD and the Writer’s Guide. These following corrections are necessary to ensure the completeness and accuracy of the TS and Bases.

Correct the sentence structure of a sentence in the Applicability section of the Bases for Technical Specification (TS) 3.1.5 Control Element Assembly (CEA) Alignment.

The first sentence of the section is incorrectly broken up into 2 sentences in the following manner: “…in MODES 1 and 2. Because these are the…” This deviates from the text in the STS and creates a sentence fragment.

This correction is required to ensure the accuracy of the TS Bases and to align the text with the STS.

16-181

Paragraph (a)(11) of 10 CFR 52.47 states that a design certification (DC) applicant is to propose Technical Specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. NUREG-1432, “Standard Technical Specifications (STS)-Combustion Engineering Plants,” Rev. 4, provides NRC guidance on format and content of technical specifications as one acceptable means to meet 10 CFR 50.36 requirements. Staff needs to evaluate all technical differences from standard TS (STS) NUREG-1432, STS Combustion Engineering Plants, Rev. 4, which is referenced by the DC applicant in DCD Tier 2 Section 16.1, and the docketed rationale for each difference because conformance to STS provisions is used in the safety review as the initial point of guidance for evaluating the adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

The Writer’s Guide for Plant-Specific Improved Technical Specifications (TSTF-GG-05-01) also provides guidance for the format and content of the TS. There are format and content differences between the DCD and the Writer’s Guide. These following corrections are necessary to ensure the completeness and accuracy of the TS and Bases.

Correct the use of the abbreviation MCR in the Bases for Technical Specification (TS) 3.1.6 Shutdown Control Element Assembly (CEA) Insertion Limits.

Section 3.2.2.a of the Writer’s Guide for Plant Specific Improved Technical Specifications states: “Upon the first reference in each Specification or Bases to a phrase for which an abbreviation is desired to be used (except as allowed in Writer’s Guide Section 3.2.2.b below), use the full phrase followed by the acronym or initialism set off by parenthesis. Use the abbreviation alone on all subsequent references in that Specification or Bases.”

In the fourth paragraph of the Background section, the abbreviation MCR is used without defining it prior to its use. The STS uses the phrase “control room” vice “MCR”. In the second paragraph of Surveillance Requirement (SR) 3.1.6.1, the text states “…by the main control room (MCR) operator, verification…”

If the Bases are to refer to the Main Control Room vice the “control room” which is utilized in the STS, then the text in the Background should define the term utilizing initial capitalization as follows: “…automatically by the Main Control Room (MCR)

operator." The text in SR 3.1.6.1 should then only contain the abbreviation "MCR" since it will have been previously defined in the Background Section.

These corrections are required to ensure the accuracy of the TS Bases and to align the text with the guidance contained in the Writer's Guide.

16-182

Paragraph (a)(11) of 10 CFR 52.47 states that a design certification (DC) applicant is to propose Technical Specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. NUREG-1432, "Standard Technical Specifications (STS)-Combustion Engineering Plants," Rev. 4, provides NRC guidance on format and content of technical specifications as one acceptable means to meet 10 CFR 50.36 requirements. Staff needs to evaluate all technical differences from standard TS (STS) NUREG-1432, STS Combustion Engineering Plants, Rev. 4, which is referenced by the DC applicant in DCD Tier 2 Section 16.1, and the docketed rationale for each difference because conformance to STS provisions is used in the safety review as the initial point of guidance for evaluating the adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

The Writer's Guide for Plant-Specific Improved Technical Specifications (TSTF-GG-05-01) also provides guidance for the format and content of the TS. There are format and content differences between the DCD and the Writer's Guide. These following corrections are necessary to ensure the completeness and accuracy of the TS and Bases.

Clarify the text with the Surveillance Requirement (SR) 3.1.8.1 text in the Bases for Technical Specification (TS) 3.1.8 Part Strength Control Element Assembly Insertion Limits.

Address the following issues within SR 3.1.8.1:

- The abbreviation "MCR" is used prior to defining it prior to its use.
- The first sentence reads "…group position every 12 hours is sufficient…" The phrase "every 12 hours" is not needed in the text. The Frequency is adequately discussed later in the paragraph.

These clarifications are required to ensure the accuracy of the TS Bases.

16-183

Paragraph (a)(11) of 10 CFR 52.47 states that a design certification (DC) applicant is to propose Technical Specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. NUREG-1432, "Standard Technical Specifications (STS)-Combustion Engineering Plants," Rev. 4, provides NRC guidance on format and content of technical specifications as one acceptable means to meet 10 CFR 50.36 requirements. Staff needs to evaluate all technical differences from standard TS (STS) NUREG-1432, STS Combustion Engineering Plants, Rev. 4, which is referenced by the DC applicant in DCD Tier 2 Section 16.1, and the docketed rationale for each difference because conformance to STS provisions is used in the safety review as the initial point of guidance for evaluating the adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

The Writer's Guide for Plant-Specific Improved Technical Specifications (TSTF-GG-05-01) also provides guidance for the format and content of the TS. There are format and content differences between the DCD and the Writer's Guide. These following corrections are necessary to ensure the completeness and accuracy of the TS and Bases.

Clarify a deviation from the STS in the Bases for Technical Specification (TS) 3.1.10 Special Test Exceptions (STE) – Shutdown Margin (SDM), TS 3.1.11 Special Test Exceptions (STE) – MODES 1 and 2, and TS 3.1.12 Special Test Exceptions (STE) – Reactivity Coefficient Testing.

In the APR1400 Bases, the first sentence in the final paragraph in the Applicable Safety Analysis section ends with the text "…and therefore no SECTION CRITERIA apply." The same sentence in the STS ends with the following text "…and therefore no criteria of 10 CFR 50.36(c)(2)(ii) apply." This appears to be a typographical error (only in TS 3.1.10) with the intended text being "SELECTION CRITERIA."

In the APR1400 Bases, the final sentence in the same paragraph reads “A discussion of the SELECTION CRITERIA satisfied for the other LCOs are provided in their respective Bases.” The same sentence in the STS reads “A discussion of the criteria satisfied for the other LCOs is provided in their respective Bases.”

An RAI has been written to address the inclusion of SELECTION CRITERIA in the Definitions section of the TS, stating that SELECTION CRITERIA should not be in the Definitions. Therefore, if the term SELECTION CRITERIA is removed from the Definitions section, then the text in the 3.1.10 Bases will have to be altered.

This clarification is required to ensure the accuracy and completeness of the TS Bases.

16-184

Paragraph (a)(11) of 10 CFR 52.47 states that a design certification (DC) applicant is to propose Technical Specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. NUREG-1432, “Standard Technical Specifications (STS)-Combustion Engineering Plants,” Rev. 4, provides NRC guidance on format and content of technical specifications as one acceptable means to meet 10 CFR 50.36 requirements. Staff needs to evaluate all technical differences from standard TS (STS) NUREG-1432, STS Combustion Engineering Plants, Rev. 4, which is referenced by the DC applicant in DCD Tier 2 Section 16.1, and the docketed rationale for each difference because conformance to STS provisions is used in the safety review as the initial point of guidance for evaluating the adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

The Writer’s Guide for Plant-Specific Improved Technical Specifications (TSTF-GG-05-01) also provides guidance for the format and content of the TS. There are format and content differences between the DCD and the Writer’s Guide. These following corrections are necessary to ensure the completeness and accuracy of the TS and Bases.

Clarify a reference in the Bases for Technical Specification (TS) 3.1.11 Special Test Exceptions (STE) – MODES 1 and 2.

In the Background section, there is text that refers to “Reference 4”, which is DCD Tier 2, Chapter 14. This text is similar to text within the Bases for TS 3.1.10 and 3.1.12, both of which also refer to “Reference 4.” In those TS Bases, Reference 4 is ANSI/ANS-19.6.1-2005. In the STS for STE – MODES 1 and 2, Reference 4 also refers to ANSI/ANS-19.6.1-2005.

This clarification is required to ensure the text is referring to the correct Reference.

16-185

Paragraph (a)(11) of 10 CFR 52.47 states that a design certification (DC) applicant is to propose Technical Specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. NUREG-1432, “Standard Technical Specifications (STS)-Combustion Engineering Plants,” Rev. 4, provides NRC guidance on format and content of technical specifications as one acceptable means to meet 10 CFR 50.36 requirements. Staff needs to evaluate all technical differences from standard TS (STS) NUREG-1432, STS Combustion Engineering Plants, Rev. 4, which is referenced by the DC applicant in DCD Tier 2 Section 16.1, and the docketed rationale for each difference because conformance to STS provisions is used in the safety review as the initial point of guidance for evaluating the adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

The Writer’s Guide for Plant-Specific Improved Technical Specifications (TSTF-GG-05-01) also provides guidance for the format and content of the TS. There are format and content differences between the DCD and the Writer’s Guide. These following corrections are necessary to ensure the completeness and accuracy of the TS and Bases.

Justify a deviation for the STS in the Bases for Technical Specification (TS) 3.1.11 Special Test Exceptions (STE) – MODES 1 and 2 and TS 3.1.12 Special Test Exceptions (STE) – Reactivity Coefficient Testing.

The final sentence in the Actions B.1 section of the APR1400 Bases states “During suspending PHYSICS TEST STE, the corresponding LCOs shall be restored.” The same sentence in the STS states “Suspension of PHYSICS TESTS exceptions requires restoration of each of the applicable LCOs to within specification.” This is a clarity issue.

This justification is required to ensure the clarity of the TS Bases.

16-186

Paragraph (a)(11) of 10 CFR 52.47 states that a design certification (DC) applicant is to propose Technical Specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. NUREG-1432, "Standard Technical Specifications (STS)-Combustion Engineering Plants," Rev. 4, provides NRC guidance on format and content of technical specifications as one acceptable means to meet 10 CFR 50.36 requirements. Staff needs to evaluate all technical differences from standard TS (STS) NUREG-1432, STS Combustion Engineering Plants, Rev. 4, which is referenced by the DC applicant in DCD Tier 2 Section 16.1, and the docketed rationale for each difference because conformance to STS provisions is used in the safety review as the initial point of guidance for evaluating the adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

The Writer's Guide for Plant-Specific Improved Technical Specifications (TSTF-GG-05-01) also provides guidance for the format and content of the TS. There are format and content differences between the DCD and the Writer's Guide. These following corrections are necessary to ensure the completeness and accuracy of the TS and Bases.

Justify/clarify the deviation from the STS in the Bases for Technical Specifications (TS) 3.2.1 Linear Heat Rate (LHR), 3.2.2 Planar Radial Peaking Factors (F_{xy}), 3.2.3 Azimuthal Power Tilt (T_q), 3.2.4 Departure from Nucleate Boiling Ratio (DNBR), and 3.2.5 Axial Shape Index (ASI).

The Background sections for the above listed TS all contain the following text: "The power distribution is derived from the characteristics of multiple parameters and their combinations which can result in acceptable power distribution. LCOs for departure from nucleate boiling (DNB) and LHR need to be set to operate the plant within the power distribution design limit."

The STS text for those statements reads "Power distribution is a product of multiple parameters, various combinations of which may produce acceptable power distributions. Operation within the design limits of power distribution is accomplished by generating operating limits on the LHR and departure from nucleate boiling (DNB)."

The STS text is clearer. The first sentence in the APR1400 text contains the grammatical error "which can". It also states that the limits "need to be set" which is not as clear as the STS wording which clearly ties the operations to the limits.

In the Bases for TS 3.2.4, the two sentences referenced above are broken up differently in the paragraphs listed on the page than the text in TS 3.2.1, 3.2.2, 3.2.3, and 3.2.5.

This justification/clarification is required to ensure the clarity and accuracy of the TS Bases.

16-187

Paragraph (a)(11) of 10 CFR 52.47 states that a design certification (DC) applicant is to propose Technical Specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. NUREG-1432, "Standard Technical Specifications (STS)-Combustion Engineering Plants," Rev. 4, provides NRC guidance on format and content of technical specifications as one acceptable means to meet 10 CFR 50.36 requirements. Staff needs to evaluate all technical differences from standard TS (STS) NUREG-1432, STS Combustion Engineering Plants, Rev. 4, which is referenced by the DC applicant in DCD Tier 2 Section 16.1, and the docketed rationale for each difference because conformance to STS provisions is used in the safety review as the initial point of guidance for evaluating the adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

The Writer's Guide for Plant-Specific Improved Technical Specifications (TSTF-GG-05-01) also provides guidance for the format and content of the TS. There are format and content differences between the DCD and the Writer's Guide. These following corrections are necessary to ensure the completeness and accuracy of the TS and Bases.

Justify the deviation from the STS in the Bases for Technical Specifications (TS) 3.2.2 Planar Radial Peaking Factors (F_{xy}).

In the fourth paragraph of the Background section on page B3.2.2-2, the text includes "…operator how far the core is from the operating limits…" The same sentence in the STS reads "…operator how near the core is to the operating limits…"

When an approach to a limit is a concern, the proximity of "how near to the limit" vice "how far from the limit" is conventionally used, as it is in the STS.

This justification is required to ensure the clarity of the Bases.

16-188

Paragraph (a)(11) of 10 CFR 52.47 states that a design certification (DC) applicant is to propose Technical Specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. NUREG-1432, "Standard Technical Specifications (STS)-Combustion Engineering Plants," Rev. 4, provides NRC guidance on format and content of technical specifications as one acceptable means to meet 10 CFR 50.36 requirements. Staff needs to evaluate all technical differences from standard TS (STS) NUREG-1432, STS Combustion Engineering Plants, Rev. 4, which is referenced by the DC applicant in DCD Tier 2 Section 16.1, and the docketed rationale for each difference because conformance to STS provisions is used in the safety review as the initial point of guidance for evaluating the adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

The Writer's Guide for Plant-Specific Improved Technical Specifications (TSTF-GG-05-01) also provides guidance for the format and content of the TS. There are format and content differences between the DCD and the Writer's Guide. These following corrections are necessary to ensure the completeness and accuracy of the TS and Bases.

Justify the deviation from the STS in the Bases for Technical Specifications (TS) 3.2.2 Planar Radial Peaking Factors (F_{xy}).

In the third paragraph of the Applicable Safety Analysis section on page B3.2.2-4 in the STS, the text includes "…outside the limits of these LCOs for ASI, F_{xy}, and T_Q during normal operation."

The same text in the fourth paragraph of the Applicable Safety Analysis section on page B3.2.2-4 in the APR1400 Bases, the text includes "…outside the limits of these LCOs during normal operation." The APR1400 Bases omits the specific LCOs.

This justification is required to ensure the accuracy and completeness of the TS Bases.

16-189

Paragraph (a)(11) of 10 CFR 52.47 states that a design certification (DC) applicant is to propose Technical Specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. NUREG-1432, "Standard Technical Specifications (STS)-Combustion Engineering Plants," Rev. 4, provides NRC guidance on format and content of technical specifications as one acceptable means to meet 10 CFR 50.36 requirements. Staff needs to evaluate all technical differences from standard TS (STS) NUREG-1432, STS Combustion Engineering Plants, Rev. 4, which is referenced by the DC applicant in DCD Tier 2 Section 16.1, and the docketed rationale for each difference because conformance to STS provisions is used in the safety review as the initial point of guidance for evaluating the adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

The Writer's Guide for Plant-Specific Improved Technical Specifications (TSTF-GG-05-01) also provides guidance for the format and content of the TS. There are format and content differences between the DCD and the Writer's Guide. These following corrections are necessary to ensure the completeness and accuracy of the TS and Bases.

Justify the deviation from the STS in the Bases for Technical Specification (TS) 3.2.4 Departure from Nucleate Boiling Ratio (DNBR).

In the second paragraph of the Applicable Safety Analysis section of the STS on page B3.2.4-4, the final sentence ends with a "Ref. 1" since the text refers to the accident analysis. The same sentence in the APR1400 Bases omits the "Ref. 1."

This justification is required to ensure the completeness of the TS Bases.

16-190

Paragraph (a)(11) of 10 CFR 52.47 states that a design certification (DC) applicant is to propose Technical Specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. NUREG-1432, "Standard Technical Specifications (STS)-Combustion Engineering Plants," Rev. 4, provides NRC guidance on format and content of technical specifications as one acceptable means to meet 10 CFR 50.36 requirements. Staff needs to evaluate all technical differences from standard TS (STS) NUREG-1432,

STS Combustion Engineering Plants, Rev. 4, which is referenced by the DC applicant in DCD Tier 2 Section 16.1, and the docketed rationale for each difference because conformance to STS provisions is used in the safety review as the initial point of guidance for evaluating the adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

The Writer's Guide for Plant-Specific Improved Technical Specifications (TSTF-GG-05-01) also provides guidance for the format and content of the TS. There are format and content differences between the DCD and the Writer's Guide. These following corrections are necessary to ensure the completeness and accuracy of the TS and Bases.

Clarify the text in the Bases for Technical Specification (TS) 3.2.4 Departure from Nucleate Boiling Ratio (DNBR).

In the paragraph for Actions A.1, the text includes: "…completion time of 1 hour is a reasonable for the operator…" This text is not grammatically correct.

This clarification is required to ensure the accuracy of the TS Bases.

16-191

Paragraph (a)(11) of 10 CFR 52.47 states that a design certification (DC) applicant is to propose Technical Specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. NUREG-1432, "Standard Technical Specifications (STS)-Combustion Engineering Plants," Rev. 4, provides NRC guidance on format and content of technical specifications as one acceptable means to meet 10 CFR 50.36 requirements. Staff needs to evaluate all technical differences from standard TS (STS) NUREG-1432, STS Combustion Engineering Plants, Rev. 4, which is referenced by the DC applicant in DCD Tier 2 Section 16.1, and the docketed rationale for each difference because conformance to STS provisions is used in the safety review as the initial point of guidance for evaluating the adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

The Writer's Guide for Plant-Specific Improved Technical Specifications (TSTF-GG-05-01) also provides guidance for the format and content of the TS. There are format and content differences between the DCD and the Writer's Guide. These following corrections are necessary to ensure the completeness and accuracy of the TS and Bases.

Correct the formatting of the titles in the upper right hand corner in the Bases for Technical Specifications (TS) 3.4.7 and 3.4.8.

The title for TS 3.4.7 in the upper right hand corner reads "RCS Loops – MODES 5(Loops Filled)" and the title for TS 3.4.8 in the upper right hand corner reads "RCS Loops – MODES 5(Loops Not Filled)." The following 2 corrections need to be made. The "MODES" should read "MODE" and a space needs to be added between the "5" and the "(". These corrections need to be made on pages B3.4.7-1 through B3.4.7-7 and B3.4.8-1 through B3.4.8-6.

These corrections are required to ensure the accuracy of the TS Bases.

16-192

Paragraph (a)(11) of 10 CFR 52.47 states that a design certification (DC) applicant is to propose Technical Specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. NUREG-1432, "Standard Technical Specifications (STS)-Combustion Engineering Plants," Rev. 4, provides NRC guidance on format and content of technical specifications as one acceptable means to meet 10 CFR 50.36 requirements. Staff needs to evaluate all technical differences from standard TS (STS) NUREG-1432, STS Combustion Engineering Plants, Rev. 4, which is referenced by the DC applicant in DCD Tier 2 Section 16.1, and the docketed rationale for each difference because conformance to STS provisions is used in the safety review as the initial point of guidance for evaluating the adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

The Writer's Guide for Plant-Specific Improved Technical Specifications (TSTF-GG-05-01) also provides guidance for the format and content of the TS. There are format and content differences between the DCD and the Writer's Guide. These following corrections are necessary to ensure the completeness and accuracy of the TS and Bases.

The applicant is requested to address the following issues within the Bases for Technical Specification (TS) 3.7.11 "Control Room HVAC System (CRHS)." The applicant is requested to address the following issues within the Bases for Technical Specification (TS) 3.7.11 "Control Room HVAC System (CRHS)."

- Background Section (Page B3.7.11-1)
    - In the third paragraph, there are 3 occurrences (in lines 11, 14, and 15 of that paragraph) of the phrase "absorber." These should be corrected to read "adsorber."
    - Also in the third paragraph, there is a sentence that reads "Continuous operation of each ACU for at least 10 hours per months with the heaters on reduces moisture buildup on the HEPA filters and absorbers." The staff recommends deleting this sentence since it is inconsistent with Surveillance Requirement (SR) 3.7.11.1 which states "Operate each CREACS division for ≥15 minutes with heaters operating" with a Frequency of every 31 days.
- Background Section (Page B3.7.11-2)
    - The first sentence of the fourth paragraph reads "The CRHS places the system into either of two separate of operation mode (emergency mode for protection for radiation, or recirculation mode for protection from smoke)." The sentence should read "The CRHS places the system into either of two separate operation modes (emergency mode for protection from radiation, or recirculation mode for protection from smoke)."
    - The fourth paragraph also contains the phrase "…isolated, closes exhaust dampers, and…" The phrase should read "…isolated, exhaust dampers are closed, and…"
    - The second sentence in the sixth paragraph contains the phrase "…the emergency radiation state as required." The phrase should read "…the emergency mode as required."
- Applicable Safety Analysis Section (Page B3.7.11-3)
    - The third paragraph contains the sentence "The analysis of hazardous chemicals releases demonstrates that the toxicity limits are not exceeded in the CRE following a hazardous chemical release (Reference 1)." This sentence should be enclosed in brackets ("[ ]") since this a site specific evaluation that will be performed by a COL applicant utilizing the APR1400 design.
- LCO Section (Page B3.7.11-4)
    - The first sentence in the final paragraph of the LCO section contains the phrase "…individual will have to a method…" The phrase should read "…individual will have a method…"
- Actions Section (Page B3.7.11-5)
    - In the Actions for A.1, the second to last sentence in the paragraph ends with the phrase "…could result in less the CRHS function." The phrase should read "…could result in loss of the CRHS function."

These corrections are required to ensure the accuracy and completeness of the TS Bases.

16-193

Paragraph (a)(11) of 10 CFR 52.47 states that a design certification (DC) applicant is to propose Technical Specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. NUREG-1432, "Standard Technical Specifications (STS)-Combustion Engineering Plants," Rev. 4, provides NRC guidance on format and content of technical specifications as one acceptable means to meet 10 CFR 50.36 requirements. Staff needs to evaluate all technical differences from standard TS (STS) NUREG-1432, STS Combustion Engineering Plants, Rev. 4, which is referenced by the DC applicant in DCD Tier 2 Section 16.1, and the docketed rationale for each difference because conformance to STS provisions is used in the safety review as the initial point of guidance for evaluating the adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

The Writer's Guide for Plant-Specific Improved Technical Specifications (TSTF-GG-05-01) also provides guidance for the format and content of the TS. There are format and content differences between the DCD and the Writer's Guide. These following corrections are necessary to ensure the completeness and accuracy of the TS and Bases.

REQUEST FOR ADDITIONAL INFORMATION 508-8592

The applicant is requested to address the following issues within the Bases for Technical Specification (TS) 3.9.6 “Refueling Water Level.”

- The title in the Bases for Technical Specification 3.9.6 in incorrect. The title for TS 3.9.6 is “Refueling Water Level”, which is how the title of the section appears in both the STS and the APR1400 TS. However, the Bases incorrectly titles the section as “Refueling Pool Water Level.” The title should be corrected to read “Refueling Water Level” for the following:
    - Table of Contents for the Bases (page iii)
    - Subsection heading on page B3.9.6-1
    - Heading (Upper right hand corner) for pages B3.9.6-1 through B3.9.6-3
- Applicable Safety Analysis Section (page B3.9.6-1)
    - The first sentence of the first paragraph in the section contains the phrase “…water level in the refueling pool and refueling canal…” The phrase should read “…water level in the refueling cavity and refueling canal…” This would align the text with the STS and DCD Section 9.1.4.
- Action Section (page B3.9.6-2)
    - In the Action A.1 and A.2 section, the final sentence states “The suspension of fuel CORE ALTERATIONS and movement shall not…” The sentence should read “The suspension of CORE ALTERATIONS and irradiated fuel movement shall not…”
    - In the Action A.3 statement, a portion reads “…movement of irradiated fuel, actions…” The statement should read “…movement of irradiated fuel assemblies, actions…”
- Surveillance Requirement (SR) Section (page B3.9.6-2)
    - The second paragraph of the APR1400 Bases for SR 3.9.6.1 reads “The 24-hour Frequency ensures that the water is at the required level and is considered adequate due to the large volume of water and the normal procedural controls of valve positions, significant unplanned level changes are unlikely.” The wording in this paragraph is not as clear as the text in the STS and the staff recommends replacing said paragraph with the wording used in the STS which reads “The Frequency of 24 hours is based on engineering judgment and is considered adequate in view of the large volume of water and the normal procedural controls of valve positions, which make significant unplanned level changes unlikely.”
- References Section (page B3.9.6-3)
    - Reference 3 reads “NUREG-0800, Section 15.0.1, July 2007.” The Reference should read “NUREG-0800, Section 15.0.3, March 2007.”

These corrections are required to ensure the accuracy and completeness of the TS Bases.


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