

## KHNPDCDRAIsPEm Resource

---

**From:** Ward, William  
**Sent:** Friday, August 07, 2015 6:57 PM  
**To:** 'apr1400rai@khnp.co.kr'; KHNPDCDRAIsPEm Resource; 'Chang, Harry'; 'Yunho Kim (yshh8226@gmail.com)'; jiyong.oh5@gmail.com; daegeun.ahn@gmail.com; Mannon, Steven (steven.mannon@aecom.com)  
**Cc:** Ciocco, Jeff; Lee, Samuel; Tjader, Theodore; Umana, Jessica; Dias, Antonio  
**Subject:** APR1400 Design Certification Application RAI 138-8067 (16.3 - LCO and SR Applicability)  
**Attachments:** APR1400 DC RAI 138 SPSB 8067.docx

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. However, KHNP requests, and we grant, 45 days to respond to the RAI question. We may adjust the schedule accordingly.

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

Thank you,

**William R. Ward, P.E.**  
**Senior Project Manager**  
**U.S. Nuclear Regulatory Commission**  
**m/s T6-D38M**  
**Washington, DC, 20555-0001**  
NRO/DNRL/Licensing Branch 2  
ofc T6-D31  
ofc (301) 415-7038 fax (301) 415-6350



 Please consider the environment before printing this email.

**Hearing Identifier:** KHNP\_APR1400\_DCD\_RAI\_Public  
**Email Number:** 147

**Mail Envelope Properties** (3943dd547b834aae9b2ca8a8baecf6a3)

**Subject:** APR1400 Design Certification Application RAI 138-8067 (16.3 - LCO and SR Applicability)  
**Sent Date:** 8/7/2015 6:57:13 PM  
**Received Date:** 8/7/2015 6:57:15 PM  
**From:** Ward, William

**Created By:** William.Ward@nrc.gov

**Recipients:**

"Ciocco, Jeff" <Jeff.Ciocco@nrc.gov>  
Tracking Status: None  
"Lee, Samuel" <Samuel.Lee@nrc.gov>  
Tracking Status: None  
"Tjader, Theodore" <Theodore.Tjader@nrc.gov>  
Tracking Status: None  
"Umana, Jessica" <Jessica.Umana@nrc.gov>  
Tracking Status: None  
"Dias, Antonio" <Antonio.Dias@nrc.gov>  
Tracking Status: None  
"apr1400rai@khnp.co.kr" <apr1400rai@khnp.co.kr>  
Tracking Status: None  
"KHNPDCDRAIsPEM Resource" <KHNPDCDRAIsPEM.Resource@nrc.gov>  
Tracking Status: None  
"Chang, Harry" <hyunseung.chang@gmail.com>  
Tracking Status: None  
"Yunho Kim (yshh8226@gmail.com)" <yshh8226@gmail.com>  
Tracking Status: None  
"jiyong.oh5@gmail.com" <jiyong.oh5@gmail.com>  
Tracking Status: None  
"daegeun.ahn@gmail.com" <daegeun.ahn@gmail.com>  
Tracking Status: None  
"Mannon, Steven (steven.mannon@aecom.com)" <steven.mannon@aecom.com>  
Tracking Status: None

**Post Office:** HQPWMSMRS05.nrc.gov

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	763	8/7/2015 6:57:15 PM
image001.jpg	4205	
APR1400 DC RAI 138 SPSB 8067.docx		41622

**Options**

**Priority:** Standard  
**Return Notification:** No  
**Reply Requested:** No  
**Sensitivity:** Normal  
**Expiration Date:**  
**Recipients Received:**



**U.S.NRC**

United States Nuclear Regulatory Commission

*Protecting People and the Environment*

## REQUEST FOR ADDITIONAL INFORMATION 138-8067

Issue Date: 08/07/2015  
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: 16.3.0 LCO and SR Applicability

### QUESTIONS

#### 16-33

Paragraph (a)(11) of 10 CFR 52.47 and paragraph (a)(30) of 10 CFR 52.79 states that a design certification (DC) applicant and a combined license (COL) applicant, respectively, are to propose technical specifications (TS) prepared in accordance with 10 CFR 50.36 and 50.36a. 10 CFR 50.36 sets forth requirements for TS to be included as part of the operating license for a nuclear power facility.

NUREG-1432, "Standard Technical Specifications-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.

SRP Section 16.0, Part III.2.A states, in part, "when reviewing a difference between the proposed TS provision and the reference TS provision, verify that the applicant's written technical or administrative reasoning in support of the difference is logical, complete, and clearly written."

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.

STS LCO 3.0.8 stipulates actions when one or more snubbers are unable to perform their intended support function. LCO 3.0.8 was developed as a risk-informed technical specification improvement and was designated TSTF-372. TSTF-372 included in its justification a generic risk evaluation applicable to operating plants. The applicant is requested to justify including TSTF-372 and LCO 3.0.8 in the proposed generic TS; the technical basis for the justification needs to include the APR1400 design and an applicable generic risk evaluation.

This information is needed to ensure APR1400 DCD provides an adequate basis for including LCO 3.0.8, consistent with TSTF-372.

#### 16-34

10 CFR 50.36 requires that each operating license issued by the Commission contain technical specifications (TS) that set forth the limits, operating conditions, and other requirements imposed upon facility operation for the protection of public health and safety. 10 CFR 52.47(a)(11) provides that a design certification (DC) applicant is to propose TS prepared in accordance with 10 CFR 50.36 and 50.36a.

## REQUEST FOR ADDITIONAL INFORMATION 138-8067

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.

On July 22, 1993, the NRC issued its Final Policy Statement (58 FR 39132) on Technical Specifications improvements, expressing the view that satisfying the guidance in the policy statement also satisfies Section 182a of the Atomic Energy Act and 10 CFR 50.36. In the final policy statement, the NRC stated its "intent that the wording and Bases of the improved STS be used in the Technical Specification related submittal to the extent practicable." Encouraging and maintaining standardization of TS requirements, such as contained in the STS, is therefore the policy of the NRC. In the final policy statement, the NRC encouraged "all licensees who submit Technical Specification related submittals based on this Policy Statement to emphasize human factors principles."

STS LCO 3.0.9 stipulates actions when one or more barriers are unable to perform their intended support function. LCO 3.0.9 was developed as a risk-informed technical specification improvement and was designated TSTF-427. TSTF-427 included in its justification a generic risk evaluation applicable to operating plants. The applicant is requested to justify including TSTF-427 and LCO 3.0.9 in the proposed generic TS; the technical basis for the justification needs to include the APR1400 design and an applicable generic risk evaluation. Since STS LCO 3.0.9 is risk-informed, it is inappropriate to remove the requirement to ensure "risk is assessed and managed" and omit the associated Reviewer's Note when adopting STS LCO 3.0.9 in the generic TS.

This information is needed to ensure APR1400 DCD provides an adequate basis for including LCO 3.0.9, consistent with TSTF-427.

### 16-35

10 CFR 50.36 requires that each operating license issued by the Commission contain technical specifications (TS) that set forth the limits, operating conditions, and other requirements imposed upon facility operation for the protection of public health and safety. 10 CFR 52.47(a)(11) provides that a design certification (DC) applicant is to propose TS prepared in accordance with 10 CFR 50.36 and 50.36a.

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.

On July 22, 1993, the NRC issued its Final Policy Statement (58 FR 39132) on Technical Specifications improvements, expressing the view that satisfying the guidance in the policy statement also satisfies Section 182a of the Atomic Energy Act and 10 CFR 50.36. In the final policy statement, the NRC stated its "intent that the wording and Bases of the improved STS be used in the Technical Specification related submittal to the extent practicable." Encouraging and

## REQUEST FOR ADDITIONAL INFORMATION 138-8067

maintaining standardization of TS requirements, such as contained in the STS, is therefore the policy of the NRC. In the final policy statement, the NRC encouraged “all licensees who submit Technical Specification related submittals based on this Policy Statement to emphasize human factors principles.”

The introductory sentence to the B 3.0 LCO section refers to “LCO 3.0.1 through LCO 3.0.6 ...”, though there are also LCO 3.0.7, LCO 3.0.8 and LCO 3.0.9, as included in the STS. The Deviation Report, “APR1400-K-O-NR-14001-NP,” does not address this difference. The applicant is requested to correct the introductory sentence to the B 3.0 LCO section to refer to “LCO 3.0.1 through LCO 3.0.9 ...”, and make the sentence consistent with the STS and the resolution of the above RAI questions regarding LCO 3.0.8 and LCO 3.0.9.

### 16-36

10 CFR 50.36 requires that each operating license issued by the Commission contain technical specifications (TS) that set forth the limits, operating conditions, and other requirements imposed upon facility operation for the protection of public health and safety. 10 CFR 52.47(a)(11) provides that a design certification (DC) applicant is to propose TS prepared in accordance with 10 CFR 50.36 and 50.36a.

On July 22, 1993, the NRC issued its Final Policy Statement (58 FR 39132) on Technical Specifications improvements, expressing the view that satisfying the guidance in the policy statement also satisfies Section 182a of the Atomic Energy Act and 10 CFR 50.36. In the final policy statement, the NRC stated its “intent that the wording and Bases of the improved STS be used in the Technical Specification related submittal to the extent practicable.” Encouraging and maintaining standardization of TS requirements, such as contained in the STS, is therefore the policy of the NRC. In the final policy statement, the NRC encouraged “all licensees who submit Technical Specification related submittals based on this Policy Statement to emphasize human factors principles.”

In the next to last paragraph in the LCO 3.0.3 Bases, reference is made to LCO 3.7.15, “Spent Fuel Pool Water Level.” The reference should be to LCO 3.7.14, “Spent Fuel Pool Water Level.” Make reference correct.

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.

### 16-37

10 CFR 50.36 requires that each operating license issued by the Commission contain technical specifications (TS) that set forth the limits, operating conditions, and other requirements imposed upon facility operation for the protection of public health and safety. 10 CFR 52.47(a)(11) provides that a design certification (DC) applicant is to propose TS prepared in accordance with 10 CFR 50.36 and 50.36a.

## REQUEST FOR ADDITIONAL INFORMATION 138-8067

On July 22, 1993, the NRC issued its Final Policy Statement (58 FR 39132) on Technical Specifications improvements, expressing the view that satisfying the guidance in the policy statement also satisfies Section 182a of the Atomic Energy Act and 10 CFR 50.36. In the final policy statement, the NRC stated its "intent that the wording and Bases of the improved STS be used in the Technical Specification related submittal to the extent practicable." Encouraging and maintaining standardization of TS requirements, such as contained in the STS, is therefore the policy of the NRC. In the final policy statement, the NRC encouraged "all licensees who submit Technical Specification related submittals based on this Policy Statement to emphasize human factors principles."

The last sentence in the third paragraph of LCO 3.0.4 Bases states, "In addition, the provisions of LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that result from a normal shutdown." The STS sentence states, "... that results from any shutdown." The Deviation Report, "APR1400-K-O-NR-14001-NP," does not address this difference. Justify this difference or revise the sentence to match the STS sentence.

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.

### 16-38

10 CFR 50.36 requires that each operating license issued by the Commission contain technical specifications (TS) that set forth the limits, operating conditions, and other requirements imposed upon facility operation for the protection of public health and safety. 10 CFR 52.47(a)(11) provides that a design certification (DC) applicant is to propose TS prepared in accordance with 10 CFR 50.36 and 50.36a.

On July 22, 1993, the NRC issued its Final Policy Statement (58 FR 39132) on Technical Specifications improvements, expressing the view that satisfying the guidance in the policy statement also satisfies Section 182a of the Atomic Energy Act and 10 CFR 50.36. In the final policy statement, the NRC stated its "intent that the wording and Bases of the improved STS be used in the Technical Specification related submittal to the extent practicable." Encouraging and maintaining standardization of TS requirements, such as contained in the STS, is therefore the policy of the NRC. In the final policy statement, the NRC encouraged "all licensees who submit Technical Specification related submittals based on this Policy Statement to emphasize human factors principles."

The LCO 3.0.5 Bases refers in several locations to the performance of "SRs," while those places in the STS LCO 3.0.5 Bases refer to the performance of "required testing." The Deviation Report, "APR1400-K-O-NR-14001-NP," does not address this difference. Justify this difference or use the STS phrase instead.

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

## REQUEST FOR ADDITIONAL INFORMATION 138-8067

adequacy of the generic TS to ensure adequate protection of public health and safety, and the completeness and accuracy of the generic TS Bases.

### 16-39

10 CFR 50.36 requires that each operating license issued by the Commission contain technical specifications (TS) that set forth the limits, operating conditions, and other requirements imposed upon facility operation for the protection of public health and safety. 10 CFR 52.47(a)(11) provides that a design certification (DC) applicant is to propose TS prepared in accordance with 10 CFR 50.36 and 50.36a.

On July 22, 1993, the NRC issued its Final Policy Statement (58 FR 39132) on Technical Specifications improvements, expressing the view that satisfying the guidance in the policy statement also satisfies Section 182a of the Atomic Energy Act and 10 CFR 50.36. In the final policy statement, the NRC stated its "intent that the wording and Bases of the improved STS be used in the Technical Specification related submittal to the extent practicable." Encouraging and maintaining standardization of TS requirements, such as contained in the STS, is therefore the policy of the NRC. In the final policy statement, the NRC encouraged "all licensees who submit Technical Specification related submittals based on this Policy Statement to emphasize human factors principles."

In the fifth paragraph of LCO 3.0.6 Bases, reference is made to "Section 4.2 of TS Part 3, 'Safety Function Determination Program (SFDP)'." The correct reference should be to "Section 5.5.15, 'Safety Function Determination Program (SFDP)'," as stated in the STS. The Deviation Report, "APR1400-K-O-NR-14001-NP," does not address this difference. Make reference correct.

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.

### 16-40

10 CFR 50.36 requires that each operating license issued by the Commission contain technical specifications (TS) that set forth the limits, operating conditions, and other requirements imposed upon facility operation for the protection of public health and safety. 10 CFR 52.47(a)(11) provides that a design certification (DC) applicant is to propose TS prepared in accordance with 10 CFR 50.36 and 50.36a.

On July 22, 1993, the NRC issued its Final Policy Statement (58 FR 39132) on Technical Specifications improvements, expressing the view that satisfying the guidance in the policy statement also satisfies Section 182a of the Atomic Energy Act and 10 CFR 50.36. In the final policy statement, the NRC stated its "intent that the wording and Bases of the improved STS be used in the Technical Specification related submittal to the extent practicable." Encouraging and maintaining standardization of TS requirements, such as contained in the STS, is therefore the policy of the NRC. In the final policy statement, the NRC encouraged "all licensees who submit



## REQUEST FOR ADDITIONAL INFORMATION 138-8067

Technical Specification related submittals based on this Policy Statement to emphasize human factors principles.”

After the fourth paragraph in the LCO 3.0.6 Bases there are numerous wording changes from the STS LCO 3.0.6 Bases, including the entire last paragraph of the STS LCO 3.0.6 Bases being left out in the generic TS LCO 3.0.6 Bases. The Deviation Report, “APR1400-K-O-NR-14001-NP,” does not address these differences. Justify the differences or make corrections.

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.

### 16-41

10 CFR 50.36 requires that each operating license issued by the Commission contain technical specifications (TS) that set forth the limits, operating conditions, and other requirements imposed upon facility operation for the protection of public health and safety. 10 CFR 52.47(a)(11) provides that a design certification (DC) applicant is to propose TS prepared in accordance with 10 CFR 50.36 and 50.36a.

On July 22, 1993, the NRC issued its Final Policy Statement (58 FR 39132) on Technical Specifications improvements, expressing the view that satisfying the guidance in the policy statement also satisfies Section 182a of the Atomic Energy Act and 10 CFR 50.36. In the final policy statement, the NRC stated its “intent that the wording and Bases of the improved STS be used in the Technical Specification related submittal to the extent practicable.” Encouraging and maintaining standardization of TS requirements, such as contained in the STS, is therefore the policy of the NRC. In the final policy statement, the NRC encouraged “all licensees who submit Technical Specification related submittals based on this Policy Statement to emphasize human factors principles.”

At the end of the first paragraph in SR 3.0.1 Bases, two sentences that are in the STS SR 3.0.1 Bases are missing; the sentences refer to “Surveillances may be performed by means of any series of sequential, overlapping, or total steps ...” The Deviation Report, “APR1400-K-O-NR-14001-NP,” does not address this difference. Justify the differences or include the sentences.

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.