

## RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

### APR1400 Design Certification

Korea Electric Power Corporation / Korea Hydro & Nuclear Power Co., LTD

Docket No. 52-046

RAI No.: 509-8591

SRP Section: 16 – Technical Specifications

Application Section: 16

Date of RAI Issued: 08/01/2016

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### **Question No. 16-221**

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 placement of text within Technical Specification (TS) 5.5.19.

Section 5.5.19.b in the APR1400 TS reads "...using the NRC approved setpoint methodology, as listed below."

In response to RAI 8059, Question 16-55, the applicant agreed to provide a list of documents under a new proposed paragraph "h" within TS 5.5.19. Being that there is already a placeholder for the documents in paragraph "b" as described above, the staff finds that this is where the list of documents should be located. This would also align the APR1400 text with the STS. The applicant is requested to relocate the list of documents from paragraph "h" to paragraph "b" and to delete the newly proposed paragraph "h".

This clarification is required to ensure the accuracy and completeness of TS 5.5.19.

**Response**

Technical Specification (TS) 5.5.19, Setpoint Control Program will be revised as follows:

1. The list of three technical reports for setpoint methodology will be added to TS 5.5.19 paragraph "b".
2. A new paragraph "h", which has been added in the response to RAI 8059, Question 16-55, will be deleted.

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**Impact on DCD**

Same changes as in impact on Technical Specifications.

**Impact on PRA**

There is no impact on the PRA.

**Impact on Technical Specifications**

Technical Specification 5.5.19 will be revised as indicated in the attached markup.

**Impact on Technical/Topical/Environmental Reports**

There is no impact on the Technical/Topical/environmental Reports.

## 5.5 Programs and Manuals

5.5.19 Setpoint Control Program

This program shall require the Nominal Trip Setpoint (NTSP), Allowable Value (AV), As-Found Tolerance (AFT), and As-Left Tolerance (ALT) (as applicable) of the Functions described in paragraph a. are calculated using the NRC approved setpoint methodology, as listed below. In addition, the program shall contain the value of the NTSP, AV, AFT, and ALT (as applicable) for each Function described in paragraph a. and shall identify the setpoint methodology used to calculate these values:

a.

- b. The program shall require the Nominal Trip Setpoint (NTSP), Allowable Value (AV), As-Found Tolerance (AFT), and As-Left Tolerance (ALT) (as applicable) of the Functions described in paragraph a. are calculated using the NRC approved setpoint methodology, as listed below. In addition, the program shall contain the value of the NTSP, AV, AFT, and ALT (as applicable) for each Function described in paragraph a. and shall identify the setpoint methodology used to calculate these values:
  - APR1400-F-C-NR-14001P, Rev.0, "CPC Setpoint Analysis Methodology for APR1400," July 2014,
  - APR1400-Z-J-NR-14004-P, Rev.0, "Uncertainty Methodology and Application for Instrumentation," November 2014 and
  - APR1400-Z-J-NR-14005-P, Rev.0, "Setpoint Methodology for Plant Protection System," November 2014.

5. LCO 3.3.7, "Emergency Diesel Generator (EDG) – Loss of Voltage Start (LOVS)"
6. LCO 3.3.8, "Containment Purge Isolation Actuation Signal (CPIAS)"
7. LCO 3.3.9, "Control Room Emergency Ventilation Actuation Signal (CREVAS)"
8. LCO 3.3.10, "Fuel Handling Area Emergency Ventilation Actuation Signal (FHEVAS)"
9. LCO 3.3.13, "Logarithmic Power Monitoring Channels"

- b. ~~The program shall require the Nominal Trip Setpoint (NTSP), Allowable Value (AV), As-Found Tolerance (AFT), and As-Left Tolerance (ALT) (as applicable) of the Functions described in paragraph a. are calculated using the NRC approved setpoint methodology, as listed below. In addition, the program shall contain the value of the NTSP, AV, AFT, and ALT (as applicable) for each Function described in paragraph a. and shall identify the setpoint methodology used to calculate these values.~~

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5.5 Programs and Manuals

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5.5.19 Setpoint Control Program (continued)

- c. The program shall establish methods to ensure that Functions described in paragraph a. will function as required by verifying the as-left and as-found settings are consistent with those established by the setpoint methodology.
- d. The program shall identify the Functions described in paragraph a. that are automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A). These Functions shall be demonstrated to be functioning as required by applying the following requirements during CHANNEL CALIBRATIONS and CHANNEL FUNCTIONAL TESTS that verify the NTSP.
  - 1. The as-found value of the instrument channel trip setting shall be compared with the previous as-left value or the specified NTSP.
  - 2. If the as-found value of the instrument channel trip setting differs from the previous as-left value or the specified NTSP by more than the pre-defined test acceptance criteria band (i.e., the specified AFT), then the instrument channel shall be evaluated before declaring the SR met and returning the instrument channel to service. This condition shall be entered in the plant corrective action program.
  - 3. If the as-found value of the instrument channel trip setting is less conservative than the specified AV, then the SR is not met and the instrument channel shall be immediately declared inoperable.
  - 4. The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the NTSP at the completion of the surveillance test; otherwise, the channel is inoperable (setpoints may be more conservative than the NTSP provided that the as-found and as-left tolerances apply to the actual setpoint used to confirm channel performance).

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Insert "INSERT A" on the next page

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**INSERT A**

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- e. The program shall be specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].
- f. The difference between the instrument channel trip setting as-found value and the previously recorded as-left value for each Technical Specification required automatic protection instrumentation function shall be trended and evaluated to verify that the instrument channel is functioning in accordance with its design basis.
- g. The program shall establish a document containing the current value of the specified NTSP, AV, AFT, and ALT for each Technical Specification required automatic protection instrumentation function and references to the calculation documentation. Changes to this document shall be governed by the regulatory requirement of 10 CFR 50.59. In addition, changes to the specified NTSP, AV, AFT, and ALT values shall be governed by the approved setpoint methodology. This document, including any revisions or supplements, shall be provided upon issuance to the NRC.
- ~~h. The program is developed based on the following documents:~~
- ~~• APR1400 F C NR 14001P, Rev.0, "CPC Setpoint Analysis Methodology for APR1400," July 2014~~
  - ~~• APR1400 Z J NR 14004 P, Rev.0, "Uncertainty Methodology and Application for Instrumentation," November 2014~~
  - ~~• APR1400 Z J NR 14005 P, Rev.0, "Setpoint Methodology for Plant Protection System," November 2014~~

Delete

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### **Question No. 16-222**

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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 editorial error in Technical Specification (TS) 5.6.4.

Section 5.6.4.a contains a list of limits. The third limit on the list contains the text "MODE5". A space is required between the "MODE" and "5".

The correction is required to ensure the accuracy of TS 5.6.4.

### **Response**

The editorial error "MODE5" in TS 5.6.4 will be corrected as "MODE 5".

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**Impact on DCD**

Same changes as indicated in impact on Technical Specification section.

**Impact on PRA**

There is no impact on the PRA.

**Impact on Technical Specifications**

DCD Tier 2 Chapter 16, TS 5.6.4 will be revised as indicated in the attachment.

**Impact on Technical/Topical/Environmental Reports**

There is no impact on any Technical, Topical or Environmental Report.

## 5.6 Reporting Requirements

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### 5.6.4 Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)

- a. RCS pressure and temperature limits for heatup, cooldown, low temperature operation, criticality, and hydrostatic testing as well as heatup and cooldown rates shall be established and documented in the PTLR for the following:

3.4.3, "RCS Pressure and Temperature (P/T) Limits"

3.4.6, "RCS Loops – MODE 4"

MODE 5

3.4.7, "RCS Loops – ~~MODE 5~~ (Loops Filled)"

3.4.10, "Pressurizer Pilot Operated Safety Relief Valves (POSRVs)"

3.4.11, "Low Temperature Overpressure Protection (LTOP) System"

- b. The analytical methods used to determine the RCS pressure and temperature limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

APR1400-Z-M-NR-14008-P, "Pressure-Temperature Limits Methodology for RCS Heatup and Cooldown."

- c. The PTLR shall be provided to the NRC upon issuance for each reactor vessel fluence period and for any revision or supplement thereto.