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## REVISED 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.: 175-8034  
SRP Section: 05.04.12 – Reactor Coolant System High Point Vents  
Application Section: 5.4.12  
Date of RAI Issue: 08/20/2015

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### **Question No. 05.04.12-4**

The quality assurance criteria in 10 CFR Part 50, Appendix B require measures to assure that applicable regulatory requirements and the design basis are correctly translated into specifications and drawings, including provisions to assure that appropriate quality standards are specified and included in design documents.

- a. In DCD Tier 2, Table 5.4.12-1, "Reactor Coolant Gas Vent System - Active Valve List," the Safety Class column appears to be inconsistent with the information in DCD Tier 2, Table 3.9-4, "Seismic Category I Active Valves," and DCD Tier 2, Table 3.9-13, "Inservice Testing of Safety-Related Pumps and Valves." In particular, the safety class for each valve in Table 5.4.12-1 is listed as the Roman numeral "I". Both Table 3.9-4 and Table 3.9-13 list RG-0410 through RG-0417 as Quality Group A and RG-0419 and RG-0420 as Quality Group B.
- b. Staff identified an omission in DCD Tier 2, Figure 5.4.12-1, as well as a typographical error:
  - (1) Markings that should indicate a transition from Seismic Category I and Quality Group B to Seismic Category II and Quality Group D after isolation valves V419 and V420 are missing.
  - (2) The size of the line downstream of isolation valves V416 and V417 in the RCVH portion of the RCGVS appears to jump from 1" to 3" without passing through a flow enlarger.

Please address these inconsistencies and errors and make updates as appropriate in the DCD to ensure consistency and accuracy of the design information. This is necessary to demonstrate compliance with 10 CFR Part 50, Appendix B.

**Response - (Rev. 1)**

The safety class of valves RG-419 and RG-420, and line size of RG-414 in DCD Tier 2, Table 5.4.12-1 will be corrected as shown in Attachment 1. Table 5.4.12-1 will also change safety class Roman numeral I to the number 1 for consistency.

The downstream line size of isolation valves V416 and V417 will be changed from 3 inches to 1 inch, and Qualify Group and Seismic Category will be added after V419 and V420 in DCD Tier 2, Figure 5.4.12-1 as shown in Attachment 2.

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**Impact on DCD**

In DCD Tier 2, Table 5.4.12-1 and Figure 5.4.12-1 will be corrected as indicated in the Attachments.

**Impact on PRA**

There is no impact on the PRA.

**Impact on Technical Specifications**

There is no impact on the Technical Specifications.

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

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

**APR1400 DCD TIER 2**

Table 5.4.12-1

Reactor Coolant Gas Vent System – Active Valve List

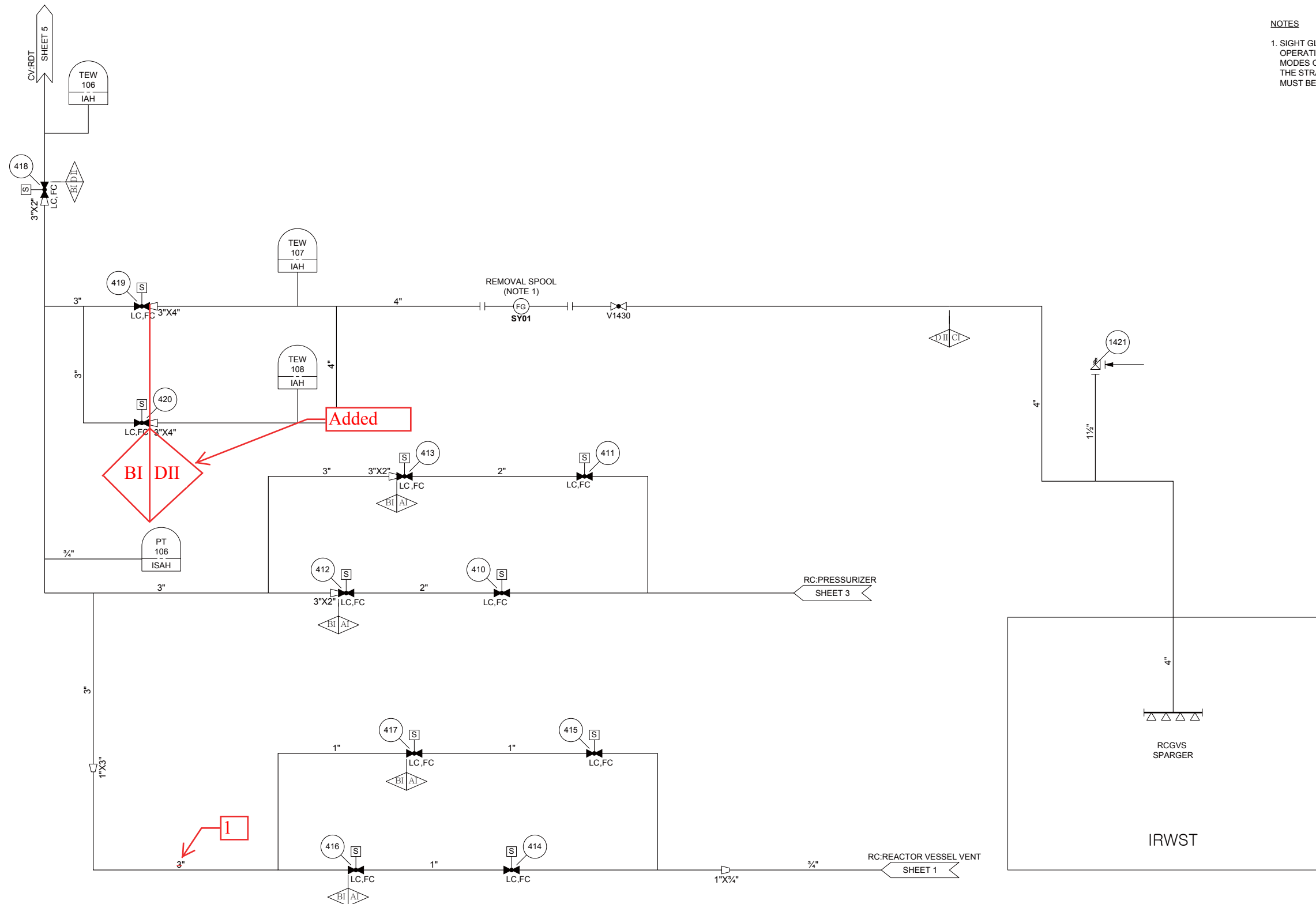
| Valve Number | Type  | Line Size – Schedule          | Power Source 125V DC Bus | Actuator | Safety Class |
|--------------|-------|-------------------------------|--------------------------|----------|--------------|
| RG-410       | Globe | 50 mm (2 in) - 160            | A                        | Solenoid | 1            |
| RG-411       | Globe | 50 mm (2 in) - 160            | B                        | Solenoid | I            |
| RG-412       | Globe | 50 mm (2 in) - 160            | C                        | Solenoid | I            |
| RG-413       | Globe | 50 mm (2 in) - 160            | D                        | Solenoid | I            |
| RG-414       | Globe | <del>50 mm (2 in) - 160</del> | A                        | Solenoid | I            |
| RG-415       | Globe | 25 mm (1 in) - 160            | B                        | Solenoid | I            |
| RG-416       | Globe | 25 mm (1 in) - 160            | C                        | Solenoid | I            |
| RG-417       | Globe | 25 mm (1 in) - 160            | D                        | Solenoid | I            |
| RG-419       | Globe | 80 mm (3 in) - 160            | B                        | Solenoid | I            |
| RG-420       | Globe | 80 mm (3 in) - 160            | A                        | Solenoid | I            |

1

2

25 mm (1 in)

APRI400 DCD TIER 2



**NOTES**  
 1. SIGHT GLASS MUST BE CONNECTED ONLY WHEN VENTING OPERATION FOR RCS FILLING IS REQUIRED. DURING ALL MODES OF OPERATION EXCEPT ABOVE OPERATION, THE STRAIGHT REMOVAL SPOOL WITHOUT SIGHT GLASS MUST BE CONNECTED.

Figure 5.4.12-1 Reactor Coolant Gas Vent System Flow Diagram

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### **Question No. 05.04.12-8**

10 CFR 52.47(b)(1) requires that a DC application contain “the proposed inspections, tests, and analyses, and acceptance criteria (ITAAC) necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a plant that incorporates the design certification is built and should operate in accordance with the design certification, the provisions of the Atomic Energy Act, and the NRC's regulations.” Standard Review Plan (SRP) Section 14.3, “Inspections, Tests, Analyses, and Acceptance Criteria,” provides ways to comply with 10 CFR 52.47(b)(1) and states that the Tier 1 design description or figure should identify the electrical power source/division for the equipment included in the system. This information is provided in DCD Tier 2, Table 5.4.12-1 but is not provided in DCD Tier 1, Section 2.4.5, “Reactor Coolant Gas Vent System.” As such, please update DCD Tier 1, Section 2.4.5 to provide this information as requested by SRP Section 14.3.

### **Response - (Rev. 1)**

The information of electrical power source/division for the equipment included in the system is described in item 6a/6b/6c of Tier 1, Section 2.4.5.1 and Table 2.4.5-2.

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#### **Impact on DCD**

**There is no impact on the DCD.**

#### **Impact on PRA**

There is no impact on the PRA.

#### **Impact on Technical Specifications**

There is no impact on the Technical Specifications.

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

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

APR1400 DCD TIER 1

Table 2.4.5-2

Reactor Coolant Gas Vent System Component List

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~~(2)~~

| Component Name  | Item No. <sup>(1)</sup> | ASME Section III Class | seismic Category | Class 1E/Harsh Envir. Qual. | Control/ Display at MCR | Control/ Display at RSR | Control Signal | Active Safety Function | Loss of Motive Power Position |
|---|-------------------------|------------------------|------------------|-----------------------------|-------------------------|-------------------------|----------------|------------------------|-------------------------------|
| Pressurizer Gas Vent Isolation Valves (SOV)               | RG-V410, 411, 412, 413  | 1                      | I                | Yes/Yes                     | Yes/Yes                 | Yes/Yes                 | -              | Open/ Closed           | Closed                        |
| Reactor Vessel Upper Head Gas Vent Isolation Valves (SOV) | RG-V414, 415 416, 417   | 1                      | I                | Yes/Yes                     | Yes/Yes                 | Yes/Yes                 | -              | Open/ Closed           | Closed                        |
| Gas Vent to RDT Valves (SOV)                              | RG-V418                 | 2                      | I                | No/No                       | Yes/Yes                 | Yes/Yes                 | -              | -                      | Closed                        |
| Gas Vent to IRWST Valves (SOV)                            | RG-V419, 420            | 2                      | I                | Yes/Yes                     | Yes/Yes                 | Yes/Yes                 | -              | Open                   | Closed                        |
| RCGVS Vacuum Breaker Valve                                | RG-V1421                | 3                      | I                | No/No                       | -                       | -                       | -              | -                      | -                             |

(1) The column "Item No." is information only (not part of certified design).

~~(2) The power source of the reactor coolant gas vent system is described in DCD Tier 2, Table 5.4.12-1.~~

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