

## 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.: 245-8292  
SRP Section: 09.05.02 – Communication Systems  
Application Section: 9.5.2  
Date of RAI Issue: 10/14/2015

### **Question No. 09.05.02-1**

Clarify whether COL information items referenced in the APR 1400 FSAR Tier 2, Section 9.5.2, are correctly identified.

10 CFR 50, Appendix E, “Emergency Planning and Preparedness for Production and Utilization,” Part IV, E(9) states, in part, “At least one onsite and one offsite communications system; each system shall have a backup power source. All communication plans shall have arrangements for emergencies, including titles and alternates for those in charge at both ends of the communication links and the primary and backup means of communication.” APR 1400 FSAR, Tier 2, Section 9.5.2.1, “Design Bases,” states in part, “The COL applicant is to provide a description of the offsite communication system that interfaces with the onsite communication system, including type of connectivity, radio frequency, normal and backup power supplies, and plant security system interface (COL 13.3(1)).” However, in Table 1.8-2, “Combined License Information Items,” the description provided in Section 9.5.2.1 falls under COL 9.5(11). Similarly, APR 1400 FSAR, Tier 2, Section 9.5.2.1.b., “10 CFR 50.34 (f)(2)(xxv), Emergency response facilities,” states, “The COL applicant is to address the emergency response facilities (COL 13.1(1)).” However, in Table 1.8-2, the description provided in Section 9.5.2.1.b. falls under COL 9.5(6).

Clarify whether COL Item 13.1(1) referenced in the APR 1400 FSAR Tier 2, Section 9.5.2, is the correct identifier.

### **Response – (Rev. 1)**

The current COL Item number 13.3(1) referenced in DCD Tier 2, Subsection 9.5.2.1.a will be corrected to 9.5(11).

In addition, the COL Items COL 13.1(1) and COL 9.5(6), stated in Subsections 9.5.2.1.b and 9.5.2.1.c will be removed and the following sentence will be added in lieu of COL 13.1(1):

“Details for the features that are related to the design of emergency response facilities are described in Section 13.3.”

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**Impact on DCD**

DCD Tier 2, [Table 1.8-2](#), Subsections 9.5.2.1 [and 9.5.10](#) will be revised as shown in the attachment.

**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 1.8-2 (15 of 29)

Item No.	Description
COL 9.3(2)	The COL applicant is to maintain complete documentation of system design, construction, design modifications, field changes, and operations.
COL 9.3(3)	The COL applicant is to prepare the site radiological environmental monitoring program.
COL 9.3(4)	The COL applicant is to provide the supply systems of the nitrogen gas subsystem, the hydrogen subsystem, the carbon dioxide subsystem, and the breathing air systems.
COL 9.4(1)	The COL applicant is to provide the capacities of heating coils in the safety-related air handling units and cooling and heating coils in the non safety-related air handling units affected by site-specific conditions.
COL 9.4(2)	The COL applicant is to provide the capacities of heating coils of electric duct heaters affected by site-specific conditions.
COL 9.4(3)	The COL applicant is to provide the system design information of ESW building and CCW heat exchanger building HVAC system including flow diagram, if the ESW building and CCW heat exchanger building require the HVAC system.
COL 9.4(4)	The COL applicant is to establish operational procedures and maintenance programs as related to leak detection and contamination control.
COL 9.5(1)	The COL applicant is to establish a fire protection program, including organization, training, and qualification of personnel, administrative controls of combustibles and ignition sources, firefighting procedures, and quality assurance.
COL 9.5(2)	The COL applicant is to address the design and fire protection aspects of the facilities, buildings and equipment, and a fire protection water supply system, which are site specific and/or are not a standard feature of the APR1400.
COL 9.5(3)	The COL applicant is to describe the provided apparatus for plant personnel and fire brigades such as portable fire extinguishers, self-contained breathing apparatus, and radio communication systems.
COL 9.5(4)	The COL applicant is to address the final FHA and FSSA based on the final plant design, including a detailed post-fire safe-shutdown circuit analysis.
COL 9.5(5)	The COL applicant is to provide a reliable starting method for the AAC GTG.
COL 9.5(6)	<del>The COL applicant is to provide details of emergency response facilities and associated communication capabilities.</del>



Deleted

**APR1400 DCD TIER 2**

Respiratory protection devices may be required in fire and radiological events. Communication equipment used in conjunction with respiratory equipment is designed and selected consistent with the guidelines provided in Electric Power Research Institute (EPRI) NP-6559 (Reference 61).

The communication systems are normally powered from a permanent non-safety (PNS) bus backed up by the AAC source during a LOOP, and from one of the two dedicated 16 hour rated non-safety-related batteries (normal and standby) in case of either AAC GTG failure during a LOOP or SBO condition.

Communication systems are based on meeting the relevant requirements of the following regulations:

- a. Appendix E to 10 Part 50, Emergency Planning and Preparedness for Production and Utilization Facilities

Emergency facilities and equipment include at least one onsite and one offsite communications system with each system having a backup power source in accordance with 10 CFR Part 50, Appendix E, Part IV, E(9) (Reference 56).

The wireless communication system, paging phone system, alarm address system, telephone system, and sound powered telephone system provide onsite communications. The onsite communications systems have a backup power source.

Offsite communication consists of communication subsystems to provide emergency communication links from the emergency operation facility (EOF) to the onsite MCR and technical support center (TSC) as well as to the NRC, offsite local law enforcement or military agencies and other federal, state, and local government agencies. A backup power source is provided for the offsite communication systems. The COL applicant is to provide a description of the offsite communication system that interfaces with the onsite communication system, including type of connectivity, radio frequency, normal and backup power supplies, and plant security system interface (~~COL-13.3(1)~~).

- b. 10 CFR 50.34(f)(2)(xxv), Emergency Response Facilities

**9.5.(11)**

**APR1400 DCD TIER 2**

Details for the features that are related to the design of emergency response facilities are described in Section 13.3.

The emergency response facilities include the technical support center (TSC), the operational support center (OSC), and the emergency operations facility (EOF) in accordance with 10 CFR 50.34(f)(2)(xxv) (Reference 57). ~~The COL applicant is to address the emergency response facilities (COL 13.1(1)).~~

c. 10 CFR 50.47(a)(8), Equipment and Facilities to Support Emergency Response

Adequate emergency facilities and equipment to support the response are provided and maintained in accordance with 10 CFR 50.47(b)(8) (Reference 58). ~~The COL applicant is to provide details of emergency response facilities and associated communication capabilities (COL 9.5(6)).~~

d. 10 CFR Part 50 Appendix A – General Design Criteria

GDC 1, 2, 3, and 4 apply to structures, systems, and components important to safety. The communication systems are classified as non-Class 1E systems, and therefore serve no safety-related functions. GDC 19 requires equipment at appropriate locations outside the MCR to be provided for prompt hot shutdown of the reactor with a potential capability for subsequent cold shutdown of the reactor through the use of suitable procedures. While there is communication equipment located in the remote shutdown room, the communication equipment is not required to function for hot or cold shutdown of the reactor.

However, communication systems are selected and designed in accordance with the guidance provided in 10 CFR Part 50 Appendix A, GDC 1, GDC 2, GDC 3, GDC 4, and GDC 19 (Reference 38) to provide reasonable assurance that the facility can operate without undue risk to the health and safety of the public.

e. 10 CFR 73.55(j), Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage – Communications Requirements.

Security communication measures are included as part of the site's communication systems as required by 10 CFR 73.55(j) to support the following functions:

**APR1400 DCD TIER 2****9.5.10 Combined License Information**

- COL 9.5(1) The COL applicant is to establish a fire protection program, including organization, training, and qualification of personnel, administrative controls of combustibles and ignition sources, firefighting procedures, and quality assurance.
- COL 9.5(2) The COL applicant is to address the design and fire protection aspects of the facilities, buildings and equipment, and a fire protection water supply system, which are site specific and/or are not a standard feature of the APR1400.
- COL 9.5(3) The COL applicant is to describe the provided apparatus for plant personnel and fire brigades such as portable fire extinguishers, self-contained breathing apparatus, and radio communication systems.
- COL 9.5(4) The COL applicant is to address the final FHA and FSSA based on the final plant design, including a detailed post-fire safe-shutdown circuit analysis.
- COL 9.5(5) The COL applicant is to provide a reliable starting method for the AAC GTG.
- COL 9.5(6) ~~The COL applicant is to provide details of emergency response facilities and associated communication capabilities.~~
- COL 9.5(7) The COL applicant is to provide the fire brigade radio systems.
- COL 9.5(8) The COL applicant is to provide the LAN and VPN system.
- COL 9.5(9) The COL applicant is to provide the emergency offsite communication system including dedication hotline, local law enforcement radio equipment, and wireless communication system.