

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.: **257-8331**

SRP Section: **08.02 – Offsite Power System**

Application Section: **8.02**

Date of RAI Issue: **10/19/2015**

Question No. 08.02-8

By letter dated September 9, 2015, the applicant provided a response to RAI 8079, Question 08.02-5. In the table of periodic equipment tests, the gas insulated substation (GIS) including bus and disconnecting switch has specific required inspection and testing as well as the frequency of such tests.

GDC 17 requires an offsite power system to permit the functioning of structures, systems, and components important to safety.

In regards to the GIS design please provide the following information:

- a) Identify the standards (Institute of Electrical and Electronics Engineers (IEEE) etc.) that are being followed for the design, testing and installation of the GIS.
- b) Provide a description of the GIS components/equipment for the site-specific interconnection provisions between the GIS and the transformers (main transformer and step-up auxiliary transformer).
- c) Confirm that the insulation coordination for the switchyard has been performed to arrive at the basic impulse level (BIL) selected for the switchyard equipment. Provide summary results and assumptions.
- d) In letter dated July 29, 2015, the applicant provided a revised COL Item 8.2(6) to state that the COL applicant is to provide an failure modes and effects analysis of the switchyard components. Please confirm that the failure modes and effects analysis, to be performed by the COL applicant, will include the GIS equipment. Since the GIS equipment maintains high pressure, a sudden release of pressure could result in missile effects and damage to the GIS equipment.

Please revise DCD Tier 1 and 2 accordingly, considering impacts on offsite power testing for GIS.

Response

Of the equipment included in the periodic equipment tests discussed in the response to RAI 109-8079, Question 08.02-5 (Reference KHPN submittal MKD/NW-15-0129L, dated September 9, 2015; ML15252A099), the gas insulated substation (GIS) is provided as a typical type of substation equipment, which was adopted for the reference plants of the APR1400.

As described in DCD Tier 2, Subsection 8.2.1.2, the switchyard design is site-specific and not within the scope of the APR1400 design certification. This approach has been acknowledged in the response to RAI 39-7937, Question 08.02-3 (Reference KHPN submittal MKD/NW-15-0065L, dated July 29, 2015; ML15210A446) with proposed revisions to the COL information to ensure the applicant addresses the necessary design, installation and testing aspects.

Therefore, once the type of substation equipment (e.g., GIS, air insulated substation, or hybrid substation) is determined by the COL applicant, the required detailed design requirements and deliverables, such as applicable standards, design descriptions, insulation coordination study, and failure modes and effects analysis (FMEA) of the switchyard equipment, are also to be provided by the COL applicant, as specified in COL 8.2(5), 8.2(6), and 8.3(5).

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.