SUPPLEMENTAL 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.:	**420-8482**
SRP Section:	**19.03 – Beyond Design Basis External Event (APR1400)**
Application Section:	**19.3**
Date of RAI Issue:	**02/29/2016**

Question No. 19.03-36

NRC Commission paper SECY-12-0025 stated that the NRC staff expected new reactor design certification applications to address the Commission-approved Fukushima actions in their applications to the fullest extent practicable. In performing its review of the APR1400 design certification application, the NRC staff followed the guidance for satisfying the Commission directives regarding BDBEE mitigation strategies in Japan Lesson-Learned Project Directorate JLD-ISG-2012-01, Revision 0, which endorsed with clarifications the methodologies described in NEI 12–06, Revision 0. The guidance in JLD-ISG-2012-01 describes one acceptable approach for satisfying the Commission directives regarding BDBEE mitigation strategies (i.e., Order EA-12-049). TR APR1400-E-P-NR-14005-P, Rev. 0 provides details regarding mitigating strategies and design enhancements to meet Near-Term Task Force (NTTF) recommendations, NRC orders, and agency guidance related mitigation strategy during Beyond Design Basis External Events (BDBEE).

NEI 12-06, Revision 0 guidance states that “unlike 50.54(hh)(2), the intention of this guidance is to have permanent, installed connection points for portable fluid and electrical equipment. Electrical diversity can be accomplished by providing a primary and alternate method to repower key equipment and instruments utilized in FLEX strategies. At a minimum, the primary connection point should be an installed connection suitable for both the on-site and off-site equipment. The secondary connection point may require reconfiguration (e.g., removal of valve bonnets or breaker) if it can be shown that adequate time is available and adequate resources are reasonably expected to be available to support the reconfiguration. Both the primary and alternate connection points do not need to be available for all applicable hazards, but the location of the connection points should provide reasonable assurance of at least one connection being available.” TR, APR1400-E-P-NR-14005-P, Revision 0, Table 5-9, Conformance with NEI 12-06," Rev. 0, states that the appropriate standard mechanical and electrical connections need to be specified and the COL applicants are responsible to establish a means to ensure the necessary resources are available from offsite. Table 5-9 (8 of 20) also states that connections for primary and secondary FLEX pumps, and mobile GTGs, are

provided on the outside of the exterior wall of the auxiliary building, thereby providing reasonable assurance of the accessibility of personnel and equipment.

1. Provide the COL item that will be used by the COL applicant to ensure the appropriate connection points for the electrical equipment, including voltages and classification.

2. Section 5.1.2.6.1.1 states that the provisions to connect these GTGs are incorporated into the design. Please discuss what the provisions are.

Response

The mobile GTGs are connected to the Class 1E onsite ac power system train A or B based on each phase of the mitigation strategies for BDBEEs. During phase 1 (or 2), the appropriate electrical connections between local equipment and FLEX equipment will be accomplished to support phase 2 (or 3) according to the FLEX strategies and its associated provisions.

The following provides responses to each corresponding question the staff asked.

1. In order for the COL applicant to ensure the appropriate connection points for the electrical equipment including locations, voltages, and classification, KHNP will add a COL item in the DCD Tier 2, Section 19.3.

2. As described in DCD Tier 2, Subsection 8.3.1.1, the mobile GTGs supply power to the Class 1E buses through connection boxes, which are watertight type. The connection boxes are installed in the entry and exit of the auxiliary building taking into account the accessibility of the onsite 480 V mobile GTG and 4.16 kV mobile GTG mobilized from offsite.

   With regard to electrical connections, power cables between the connection boxes and incoming circuit breakers of the Class 1E buses are designed as permanent installations and the temporary cables will be connected between the mobile GTGs and connection boxes according to the APR1400 FLEX strategies.

   Further discussion on the design aspects of the mobile GTGs are provided in the response to RAI 61-7984, Question No. 08.03.01-5 (Reference KHNP submittal MKD/NW-15-0131L, dated September 8, 2015, ML15251A244).

Supplemental Response

The number of COL item which was added in the mark-up of previous response has been changed from COL 19.3(10) to COL 19.3(7).

Impact on DCD

The DCD changes from the previous responses to this RAI have been incorporated into Revision 1 of 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.