

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.: 423-8526
SRP Section: 19.05 – Aircraft Impact Assessment
Application Section: 19.5
Date of RAI Issue: 03/01/2016

Question No. 19.05-01

Under the Reasonably Formulated Assessment Guideline, specified in SRP 19.5 Sec. III, Item No. 1, the NRC considers an aircraft impact assessment performed by qualified personnel using a method that conforms to the guidance in NEI 07-13, Revision 8 to be a method which is reasonably formulated. In the DCD Sec. 19.5.1, the applicant states that the NEI 07-13 guidelines or methodology were fully followed with no exceptions taken. However, there was no mention of the personnel qualifications in Sec. 19.5. Under SRP 19.5 Sec. III.2, the NRC considers qualified personnel to be: (1) an applicant who is the designer of the facility for which the aircraft impact assessment applies; and (2) an applicant's primary contractor for the aircraft impact assessment who has designed a nuclear power reactor facility either already licensed or certified by the NRC or currently under review by the NRC.

The applicant is requested to provide the qualifications of the analysts who performed the AIA to show that the above qualifications are met in conformance with the SRP 19.5 Sec. III.2: Reasonably Formulated Assessment Guideline.

Response

The aircraft impact assessment was performed by qualified personnel. The applicant's primary contractors were ANATECH and ERIN Engineering. Both of these primary contractors have performed numerous aircraft impact assessments which have already been licensed or certified by the NRC or are currently under review by the NRC. One of the qualified personnel was the author of NEI 07-13.

DCD section 19.5 will be revised to state the following in section 19.5.3: "The aircraft impact assessment was performed by qualified personnel."

Impact on DCD

The DCD will be revised as indicated on 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.

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- penetration of hardened aircraft components, such as engine rotors and landing gear; and
- the extent of damage from fires fed by aviation fuel.

The analysis assessed the above effects of a large commercial aircraft impact at multiple locations where a large commercial aircraft could potentially strike critical APR1400 structures.

Perforation of the Spent Fuel Pool (SFP) and Reactor Containment Building (RCB) is not predicted; therefore, realistic assessments of the damage to internal SSCs within the RCB caused by 1) burning aviation fuel and 2) secondary impacts are not required. Realistic best estimate assessments of the damage to internal SSCs within the Auxiliary Building (AB) and Emergency Diesel Generator Building (EDGB) caused by 1) burning aviation fuel and 2) secondary impacts are performed.

19.5.3 Assessment Methodology

Methods described in NEI 07-13 (Reference 1) were followed to assess the effects on the structural integrity of the RCB and the SFP and to assess the physical, fire and vibration effects of the aircraft impact on SSCs in the AB and EDGB to ensure continued core cooling capability.

The aircraft impact assessment was performed by qualified personnel.

19.5.4 Assessment Results

The APR1400 Aircraft Impact Assessment concludes that the APR1400 can continue to provide adequate protection of the public health and safety with respect to a large commercial aircraft impact as defined by the NRC. Such an aircraft impact would not impair the APR1400's core cooling capability or spent fuel pool integrity as required by 10 CFR 50.150.

The assessment resulted in the identification of the benefits of the key design features and functional capabilities described below, changes to which are evaluated and reported in accordance with 10 CFR 50.150(c). These key design features and functional capabilities ensure that the APR1400 design fully meets the requirements of 10 CFR 50.150 by maintaining core cooling of fuel in the reactor vessel and the integrity of the spent fuel pool following the impact of a large commercial aircraft on the AB and EDGB, including the effects of burning aviation fuel and secondary impacts.