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## 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.: 433-8363  
SRP Section: 19 – Probabilistic Risk Assessment and Severe Accident Evaluation  
Section: 19  
Application Section: 19  
Date of RAI Issue: 03/08/2016

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### **Question No. 19-82**

10 CFR 50.44(c)(5) and SECY-93-087 require a deterministic analysis that demonstrates containment structural integrity under internal pressure loads. Regulatory Guide 1.216, Regulatory Position 3, discusses the methods acceptable to the staff to address the Commission's containment performance goal.

Section 3 of the Containment Building Capacity Evaluation on Severe Accident (Global) Calculation #1-316-C304-006 states "Material properties could not be obtained from plant specific statistical data at the phase of the project. In all cases, therefore, generic data were used, aided when necessary by qualified engineering judgement". Describe the source of the generic data, and explain why it is applicable to the APR1400 containment capacity calculation. Additionally, the applicant made references to median strengths and the use of logarithmic standard deviations. Clarify whether material properties are the specified minimum properties or provide justification for an alternate set of material properties.

### **Response**

The material properties used in the analysis are, as shown below, the specified minimum properties based on the design code.

- Concrete : Minimum compressive strength 6,000 psi for containment building  
(Normal weight) Minimum compressive strength 5,000 psi for basemat
- Liner plate : ASME SA516 Gr.60,  $F_y = 32$  ksi,  $F_u = 60$  ksi  
(1/4 inch thickness)

- Reinforcing steel bar : ASTM A615 Gr.60,  $F_y = 60$  ksi,  $F_u = 90$  ksi
  - Multi-strand tendon : ASTM A416 Gr.270,  $F_y = 240$  ksi,  $F_u = 270$  ksi
- ( $\phi = 0.6$  inch, seven-wire)

Details of these material properties are described in DCD Tier2, Appendix 3.8A, Section 3.8A.1.2, "Structural Materials".

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**Impact on DCD**

There is no impact on 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.