

KHNPDCDRAIsPEm Resource

From: Ciocco, Jeff
Sent: Thursday, August 13, 2015 10:40 AM
To: KHNPDCDRAIsPEm Resource
Subject: FW: APR1400 Design Certification Application RAI 105-8038 (03.11 - Environmental Qualification of Mechanical and Electrical Equipment)
Attachments: APR1400 DC RAI 105 EEB 8038.pdf

From: Ciocco, Jeff
Sent: Thursday, July 23, 2015 8:36 AM
To: apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource <KHNPDCDRAIsPEm.Resource@nrc.gov>; Harry (Hyun Seung) Chang <hyunseung.chang@gmail.com>; Yunho Kim <yshh8226@gmail.com>; Steven Mannon <steven.mannon@aecom.com>
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Subject: APR1400 Design Certification Application RAI 105-8038 (03.11 - Environmental Qualification of Mechanical and Electrical Equipment)

KHNP,

The attachment contains the subject request for additional information (RAI). This RAI was sent to you in draft form. Your licensing review schedule assumes technically correct and complete responses within 30 days of receipt of RAIs. However, KHNP requests, and we grant, 60 days to respond to the RAI question. We may adjust the schedule accordingly.

Please submit your RAI response to the NRC Document Control Desk.

Thank you,

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Hearing Identifier: KHNP_APR1400_DCD_RAI_Public
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From: Ciocco, Jeff

Created By: Jeff.Ciocco@nrc.gov

Recipients:
"KHNPDCDRAIsPEm Resource" <KHNPDCDRAIsPEm.Resource@nrc.gov>
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REQUEST FOR ADDITIONAL INFORMATION 105-8038

Issue Date: 07/23/2015

Application Title: APR1400 Design Certification Review – 52-046

Operating Company: Korea Hydro & Nuclear Power Co. Ltd.

Docket No. 52-046

Review Section: 03.11 - Environmental Qualification of Mechanical and Electrical Equipment

Application Section:

QUESTIONS

03.11-2

In DCD Tier 2, Revision 0, Section 3.11.8 references NRC Regulatory Guides (RGs) and IEEE standards for the qualification of electrical equipment and components. DCD, Tier 2, Section 1.9, Table 1.9-1, "APR1400 Conformance with Regulatory Guides," states that APR 1400 conforms with all the referenced RGs in section 3.11.8. It is not clear in the content in DCD Tier 2, Revision 0, Section 3.11, "Environmental Qualification of Mechanical and Electrical Equipment," how the APR 1400 design conforms with these RGs.

Section 50.49 of 10 CFR Part 50, requires that three categories of electric equipment important to safety be qualified for their application and specified performance and provides requirements for establishing environmental qualification methods and qualification parameters. The reference RGs in Section 3.11.8 provides acceptable means for qualifying electrical equipment and components. Provide a description of how the APR 1400 design conforms with the RGs listed below to show that the requirements of 10 CFR 50.49 are met.

- Regulatory Guide 1.40, "Qualification of Continuous Duty Safety-Related Motors for Nuclear Power Plants," Rev. 1, U.S. Nuclear Regulatory Commission, February 2010.
- Regulatory Guide 1.63, "Electric Penetration Assemblies in Containment Structures for Nuclear Power Plants," Rev. 3, U.S. Nuclear Regulatory Commission, February 1987.
- Regulatory Guide 1.73, "Qualification Tests of Electric Valve Operators Installed Inside the Containment of Nuclear Power Plants," Rev. 1, U.S. Nuclear Regulatory Commission, October 2013.
- Regulatory Guide 1.156, "Qualification of Connection Assemblies for Nuclear Power Plants," Rev. 1, U.S. Nuclear Regulatory Commission, July 2011.
- Regulatory Guide 1.158, "Qualification of Safety-Related Lead Storage Batteries for Nuclear Power Plants," U.S. Nuclear Regulatory Commission, February 1989.
- Regulatory Guide 1.180, "Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in Safety-Related Instrumentation and Control Systems," Rev. 1, U.S. Nuclear Regulatory Commission, October 2003.
- Regulatory Guide 1.209, "Guidelines for Environmental Qualification of Safety-Related Computer-Based Instrumentation and Control Systems in Nuclear Power Plants," U.S. Nuclear Regulatory Commission, March 2007.
- Regulatory Guide 1.210, "Qualification of Safety-Related Battery Chargers and Inverters for Nuclear Power Plants," U.S. Nuclear Regulatory Commission, June 2008.
- Regulatory Guide 1.211, "Qualification of Safety-Related Cables and Field Splices for Nuclear Power Plants," U.S. Nuclear Regulatory Commission, April 2009.
- Regulatory Guide 1.213, "Qualification of Safety-Related Motor Control Centers for Nuclear Power Plants," U.S. Nuclear Regulatory Commission, May 2009



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