

KHNPDCDRAIsPEm Resource

From: Ward, William
Sent: Monday, November 02, 2015 12:22 PM
To: apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; Harry (Hyun Seung) Chang; Andy Jiyong Oh; Mannon, Steven (steven.mannon@aecom.com); Tyree, Christopher (christopher.tyree@aecom.com)
Cc: Lee, Samuel; Ciocco, Jeff; Gran, Zachary; McCoppin, Michael; Olson, Bruce
Subject: APR1400 Design Certification Application RAI 283-8229 (14.2 - Initial Plant Test Program)
Attachments: APR1400 DC RAI 283 RPAC 8229.pdf

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.

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

Thank you,

William R. Ward, P.E.
Senior Project Manager
U.S. Nuclear Regulatory Commission
m/s T6-D38M
Washington, DC, 20555-0001
NRO/DNRL/Licensing Branch 2
ofc T6-D31
ofc (301) 415-7038

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Subject: APR1400 Design Certification Application RAI 283-8229 (14.2 - Initial Plant Test Program)
Sent Date: 11/2/2015 12:22:00 PM
Received Date: 11/2/2015 12:22:02 PM
From: Ward, William
Created By: William.Ward@nrc.gov

Recipients:

"Lee, Samuel" <Samuel.Lee@nrc.gov>
Tracking Status: None
"Ciocco, Jeff" <Jeff.Ciocco@nrc.gov>
Tracking Status: None
"Gran, Zachary" <Zachary.Gran@nrc.gov>
Tracking Status: None
"McCoppin, Michael" <Michael.McCoppin@nrc.gov>
Tracking Status: None
"Olson, Bruce" <Bruce.Olson@nrc.gov>
Tracking Status: None
"apr1400rai@khnp.co.kr" <apr1400rai@khnp.co.kr>
Tracking Status: None
"KHNPDCDRAIsPEm Resource" <KHNPDCDRAIsPEm.Resource@nrc.gov>
Tracking Status: None
"Harry (Hyun Seung) Chang" <hyunseung.chang@gmail.com>
Tracking Status: None
"Andy Jiyong Oh" <jiyong.oh5@gmail.com>
Tracking Status: None
"Mannon, Steven (steven.mannon@aecom.com)" <steven.mannon@aecom.com>
Tracking Status: None
"Tyree, Christopher (christopher.tyree@aecom.com)" <christopher.tyree@aecom.com>
Tracking Status: None

Post Office: HQPWMSMRS05.nrc.gov

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REQUEST FOR ADDITIONAL INFORMATION 283-8229

Issue Date: 11/02/2015

Application Title: APR1400 Design Certification Review – 52-046

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

Docket No. 52-046

Review Section: 14.02 - Initial Plant Test Program - Design Certification and New License Applicants

Application Section:

QUESTIONS

14.02-62

General Design Criterion (GDC) 1, “Quality standards and records” of Appendix A, “General Design Criteria for Nuclear Power Plants” to 10 CFR Part 50 states, in part, that structures, systems, and components important to safety shall be tested to quality standards commensurate with the importance of the safety functions to be performed.

RG 1.68 also states that the ITP should include testing the performance of non-safety related risk significant systems. These items are identified in DCD Table 17.4-1.

In review of DCD Table 17.4-1 NRC staff observes the description of SSCs that are non-safety but risk significant as seen in index numbers 183, 184, and 375 of table 17.4-1. Staff review of 14.2.12.1.103 and 14.2.12.1.105 does not identify specific test methods or acceptance criteria to test the described SSC.

Staff requests the following information:

1. Provide a description of what key SSCs would be identified by the Expert Panel for index numbers 184 and 375.
2. Provide a description of the testing method to verify the operation of the Gaseous Radwaste System – Containment Isolation Valve in section 14.2.12.1.105 or wherever applicable.
3. Provide a description of the testing method to verify the operation of ‘key SSCs’ in the Gaseous Waste Management System in 14.2.12.1.105 or wherever applicable.
4. Provide a description of the testing method to verify the operation of ‘key SSCs’ in the Liquid Waste Management System in section 14.2.12.1.103 or wherever applicable.

Please address these items and provide a markup for the proposed DCD changes.

14.02-63

In DCD section 14.2.12.1.103 the applicant describes test methods used to test the features of the LWMS. In the test methods the applicant describes the following:

“Demonstrate that discharge isolation features and other system controls function properly. Simulate a high-radiation signal to the LWMS discharge radiation monitor.”

“Verify alarms, indicating instruments, and status lights are functional. Simulate a high-radiation signal to the LWMS discharge radiation monitor and verify alarm actuation.”

REQUEST FOR ADDITIONAL INFORMATION 283-8229

In review of “simulate a high-radiation test signal,” NRC staff believes that this implies that an electric signal will be used in place of a radiation source. NRC staff finds that this method does not test the system as a whole as it does not functionally test the radiation detector which is an essential component. Testing of this component is essential in verifying information that would be used to justify compliance with 10 CFR 50 Appendix I Dose Objectives, 10 CFR 20 Appendix B Table 2 limits, and 10 CFR 20.1301 and 1302 dose limits to a member of the public.

NRC staff requests that the applicant address the use of a radiation source in testing the system features, controls alarms, indicating instrumentation, and status lights are functional for the LWMS.

Please address these items and provide a markup for the proposed DCD changes.

14.02-64

In DCD section 14.2.12.1.105 the applicant describes test methods used to test the features of the GWMS. In the test methods the applicant describes the following:

“Demonstrate that discharge isolation features and other system controls function properly. Simulate a high-radiation signal to the GWMS discharge radiation monitor.”

“Verify alarms, indicating instruments, and status lights are functional. Simulate a high-radiation signal to the GWMS discharge radiation monitor and verify alarm actuation in the main control room.”

In review of “simulate a high-radiation test signal,” NRC staff believes that this implies that an electric signal will be used in place of a radiation source. NRC staff finds that this method does not test the system as a whole as it does not functionally test the radiation detector which is an essential component. Testing of this component is essential in verifying information that would be used to justify compliance with 10 CFR 50 Appendix I Dose Objectives, 10 CFR 20 Appendix B Table 2 limits, and 10 CFR 20.1301 and 1302 dose limits to a member of the public.

NRC staff requests that the applicant address the use of a radiation source in testing the system features, controls alarms, indicating instrumentation, and status lights are functional for the GWMS.

Please address these items and provide a markup for the proposed DCD changes.