

## **KHNPDCDRAIsPEm Resource**

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**From:** Ward, William  
**Sent:** Friday, June 17, 2016 6:40 PM  
**To:** apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; daegeun.ahn@gmail.com; Andy Jiyong Oh; Tyree, Christopher (christopher.tyree@aecom.com)  
**Cc:** Williams, Donna; Ciocco, Jeff; Wunder, George; Dias, Antonio; Hernandez, Raul  
**Subject:** APR1400 Design Certification Application RAI 497-8622 [9.1.3 - Spent Fuel Pool Cooling and Cleanup System]  
**Attachments:** APR1400 DC RAI 497 SPSB 8622.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. However, KHNP requests, and we grant, 45 days to respond to this RAI. We may adjust the schedule accordingly.

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

Thank you,

**William R. Ward, P.E.**  
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**U.S. Nuclear Regulatory Commission**  
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**Subject:** APR1400 Design Certification Application RAI 497-8622 [9.1.3 - Spent Fuel Pool Cooling and Cleanup System]  
**Sent Date:** 6/17/2016 6:39:34 PM  
**Received Date:** 6/17/2016 6:39:35 PM  
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## REQUEST FOR ADDITIONAL INFORMATION 497-8622

Issue Date: 06/17/2016  
Application Title: APR1400 Design Certification Review – 52-046  
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.  
Docket No. 52-046  
Review Section: 09.01.03 - Spent Fuel Pool Cooling and Cleanup System  
Application Section: SRP 9.1.3

### QUESTIONS

#### 09.01.03-6

Compliance with GDC 61 requires that the fuel storage system be designed to assure adequate safety under normal and postulated accident conditions. As such, the system shall be designed with: the capability to permit appropriate periodic inspection and testing of components important to safety; suitable shielding for radiation protection; appropriate containment, confinement, and filtering capability; residual heat removal that reflects the importance to safety of decay heat and other residual heat removal; and the capability to prevent a significant reduction in fuel storage coolant inventory under accident conditions.

SRP 9.1.3.III.1.F discusses the design features of the SFP water makeup system related SFP makeup. In DCD 9.1.3 the applicant stated that the SFPCS are designed to prevent boiling of the SFP water; however the applicant's thermal analysis determined that the SFP contains sufficient water volume such that, in the unlikely event that the SFPCS is not operating, it would take 3.7 hrs for the SFP water to start boiling. The staff audited the applicant's thermal analysis report and found that the report identifies that boiling could start after 2.5 hrs. The staff finds that this apparent inconsistency between the DCD and the thermal analysis needs to be justified or corrected.

Therefore, the staff requests the applicant to clarify this apparent inconsistency between the DCD and the SFP thermal analysis.

**NOTE: In RAI 473-8582 the staff requested the applicant to revise the SFP thermal analysis; therefore, this RAI could be impacted by the resolution of RAI 473-8582.**

## REQUEST FOR ADDITIONAL INFORMATION 497-8622

### 09.01.03-7

Regulatory Guide 4.21 describes a method acceptable to the U.S. Nuclear Regulatory Commission (NRC) for use in the implementation of Title 10, Section 20.1406, "Minimization of Contamination and Radioactive Waste Generation: Life-Cycle Planning."

DCD Tier 2 Section 9.1.3 includes COL item 9.1(1) requiring the COL applicant to provide operational procedures and maintenance program as related to leak detection and contamination control.

As discussed in RAI 246-8307, Question 09.02.02-03, the staff finds that radiological programs should be addressed in Chapters 11 and/or 12 of the DCD. The staff questions the need for such repetitive approach when identifying almost identical COL items throughout the application. Instead, there should be a singular, encompassing COL item addressing the whole plant operation. The existence of multiple (and almost identical) COL items can become a burden to any COL applicant and the staff.

The staff requests the applicant to remove COL 9.1(1) and ensure that the concerns expressed by COL 9.1(1) are addressed in Chapter 11 and/or 12 of the DCD.

### 09.01.03-8

10 CFR 52.47(a)(2) requires that a standard design certification applicant provide a description and analysis of the structures, systems, and components (SSCs) of the facility, with emphasis upon performance requirements, the bases, with technical justification therefore, upon which these requirements have been established, and the evaluations required to show that safety functions will be accomplished.

SRP 9.1.3, Section III, Item 8, indicates that the reviewer should also consider the appropriateness of identified COL action items.

COL item 9.1(2) requires the COL applicant to maintain complete documentation of system design, construction, design modifications, field changes, and operations. The items addressed by this COL item, with the exception of the system design and design modifications, are post licensing actions that cannot be completed prior to the issuance of a COL license. Since the SFPCCS is part of the design being certified, when referenced by a COL application, it will become part of the licensing basis for the COL. Design modification to the SFPCCS in the COL application would be considered a departure and would be required to be identified as such in a COL application, and the NRC will review the change if required. Once a COL is issued, changes to the COL must be in accordance with 10CFR 52.98, "Finality of combined license; information requests," which provides information on what is required for changes to or departures from information within the scope of the reference design.

The staff finds unclear as to what post licensing commitments are being sought.

The applicant is requested to provide the basis for the COL item and to discuss why post licensing aspects such field changes and operations are included, or to remove the COL item.

**NOTE: This RAI echoes the staff concerns and reasoning already presented in RAI 246-8307 Question 09.02.02-2.**