

August 25, 2016

MEMORANDUM TO: Donna Williams, Acting Chief
Licensing Branch 2
Division of New Reactor Licensing
Office of New Reactors

FROM: Alina Schiller, Project Manager **/RAI/**
Licensing Branch 2
Division of New Reactor Licensing
Office of New Reactors

SUBJECT: SUMMARY OF THE JULY 13, 2016, PUBLIC MEETING WITH KOREA
HYDRO AND NUCLEAR POWER CO. LTD. TO DISCUSS CHAPTERS
11 AND 12 TOPICS RELATED TO ADVANCED POWER REACTOR
1400 DESIGN

On July 13, 2016, a Category 1 public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) staff and Korea Hydro and Nuclear Power Co. Ltd. (KHNP) at the NRC Headquarters in Rockville, Maryland. The meeting notice was issued on July 1, 2016, and was documented in the NRC Agencywide Documents Access and Management System (ADAMS) under Accession Number ML16183A289. The notice included the meeting agenda.

The purpose of the meeting was to discuss plans and schedules for completing the Safety Evaluation Report (SER) with Open Items (OIs) for Chapters 11, "Radioactive Waste Management," and 12, "Radiation Protection," of the Advanced Power Reactor 1400 Design Certification application which includes the Design Control Document (DCD).

A List of Attendees is provided as an enclosure. The draft closure plans for Chapter 12 and Request for Additional Information (RAI) statistics for Chapters 11 and 12, prepared by KHNP, are available in ADAMS under Accession Number ML16204A025.

After the opening comments, KHNP presented a list with RAI statistics related to Chapter 11.

The SER with OIs for Chapter 11 was issued to the Division of New Reactor Licensing and consists of 90 pages and addresses 5 OIs and 27 Confirmatory Items. Out of the 5 OIs for Chapter 11, KHNP submitted revised responses to 2 OIs, which are currently in evaluation. The NRC technical staff mentioned that one response seems to be acceptable and the other is still under evaluation. It has been mutually agreed that Chapter 11 is not a concern for Phase 2 completion.

The NRC technical staff addressed concerns related to when all changes from the revised responses would converge in Revision 1 of the DCD, asking when this revision would be submitted. The Lead Project Manager (PM) mentioned that the DCD Revision 1 would be issued in the October 2016, timeframe, and further stated that Chapter 11 SER with OIs is currently in the internal concurrence process and that efforts are undertaken to have the ACRS

Subcommittee meeting on October 4, 2016, or October 5, 2016, which is a change from the initially planned November 15, 2016, date.

The NRC staff discussed inconsistencies with the RAI responses, such as the responses to RAI 8183, Question 11.02-4 and RAI 8199, Question 11.03-7, and the conflicting information relayed in Chapter 14, Question 14.03.08-14. KHNP stated that it would address inconsistencies in the DCD.

The NRC management asked the technical staff to consider including discussions of the 2 OIs that KHNP has addressed, if the review is complete in the presentation for the ACRS to address closing the OIs and documenting them in the Phase 4 Safety Evaluation.

At the end of the discussion related to Chapter 11, it was agreed that the technical staff is waiting for three more responses to Questions 11.05-01, 11.05-2, and 11.02-6.

Discussions regarding Chapter 12 issues followed.

KHNP provided a list with RAI statistics and expected submittal dates for responses to Chapter 12 RAIs, and stated that there are 6 RAIs waiting for the first time responses and 7 RAIs waiting for revised responses.

The Lead PM emphasized that the Phase 2 milestone for RPAC to deliver the SER with OIs to Projects Branch is August 19, 2016, and the associated ACRS meeting is scheduled for November 15, 2016.

RPAC's Branch Chief reiterated that KHNP should provide details on its approaches, including critical assumptions, codes and methodologies used to resolve outstanding issues in responding to the RAIs to provide assurance on a successful path, and that the August 19, 2016, date might need to be shifted if sufficient information is not submitted in the near term, which will impact Phase 2 completion. He further mentioned that the closure plan provided one day in advance restating the RAI on tank fill issues, needs more details about how the issue raised in the RAI would be addressed, and highlighted that the planned submittal dates for specific RAI responses have seemed to be later than expected which is not acceptable for meeting the Phase 2 completion milestones.

The 3 draft closure plans provided by KHNP were discussed.

With respect to the decontamination factor of 100 on the pre-holdup ion exchanger for Cs and Rb, the NRC finds KHNP's closure plan acceptable but stressed that final acceptability will be based on submission of revisions to the DCD (Tier 1 and 2 information). The technical staff reviewer reminded KHNP to address his comments sent to KHNP asking for additional clarification on where the total waste per once cycle of 1,100,000 gallons comes from. This detail was observed in the calculation KHNP had provided in the Electronic Reading Room. KHNP agreed to add this piece of information to the RAI response and add it as a bullet in the closure plan. It was mutually agreed upon that a path forward that will support an OI exists for this issue but RAI responses with detailed closure plans are needed to support the Phase 2 milestone.

RAI 8254, Question 12.3-11, was brought into discussion, where Chapter 9 technical staff is expected to provide comments. It was agreed that within a couple of days, the NRC would provide feedback to KHNP about the revised response with the changes they indicated in the most recent communication which they sent. *(Note: The next day, the NRC staff sent KHNP, Chapter 11 staff's comment and KHNP plans to submit the revised response.)*

KHNP stated that all revised responses would be submitted by the end of July 2016.

With regard to the closure plan for the tank volume issue, KHNP stated they would attempt to justify why its approach is conservative. The NRC staff mentioned that they do not believe that is a successful path due to the non-conservative assumptions about tank fill source terms and offered another path would be for KHNP to utilize the NRC's guidance to show that there is or is not an impact on the shielding analysis.

With respect to the "Expected Outcome" of "Revised shielding calculations" captured on the closure plan, KHNP stated that there was a last minute change and that it believes that there would not be any impact on the shielding calculations.

KHNP stated that it understands the NRC's position related to this issue and requested a meeting on the tank volume/fill capacities issue within the next two weeks, in which they will describe what they will do and what information they will submit to answer the RAI and possibly support Phase 2 SER with OIs. The NRC staff agreed to interact with KHNP on this issue but pointed out that this path forward is likely to not support completion of the Phase 2 milestone on the current time schedule.

With respect to the closure plan for the radiation source daughter nuclides, the NRC staff stated they need to know how KHNP are trying to show that there is sufficient conservatism to justify not accounting for certain daughter nuclides as part of the effluent source terms, and KHNP need to provide more detail on its assumptions. KHNP stated that it would review the DAMSAM code documentation in its attempt to show conservatisms in the code, and if they could not find the documentation (it is an older code), they would do another bench mark calculation to evaluate the effects of the daughter nuclides. According to KHNP, it will not have this evaluation complete until January 2017. The NRC staff stated that this is also problematic with respect to supporting the Phase 2 milestone completion.

At the end of the meeting, the NRC staff asked about the status of RAI 8599, Question 12.03-53 and RAI 8628, Question 12.03-54. KHNP indicated that its responses are also imbedded in the other RAI responses/resolution.

The NRC staff reminded KHNP about the 8 RAIs that were not reflected on KHNP's list, which are "In Evaluation." For those RAIs, the action is for KHNP to respond to the comments/feedback, which the NRC staff had sent in relation to KHNP's RAI responses.

Future Interactions

At the conclusion of the meeting, KHNP and the NRC staff committed to consider all of the feedback from the meeting and engage to finalize the path forward to resolve the issues discussed.

D. Williams

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Please direct any inquiries to Alina Schiller at 301-415-8177 or via e-mail to alina.schiller@nrc.gov.

Docket No.: 52-046

Enclosure:
List of Attendees

cc w/enclosure: See next page

D. Williams

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Please direct any inquiries to Alina Schiller at 301-415-8177 or via e-mail to alina.schiller@nrc.gov.

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