

January 7, 2016

MEMORANDUM TO: Samuel Lee, Chief
Licensing Branch 2
Division of New Reactor Licensing
Office of New Reactors

FROM: Ronnie Ng, Project Manager **/RA/**
Licensing Branch 2
Division of New Reactor Licensing
Office of New Reactors

SUBJECT: SUMMARY OF THE DECEMBER 1 - 2, 2015, PUBLIC MEETING WITH
KOREA HYDRO AND NUCLEAR POWER CO. LTD. TO DISCUSS
TOPICS RELATED TO ADVANCED POWER REACTOR 1400 DESIGN

On December 1 and 2, 2015, 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 offices in Rockville, Maryland. Due to the discussion of proprietary materials, the meeting was closed to the public. The meeting notice was issued and documented in the NRC Agencywide Documents Access and Management System (ADAMS) under Accession Number ML15328A365. The notice included the final meeting agenda.

The purpose of the meeting was to discuss proprietary topics related to the Advanced Power Reactor 1400 (APR1400) design certification application Technical Report, APR1400-E-N-NR-14003-P, "Evaluation Methodology of Jet Impingement Loads on SSCs, Revision 0," that was submitted to the NRC on October 6, 2015, as well as responses to Request for Additional Information (RAI) 151-8078 Questions 9, 10, 11 and 15, that were submitted to the NRC on October 23, 2015. The following publicly available KHNP presentation materials for the meeting are available in ADAMS: "APR1400 Design Certification Jet Impingement Tehnical Report Comment Resolution" (ML15343A401) and "Jet Impingement Technical Report Comment Resolution" (ML15343A403).

The List of Attendees is provided as an enclosure.

A summary of the topics discussed is provided below:

Evaluation Methodology of Jet Impingement Loads on SSCs:

Prior to the meeting, the NRC staff provided proprietary talking points to KHNP. The presentation conducted by KHNP at the meeting was presented to facilitate discussion among those talking points. Resolutions and a path forward are available in ADAMS using the package Accession Number ML15343A398.

RAI 151-8078 Questions 9, 10, 11, 15:

RAI 151-8078 Question 9:

KHNP will provide, to NRC staff, a detailed description of the analytical methodology including the documentation of computer code and the hydrodynamic model (DCD Section 3.9.2.3.1.1 states that an analysis based on a hydrodynamic model is used to obtain the relationship between RCP pulsations in the inlet ducts and the deterministic pressure fluctuations on the core support barrel). Regarding the location of 1-pump basis value, KHNP will provide a further detailed description.

RAI 151-8078 Question 10:

KHNP will provide, to the NRC staff, further discussion for calculation of the RMS PSD including specific expressions used from Reference 45 to develop the forcing functions applying on the internals.

RAI 151-8078 Question 11:

KHNP will provide, to the NRC staff, the source of these damping values which appear to be a function of the frequency.

RAI 151-8078 Question 15:

KHNP will provide the following document to the NRC staff for review, "CEN-202, A Comprehensive Vibration Assessment Program for System 80 Reactor Internals Palo Verde Nuclear Generating Station Unit 1, Combustion Engineering, Inc."

Future Interactions

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

Please direct any inquiries to Ronnie Ng at 301-415-0023 or via e-mail to Ronnie.Ng@nrc.gov

Project No.: 52-046

Enclosure:
List of Attendees

cc w/enclosure: See next page

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LIST OF ATTENDEES

KHNP APR1400 Design Topics Meeting – Held on December 1–2, 2015

<u>Representing</u>	<u>Name</u>	<u>1-Dec</u>	<u>2-Dec</u>
AECOM	Steve Mannon	✓	✓
KEPCO E&C	Won Sang Jeong	✓	✓
KEPCO E&C	Seok Hwan Hur	✓	✓
KEPCO E&C	Kwang Chu Kim	✓	✓
KEPCO E&C	Tae Han Kim	✓	✓
Westinghouse	Rob Sisk	✓	
KHNP	Harry Chang	✓	✓
KHNP	Kyu Hyung Kim	✓	✓
KHNP	Daegeun Ahn	✓	✓
Bechtel	Shankar Rao	✓	✓
Bechtel	Sanjeeb Pal	✓	✓
Bechtel	Chanthy Iek	✓	✓
Bechtel	L. Joel Peltier	✓	✓
Bechtel	Kelly J. Knight	✓	✓
NRC	Ronnie Ng	✓	✓
NRC	Y.C (Renee) Li	✓	✓
NRC	Theresa Clark	✓	
NRC	Jeff Ciocco	✓	

Enclosure

KHNP Mailing List

9/22/2015

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