March 1, 2011

APPLICANT: KOREA ELECTRIC POWER CORPORATION

APPLICATION: ADVANCED POWER REACTOR 1400 PRE-APPLICATION REVIEW

SUBJECT: SUMMARY OF SEPTEMBER 7, 2010 PUBLIC MEETING WITH KOREAN ELECTRIC POWER CORPORATION ON THE ADVANCED POWER REACTOR 1400 FUEL AND SEISMIC DESIGN

On September 7, 2010, a Category 1 public meeting was held between the U.S. Nuclear Regulatory Commission (NRC), Korea Electric Power Corporation (KEPCO), and the public at the NRC Headquarters in Rockville, Maryland. The meeting was publicly noticed on August 24, 2010. The notice is available in the Agencywide Documents Access and Management System (ADAMS) under accession number ML102290046. The purpose of the meeting was for KEPCO personnel to present Advanced Power Reactor (APR) 1400 Fuel and Seismic design information and proposed plans for future interactions with the NRC staff. A list of meeting attendees is provided as Enclosure 1. KEPCO presentations (non-proprietary versions) discussing the PLUS7 Fuel are provided as Enclosure 2 under ADAMS accession number ML102530207 and the seismic analysis and design is provided as Enclosure 3 under ADAMS accession number ML102530217. There were no NRC presentations.

KEPCO started the meeting by discussing the PLUS7 Fuel Topical Report, including design features and characteristics. KEPCO stated that PLUS7 fuel is a collaborative effort between Westinghouse and KEPCO. The PLUS7 features improved neutron economy by using an axial blanket and optimizing rod outside diameter. The NRC staff recommended that the PLUS7 topical report address fretting behavior in the spring contact areas. In addition, the NRC staff also asked about In-Vessel debris capture testing. KEPCO stated that it is not in the current report and they will look into including the testing in the topical report before submitting.

During the PLUS7 Design Criteria and Evaluation presentation, KEPCO provided additional information concerning the fuel assembly and components. KEPCO stated the same design criteria and methodologies as the Combustion Engineering fuel design were used for PLUS7 fuel. KEPCO presented the codes and standards used for design criteria and evaluation. The NRC staff clarified that it was important to discuss the Lead Test Assembly (LTA) position location during evaluation. KEPCO stated that they would include an LTA position in the topical report. The NRC staff also asked if all of the fuel rod design codes are approved by the NRC and stated that KEPCO should ensure that they are using the same version of the code that was approved. The NRC staff indicated it would a good idea to submit data on oxidation, burnup, and hydrogen absorption. The NRC staff also stated that KEPCO needs to identify what testing needs to be completed and establish a testing protocol. The NRC staff also cautioned that the test results need to support the review and that failing to establish the right testing program or provide clear supporting information, tend to push out the review schedule. KEPCO stated they would look into their testing protocol.

In their KCE-1 Critical Heat Flux (CHF) Correlation for PLUS7 Thermal Analysis presentation, KEPCO provided an overview of the analysis, including a review of PLUS7 fuel design features, testing, CHF correlation development, and the correlation Departure from Nucleate Boiling Ratio (DNBR) limit. The NRC staff reiterated the importance of submitting what will be tested as part of the topical report. The NRC also stated that KEPCO should be prepared to discuss why a code that is over 20 years old can be used with modern fuel. The information should be included in the topical report to allow the NRC staff to make a safety finding.

During the seismic presentation, KEPCO described the seismic analysis of the APR1400, the seismic design of the Reactor Coolant System (RCS), Reactor Internals (RI), and the Core, and the plan for new Certified Seismic Design Response Spectra (CSDRS). KEPCO stated that the seismic analysis of APR1400 was performed for standard nuclear power plant development in accordance with the regulatory requirements in effect as of 2002. KEPCO reviewed revised regulatory requirements and stated that recorded earthquakes will be used for design time history and modified to satisfy all codified requirements. Also that new site soil conditions will be extended to stiffer site according to the recently revised rigid base assumption. KEPCO stated the seismic analyses for RCS, RI and Core of the APR1400 are performed according to the regulations and guides, and codes and standards of the U.S. Regulatory Guides issued after the current design of the APR1400 regarding the seismic analysis would be implemented. KEPCO does not expect any substantial change in the seismic analyses for RCS, RI and Core of the APR1400.

KEPCO's new CSDRS plan presentation included background information on why they need to update and define a new CSDRS. KEPCO stated they are working with the Electric Power Research Institute (EPRI) to generate a Ground Motion Response Spectra (GMRS), which will be used to generate their new CSDRS. KEPCO also stated they will need to work with NRC to better understand the NRC staff position on incoherency analysis portions of the HF ground motion evaluations as described in NRC Interim Staff Guidance DC/COL-ISG-1. KEPCO presented their review of DC/COL-ISG-1 and their experience, considerations, and approach for incorporating incoherent input motion effects.

The meeting was concluded with a KEPCO proposal for future pre-application activities, including a proposed meeting schedule and topical report submittal plan. The NRC stated that they would further review the proposed schedule and coordinate with KEPCO for future meetings. The NRC stated that the next meeting would likely be in early 2011.

Please direct any inquiries to William Ward at 301-415-7038 or, via e-mail at William.Ward@nrc.gov.

Sincerely,

/RA/

William Ward, Sr. Project Manager
US-APWR Projects Branch
Division of New Reactor Licensing
Office of New Reactor

Project No. 0782

Enclosures:
1. List of Attendees
2. KEPCO PLUS7 (ML102530207)
3. KEPCO Seismic Analysis of APR1400 (ML102530217)

cc w/encls: See next page

Please direct any inquiries to William Ward at 301-415-7038 or, via e-mail at William.Ward@nrc.gov.

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DATE	02/25/11	02/23/11	02/28/11	03/01/11

OFFICIAL RECORD COPY

List of Attendees

Meeting with Korea Electric Power Corporation to discuss Advanced Power Reactor 1400 Fuel and Seismic Design Information

September 7, 2010

Name	**Agency/Affiliation**
Alan Levin	AREVA
Bob Evans	Enercon
Dan Shulman	Enercon
Dae Hee Lee	Korea Electric Power Corporation
Hokhan Hwang	Korea Electric Power Corporation
Jae Il Lee	Korea Electric Power Corporation
Jun Seok Yang	Korea Electric Power Corporation
Jung Bum Jang	Korea Electric Power Corporation
Jung Yong Kim	Korea Electric Power Corporation
Kanghoon Kim	Korea Electric Power Corporation
Ki Hwang Hahm	Korea Electric Power Corporation
Moon-Ghu Park	Korea Electric Power Corporation
Sang-Hoon Lee	Korea Electric Power Corporation
Sangwoog Lee	Korea Electric Power Corporation
Seung Hoon Han	Korea Electric Power Corporation
Seung Jong Oh	Korea Electric Power Corporation
Sun Tack Hwang	Korea Electric Power Corporation
Taechul Park	Korea Electric Power Corporation
Taesik Yun	Korea Electric Power Corporation
Yong Hwan Kim	Korea Electric Power Corporation
Youngsoo Jhun	Korea Electric Power Corporation
Yun Ho Kim	Korea Electric Power Corporation
Gary Ruf	PSEG
Michael Wiwel	PSEG
Greg Hardy	Simpson Gumpertz & Heger
Christopher Van Wert	U.S. Nuclear Regulatory Commission
Hossein Hamzehee	U.S. Nuclear Regulatory Commission
James Gilmer	U.S. Nuclear Regulatory Commission
Joseph Donoghue	U.S. Nuclear Regulatory Commission
Kimberly Hawkins	U.S. Nuclear Regulatory Commission
Michael Magee	U.S. Nuclear Regulatory Commission
Milton Valentin	U.S. Nuclear Regulatory Commission
Ralph Landry	U.S. Nuclear Regulatory Commission
Sunwoo Park	U.S. Nuclear Regulatory Commission
Anthony Attard	U.S. Nuclear Regulatory Commission
Vladimir Graizer	U.S. Nuclear Regulatory Commission
William Ward	U.S. Nuclear Regulatory Commission
Yong Li	U.S. Nuclear Regulatory Commission

Enclosure 1

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Jim Komosinski	USEC
William Slagle	Westinghouse

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