UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 11, 2014

LICENSEES: Exelon Generation Company
Omaha Public Power District

FACILITIES: Calvert Cliffs Nuclear Power Plant, Units 1 and 2
Clinton Power Station, Unit No. 1
Fort Calhoun Station, Unit 1
Limerick Generating Station, Units 1 and 2
Oyster Creek Nuclear Generating Station
Quad Cities Nuclear Power Station, Units 1 and 2

SUBJECT: SUMMARY OF THE JUNE 17, 2014, CATEGORY 1 PUBLIC MEETING WITH EXELON AND OMAHA PUBLIC POWER DISTRICT TO DISCUSS SEISMIC HAZARD REEVALUATIONS ASSOCIATED WITH IMPLEMENTATION OF JAPAN LESSONS-LEARNED NEAR-TERM TASK FORCE RECOMMENDATION 2.1, SEISMIC

On June 17, 2014, the U.S. Nuclear Regulatory Commission (NRC or the staff) held a Category 1 public meeting[1] with Exelon and Omaha Public Power District. The purpose of this meeting was to discuss issues resulting from the staff's screening and prioritization of Calvert Cliffs Nuclear Power Plant, Units 1 and 2 (Calvert Cliffs), Clinton Power Station, Unit No. 1 (Clinton), Fort Calhoun Station, Unit 1 (Fort Calhoun), Limerick Generating Station, Units 1 and 2 (Limerick), Oyster Creek Nuclear Generating Station (Oyster Creek), and Quad Cities Nuclear Power Station, Units 1 and 2 (Quad Cities) related to Enclosure 1, *Recommendation 2.1: Seismic* of the March 12, 2012, NRC request for information per Title 10 to the *Code of Federal Regulations*, Section 50.54(f) letter[2] (hereafter referred to as the 50.54(f) letter). By letter dated May 9, 2014,[3] the NRC staff categorized these Exelon and Omaha Public Power District (the licensee for Fort Calhoun) sites as conditionally screened-in to perform additional seismic evaluations, as either a prioritization group 2 or 3 plant with a risk evaluation due by December 31, 2019 or December 31, 2020, respectively, based on the staff's screening review. By memo dated May 21, 2014, the NRC staff documented their preliminary Ground Motion Response Spectra (GMRS) curve in comparison to all licensee GMRS curves along with the plant's Safe Shutdown Earthquake (SSE) and Individual Plant Examination of Eternal Events (IPEEE) High Confidence Low Probability of Failure (HCLPF) Spectra, also known as the IHS (IPEEE HCLPF Spectra). The public meeting supported an information exchange and understanding of engineering differences to achieve subsequent technical resolution.

[1] The original meeting notice is available via the Agencywide Documents Access and Management System (ADAMS) under Accession No. ML14161A479.
[2] The 50.54(f) letter and Enclosure 1 are available under ADAMS Accession Nos. ML12053A340 and ML12056A047.
[3] The May 9, 2014 letter is available under ADAMS Accession No. ML14111A147.

To facilitate the discussion, the NRC staff and licensee representatives presented[4] the engineering details on the modeling inputs used to develop GMRS curves. The meeting highlights included:

- Clinton Power Station
  - Licensee used three base case shear-wave velocity profiles while the NRC staff used one base case shear-wave velocity profile
  - Licensee Kappa values higher than the values the staff used
  - Assumption of no significant differences exist between hard rock hazard curves

- Oyster Creek Nuclear Generating Station
  - Differences in shear-wave velocity profiles below 300 feet. Licensee assumed soft soil gradient
  - NRC will need to review licensing basis

- Limerick Generating Station
  - Differences in low strain damping
  - Minor differences in near surface shear-wave velocities

- Quad Cities Nuclear Power Station
  - NRC staff assumed a Housner curve while the licensee used a hybrid curve consisting of Housner and Golden Gate curve
  - Differences in low strain damping
  - NRC will need to review licensing basis

Additionally, the discussion focused on NRC questions regarding the IPEEE used for the screening of Fort Calhoun and Calvert Cliffs. The IPEEE discussion included the evaluation of the following topics:

- Fort Calhoun
  - Evaluation of Class 1 structures in containment
  - Soil erosion and related impact during the 2011 flood on foundation support materials

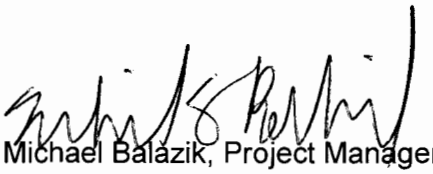
- Calvert Cliffs
  - IPEEE HCLPF Spectrum curve anchoring
  - Seismic Probabilistic Risk Assessment (SPRA) exhibited an 'over use' of the surrogate elements in the PRA model
  - Top level event "LA" used in the SPRA model is problematic
  - Top level event "LA" did not include air compressors

[4] The NRC and licensee slides can be found under ADAMS Accession Nos. ML14167A320 and ML14167A053.

Finally, the NRC stated that a follow up request for additional information may be issued to document the licensee's technical basis and background information, as well as any other clarifications associated with the information presented at the meeting.

No regulatory decisions or commitments were made during the meeting. The public was invited to observe the meeting and was given several opportunities to communicate with the NRC during the public meeting and before adjourning. The NRC staff received no public comments and no meeting feedback forms.

Please direct any inquiries to me at 301-415-2856, or Michael.Balazik@nrc.gov.



Michael Balazik, Project Manager
Hazards Management Branch
Japan Lessons-Learned Division
Office of Nuclear Reactor Regulation

Docket Nos. 50-317, 50-318, 50-461,
50-285, 50-352, 50-353, 50-219,
50-254 and 50-265

Enclosure:
List of Attendees

cc w/enclosure: Distribution via Listserv

List of Attendees
U.S. Nuclear Regulatory Commission
Public Meeting with Exelon
Concerning Seismic Hazard Reevaluation Submittals
Japan Lessons-Learned Near-Term Task Force Recommendation 2.1: Seismic
June 17, 2014

Name	Organization		Name	Organization
Jon Ake	NRC/RES/DE		Robert Gladney	NRC/NRR/DORL
Cliff Munson	NRC/NRO/DSEA		Rick Ennis	NRC/NRR/DORL
Diane Jackson	NRC/NRO/DSEA		Weijun Wang	NRC/NRO/DSEA
Blake Purnell	NRC/NRR/DORL		Scott Stoval	NRC/RES/DE
Kamal Manoly	NRC/NRR/DE		Thomas Weaver	NRC/RES/DE
Yong Li	NRC/NRR/DE		Zuhan Xi	NRC/NRO/DSEA
Zuhan Xi	NRC/NRO/DSEA		Lisa Walsh	NRC/NRO/DSEA
Dogan Seber	NRC/NRO/DSEA		Brian Wehrmen	Exelon
Mahmoud Jardaneh	NRC/NRO/DSEA		Jeffrey Clark	Exelon
Donnie Harrison	NRC/NRO/DSRA		Charles Behrend	Exelon
Stephanie Devlin	NRC/NRO/DSEA		Joe Gasper	OPPD
Rasool Anooshehpoor	NRC/RES/DE		Vinod Aggarwal	Exelon
Juan Uribe	NRC/NRR/JLD		Howie Ray	Exelon
Michael Balazik	NRC/NRR/JLD		Fred Grant	SGH
Wayne Schmidt	NRC/RI		Gregory Wallace	Exelon
Andrea Kock	NRC/NRO/DSEA		Jake Smith	Exelon
Vladimir Graizer	NRC/NRO/DSEA		(continues to next page)	

Abbreviations:
DE - Division of Engineering
DSEA - Division of Site Safety and Environmental Analysis
DSRA - Division of Safety Systems & Risk Assessment
EPRI - Electric Power Research Institute
JLD - Japan Lessons-Learned Division
NRO - Office of New Reactors
NRR - Office of Nuclear Reactor Regulation
OPPD - Omaha Public Power District
RES - Office of Nuclear Regulatory Research
NEI - Nuclear Energy Institute
TVA - Tennessee Valley Authority
SGH - Simpson Gumpertz & Heger

Enclosure

Name	Organization		Name	Organization
Doug Collins	Exelon		Robin McGuire	EPRI
David Distel	Exelon		Bob Myer	Public
James Meister	Exelon		Andrew Mauer	NEI
Waliul Hafiz	Exelon		Craig Nichols	Exelon
Ken Whitmore	Enercon		Ben Kosbab	SC Solutions/Enercon
Russ Dedrickson	Exelon		Wing Ho	Exelon
Frank Higgins	Exelon		Greg Hardy	SGH
Robert Cavedo	Exelon		Robert Kassawara	EPRI
Chuck Merritt	Exelon		Ralph Ritter	Exelon
Ronald Boehm	Sargent & Lundy		Walter Silva	Pacific Engineering
Javad Moslemian	Sargent & Lundy		Tarek Elkhoraibi	Bechtel
Larry Lee	ERIN Engineering		Moore, Donald	Southern Company
Ron Zak	State of New Jersey		Marc Hotchkiss	Dominion
Justin Huber	TVA		Charlotte Geiger	PSEG
Ron Wittschen	Southern Company		Ryan Foley	Sargent & Lundy
George Zinke	Entergy		Melanie Brown	Southern Company
Richard Rogalski	Northwest Energy		Keith Xu	Stevenson & Associates
Joshua Best	TVA		Divakar Bhargava	Dominion
Paul Schwartz	State of New Jersey		Steven Dunsmuir	Exelon
Brenda Kovarik	American Electric Power		Jeff Stone	Exelon
John Voss	Dominion		Philip Tarpinian	Exelon
Tracey Gallagher	Exelon		Andrea Maioli	Westinghouse
Penny Selman	TVA		Ram Srinivasan	Public
Craig Swanner	MPR		Sheldon Waiters	Public
Gray Ruf	PSEG			
N. Doulgerakis	Enercon			
John Richards	EPRI			

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/RA/
Michael Balazik, Project Manager
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ADAMS Accession No.: ML14175A518 *Concurrence via e-mail

OFFICE	NRR/JLD/JHMB/PM	NRR/JLD/LA*	NRR/JLD/JHMB/BC	NRR/JLD/JHMB/PM
NAME	MBalazik	SLent	SWhaley	MBalazik
DATE	07/28/14	07/28/14	07/30/14	08/11/14

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