



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

September 18, 2014

LICENSEE: Entergy Nuclear Operations, Inc.

FACILITIES: Arkansas Nuclear One, Units 1 and 2  
Indian Point Nuclear Generating, Unit Nos. 2 and 3  
James A. Fitzpatrick Nuclear Power Plant

SUBJECT: SUMMARY OF THE JUNE 19, 2014, CATEGORY 1 PUBLIC MEETING WITH ENTERGY TO DISCUSS SEISMIC HAZARD REEVALUATIONS ASSOCIATED WITH IMPLEMENTATION OF JAPAN LESSONS-LEARNED NEAR-TERM TASK FORCE RECOMMENDATION 2.1.

On June 19, 2014, the Nuclear Regulatory Commission (NRC or the staff) held a Category 1 public meeting<sup>1</sup> with Entergy Nuclear Operations, Inc. (Entergy or the licensee) to discuss Arkansas Nuclear One (ANO), Units 1 and 2, Indian Point Nuclear Generating (Indian Point), Unit Nos. 2 and 3, and James A. Fitzpatrick Nuclear Power Plant (JAF). The purpose of this meeting was to discuss issues resulting from the staff's screening and prioritization for several of the Entergy facilities 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*, Part 50, Section 50.54(f) (hereafter referred to as the 50.54(f) letter<sup>2</sup>). By letter dated May 9, 2014,<sup>3</sup> the NRC staff categorized ANO, Units 1 and 2 as a "conditional screen in", prioritization group 3 plant, JAF as a "conditional screen in", prioritization group 3 plant and Indian Point, Unit Nos. 2 and 3 as screened-in, prioritization group 1 plants. The due dates for the seismic risk evaluation are December 31, 2020 and June 30, 2017, for prioritization group 3 and group 1 plants, respectively. By memo dated May 21, 2014,<sup>4</sup> the NRC staff documented its 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 External 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.

In regards to ANO and JAF, the discussion was limited to the review of the NRC staff draft Requests for Additional information (RAIs) related to the IPEEE evaluation performed by the licensee in order to assure alignment and a common understanding of the intent and purpose of the draft RAIs.

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<sup>1</sup> The original meeting notice is available via the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML14169A078.

<sup>2</sup> The 50.54(f) letter and Enclosure 1 are available at ADAMS Accession Nos. ML12053A340 and ML12056A047, respectively.

<sup>3</sup> The May 9, 2014 letter is available at ADAMS Accession No. ML14111A147.

<sup>4</sup> The May 21, 2014 memo is available at ADAMS Accession No. ML14136A126.

In regard to Indian Point, the NRC staff and the licensee representatives presented<sup>5</sup> the engineering details on the modeling inputs used to develop GMRS curves. The meeting highlights included:

- The NRC staff and licensee discussed differences in methods used to calculate kappa (i.e. soil seismic energy damping).
- The NRC staff and licensee discussed differences in velocity profiles, available onsite data, and modeling epistemic uncertainties represented in the profiles.
- Based on interactions, the NRC staff indicated it would consider the licensee's information and may develop a RAI to resolve differences.

Additionally, the licensee discussed a potential request to revise the seismic screening and prioritization for Indian Point, Unit 3 (IP3) from a prioritization Group 1 plant for seismic probability risk assessment (SPRA) to a Group 3 SPRA plant.

- The licensee stated that IP3 should be screened out from having to perform an additional risk evaluation. The licensee stated its belief that the NRC staff used inappropriate information when generating the ground motion response spectra curves. The licensee considers the site as a hard rock site whereas NRC used a softer rock value. In addition, the licensee wanted the NRC to consider its June 26, 2013 (ADAMS Accession Nos. ML13183A279 and ML13183A280) submittal to the NRC of a re-evaluation of the highest risk contributing components and revised hazard information from its original IPEEE submittal. In this letter, the licensee estimated that the seismic core damage frequency (SCDF) was reduced from 1.0E-04 to 7.1E-06 for IP3. Finally, the licensee has three reactor units screened in as prioritization Group 1 (Indian Point 2 & 3 and Pilgrim) and the licensee considers this an undue burden.
- NRC staff explained its position that the licensee's re-evaluation of plant capacity calculation was not consistent with the staff endorsed guidance<sup>6</sup> and is insufficient to support screening out IP3 from a SPRA.
- During follow-up discussions with the licensee, the NRC staff expressed its view that the technical basis to revise IP3 from prioritization Group 1 to Group 3 was not sufficient. The staff understood that there may be a policy case for hardship since the licensee has three plants in Group 1. The NRC staff explained that the licensee would have to request a change by letter and provide sufficient arguments for proposed changes.

In summary, the NRC staff stated that the primary differences between the NRC staff and licensee GMRS curves for Indian Point appear to result from:

- The licensee not performing a site response analysis, citing P-wave refraction as justification, and the NRC staff's use of available on-site data to perform a site response analysis.
- The difference(s) in plant characterization as a hard rock site.

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<sup>5</sup> The NRC staff and Entergy slides can be found at ADAMS Accession Nos. ML14169A489 and ML14169A072.

<sup>6</sup> "Seismic Evaluation Guidance: Screening, Prioritization and Implementation Details (SPID) for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic", this guidance document is found in ADAMS at Accession No. ML12333A170. The staff endorsement letter for the SPID guidance is found in ADAMS at Accession No. ML12319A074.

Finally, the NRC stated that a follow-up RAI may be issued to obtain documentation of the licensee's technical basis and background information, as well as any other clarifications associated with the information presented at the meeting.

Subsequent to the public meeting by letter dated August 18, 2014 (ADAMS Accession No. ML14241A026), the licensee requested NRC review to prioritize IP3 from a Group 1 plant to a Group 3 plant. The NRC will review the licensee's supplemental information and provide a response.

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 staff during the public meeting and before adjourning. The NRC staff received a few public comments/questions that were discussed and resolved during the meeting, and no follow-up actions remained. No meeting feedback forms were received by the NRC staff.

Please direct any inquiries to me at 301-415-1115, or [Nicholas.DiFrancesco@nrc.gov](mailto:Nicholas.DiFrancesco@nrc.gov).

A handwritten signature in black ink, appearing to read "Nicholas J. DiFrancesco", with a long horizontal flourish extending to the right.

Nicholas J. DiFrancesco, Senior Project Manager  
Hazards Management Branch  
Japan Lessons-Learned Division  
Office of Nuclear Reactor Regulation

Docket Nos. 50-313, 50-368, 50-247,  
50-286 and 50-333

Enclosure:  
List of Attendees

cc w/encl: Distribution via Listserv

List of Attendees  
U.S. Nuclear Regulatory Commission  
Public Meeting with Entergy  
Concerning Seismic Hazard Reevaluation Submittals  
Japan Lessons-Learned Near-Term Task Force Recommendation 2.1: Seismic  
June 19, 2014

<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
Jon Ake	NRC/RES/DE	Lois James	NRC/NRR/DLR
Cliff Munson	NRC/NRO/DSEA	Andrew Mauer	NEI
Diane Jackson	NRC/NRO/DSEA	Saive Prassmon	Entergy
Juan Uribe	NRC/NRR/JLD	Jennifer Butler	AREVA
Michael Balazik	NRC/NRR/JLD	Richard Drake	Entergy
Donnie Harrison	NRC/NRO/DSRA	Greg Hardy	Simpson, Gumpertz and Heger
Andrea Kock	NRC/NRO/DSEA	Jeremy Picard	AREVA
Rasool Anooshehpour	NRC/RES/DE	Bryan Ford	Entergy
Thomas Weaver	NRC/RES/DE	Mike Krupa	Entergy
Sherwin Turk	NRC/OGC	John Sipos	State of NY OAG
Nilesh Chokshi	NRC/NRO/DSEA	Donald Moore	Southern Nuclear Co (SNC)
Doug Pickett	NRC/NRR/DORL	Roger Gish	TVA
Brian Harris	NRC/OGC	Natalie Mosher	Entergy
Peter Bamford	NRC/NRR/DORL	Ronald Wittschen	SNC
Yong Li	NRC/NRR/DE	Jeff Thomas	Duke Energy
Kamal Manoly	NRC/NRR/DE	George Zinke	John Favara
David Heaszal	NRC/NRO/DSEA	Robin Mcguire	Lettis Consultants International
		(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
- IPT - International Program Team
- JLD - Japan Lesson Learned Project Directorate
- NRO - Office of New Reactors
- NRR - Office of Nuclear Reactor Regulation
- RES - Office of Nuclear Regulatory Research
- NEI - Nuclear Energy Institute
- TVA - Tennessee Valley Authority
- SNC - Southern Nuclear Operating Company, Inc.

<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
Calvin Wong	AREVA	MJ Jardaneh	NRC/NRO/DSEA
Richard Quittmeyer	Rizzo Associates	Ron Knott	Duke Energy
John Giddens	SNC		
Jordan Vaughan	Duke Energy		
Benjamin Beasley	NRC/DORL		
Jeff Kimball	Rizzo Associates		
Justin Huber	TVA		
Paul Guill	Duke Energy		
Ram Srinivasan	--		
Joshua Best	TVA		
Doug Tift	NRC/RGN I		
Mark Rutherford	--		
John Skonieczny	--		
Robert Enis	TVA		
Bob Torkian	ENERCON		
Wayne Schmidt	NRC/RGN I		
Zuhan Xi	NRC/NRO/DSEA		
Melanie Brown	SNC		
John Voss	Dominion		
Bridget Frymire	--		
Tarek Elkhoraibi	Bechtel		
Jose Blanco	Rizzo Associates		
Marc Hotchkiss	Dominion		
Brenda Kovarik	American Electric Power		
John Richards	EPRI		
Dan Ludwig	XE Nuclear		
Tim Graf	--		

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Hazards Management Branch  
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DPickett, NRR	RidsNrrLASLent	RidsNrrDe	

ADAMS Accession No.: ML14197A583

\*Concurrence via e-mail

OFFICE	NRR/JLD/PMB/PM	NRR/JLD/LA*	OGC (NLO)	NRR/JLD/PMB/BC	NRR/JLD/PMB/PM
NAME	NDiFrancesco	SLent	BHarris (w/ comments)	SWhaley	NDiFrancesco
DATE	09/04/14	09/15/14	09/10/14	09/18/14	09/18/14

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