



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

August 6, 2014

MEMORANDUM TO: Sheena A. Whaley, Chief  
Hazards Management Branch  
Japan Lessons-Learned Division  
Office of Nuclear Reactor Regulation

FROM: Juan F. Uribe, Project Manager JFU  
Hazards Management Branch  
Japan Lessons-Learned Division  
Office of Nuclear Reactor Regulation

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

On July 1, 2014, the Nuclear Regulatory Commission (NRC or the staff) held a Category 1 public meeting<sup>1</sup> with Tennessee Valley Authority (TVA or the licensee) for the Watts Bar Nuclear (WBN) Plant, Units 1 and 2; Sequoyah Nuclear (SQN) Plant, Units 1 and 2 and Browns Ferry Nuclear (BFNP) Plant, Units 1, 2 and 3. The purpose of this meeting was to discuss issues resulting from the staff's screening and prioritization of the TVA plants 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<sup>2</sup>. By letter dated May 9, 2014,<sup>3</sup> the NRC staff categorized WBN as a screened in, prioritization group 1 plant with a risk evaluation due by June 30, 2017 based on the staff's screening review. SQN and BFNP were categorized as screened in, prioritization group 2 plants with risk evaluations due by December 31, 2019. 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 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 the BFNP and SQN plants, the licensee discussed TVA's ongoing site geological profiling efforts in order to have an adequate soil characterization for both plants and stated that they understood the differences between NRC and licensee GMRS curves. For the WBN plant, the NRC staff and TVA representatives presented<sup>4</sup> the engineering details on the modeling inputs used to develop GMRS curves.

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<sup>1</sup> The original meeting notice is available via the Agencywide Documents Access and Management System (ADAMS) under Accession No. ML14171A354.

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

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

<sup>4</sup> The NRC and TVA slides can be found under ADAMS Accession Nos. ML14182A103 and ML14182A099.

The meeting highlights included:

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

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

- The quantity of velocity profiles used in the analysis
- The depth of reference for rock
- TVA assigned a damping value to the upper 500 ft whereas the NRC used the kappa value in the upper 1000 ft to account for damping
- The manner in which epistemic uncertainty was accounted

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.

CONTACT: Juan F. Uribe, NRR/JLD/JHMB  
301-415-3809

Docket Nos. 50-390, 50-391, 50-327, 50-328,  
50-259, 50-260 and 50-296

Enclosure:  
List of Attendees

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List of Attendees  
U.S. Nuclear Regulatory Commission  
Public Meeting with Tennessee Valley Authority  
Concerning Seismic Hazard Reevaluation Submittals  
Japan Lessons-Learned Near-Term Task Force Recommendation 2.1: Seismic  
July 1, 2014

<b>Name</b>	<b>Organization</b>		<b>Name</b>	<b>Organization</b>
Jon Ake	NRC/RES/DE			
Cliff Munson	NRC/NRO/DSEA		Andrew Mauer	NEI
Diane Jackson	NRC/NRO/DSEA		Joe Waters	American Electric Power
Nicholas DiFrancesco	NRC/NRR/JLD		Kelvin Campbell	AMEC
Juan Uribe	NRC/NRR/JLD		David Ma	Argonne
Michael Balazik	NRC/NRR/JLD		Ram Srinivasan	--
Andrea Kock	NRC/NRO/DSEA		Joe Litehiser	Bechtel
Donnie Harrison	NRC/NRO/DSRA		Walt Silva	Pacific Engineering
Rasool Anooshehpour	NRC/RES/DE		Jose Blanco	Rizzo Associates
Nilesh Choksi	NRC/NRO/DSEA		Nadja Paulman	XE Nuclear
Joe Shea	TVA		John Richards	EPRI
Kevin Dutton	TVA		Dan Ludwig	XE Nuclear
Penny Selman	TVA		Andy Hon	NRC/NRR/DORL
Kevin Casey	TVA		Lief Erickson	Curtis Wright
Robert Enis	TVA		Adam Helffrich	Rizzo Associates
Joshua Best	TVA		Zhiping Li	Ameren
Walter Justice	TVA		Brenda Kovarik	American Electric Power
Justin Huber	TVA		(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 Lessons-Learned Division  
 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

Enclosure

[illegible]

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\*Concurrence via e-mail

OFFICE	NRR/JLD/PMB/PM	NRR/JLD/LA	NRR/JLD/PMB/BC
NAME	JUribe	SLent	SWhaley
DATE	08/06/14	07/07/14	07/30/14

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