



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

July 16, 2014

Vice President, Operations
Arkansas Nuclear One
Entergy Operations, Inc.
1448 S.R. 333
Russellville, AR 72802

SUBJECT: ARKANSAS NUCLEAR ONE, UNITS 1 AND 2 - REQUEST FOR ADDITIONAL
INFORMATION ASSOCIATED WITH NEAR-TERM TASK
FORCE RECOMMENDATION 2.1, SEISMIC HAZARD AND SCREENING
REPORT

Dear Sir or Madam:

By letter dated March 28, 2014, to the Nuclear Regulatory Commission (NRC) (Agencywide Documents and Management System (ADAMS) Accession No. ML14092A021), Entergy Operations, Inc.(Entergy), submitted for NRC review the Entergy Seismic Hazard and Screening Report, Response NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident for Arkansas Nuclear One (ANO), Units 1 and 2.

The NRC staff has reviewed the information provided for ANO, Units 1 and 2, and has determined that additional information is required to complete the review. Enclosed is a request for additional information (RAI) related to the plant's Individual Plant Examination for External Events. As discussed with your staff during a recent phone call, the NRC staff requests that you respond no later than August 15, 2014.

If you have any questions related to the enclosed RAIs or the requested submission date, please contact me at 301-415-2856 or via e-mail at michael.balazik@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Balazik".

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

Docket Nos. 50-313 and 50-368

Enclosure:
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION
NEAR-TERM TASK FORCE RECOMMENDATION 2.1,
SEISMIC HAZARD AND SCREENING REPORT
ENTERGY OPERATIONS, INC.
ARKANSAS NUCLEAR ONE, UNITS. 1 AND 2
DOCKET NOS. 50-313 AND 50-368

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued a request for information pursuant to Title 10 of the *Code of Federal Regulations*, Part 50 (10 CFR), Section 50.54(f) (hereafter referred to as the 50.54 (f) letter) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12053A340). The purpose of the request was to gather information concerning, in part, the seismic hazards at operating reactor sites and to enable the NRC staff to determine whether licenses should be modified, suspended, or revoked. To respond to the 50.54(f) letter, by letter dated March 28, 2014, (ADAMS Accession No. ML14092A021), Entergy Operations, Inc. (Entergy, the licensee) committed to follow the Electric Power Research Institute (EPRI) Report, "Seismic Evaluation Guidance: Screening, Prioritization and Implementation Details (SPID) for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic," (ADAMS Accession No. ML12333A170), as supplemented by the EPRI Report, "Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force (NTTF) Recommendation 2.1: Seismic" (referred to as the Expedited Approach) (ADAMS Accession No. ML13102A142). Entergy submitted the re-evaluated seismic hazards (ADAMS Accession No. ML14092A021) for Arkansas Nuclear One (ANO), Units 1 and 2, in March 2014. The NRC staff conducted the screening and prioritization review of the submittal by assessing Entergy's screening evaluation and hazard analysis utilizing the endorsed SPID guidance. Accordingly, during the NRC screening and prioritization process, the staff identified that a determination could not be made and interactions with Entergy were needed to reach resolution. The staff identified ANO, Units 1 and 2, as a "conditional screen-in" for the purposes of prioritizing and conducting additional evaluations. On May 9, 2014, the NRC staff issued a letter (ADAMS Accession No. ML14111A147) documenting the NRC staff's screening results.

In accordance with the SPID and Expedited Approach guidance, the re-evaluated seismic hazard determines if additional seismic risk evaluations are warranted for a plant. The SPID guidance provides criteria for a plant with ground motion response spectra (GMRS) above the safe shutdown earthquake, but bounded by the Individual Plant Examination for External Events (IPEEE) capacity spectrum. To use the IPEEE capacity spectrum to screen out of conducting a seismic risk evaluation, Entergy needed to demonstrate the adequacy of ANO's IPEEE evaluation by meeting the criteria in the SPID. If the IPEEE capacity is greater than the GMRS in the 1-10Hz range, the plant screens out of conducting a seismic risk.

The following additional information is requested to support the NRC's final screening determination for ANO based on IPEEE adequacy:

Enclosure

1. The licensee states, in Appendix B of the submittal date March 28, 2014, that the minimum plant level high-confidence-low-probability of failure (HCLPF) for Units 1 and 2 is 0.3 peak ground acceleration (PGA). Section 2.0 of the submittal states that IPEEE commitments and modifications that were required to achieve the plant level HCLPF have been completed.

For the purpose of understanding the significant IPEEE commitments made by the licensee, the NRC staff reviewed the Staff Evaluation Report (SER) for ANO, Units 1 and 2, dated February 27, 2001 (ADAMS Accession No. ML010600244). The staff noted a few potential discrepancies between the SER and the licensee's technical basis for assuming a 0.3 g plant HCLPF in the screening report. For example, SER, Table 3.5-1, reported that Emergency Diesel (ED) Fuel Tanks A/B (Units 1 and 2) have HCLPFs of 0.2 g PGA (capacity controlled by bolt shear). Another example is the Unit 2 480V load switchgear which has a reported HCLPF of 0.27 g PGA (controlled by tension on the plug welds). In addition, SER Table 7-1, "Opportunities for Plant Improvements," states that the ED fuel tank bolt and 480V switchgear issues were being resolved by either making plant improvements, or determining that further plant improvements are not cost beneficial relative to the corresponding safety improvement.

Based on the above observations, it is not clear if the current designs of the ED fuel tank and 480V switchgear have been enhanced to have a HCLPF greater than 0.3 g PGA. In order for the staff to confirm the licensee's basis for satisfying the SPID prerequisites (SPID, Section 3.0), the staff requests clarification on this issue.

2. In Section 4.7 of Appendix B to the licensee's NTTF Recommendation 2.1 submittal dated March 28, 2014, non-seismic failures and human actions are discussed, including Reference 6.13 (Entergy Letter to NRC "Arkansas Nuclear One – Units 1 and 2 Docket Nos. 50-313 and 50-368 License Nos. DPR-51 and NPF-6 Additional Information Pertaining to GL 87-02 and 88-20," dated March 30, 1999 [0CAN039901], ADAMS Accession Number ML080070325) in an IPEEE Request for Additional Information (RAI) response on this topic. However, the subsequent text in the NTTF Recommendation 2.1 submittal that describes what the licensee did to address this topic appears to differ from the IPEEE RAI response description. Specifically, the NTTF Recommendation 2.1 submittal states that the developed fault tree took no credit for components on the IPEEE Safe Shutdown Equipment List (SSEL) in calculating a conditional core damage probability. However, the IPEEE RAI response states that the fault tree was developed by removing components not on the IPEEE SSEL and, as such, the calculation only credits the IPEEE SSEL components. Please clarify how non-seismic failures were determined to be insignificant contributors for the IPEEE seismic evaluation.

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Sincerely,
/RA/

Michael Balazik, Project Manager
Hazards Management Branch
Japan Lessons-Learned Division
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ADAMS Accession No.: ML14195A059

***concurrence via e-mail**

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DATE	07/14/14	07/14/14	07/14/14	07/16/14

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