

May 18, 2015

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE COMMISSION**

In the Matter of )  
TENNESSEE VALLEY AUTHORITY ) Docket No. 50-391-OL  
(Watts Bar Nuclear Plant, Unit 2) )  
)

**SOUTHERN ALLIANCE FOR CLEAN ENERGY'S  
PETITION FOR REVIEW OF LBP-15-14  
DENYING ADMISSION OF A NEW CONTENTION CONCERNING TVA'S  
FAILURE TO COMPLY WITH 10 C.F.R. § 50.34(b)(4)**

**I. INTRODUCTION**

Pursuant to 10 C.F.R. § 2.341(b), Southern Alliance for Clean Energy (“SACE”) petitions for review by the U.S. Nuclear Regulatory Commission (“NRC” or “Commission”) of LBP-15-14, Memorandum and Order (Denying Motion to Reopen) (Apr. 22, 2015) (“LBP-15-14”). In LBP-15-14, the Atomic Safety and Licensing Board (“ASLB”) denied SACE’s motion to reopen the record of the operating license proceeding for Tennessee Valley Authority’s (“TVA’s”) proposed Watts Bar Unit 2 nuclear power plant (“WBN2”). SACE seeks reopening of the record to admit a contention that seeks NRC Staff review, in this operating license proceeding, of post-Fukushima safety issues relevant to the safety of WBN2’s operation but that the Staff has relegated to a separate post-licensing proceeding. The Commission should review LBP-15-14 because it raises important issues of law and policy.

**II. FACTUAL AND PROCEDURAL BACKGROUND**

**A. TVA’s Post-Fukushima Seismic Investigation and Safety Analysis**

After the Fukushima earthquake and nuclear reactor disaster of 2011, the NRC’s Near-Term Task Force issued a report with a set of twelve recommendations, including recommendation 2.1:

Order licensees to reevaluate the seismic and flooding hazards at their sites against current NRC requirements and guidance, and, if necessary, update the design basis and SSCs [structures, systems and components] important to safety to protect against the updated hazards.

Recommendations for Enhancing Reactor Safety in the 21<sup>st</sup> Century: the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident at 30 (July 12, 2011).<sup>1</sup> The Task Force also recommended that these issues be resolved for WBN2 in the course of the operating license review:

For the two plants with reactivated construction permits (Watts Bar Unit 2 and Bellefonte Unit 1), the Task Force recommends that those operating license reviews and the licensing itself include all of the near-term actions and any of the recommended rule changes that have been completed at the time of licensing. Any additional rule changes would be imposed on the plants in the same manner as for other operating reactors.

*Id.* at 72. The NRC Staff subsequently requested information from all licensees and license applicants regarding seismic risks. Letter from NRC to All Power Reactor Licensees and Holders of Construction Permits in Active or Deferred Status re: Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3 and 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident (March 12, 2012) (ML 12053A340).

As a result of TVA's post-Fukushima investigations, WBN2 was identified as a reactor for which the seismic risk exceeded the design basis. Letter from NRC to All Power Reactor Licensees and Holders of Construction Permits in Active or Deferred Status on the Enclosed List re: Screening and Prioritization Results Regarding Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Seismic Hazard Re-Evaluations for Recommendation 2.1 of the Near-Term Task Force Review of Insights From the Fukushima Dai-ichi Accident

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<sup>1</sup> <http://www.nrc.gov/reactors/operating/ops-experience/japan-dashboard/ref-library.html>.

(May 9, 2014) (ML14111A147). Therefore, the NRC required TVA to submit information about the ability of safety equipment to withstand the increased earthquake risk. *Id.*

Consistent with this requirement, on December 30, 2014, TVA submitted its Expedited Seismic Evaluation Process (“ESEP”) Report (ML14365A072), which purports to show that WBN2 can operate safely despite the fact that the seismic risk to WBN2 is now known to be greater than the safe shutdown earthquake to which the reactor was designed. TVA claims that “[t]he ESEP provides an important demonstration of Seismic Margin and expedites plant safety enhancements through evaluations and potential near-term modifications of plant equipment that can be relied upon to protect the Reactor Core following beyond design basis seismic events,” *i.e.*, seismic events with the potential ground motion now predicted for WBN2. *Id.* at 22. The ESEP also lists a set of ten design practices employed by the nuclear industry to SSCs as a general matter, and asserts that these practices “combine to result in margins such that the SSCs will continue to fulfill their functions at ground motions well above the SSE[ Safe Shutdown Earthquake].” *Id.* at 23. The particular components reviewed in the ESEP Report are SSCs that TVA considers to be “required to support core cooling, reactor coolant inventory and subcriticality, and containment integrity functions.” ESEP Report at 8. Under a schedule established by NRC for submittals of post-Fukushima information by licensees, TVA plans to submit additional information by December 2016. *Id.* at 23 (citing Letter from Eric J. Leeds, NRC, to Joseph E. Pollock, Nuclear Energy Institute (“NEI”) re: Electric Power Research Institute Final Draft Report XXXXX, “Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1 etc. (May 7, 2013) (ML13106A331)).

TVA did not submit the ESEP in the WBN2 operating license docket, and the Staff intends to review the information separately, as part of its post-Fukushima deliberations. In previous correspondence with SACE, the Staff stated that it would review post-Fukushima information (presumably including the information in the ESEP) against a standard of whether operation of the reactor would pose an “imminent risk to public health and safety.” Letter from William M. Dean to Diane Curran at 2 (Nov. 21, 2014) (“Dean Letter”).<sup>2</sup>

**B. SACE’s Contention and ASLB Decision**

On February 5, 2015, SACE submitted a contention charging that TVA’s Final Safety Analysis Report (“FSAR”) for WBN2 is deficient under 10 C.F.R. § 50.34(b)(4), which requires an FSAR to provide information about the “design and performance of structures, systems and components [“SSCs”],” taking into account “any pertinent information developed since the submittal of the preliminary safety analysis report.”<sup>3</sup> SACE contended that the FSAR is

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<sup>2</sup> Despite originating with NRC, Mr. Dean’s letter is not posted on ADAMS or the Hearing Docket, and therefore it is attached.

<sup>3</sup> NRC regulations 10 C.F.R. §§ 50.34(a)(4) and 50.34(b)(4) require construction permit and operating license applicants to submit certain information in their Preliminary Safety Analysis Reports (“PSARs”) and FSARs at a “minimum.” 10 C.F.R. § 50.34(a)(4). At the construction permit stage, the regulations require:

(a) *Preliminary safety analysis report.* Each application for a construction permit shall include a preliminary safety analysis report. The minimum information<sup>5</sup> to be included shall consist of the following:

A preliminary analysis and evaluation of the design and performance of structures, systems, and components of the facility with the objective of assessing the risk to public health and safety resulting from operation of the facility and including determination of the margins of safety during normal operations and transient conditions anticipated during the life of the facility, and the adequacy of structures, systems, and components provided for the prevention of accidents and the mitigation of the consequences of accidents.

deficient because it does not include information provided in TVA’s ESEP. Southern Alliance for Clean Energy’s Motion for Leave to File a New Contention Concerning TVA’s Failure to Comply with 10 C.F.R. § 50.34(b)(4) at 1 (“SACE’s Motion”). SACE contended that under § 50.34(b)(4), the information in the ESEP Report is “pertinent” to the NRC’s review of whether the design and performance of SSCs meets the “reasonable assurance” standard in NRC regulations and the Atomic Energy Act<sup>4</sup>, as set forth by 10 C.F.R. §§ 50.57(a)(2), (a)(3), and (a)(6). SACE also submitted a Motion to Reopen the Record that was supported by a declaration from SACE’s counsel, Diane Curran. Both motions were opposed by TVA and the NRC Staff.

In LBP-15-14, the ASLB found that SACE had not met the NRC’s standard for

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<sup>5</sup> The applicant may provide information required by this paragraph in the form of a discussion, with specific references, of similarities to and differences from, facilities of similar design for which applications have previously been filed with the Commission.

At the operating license stage, this information must be updated with “pertinent information”:

(b) *Final safety analysis report.* Each application for an operating license shall include a final safety analysis report. The final safety analysis report shall include information that describes the facility, presents the design bases and the limits on its operation, and presents a safety analysis of the structures, systems, and components and of the facility as a whole, and shall include the following:

\* \* \*

(4) A final analysis and evaluation of the design and performance of structures, systems, and components with the objective stated in paragraph (a)(4) of this section and taking into account any pertinent information developed since the submittal of the preliminary safety analysis report. Analysis and evaluation of ECCS cooling performance following postulated loss-of-coolant accidents shall be performed in accordance with the requirements of § 50.46 for facilities for which a license to operate may be issued after December 28, 1974.

10 C.F.R. § 50.34(b)(4).

<sup>4</sup> 42 U.S.C. § 2011, et seq.

reopening the record in two respects. First, the Board concluded that SACE had not demonstrated that the contention raised a significant safety issue because SACE had not contradicted TVA's own conclusion in the ESEP that the WBN2 safety equipment was adequate. LBP-15-14, slip op. at 6. In this respect, the ASLB also faulted SACE for failing to provide a technical expert's declaration to dispute TVA's conclusions about the seismic qualifications of safety equipment. Second, the ASLB found that SACE had not shown that a materially different result would occur if the information in the ESEP were "duplicated in the FSAR." *Id.*

### **III. ARGUMENT**

The ASLB's decision in LBP-15-14 raises several important questions of law and policy that should be addressed by the Commission in a full review. First, in applying the standard for whether SACE had raised a "significant safety issue" or demonstrated that a "materially different result" would occur if the ASLB admitted SACE's contention, the Board imposed a burden that was greater than what the law required for the contention submitted by SACE. SACE's goal in filing its contention was to obtain NRC Staff review of "pertinent" information that TVA had submitted to NRC, but which TVA had not submitted in the operating license proceeding as an FSAR amendment. SACE sought the full governmental safety review to which it is entitled under 10 C.F.R. §§ 50.34(b)(4), 50.57(a)(2), 50.57(a)(3), and 50.57(a)(6), and the Atomic Energy Act, 42 U.S.C. § 2011, *et seq.* In order to justify reopening the record to admit its contention, SACE should have been required to show that the information was "pertinent" under 10 C.F.R. § 50.34(b), that the Staff's operating license review was important and more rigorous and timely than the Staff's post-Fukushima review process, and that it could result in changes to TVA's operating license application. By holding that SACE was *also* required to show that

TVA's information was defective, the ASLB erroneously shifted the burden of proof from TVA to SACE. In effect, the ASLB transformed TVA's burden of showing that WBN2 can be operated safely and the NRC Staff's burden of confirming that it can be operated safely to a burden shouldered by SACE of showing that WBN2 *cannot* be operated safely. It is not only absurd but unlawful, however, to expect SACE and other members of the public to conduct the extensive technical review that the federal government is tasked with. SACE is entitled to depend on the review conducted by the NRC, which must thoroughly compare TVA's FSAR to all applicable safety regulations and determine whether operation of WBN2 can be conducted with a reasonable assurance of safety.

The ASLB also erroneously ignored the significant and material differences in the timing and standards for the Staff's operating license review of WBN2 and its post-Fukushima review. In the operating license proceeding, the Staff must find a "reasonable assurance" of safe operation, putting the burden on TVA. 10 C.F.R. § 50.57. The Staff must also be accountable to the public in the hearing process. In the post-Fukushima proceeding, in contrast, the Staff apparently intends to apply the "imminent risk" standard. *See* Dean Letter at 2. But the "imminent risk" standard is a criterion for whether an operating reactor should be shut down right away. *See, e.g., Yankee Atomic Electric Co. (Yankee Nuclear Power Station), CLI-96-6, 43 NRC 123, 128 (1996) (finding no "imminent hazard" that would warrant shutdown of a reactor).* In order to ensure safety over a 40-year license term, the Staff's review must be more systematic and detailed than an imminent risk review, covering every aspect of the regulatory requirements. Equally important, the Staff must complete its review *before* WBN2 begins to operate and not some time later. In seeking to vindicate its right to a thorough, rigorous and

timely operating license review of relevant information by the Staff, SACE should not have borne the burden of showing that the review would result in changes to TVA's operating license application, but only that the review was required because the information was pertinent.

In addition, LBP-15-14 raises the overarching legal and policy question of whether the Atomic Energy Act and the NRC's implementing regulations require that *before issuing TVA a license to operate WBN2 for forty years*, the NRC Staff must consider the results of TVA's analysis of whether critical safety equipment can survive earthquakes to which WBN2 was not designed, but which are now revealed to be credible in light of TVA's post-Fukushima seismic investigations. In LBP-15-14, the ASLB effectively acquiesced to the Staff's decision to review the ESEP's information outside the scope of this operating license proceeding, in a process that is unlikely to conclude before operation of WBN2 begins, and in which the Staff will apply a less rigorous imminent risk standard instead of the more rigorous reasonable assurance standard applied in operating license reviews. This legal error is particularly substantial and important, given the vulnerability of WBN2 to earthquakes and flooding from the many dams above it.

Finally, the ASLB's decision is inconsistent with the Near Term Task Force recommendation that safety issues raised by post-Fukushima investigations should be resolved *before* the NRC makes an operating license decision for WBN2. As a policy matter, the Task Force recognized the importance of addressing post-Fukushima safety issues in the context of the operating license proceeding. The Commission should ensure that the lessons of the Fukushima disaster are not lost or disregarded by applying the full vigor of the NRC's licensing process to



post-Fukushima seismic issues at WBN2.<sup>5</sup>

#### IV. CONCLUSION

The ASLB's decision in LBP-15-14 raises important issues of law and policy that should be reviewed by the Commission.

Respectfully submitted,

*[Electronically signed by]*

Diane Curran

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<sup>5</sup> In this context, the Commission should revisit Staff Requirements Memorandum SRM-SECY-07-0096, Possible Reactivation of Construction and Licensing Activities for the Watts Bar Nuclear Plant Unit 2 (July 25, 2007) (ML072060688) (“SRM-SECY-07-0096”), in which the Commission instructed the Staff to use the Watts Bar Unit 1 design basis for Unit 2. That SRM should not trump the serious safety concerns raised by the Task Force and confirmed by TVA's post-Fukushima investigations.



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

NOV 26 2014

November 21, 2014

Ms. Diane Curran  
c/o Southern Alliance for Clean Energy  
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Washington DC 20036-4523

Dear Ms. Curran:

On behalf of the U.S. Nuclear Regulatory Commission (NRC), I am responding to your letter dated June 23, 2014. In your letter, you question the adequacy of the NRC's review of the Tennessee Valley Authority's (TVA's) Watts Bar Nuclear Plant, Unit 2 operating license application. Specifically, you question the following:

1. NRC's review of seismic and flooding requirements in the Watts Bar Unit 2 operating license application.
2. NRC's implementation of the Japan Lessons-Learned Near-Term Task Force (NTTF) recommendation to reevaluate seismic and flooding hazards in the Watts Bar Unit 2 operating license review.
3. NRC's practices for allowing opportunity for public participation during the Watts Bar Unit 2 licensing process.

In your letter you express concern that the NRC's operating license review of Watts Bar Unit 2 will not adequately address flooding and seismic safety requirements. All power reactors must be designed to safely withstand a set of natural events, including earthquakes, hurricanes, tornadoes, floods, and tsunami. These are called design-basis events. The NRC is currently completing the review of the Watts Bar Unit 2 operating license application, which includes the review of the site-specific hydrological licensing basis. To maintain site-wide consistency, the NRC is considering the current design-basis hazards of record for Watts Bar Unit 1 in the Watts Bar Unit 2 review. The NRC will not issue an operating license for Watts Bar Unit 2 until there is a reasonable assurance that the licensee can operate the facility safely and meet all applicable requirements.

In your letter, you also express concern that in its review of the Watts Bar Unit 2 operating license application, the NRC is not applying seismic and flooding recommendations from the July 12, 2011, Japan Lessons-Learned Near-Term Task Force report, "Recommendation for Enhancing Reactor Safety in the 21st Century: The Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident." To fully address your concern, it is necessary to first describe how the NRC is implementing post-Fukushima regulatory activities. The NRC formed the Japan Lessons-Learned Near-Term Task Force shortly after the Fukushima Dai-ichi accident. The goal of the task force was to determine what lessons the NRC can learn from the accident and to identify recommendations to enhance reactor safety in the United States. The staff prioritized the task force's recommendations in a three-tiered approach and also described the appropriate regulatory mechanisms for implementation (for example, orders, rulemaking, and requests for information). The Commission approved the staff's proposed actions, schedule for completion, and prioritization approach for implementing the Near-Term Task Force recommendations. Staff requirements memoranda (SRMs) for SECY-11-0124 and SECY-11-0137 describe this approach. You can find these memoranda in the Agencywide

Documents Access and Management System (ADAMS) under Accession Nos. ML112911571 and ML113490055, respectively. Overall, the NRC determined that it is prudent for the agency to take additional regulatory action in response to the accident. However, the NRC also concluded that continued plant operation and licensing activities, including the review of the Watts Bar Unit 2 operating license application, can continue because these actions do not pose an imminent risk to public health and safety. You can find more information on how the NRC is implementing lessons learned from the Fukushima Dai-ichi accident at the NRC public Web site at <http://www.nrc.gov/reactors/operating/ops-experience/japan-dashboard.html>.

In response to Near-Term Task Force Recommendation 2.1, the NRC requested that licensees and applicants reevaluate the seismic and flooding hazards at their sites. At the Watts Bar nuclear power plant, TVA is implementing Recommendation 2.1 by reevaluating flooding and seismic hazards at both Unit 1 and Unit 2 using present-day methodologies and information, and determining the impact of these updated hazards on their facility. The Near-Term Task Force seismic and flooding reevaluation activities and the associated NRC staff assessments are complex and the agency will need several years to complete these tasks. Once the NRC obtains the results of these assessments, the NRC will determine if safe operation requires additional regulatory action. Such regulatory action could include updating the licensing basis or requiring modification of the facility. The Near-Term Task Force concluded that continued licensing activities do not pose an imminent risk to the public health and safety. Given that conclusion, the NRC does not see a need to defer the issuance of the Unit 2 operating license until these reevaluations and any potential followup actions are complete. In addition TVA must implement certain near-term post-Fukushima actions for the Watts Bar site before a license can be issued. This includes the mitigating strategies under Order EA-12-049, which will provide additional protection against beyond design basis events. TVA is required to meet a schedule for Near-Term Task Force-related requests for information that is consistent with the flooding and seismic reevaluation schedule for Watts Bar Unit 1 as well as all other operating reactors. TVA is scheduled to submit their flooding hazard reevaluation before the NRC expects to make an operating license decision for Unit 2. If the reevaluated flooding hazard is higher than the design basis, TVA will be required to provide their plans for implementing compensatory measures.

In your letter, you express concern about the opportunities for public participation given the late stages of the Watts Bar Unit 2 operating license application review. The NRC strives to achieve its mission to protect public health and safety in a manner that is transparent and accessible to interested members of the public. The NRC staff is coordinating regular public meetings and teleconferences with TVA to address significant licensing issues. You can find the schedule for upcoming public meetings and teleconferences at the NRC's public Web site at <http://meetings.nrc.gov/pmns/mtg>. Furthermore, if the licensing basis is updated by amendment after the Watts Bar Unit 2 operating license is issued as a result of the NRC's assessment of the seismic or flooding hazard reevaluations, the public will have an opportunity to comment and request a hearing.

D. Curran

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The NRC takes reactor safety very seriously. To ensure a quality review, the NRC developed a custom-tailored approach for licensing and inspection activities at Watts Bar Unit 2. The NRC is also dedicated to ensuring that nuclear power plants implement recommendations from the Near-Term Task Force in a timely manner and take appropriate actions to enhance reactor safety as needed. You can find more information regarding the licensing review of Watts Bar Unit 2 here: <http://www.nrc.gov/info-finder/reactor/wb/watts-bar.html>. The NRC welcomes your participation and feedback. Please feel free to let us know how we can enhance your awareness of ongoing regulatory activities at Watts Bar Unit 2. Justin Poole, the Watts Bar Unit 2 senior project manager, can assist you in answering questions you may have about upcoming Watts Bar Unit 2 meetings, project milestones, and licensing activities. He can be reached at [justin.poole@nrc.gov](mailto:justin.poole@nrc.gov) or 301-415-2048.

Sincerely,

A handwritten signature in black ink, appearing to read 'W M Dean', with a long horizontal flourish extending to the right.

William M. Dean, Director  
Office of Nuclear Reactor Regulation

Docket No. 50-391

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE COMMISSION**

In the Matter of	)	
TENNESSEE VALLEY AUTHORITY	)	Docket No. 50-391-OL
(Watts Bar Nuclear Plant, Unit 2)	)	
	)	

**CERTIFICATE OF SERVICE**

I certify that on May 18, 2015, on behalf of Southern Alliance for Clean Energy, I posted on the NRC's Electronic Information Exchange SOUTHERN ALLIANCE FOR CLEAN ENERGY'S PETITION FOR REVIEW OF LBP-15-14 DENYING ADMISSION OF A NEW CONTENTION CONCERNING TVA'S FAILURE TO COMPLY WITH 10 C.F.R. § 50.34(b)(4). It is my understanding that as a result, the NRC Commissioners, Atomic Safety and Licensing Board, and parties to this proceeding were served.

Respectfully submitted,

*Electronically signed by*

Diane Curran

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