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June 23, 2014

Allison Macfarlane, Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555
By e-mail to: CMRMACFARLANE@nrc.gov

SUBJECT: *Watts Bar Unit 2 Operating License Proceeding*

Dear Chairman Macfarlane:

On June 19, 2014, the U.S. Nuclear Regulatory Commission ("NRC") posted a notice on the hearing docket for the Watts Bar Unit 2 ("WBN2") operating license ("OL") proceeding that on June 24, you plan to tour the WBN2 construction site for the purpose of obtaining "a general familiarity with the facility." On behalf of the Southern Alliance for Clean Energy ("SACE"), the admitted Intervenor in the WBN2 OL proceeding, I am writing to ensure that before touring the facility, you are aware of the inconsistency between the Tennessee Valley Authority's ("TVA's") schedule for resolution of serious seismic design and flood protection issues with the recommendations of the NRC's Near-Term Task Force regarding actions needed to ensure reactor safety in the aftermath of the Fukushima accident. TVA has contradicted a key recommendation by the Fukushima Near-Term Task Force by postponing completion of seismic and flooding investigations until after licensing of WBN2. If the NRC acquiesces to TVA's schedule, it will not only undermine the Task Force recommendations for ensuring reactor safety in the post-Fukushima era, but it will violate the safety requirements of the Atomic Energy Act and the public's right to a hearing on material safety issues.

The Fukushima Task Force Report included recommendation 2.1, which advises the NRC to:

> 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.[1]

The Task Force also recommended that these issues be resolved for WBN2 in the course of the OL 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.[2]

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[1] *Recommendations for Enhancing Reactor Safety in the 21st Century: the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident* at 30 (July 12, 2011), http://www.nrc.gov/reactors/operating/ops-experience/japan-dashboard/ref-library.html.
[2] *Id.* at 72.

SACE is very concerned that TVA does not appear to be following this recommendation with respect to its post-Fukushima seismic and flooding studies. According to a recent NRC chart depicting the WBN OL review schedule, the NRC plans to make a decision on the Watts Bar 2 full-power license in January 2015.[3] But TVA recently told the Securities and Exchange Commission ("SEC") that it does not plan to finish its post-Fukushima seismic and flooding studies until mid-2015. TVA's 10-K report for FY 2013 states:

> Since the Fukushima events, the NRC has also issued and adopted additional detailed guidance on the expected response capability to be developed by each nuclear plant site. TVA has developed plans and schedules for the development and implementation of strategies and physical plant modifications to address the actions outlined in this guidance for all of its plants, including Watts Bar Unit 2. The initial studies, including the required plant walkdowns, are expected to be complete in the first quarter of 2014. *Flooding and seismic re-evaluations to determine any further plant modifications are scheduled for completion in mid 2015.*[4]

TVA's 10-K report also states that: "In addition to the actions described above, TVA may be required to take further actions to comply with any additional regulatory action that the NRC takes in response to the Fukushima events."[5] It is already clear, however, that TVA needs to take further actions to ensure the safety of WBN from earthquakes and floods. The NRC has placed WBN2 in "Category 1" for earthquakes, *i.e.,* reactors for which the predicted ground motion exceeds the design basis.[6] With respect to flood risks, TVA has found it necessary to embark on a plan for mitigating flood risks with an improved flood mitigation system.[7]

Based on other statements made by TVA on page 16 of its 10-K report, it appears that TVA does not believe it is necessary to resolve the seismic design and flood protection deficiencies in the OL proceeding for WBN2. But Recommendation 2.1 is not included in the set of Fukushima Task Force recommendations that may be put off for consideration at some time in the future if the NRC deemed a rulemaking to be necessary. Instead, the Task Force included Recommendation 2.1 in the set of recommended "near-term actions."[8]

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[3] Watts Bar Nuclear Plan Licensing Schedule (April 3, 2014) (Attachment A).
[4] TVA Form 10-K for year ending September 30, 2013 at 16 (emphasis added) (Attachment B (excerpt)).
[5] *Id.*
[6] Letter from Eric J. Leeds, 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 of the Near-Term Task Force Review of Insights from the Fukushima Dai-chi Accident (May 9, 2014) (Attachment C).
[7] Letter from J.W. Shea, TVA, to NRC, re: Fourth Progress Update on Improved Flood Mitigation System Project (Mar. 31, 2014) (Attachment D).
[8] *See id.*at 74.

Equally importantly, for NRC to license WBN2 despite known deficiencies in the designs for earthquake and flood protection would violate the Atomic Energy Act's prohibition against licensing reactors if it would be "inimical" to public health and safety.[9] And for the NRC to postpone resolution of these serious safety issues until after issuance of an OL would violate the public's right to a hearing on whether the application satisfies NRC safety requirements.[10]

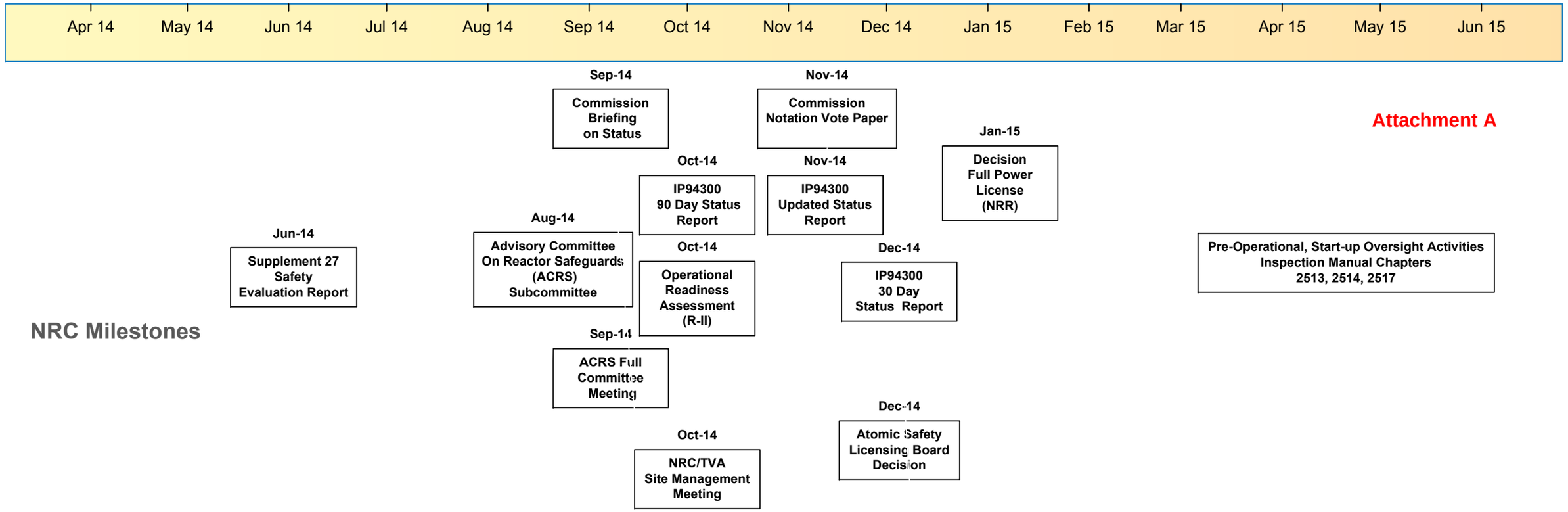
In your meeting with TVA, we urge you to confirm that the NRC will not issue an OL for WBN2 until it has received and reviewed the results of TVA's seismic investigation and flood mitigation design. In addition, please provide SACE with your assurance that (a) TVA will be required to amend its operating license application with the results of the seismic investigation and flood mitigation design and (b) SACE and other interested members of the public will be given the opportunity to request a hearing on those aspects of TVA's OL application, in compliance with the Atomic Energy Act.

Sincerely,

[Electronically signed by]
Diane Curran
Counsel to SACE

Cc: Watts Bar operating license proceeding service list

[9] 42 U.S.C. § 2133(d).
[10] 42 U.S.C. § 2239(a); *Union of Concerned Scientists v. NRC,* 735 F.2d 1437 (D.C. Cir. 1984).



Watts Bar Nuclear Plant Licensing Schedule
U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation

As of April 3, 2014
TVA to begin Watts Bar Nuclear Plant Unit 2 Commercial Operation approximately 6-8 months after Issuance of Operating License and Initial Fuel Loading
Dates are subject to change

Tennessee+Valley+Authority 10-K 9/30/2013

Attachment B

Section 1: 10-K (10-K)

Table of Contents

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(MARK ONE)

☒ ANNUAL REPORT PURSUANT TO SECTION 13, 15(d), OR 37 OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended September 30, 2013

OR

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission file number 000-52313

TENNESSEE VALLEY AUTHORITY
(Exact name of registrant as specified in its charter)

A corporate agency of the United States created by an act of Congress	62-0474417
(State or other jurisdiction of incorporation or organization)	*(IRS Employer Identification No.)*
400 W. Summit Hill Drive Knoxville, Tennessee	37902
(Address of principal executive offices)	*(Zip Code)*

(865) 632-2101
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act: None
Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13, Section 15(d), or Section 37 of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13, 15(d), or 37 of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.
Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).
Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer," and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

As of September 30, 2010, TVA had 14,573 MW (Summer Net Capability) of coal-fired generation. After these planned actions TVA will have 9,098 MW (Summer Net Capability) of coal-fired generation.

TVA is planning to balance its coal-fired generation with lower-cost and cleaner energy generation technologies. TVA's long-range plans will continue to attempt to balance the costs and benefits of significant environmental investments at its remaining coal-fired plants that do not have scrubbers and/or SCRs. TVA expects to decide whether to control, convert, or retire its remaining coal-fired capacity on a unit-by-unit schedule.

Transmission upgrades may be required to maintain reliability when some coal-fired units become inactive. TVA invested $130 million in such upgrades between 2011 and 2013, and estimates future expenditures for transmission upgrades to accommodate inactive coal-fired units to be approximately $350 million for 2014 to 2020. Upgrades may include enhancements to existing lines and substations or new installations as necessary to provide adequate power transmission capacity, maintain voltage support, and ensure generating plant and transmission system stability.

Nuclear

TVA has three nuclear sites consisting of six units in operation. The units at Browns Ferry Nuclear Plant ("Browns Ferry") are boiling water reactor units, and the units at Sequoyah Nuclear Plant ("Sequoyah") and Watts Bar Nuclear Plant ("Watts Bar") are pressurized water reactor units. Statistics for each of these units are included in the table below.

TVA Nuclear Power
At September 30, 2013

Nuclear Unit	Status	Nameplate Capacity (MW)	Net Capacity Factor for 2013	Date of Expiration of Operating License	Date of Expiration of Construction Permits
Sequoyah Unit 1	Operating	1,221	97.0	2020*	—
Sequoyah Unit 2	Operating	1,221	73.7	2021*	—
Browns Ferry Unit 1	Operating	1,264	82.9	2033	—
Browns Ferry Unit 2	Operating	1,190	80.6	2034	—
Browns Ferry Unit 3	Operating	1,190	93.1	2036	—
Watts Bar Unit 1	Operating	1,270	88.7	2035	—
Watts Bar Unit 2	Under construction	1,220	—	—	2013*

* An extension request has been submitted to the Nuclear Regulatory Commission. See *Sequoyah License Renewal* and *Nuclear Reactor Licensing* below.

Nuclear Regulatory Commission Safety Improvements Orders and Other Guidance. In March 2012, the Nuclear Regulatory Commission ("NRC") issued three new safety orders stemming from lessons learned from the events that occurred in 2011 at the Fukushima Daiichi Nuclear Power Plant ("Fukushima events"). The orders require (1) the development of strategies for responding to an interruption of off-site power, (2) the addition of more reliable instruments to measure water levels in cooling pools where spent nuclear fuel is stored, and (3) the installation of more robust containment venting systems to prevent containment failure due to overpressurization. The first two orders apply to every nuclear reactor in the U.S., including Watts Bar Unit 2, which will be required to comply prior to issuance of its operating license. The third order applies only to certain U.S. boiling water reactors, including Browns Ferry. These reactors are required to improve their containment venting systems to prevent over-pressurization due to the buildup of non-condensable gases such as hydrogen. TVA plans to fully implement the requirements of these three orders which were submitted to the NRC on February 28, 2013. TVA expects to complete the implementation of these orders by 2019, and the cost to comply with these orders is not expected to exceed $220 million.

In addition to these orders, the NRC issued requests for information from U.S. nuclear operators regarding earthquake and flood risks and emergency planning. Based on the information provided in response to these requests, the NRC will determine if additional regulatory requirements are needed for these subjects. At this time, TVA is not able to predict the final outcome of these potential requirements or the associated costs; however, these amounts could be significant.

Since the Fukushima events, the NRC has also issued and adopted additional detailed guidance on the expected response capability to be developed by each nuclear plant site. TVA has developed plans and schedules for the development and implementation of strategies and physical plant modifications to address the actions outlined in this guidance for all of its plants, including Watts Bar Unit 2. The initial studies, including the required plant walkdowns, are expected to be complete in the first quarter of 2014. Flooding and seismic re-evaluations to determine any further plant modifications are scheduled for completion in mid 2015. In addition to the actions described above, TVA may be required to take further actions to comply with any additional regulatory action that the NRC takes in response to the Fukushima events.

Sequoyah License Renewal. TVA submitted the license renewal applications for both Sequoyah units to the NRC on January 7, 2013. If approved, the licenses for both units would be extended by an additional 20 years to 2040 for Unit 1 and

2041 for Unit 2. The NRC's review of the applications is expected to take up to three years after their submission. It is possible that the timing of approval of the final license renewal applications could be impacted by the NRC suspension of final decisions on nuclear reactor licensing discussed below.

Nuclear Reactor Licensing. On August 7, 2012, the NRC suspended final decisions on nuclear reactor licensing in response to a ruling by the the U.S. Court of Appeals for the District of Columbia Circuit ("D.C. Circuit") that vacated the NRC's Waste Confidence Decision ("WCD") relating to the environmental impact of the long-term storage of nuclear waste. On September 6, 2012, in response to the ruling, the NRC directed the NRC staff to develop a generic Environmental Impact Statement ("EIS") to support an updated WCD rule, maintaining the option for the staff to conduct some analyses of waste confidence issues on a site-specific basis, if necessary. Licensing reviews and proceedings may currently continue, but final licenses will not be issued until the NRC completes its reassessment of the environmental impacts of the storage of nuclear waste. The delay of licensing decisions by the NRC could affect the unit currently under construction at Watts Bar Unit 2, the proposed construction of Bellefonte Unit 1, and the renewal of the licenses for the two units at Sequoyah. All of the procedures and inspections that happen prior to licensing will continue as usual.

Operational Challenges. See Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Liquidity and Capital Resources — Liquidity Challenges Related to Generation Resources,* which discussion is incorporated herein by reference.

Other Nuclear Matters. See *Fuel Supply — Nuclear Fuel* below for a discussion of spent nuclear fuel and low-level radioactive waste, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations — *Liquidity and Capital Resources — Liquidity Challenges Related to Generation Resources* for a discussion of challenges associated with the nuclear program, Note 20 — *Contingencies* for a discussion of TVA's nuclear decommissioning liabilities and the related trust and nuclear insurance, and Note 20 — *Legal Proceedings* for a discussion of legal and administrative proceedings related to TVA's nuclear program, which discussions are incorporated herein by reference.

Hydroelectric and Other Renewable Energy Resources

Conventional Hydroelectric Dams. TVA maintains 29 conventional hydroelectric dams with 109 generating units throughout the Tennessee River system and one pumped-storage facility for the production of electricity. At September 30, 2013, these units accounted for 5,433 MW of summer net capability. The amount of electricity that TVA is able to generate from its hydroelectric plants depends on a number of factors, including the amount of precipitation and runoff, initial water levels, and the need for water for competing water management objectives. The amount of electricity generated also depends on the availability of TVA's hydroelectric generation plants. When these factors are unfavorable, TVA must increase its reliance on higher cost generation plants and purchased power. In addition, four hydroelectric dams owned by a third party on the Little Tennessee River and eight U.S. Army Corps of Engineers dams on the Cumberland River contribute to the TVA power system. See *Weather and Seasonality.*

In 1992, TVA began a Hydro Modernization Program to address reliability issues on its conventional hydroelectric units and on Raccoon Mountain Pumped-Storage Plant ("Raccoon Mountain"). At September 30, 2013, modernization had been completed on 55 conventional hydroelectric units and four pumped-storage units. These modernization projects resulted in 422 MW of increased capacity on the conventional units, with an average efficiency gain of approximately five percent. Hydroelectric generation will continue to be an important part of TVA's energy mix. TVA, through its Hydro Modernization Program, continues to assess its remaining conventional hydroelectric units for opportunities to improve reliability and increase capacity.

Raccoon Mountain Pumped-Storage Plant. The four units at Raccoon Mountain were placed in service during 1978 and 1979. The units, with a total net summer capability of 1,616 MW, are utilized to balance the transmission system as well as generate power.

Inspections of the turbines in the four units of Raccoon Mountain during 2012 found cracking in the rotor poles and the rotor rims. Because the same type of cracking led to the catastrophic failure of a similar unit in Europe, the Raccoon Mountain units were taken out of service. Raccoon Mountain Unit 2 returned to limited service with a partially restacked rotor in October 2012, but was taken out of service again on January 3, 2013, due to a failed rotor pole clamp. All units are undergoing a maintenance overhaul and are expected to be returned to service in 2014. TVA is dispatching generation from other TVA units and purchasing power if needed to compensate for the loss in generating capacity.

Other Renewable Energy Resources. TVA's renewable energy portfolio includes both TVA owned assets and renewable energy purchases. TVA has 16 solar sites, capability for digester gas and biomass cofiring, and three wind turbines. At September 30, 2013, the wind turbines did not provide any summer net capability because they were not operational, and they do not appear to be economical for returning to operation. The digester gas cofiring capability is accounted for as coal-fired generation summer net capability. The solar sites provide less than one MW of summer net capability. See *Power Supply — Purchased Power and Other Agreements* for information on renewable energy power purchase contracts.

Attachment C

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

May 9, 2014

All Power Reactor Licensees and Holders of
Construction Permits in Active or Deferred Status
on the Enclosed List

SUBJECT: 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

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 Document Access and Management System (ADAMS) Accession No. ML12053A340). The purpose of that 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. The "Required Response" section of Enclosure 1 indicated that licensees and construction permit holders should provide a Seismic Hazard Evaluation and Screening report within 1.5 years from the date of the letter for central and eastern United States (CEUS) nuclear power plants, and within 3 years for western United States (WUS) plants. For CEUS plants, the date to submit the report was extended to March 31, 2014, by NRC letter dated May 7, 2013.[1] Further, the 50.54(f) letter stated that NRC would provide the results of the screening and prioritization indicating deadlines for individual plants to complete seismic risk evaluations to assess the total plant response to the re-evaluated seismic hazard. Additionally, by letter[2] dated February 20, 2014, the NRC provided supplemental information on the content of the seismic re-evaluated hazard submittals including guidance on reportability and operability. The purpose of this letter is to inform licensees of the NRC's screening and prioritization and to allow licensees to appropriately plan the completion of further seismic risk evaluations described in Enclosure 1 of the 50.54(f) letter.

To respond to the 50.54(f) letter, all addressees 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,"[3] 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"[4] (referred to as the Expedited Approach). The NRC held multiple public meetings and teleconferences with industry and the public leading to the development of the guidance documents supporting review of re-evaluated seismic hazards.

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[1] The May 7, 2013, endorsement letter is available in ADAMS under Accession No. ML13106A331.
[2] The February 20, 2014, supplemental information letter is available in ADAMS under Accession No. ML14030A046
[3] The SPID guidance document is found in ADAMS under Accession No. ML12333A170. The staff endorsement letter for the SPID guidance is found in ADAMS under Accession No. ML12319A074.
[4] The Expedited Approach guidance document is found in ADAMS under Accession No. ML13102A142.

Licensees submitted the re-evaluated seismic hazards or letter of intent to provide the hazard for their sites by letters dated March 2014 (references are provided in Enclosure 3 of this letter). The NRC staff conducted the screening and prioritization review of the submittals by assessing each licensee's screening evaluation and hazard analysis utilizing the endorsed SPID guidance.

INTERIM EVALUATIONS[5]

The 50.54(f) letter requested that licensees provide "interim evaluations and actions taken or planned to address the higher seismic hazard relative to the design basis, as appropriate, prior to completion of the risk evaluation." For those plants where the re-evaluated seismic hazard exceeds the seismic design basis, licensees stated they will provide interim evaluations to demonstrate that the plant can cope with the higher re-evaluated seismic hazard while the longer term seismic risk evaluations are ongoing. In support of licensee interim evaluations, the Nuclear Energy Institute (NEI) by letter[6] dated March 12, 2014, provided an EPRI study that estimated fleetwide seismic risk and provided a discussion of the inherent seismic design margins for structures, systems, and components (SSCs).

The March 12, 2014, EPRI fleetwide study calculated seismic risk following the approach the NRC staff used in 2010 for the Safety/Risk Assessment conducted as part of Generic Issue (GI)-199, "Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants"[7]. The EPRI study concluded that "site-specific seismic hazards show that there [...] has not been an overall increase in seismic risk for the fleet of U.S. plants" based on the re-evaluated seismic hazards. As such, the "current seismic design of operating reactors continues to provide a safety margin to withstand potential earthquakes exceeding the seismic design basis." Lastly, the March 12, 2014, NEI letter provided "Perspectives on the Seismic Capacity of Operating Plants," which (1) assessed a number of qualitative reasons why the design of SSCs inherently contain margin beyond their design level, (2) discussed industrial seismic experience databases of performance of industry facility components similar to nuclear SSCs, and (3) discussed earthquake experience at operating plants.

In their March 2014 submittals, licensees confirmed that the conclusions of the EPRI fleetwide study apply to their plants. The submittals also discussed completing plant seismic walkdowns as part of NTTF Recommendation 2.3 in order to verify that the current plant configuration is consistent with the licensing basis. In addition, licensees described any insights gained from previous seismic evaluations.

To assess each licensee's interim evaluations, the NRC staff reviewed the fleetwide study as well as each licensee's plant-specific discussion. The results of the staff's independent review confirm that fleetwide seismic risk estimates are consistent with the approach and results used in the GI-199 safety/risk assessment. As a result, the staff has confirmed that the conclusions reached in GI-199 safety/risk assessment remain valid and that the plants can continue to operate while additional evaluations are conducted.

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[5] Enclosure 1 of this letter provides a Glossary of Seismic Evaluations

[6] Industry-issued letter on seismic risk evaluations for plants in the Central and Eastern United States is available in ADAMS under Accession No. ML14083A596.

[7] Results of Safety/Risk Assessment of GI-199 is available in ADAMS under Accession No. ML100270582.

The interim evaluation is a first step in the near-term assessment of the plant's capacity to withstand the re-evaluated hazard. Also in the near-term, by December 2014, plants with a higher re-evaluated hazard will complete an "Expedited Approach" to evaluate and identify reinforcements, if necessary, for certain equipment to ensure a safe shutdown pathway can withstand the higher seismic ground motion.

SCREENING PROCESS

As defined in the 50.54(f) letter and the SPID guidance, the seismic hazard re-evaluations were conducted using current analysis methods and guidance. The licensees' responses to the 50.54(f) letter provided seismic hazard re-evaluation results, which were the focus of the NRC staff's initial screening and prioritization review.

Although the safe shutdown earthquake (SSE) is commonly referred to as a single number, this number represents a distribution of ground motions that occur over a range of spectral frequencies. This results in a curve of ground acceleration over frequency. The ability of equipment and structures in the plant to withstand the effects of ground motions is frequency specific. For the purposes of the licensees' analyses and NRC staff's review, the SPID guidance identifies three frequency ranges that are of particular interest: 1–10 Hz, a low frequency range of <2.5 Hz, and a high frequency range of >10 Hz. The different ranges have been identified due to the different types of structures and equipment that may be impacted by ground motions in that range. For example, large components generally are not affected significantly by high frequencies (i.e., >10 Hz). The frequency range 1–10 Hz is the focus for this portion of the risk evaluation, as this range has the greatest potential effect on the performance of equipment and structures important to safety. For other frequency ranges, discussed below, limited-scope evaluations will be conducted, when appropriate.

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. Specifically, the re-evaluated ground motion response spectra (GMRS) in the 1–10 Hz frequency range is compared to the existing SSE:

- If the re-evaluated GMRS, in the 1–10 Hz range, is less than the plant's existing SSE, then the plant screens out of conducting further seismic risk evaluations.

- If the GMRS, in the 1–10 Hz range, is greater than the existing SSE, then the plant will complete the Expedited Approach (including the Interim Evaluation). Most plants that meet this criterion also screen in to conduct a seismic risk evaluation and have committed to conduct high frequency and spent fuel pool evaluations.

- The SPID guidance provides criteria for a plant with a GMRS above the SSE, 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, the licensee needed to demonstrate the adequacy of the plant's IPEEE evaluation by meeting the criteria in the SPID. If the IPEEE capacity is greater than the GMRS in the 1–10 Hz range, the plant screens out of conducting a seismic risk

evaluation. However, these plants have committed to evaluate the spent fuel pool at the re-evaluated hazard level, as spent fuel pools were not analyzed in the IPEEE program.

In addition, if the GMRS meets the low hazard threshold, which is described in the SPID, and only exceeds the SSE below 2.5 Hz, the licensee will perform a limited evaluation of equipment potentially susceptible to low frequency motions. Similarly, if the GMRS exceeds the SSE only above 10 Hz, then the licensee will perform an evaluation of the equipment or structures susceptible to that specific range of ground motion.

Enclosure 2 provides the staff's determination of priority for plants that screen in to conduct a seismic risk evaluation, and identification of plants to complete limited-scope evaluations (i.e., spent fuel pool, high frequency, or low frequency). Additionally, the enclosure identifies plants that screen out of any further evaluations.

CONDITIONAL SCREENING

As discussed in public meetings[8] and a February 20, 2014 letter, the staff anticipated the possibility of not being able to complete the determination for conducting a seismic risk evaluation for some plants in the 30-day review period under certain circumstances. For example, if a licensee provided a unique submittal or deviated from the SPID guidance, additional time for the review might be needed. For other submittals, the staff's independent GMRS assessment could differ from the GMRS provided in the March 2014 submittals, and these differences need to be better understood before determining if a plant would screen out from further evaluation. Accordingly, during the NRC screening and prioritization process, the staff did identify some plants for which a determination could not be made and interactions with the licensees are needed to reach resolution. The staff determined these plants are "conditionally screened-in" for the purposes of prioritizing and conducting additional evaluations.

Plants identified as "conditional screen-in" should submit the Expedited Approach by December 31, 2014 and, until a final determination is made, conduct a seismic risk evaluation as prioritized in Enclosure 2. Those plants identified as "conditional screen-in," which based on their screening assessment, did not submit an interim evaluation in the March 2014 submittal, should complete the interim evaluations, identify any associated actions, and submit the results to the NRC by no later than June 6, 2014.

For plants identified as "conditional screen-in", after interactions with licensees have occurred, the staff will make a final screening and prioritization determination and provide a letter to each impacted licensee. If the plant remains screened in, the final screening letter also will affirm or update the plant priority for further evaluations. If the plant screens out, the final screening letter also will determine if the plant needs to complete limited-scope evaluations (i.e., spent fuel pool, high frequency, or low frequency).

[8] Discussion as part of public meetings dated January 23, February 5, February 10, and March 25, 2014 (ADAMS Accession Nos. ML14028A062, ML14050A055, ML14050A084, and ML14091A102, respectively)

PLANT PRIORITIZATION

The NRC grouped the "screened in" (including those conditionally screened in) plants into three groups, which (i) reflects the relative priority for conducting a seismic risk evaluation that compares each plant's current capabilities to the re-evaluated seismic hazard, and (ii) accounts for the appropriate allocation of limited staff and available expertise for reviewing and conducting seismic risk evaluations. During the prioritization review, the staff considered each licensee's re-evaluated hazard submittals, seismic risk insights from GI 199 "Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants," and the staff's confirmatory analysis of the seismic hazard.

Enclosure 2 provides the plant prioritizations for completing the seismic risk evaluations. To prioritize the plants, staff examined certain key parameters such as (1) the maximum ratio of the new re-evaluated hazard (GMRS) to the SSE in the 1-10 Hz range; (2) the maximum ground motion in the 1-10 Hz range; and (3) insights from previous seismic risk evaluations. As such, Group 1 plants are generally those that have the highest re-evaluated hazard relative to the original plant seismic design basis (GMRS to SSE) as well as ground motions in the 1-10 Hz range that are generally higher in absolute magnitude. Group 1 plants are expected to conduct a seismic risk evaluation and submit it by June 30, 2017. Group 2 plants are also expected to conduct a seismic risk evaluation, which should be submitted by December 31, 2019.

Enclosure 2 also provides a list of Group 3 plants. Group 3 plants have GMRS to SSE ratios that are greater than 1, but the amount of exceedance in the 1-10 Hz range is relatively small, and the maximum ground motion in the 1-10 Hz range is also not high. Given the limited level of exceedance of the Group 3 plants, staff is evaluating the need for licensees to conduct a seismic risk evaluation in order for the staff to complete its regulatory decision making. However, the staff has had insufficient review time with the recently submitted seismic hazard submittals to reach a conclusion. After further review of the seismic hazard re-evaluations and the Expedited Approach submittals, the staff will decide which Group 3 plants need to complete a risk evaluation. Risk evaluations for Group 3 plants are due by December 31, 2020.

NEXT STEPS

For plants that screen in to conduct a risk evaluation, the licensees should finalize and submit each plant's Expedited Approach no later than December 31, 2014. In accordance with the endorsed guidance, the staff acknowledges that the December 2014 Expedited Approach submittal will focus on plant equipment (i.e. safe shutdown pathway[9]) evaluations and modifications, as necessary, prior to submitting the plant seismic risk evaluations.

Additionally, the schedule milestones and content of limited-scope evaluations will require additional development and coordination with stakeholders. For example, for the high frequency evaluation, an industry study of the effects for sensitive equipment is currently in progress. Furthermore, recent assessments by the NRC staff and related decisions by the Commission may justify revisions to the existing guidance regarding the limited-scope evaluations of spent fuel pools at some sites. As needed, the NRC staff will initiate discussions

[9] Section 3 of the Expedited Approach guidance (ADAMS No. ML13102A142) provides a process to identify a single seismically robust success path using a subset of installed plant equipment, FLEX equipment and connection points.

with stakeholders in the near future as part of the development of any revised guidance documents. Given the generic nature of the limited-scope evaluations, it is expected that these evaluations will be completed for plants within the next two years.

This letter transmits the NRC staff's results of the seismic hazard submittals for the purposes of screening and prioritizing the plants. It does not convey the staff's final determination regarding the adequacy of any plant's calculated hazard. As such, the NRC staff will continue its review of the submitted seismic hazard re-evaluations, and may request additional plant-specific information to support this review. The staff has placed a high priority on this review for the early identification of issues that might adversely affect each licensee's seismic risk evaluations. Initial interactions with licensees will occur as soon as practicable. The NRC staff plans to issue a staff assessment on the re-evaluated seismic hazard once each review is completed in approximately 12 to 18 months.

If you have any questions on this matter, please contact your NRC licensing Project Manager.

Sincerely,

for E.L.

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation

Enclosures:
1. Glossary of Evaluations
2. Screening and Prioritization Results
3. List of Licensee March 2014 Re-evaluated Seismic Hazard Submittals
4. List of Addressees

Glossary of Evaluations

Associated with Near-Term Task Force Recommendation 2.1 Seismic Hazard Re-evaluations

Interim Evaluation or Actions – An immediate licensee and NRC review of the re-evaluated hazard to determine whether actions are needed to assure plant safety while further evaluations are ongoing. The staff has completed its review and concluded that, based on the licensees' interim evaluations and actions, all central and eastern United States (CEUS) plants are safe for continued operations. Interim evaluations and actions are provided in Section 5.0, "Interim Actions," of the licensee submittals.

Expedited Approach – A near-term licensee evaluation to be completed by December 31, 2014, for CEUS plants whose re-evaluated hazard exceeds the current design basis for the safe shutdown earthquake hazard level. The evaluation looks at the systems and components that can be used to safely shut down a plant under the conditions of a station blackout (i.e., no alternating current power is available) and loss of ultimate heat sink. The expedited approach will either confirm that a plant has sufficient margin to continue with a longer-term evaluation without any modifications, or confirm the need to enhance the seismic capacity to assure they can withstand the re-evaluated hazard. The Expedited Approach guidance document is found in the Agencywide Documents Access and Management System under No. ML13102A142.

Seismic Risk Evaluation – Longer-term seismic risk evaluation provides the most comprehensive information to make regulatory decisions, such as whether to amend a plant's design or licensing basis or make additional safety enhancements. These evaluations provide information to make risk-informed decisions. The staff will use this information in conjunction with the existing regulatory tools, such as backfit analysis, to decide on further regulatory actions. The longer-term seismic risk evaluations could be either a Seismic Margins Analysis or a Seismic Probabilistic Risk Assessment, depending on the magnitude of the exceedance.

Limited-Scope Evaluations – These include i) Spent Fuel Pool Evaluation, ii) High Frequency Evaluation, and iii) Low Frequency Evaluation. Respectively, these evaluations are focused on the following: i) spent fuel pool components and systems capable of draining water inventory to the level of the spent fuel, ii) a review of components susceptible to high frequency accelerations (e.g. electrical relays), and iii) a review of components susceptible to low frequency accelerations (e.g. water storage tanks).

Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident

Seismic Risk Evaluations Screening and Prioritization Results for

Central and Eastern Reactor Sites

Plant Name	Screening Result	Expedited Approach Evaluation	Seismic Risk Evaluation (Prioritization Group)	Limited-scope Evaluations		
				High Frequency Evaluation	Low Frequency Evaluation	Spent Fuel Pool Evaluation
Callaway Plant, Unit 1	In	x	1	x		x
Donald C. Cook Nuclear Plant, Units 1 and 2	In	x	1	x		x
Indian Point Nuclear Generating Unit Nos. 2 and 3	In	x	1	x		x
North Anna Power Station, Units 1 and 2	In	x	1	x		x
Oconee Nuclear Station, Units 1, 2, and 3	In	x	1	x		x
Peach Bottom Atomic Power Station Units 2 and 3	In	x	1	x		x
Pilgrim Nuclear Power Station, Unit No. 1	In	x	1	x		x
H. B Robinson Steam Electric Plant, Unit No. 2	In	x	1	x		x
Vogtle Electric Generating Plant, Units 1 and 2	In	x	1	x		x
Watts Bar Nuclear Plant, Units 1 and 2	In	x	1	x		X
Beaver Valley Power Station, Units 1 and 2	In	x	2	x		x

Enclosure 2

Plant Name	Screening Result	Expedited Approach Evaluation	Seismic Risk Evaluation (Prioritization Group)	Limited-scope Evaluations		
				High Frequency Evaluation	Low Frequency Evaluation	Spent Fuel Pool Evaluation
Browns Ferry Nuclear Plant, Units 1, 2, and 3	In	x	2	x		x
Dresden Nuclear Power Station, Units 2 and 3	In	x	2	x		x
Fermi, Unit 2	In	x	2	x		x
Edwin I. Hatch Nuclear Plant, Units 1 and 2	In	x	2	x		x
LaSalle County Station, Units 1 and 2	In	x	2	x		x
Oyster Creek Nuclear Generating Station	Conditional In	x	2	x		x
Palisades Nuclear Plant	In	x	2	x		x
Virgil C. Summer Nuclear Station, Unit 1	In	x	2	x		x
Catawba Nuclear Station, Units 1 and 2	In	x	2	x		x
Sequoyah Nuclear Plant, Units 1 and 2	In	x	2	x		x
Arkansas Nuclear One, Units 1 and 2	Conditional In	x	3	x		x
Bellefonte Nuclear Plant, Units 1 and 2	In	x	3	x		x
Brunswick Steam Electric Plant, Units 1 and 2	Conditional In	x	3	x		x
Calvert Cliffs Nuclear Power Plant, Units 1 and 2	In	x	3	x		X
Clinton Power Station, Unit 1	Conditional In	x	3	x		x
Cooper Nuclear Station	Conditional In	x	3	x		x

Plant Name	Screening Result	Expedited Approach Evaluation	Seismic Risk Evaluation (Prioritization Group)	Limited-scope Evaluations		
				High Frequency Evaluation	Low Frequency Evaluation	Spent Fuel Pool Evaluation
Davis-Besse Nuclear Power Station, Unit 1	In	x	3	x		x
Duane Arnold Energy Center	Conditional In	x	3	x		x
James A. FitzPatrick Nuclear Power Plant	Conditional In	x	3	x		x
Fort Calhoun Station, Unit 1	Conditional In	x	3	x		x
Limerick Generating Station, Units 1 and 2	Conditional In	x	3	x		x
William B. McGuire Nuclear Station, Units 1 and 2	In	x	3	x		x
Millstone Power Station, Unit 2	Conditional In	x	3	x		x
Monticello Nuclear Generating Plant	Conditional In	x	3	x		x
Perry Nuclear Power Plant, Unit 1	In	x	3	x		x
Point Beach Nuclear Plant, Units 1 and 2	In	x	3	x		x
Quad Cities Nuclear Power Station, Units 1 and 2	Conditional In	x	3	x		x
Salem Nuclear Generating Station, Units 1 and 2	Conditional In	x	3	x		x
Seabrook, Unit 1	In	x	3	x		x
Surry Power Station, Unit Nos. 1 and 2	Conditional In	x	3	x		x
Three Mile Island Nuclear Station, Unit 1	In	x	3	x		x
Wolf Creek Generating Station, Unit 1	In	x	3	x		x

Plant Name	Screening Result	Expedited Approach Evaluation	Risk Evaluation (Prioritization Group)	Limited-scope Evaluations		
				High Frequency Evaluation	Low Frequency Evaluation	Spent Fuel Pool Evaluation
Vermont Yankee Nuclear Power Station	Conditional In	x	3	x		x
Braidwood Station, Units 1 and 2	Out			x		
Byron Station, Units 1 and 2	Out	x[1]		x		x
Comanche Peak Nuclear Power Plant, Units 1 and 2	Out					
Joseph M. Farley Nuclear Plant, Units 1 and 2	Out			x	x	
R.E. Ginna Nuclear Power Plant	Out			x		
Grand Gulf Nuclear Station, Unit 1	Out					
Shearon Harris Nuclear Power Plant, Unit 1	Out			x		
Hope Creek Generating Station	Out			x		
Millstone Power Station, Unit 3	Out	x[1]		x		x
Nine Mile Point Nuclear Station, Units 1 and 2	Out			x		
Prairie Island Nuclear Generating Plant, Units 1 and 2	Out			x		
River Bend Station	Out			x		
St. Lucie Plant, Units 1 and 2	Out					
South Texas Project, Units 1 and 2	Out					
Susquehanna Steam Electric Station, Units 1 and 2	Out	x[1]		x		
Turkey Point, Units 3 and 4	Out					
Waterford Steam Electric Station, Unit 3	Out			x		

[1] Re-evaluated hazard is greater than plant licensing basis safe shutdown earthquake. Licensee has demonstrated IPEEE plant capacity consistent with endorsed guidance bounds the re-evaluated hazard. Expedited approach evaluation will provide a demonstration of safe shutdown capability at a greater hazard level.

March 2014 Re-evaluated Seismic Hazard Submittals

for Central and Eastern United States Reactor Sites

Licensee Facility	Date of letter (ADAMS Accession Nos.)
Arkansas Nuclear One, Units 1 and 2	March 28, 2014 (ML14092A021)
Beaver Valley Power Station, Units 1 and 2	March 31, 2014 (ML14090A143)
Bellefonte Nuclear Plant, Units 1 and 2	March 31, 2014 (ML14098A478)
Braidwood Station, Units 1 and 2	March 31, 2014 (ML14091A243)
Browns Ferry Nuclear Plant, Units 1, 2, and 3	March 31, 2014 (ML14098A478)
Brunswick Steam Electric Plant, Units 1 and 2	March 31, 2014 (ML14106A461)
Byron Station, Units 1 and 2	March 31, 2014 (ML14091A010)
Callaway Plant, Unit 1	March 28, 2014 (ML14090A446)
Calvert Cliffs Nuclear Power Plant, Units 1 and 2	March 31, 2014 (ML14099A196)
Catawba Nuclear Station, Units 1 and 2	March 31, 2014 (ML14099A184)
Clinton Power Station, Unit 1	March 31, 2014 (ML14091A011)
Comanche Peak Nuclear Power Plant, Units 1 and 2	March 27, 2014 (ML14099A197)
Cooper Nuclear Station	March 31, 2014 (ML14094A048)
Davis-Besse Nuclear Power Station, Unit 1	March 31, 2014 (ML14090A143)
Donald C. Cook Nuclear Plant, Units 1 and 2	March 27, 2014 (ML14092A327)
Dresden Nuclear Power Station, Units 2 and 3	March 31, 2014 (ML14091A012)
Duane Arnold Energy Center	March 28, 2014 (ML14092A331)
Joseph M. Farley Nuclear Plant, Units 1 and 2	March 31, 2014 (ML14092A020)
Fermi, Unit 2	March 31, 2014 (ML14090A326)
James A. FitzPatrick Nuclear Power Plant	March 31, 2014 (ML14090A243)
Fort Calhoun Station, Unit 1	March 31, 2014 (ML14097A087)
R.E. Ginna Nuclear Power Plant	March 31, 2014 (ML14099A196)
Grand Gulf Nuclear Station, Unit 1	March 31, 2014 (ML14090A098)
Shearon Harris Nuclear Power Plant, Unit 1	March 27, 2014 (ML14090A441)
Edwin I. Hatch Nuclear Plant, Units 1 and 2	March 31, 2014 (ML14092A017)
Hope Creek Generating Station	March 28, 2014 (ML14087A436)
Indian Point Nuclear Generating Unit Nos. 2 and 3	March 31, 2014 (ML14099A110 and ML14099A111)
LaSalle County Station, Units 1 and 2	March 31, 2014 (ML14091A013)
Limerick Generating Station, Units 1 and 2	March 31, 2014 (ML14090A236)
William B. McGuire Nuclear Station, Units 1 and 2	March 20, 2014 (ML14098A421)
Millstone Power Station, Units 2 and 3	March 31, 2014 (ML14092A417)
Monticello Nuclear Generating Plant	March 31, 2014 (ML14090A297) and April 3, 2014 (ML14093B361)
Nine Mile Point Nuclear Station, Units 1 and 2	March 31, 2014 (ML14099A196)

Licensee Facility	Date of letter (ADAMS Accession Nos.)
North Anna Power Station, Units 1 and 2	March 31, 2014 (ML14092A416)
Oconee Nuclear Station, Units 1, 2, and 3	March 31, 2014 (ML14092A024)
Oyster Creek Nuclear Generating Station	March 31, 2014 (ML14090A241)
Palisades Nuclear Plant	March 31, 2014 (ML14090A069)
Peach Bottom Atomic Power Station Units 2 and 3	March 31, 2014 (ML14090A247)
Perry Nuclear Power Plant, Unit 1	March 31, 2014 (ML14090A143)
Pilgrim Nuclear Power Station, Unit No. 1	March 31, 2014 (ML14092A023)
Point Beach Nuclear Plant, Units 1 and 2	March 31, 2014 (ML14090A275)
Prairie Island Nuclear Generating Plant, Units 1 and 2	March 27, 2014 (ML14086A628)
Quad Cities Nuclear Power Station, Units 1 and 2	March 31, 2014 (ML14090A526)
River Bend Station	March 26, 2014 (ML14091A426)
H. B Robinson Steam Electric Plant, Unit No. 2	March 31, 2014 (ML14099A204)
St. Lucie Plant, Units 1 and 2	March 31, 2014 (ML14099A106)
Salem Nuclear Generating Station, Units 1 and 2	March 31, 2014 (ML14090A043)
Seabrook, Unit 1	March 27, 2014 (ML14092A413)
Sequoyah Nuclear Plant, Units 1 and 2	March 31, 2014 (ML14098A478)
South Texas Project, Units 1 and 2	March 31, 2014 (ML14099A235)
Surry Power Station, Unit Nos. 1 and 2	March 31, 2014 (ML14092A414)
Susquehanna Steam Electric Station, Units 1 and 2	March 26, 2014 (ML14086A163)
Three Mile Island Nuclear Station, Unit 1	March 31, 2014 (ML14090A271)
Turkey Point, Units 3 and 4	March 27, 2014 (ML14106A032)
Virgil C. Summer Nuclear Station, Unit 1	March 26, 2014 (ML14092A250)
Vermont Yankee Nuclear Power Station	March 12, 2014 (ML14079A025)
Vogtle Electric Generating Plant, Units 1 and 2	March 31, 2014 (ML14092A019)
Waterford Steam Electric Station, Unit 3	March 27, 2014 (ML14086A427)
Watts Bar Nuclear Plant, Units 1 and 2	March 31, 2014 (ML14098A478)
Wolf Creek Generating Station, Unit 1	March 31, 2014 (ML14097A020)

LIST OF APPLICABLE POWER REACTOR LICENSEES AND HOLDERS OF CONSTRUCTION PERMITS IN ACTIVE OR DEFERRED STATUS

Arkansas Nuclear One
Entergy Operations, Inc.
Docket Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6

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

Beaver Valley Power Station
First Energy Nuclear Operating Co.
Docket Nos. 50-334 and 50-412
License Nos. DPR-66 and NPF-73

Mr. Eric A. Larson
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Beaver Valley Power Station
P.O. Box 4, Route 168
Shippingport, PA 15077

Bellefonte Nuclear Plant
Tennessee Valley Authority
Docket Nos. 50-438 and 50-439
Construction Permit Nos. CPPR
No. 122 and CPPR No. 123

Mr. Michael D. Skaggs
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Tennessee Valley Authority
Lookout Place 6A
1101 Market Street
Chattanooga, TN 37402-2801

Braidwood Station
Exelon Generation Co., LLC
Docket Nos. STN 50-456 and STN 50-457
License Nos. NPF-72 and NPF-77

Mr. Michael J. Pacilio
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Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

Browns Ferry Nuclear Plant
Tennessee Valley Authority
Docket Nos. 50-259, 50-260 and 50-296
License Nos. DPR-33, DPR-52 and DPR-68

Mr. Joseph W. Shea
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Tennessee Valley Authority
1101 Market Street, LP 3D-C
Chattanooga, TN 37402-2801

Brunswick Steam Electric Plant
Duke Energy Progress, Inc.
Docket Nos. 50-325 and 50-324
License Nos. DPR-71 and DPR-62

George T. Hammrick, Vice President
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P.O. Box 10429
Southport, NC 28461

Byron Station
Exelon Generation Co., LLC
Docket Nos. STN 50-454 and STN 50-455
License Nos. NPF-37 and NPF-66

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Callaway Plant
Union Electric Company
Docket No. 50-483
License No. NPF-30

Mr. Fadi Diya
Senior Vice President and
Chief Nuclear Officer
Ameren Missouri
Callaway Plant
P.O. Box 620
Fulton, MO 65251

Calvert Cliffs Nuclear Power Plant
Calvert Cliffs Nuclear Power Plant, LLC
Docket Nos. 50-317 and 50-318
License Nos. DPR-53 and DPR-69

Mr. George H. Gellrich, Vice President
Calvert Cliffs Nuclear Power Plant, LLC.
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

Catawba Nuclear Station
Duke Energy Carolinas, LLC
Docket Nos. 50-413 and 50-414
License Nos. NPF-35 and NPF-52

Mr. Kelvin Henderson
Site Vice President
Duke Energy Carolinas, LLC
Catawba Nuclear Station
4800 Concord Road
York, SC 29745

Clinton Power Station
Exelon Generation Co., LLC
Docket No. 50-461
License No. NPF-62

Mr. Michael J. Pacilio
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Comanche Peak Nuclear Power Plant
Luminant Generation Co., LLC
Docket Nos. 50-445 and 50-446
License Nos. NPF-87 and NPF-89

Mr. Rafael Flores
Senior Vice President and
Chief Nuclear Officer
Attention: Regulatory Affairs
Luminant Generation Company, LLC
P.O. Box 1002
Glen Rose, TX 76043

Cooper Nuclear Station
Nebraska Public Power District
Docket No. 50-298
License No. DPR-46

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Nebraska Public Power District
72676 648A Avenue
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Brownville, NE 68321

Davis-Besse Nuclear Power Station
First Energy Nuclear Operating Co.
Docket No. 50-346
License No. NPF-3

Mr. Raymond A. Lieb
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FirstEnergy Nuclear Operating Company
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5501 N. State Route 2
Oak Harbor, OH 43449-9760

Donald C. Cook Nuclear Plant
Indiana Michigan Power Company
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74

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Indiana Michigan Power Company
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Bridgman, MI 49106

Dresden Nuclear Power Station
Exelon Generation Company
Docket Nos. 50-237 and 50-249
License Nos. DPR-19 and DPR-25

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Duane Arnold Energy Center
NextEra Energy Duane Arnold, LLC
Docket No. 50-331
License No. DPR-49

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3277 DAEC Road
Palo, IA 52324-9785

Edwin I. Hatch Nuclear Plant
Southern Nuclear Operating Co.
Docket Nos. 50-321 and 50-366
License Nos. DPR-57 and NPF-5

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Regulatory Affairs Director
Southern Nuclear Operating Company, Inc.
P.O. Box 1295/BIN B038
Birmingham, AL 35201-1295

Fermi
DTE Electric Company
Docket No. 50-341
License No. NPF-43

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Fort Calhoun Station
Omaha Public Power District
Docket No. 50-285
License No. DPR-40

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Blair, NE 68008

Grand Gulf Nuclear Station
Entergy Operations, Inc.
Docket No. 50-416
License No. NPF-29

Vice President, Operations
Entergy Operations, Inc.
Grand Gulf Nuclear Station
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Port Gibson, MS 39150

H. B. Robinson Steam Electric Plant
Duke Energy Progress, Inc.
Docket No. 50-261
License No. DPR-23

Mr. William R. Gideon, Vice President
H.B. Robinson Steam Electric Plant
3581 West Entrance Road
Hartsville, SC 29550

Hope Creek Generating Station
PSEG Nuclear, LLC
Docket No. 50-354
License No. NPF-57

Mr. Thomas Joyce
President and Chief Nuclear Officer
PSEG Nuclear LLC - N09
P.O. Box 236
Hancocks Bridge, NJ 08038

Indian Point Energy Nuclear Generating
Entergy Nuclear Operations, Inc.
Docket Nos. 50-247 and 50-286
License Nos. DPR-26 and DPR-64

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Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249

James A. FitzPatrick Nuclear Power Plant
Entergy Nuclear Operations, Inc.
Docket No. 50-333
License No. DPR-59

Mr. Chris Adner, Licensing Manager
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James A. FitzPatrick Nuclear Power Plant
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Lycoming, NY 13093

Joseph M. Farley Nuclear Plant
Southern Nuclear Operating Co.
Docket Nos. 50-348 and 50-364
License Nos. NPF-2 and NPF-8

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Docket Nos. 50-373 and 50-374
License Nos. NPF-11 and NPF-18

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Limerick Generating Station
Exelon Generation Co., LLC
Docket Nos. 50-352 and 50-353
License Nos. NPF-39 and NPF-85

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Millstone Nuclear Power Station
Dominion Nuclear Connecticut, Inc.
Docket Nos. 50-336 and 50-423
License Nos. DPR-65 and NPF-49

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Monticello Nuclear Generating Plant
Northern States Power Company - Minnesota
Docket No. 50-263
License No. DPR-22

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Nine Mile Point Nuclear Station, LLC
Docket No. 50-220
License No. DPR-63

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North Anna Power Station
Virginia Electric & Power Co.
Docket Nos. 50-338 and 50-339
License Nos. NPF-4 and NPF-7

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Docket Nos. 50-269, 50-270 and 50-287
License Nos. DPR-38, DPR-47 and DPR-55

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Oyster Creek Nuclear Generating Station
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Palisades Nuclear Plant
Entergy Nuclear Operations, Inc.
Docket No. 50-255
License No. DPR-20

Vice President, Operations
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Peach Bottom Atomic Power Station
Exelon Generation Co, LLC
Docket Nos. 50-277 and 50-278
License Nos. DPR-44 and DPR-56

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Perry Nuclear Power Plant
FirstEnergy Nuclear Operating Co.
Docket No. 50-440
License No. NPF-58

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Pilgrim Nuclear Power Station Unit No. 1
Entergy Nuclear Operations, Inc.
Docket No. 50-293
License No. DPR-35

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Point Beach Nuclear Plant
NextEra Energy Point Beach, LLC
Docket Nos. 50-266 and 50-301
License Nos. DPR-24 and DPR-27

Mr. Eric McCartney
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6610 Nuclear Road
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Prairie Island Nuclear Generating Plant
Northern States Power Co. -Minnesota
Docket Nos. 50-282 and 50-306
License Nos. DPR-42 and DPR-60

Mr. Kevin K. Davison
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Northern States Power Company - Minnesota
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Quad Cities Nuclear Power Station
Exelon Generation Company
Docket Nos. 50-254 and 50-265
License Nos. DPR-29 and DPR-30

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R.E. Ginna Nuclear Power Plant
R.E. Ginna Power Plant, LLC
Docket No. 50-244
License No. DPR-18

Mr. Joseph E. Pacher
Vice President
R. E. Ginna Nuclear Power Plant
R. E. Ginna Nuclear Power Plant, LLC
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River Bend Station
Entergy Operations, Inc.
Docket No. 50-458
License No. NPF-47

Vice President, Operations
Entergy Operations, Inc.
River Bend Station
5485 U.S. Highway 61N
St. Francisville, LA 70775

Salem Nuclear Generating Station
PSEG Nuclear, LLC.
Docket Nos. 50-272 & 50-311
License Nos. DPR-70 and DPR-75

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Seabrook Nuclear Plant
NextEra Energy Seabrook, LLC
Docket No 50-443
License No. NFP-86

Mr. Kevin Walsh
Vice President, Seabrook Nuclear Plant
c/o Mr. Michael O'Keefe
NextEra Energy Seabrook, LLC
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Seabrook, NH 03874

Sequoyah Nuclear Plant
Tennessee Valley Authority
Docket Nos. 50-327 and 50-328
License Nos. DPR-77 and DPR-79

Mr. Joseph W. Shea
Vice President, Nuclear Licensing
Tennessee Valley Authority
1101 Market Street LP 3D-C
Chattanooga, TN 37402

Shearon Harris Nuclear Power Plant
Duke Energy Progress, Inc.
Docket No. 50-400
License No. NPF-63

Mr. Ernest J. Kapopoulos, Jr.
Vice President
Shearon Harris Nuclear Power Plant
5413 Shearon Harris Rd
New Hill, NC 27562-0165

South Texas Project
STP Nuclear Operating Company
Docket Nos. 50-498 and 50-499
License Nos. NPF-76 and NPF-80

Mr. Dennis L. Koehl
President and CEO/CNO
STP Nuclear Operating Company
South Texas Project Electric Generating Station
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Wadsworth, TX 77483

St. Lucie Plant
Florida Power and Light Company
Docket Nos. 50-335 and 50-389
License Nos. DPR-67 and NPF-16

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and Chief Nuclear Officer
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700 Universe Boulevard
Juno Beach, FL 33408-0420

Surry Power Station
Virginia Electric & Power Company
Docket Nos. 50-280 and 50-281
License Nos. DPR-32 and DPR-37

Mr. David A. Heacock
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Virginia Electric & Power Company
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Glen Allen, VA 23060

Susquehanna Steam Electric Station
PPL Susquehanna, LLC
Docket Nos. 50-387 and 50-388
License Nos. NPF-14 and NPF-22

Mr. Timothy S. Rausch
Senior Vice President and Chief Nuclear Officer
PPL Susquehanna, LLC
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NUCSB3
Berwick, PA 18603-0467

Three Mile Island Nuclear Station
Exelon Generation Company, LLC.
Docket No. 50-289
License No.

Mr. Michael J. Pacilio
President and Chief Nuclear Officer
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

Turkey Point Nuclear Generating Station
Florida Power & Light Company
Docket Nos. 50-250 & 50-251
License Nos. DPR-031 and DPR-41

Mr. Mano Nazar
Executive Vicep President
and Chief Nuclear Officer
NextEra Energy
P. O. Box 14000
Juno Beach, FL 33408-0420

Vermont Yankee Nuclear Power Station
Entergy Nuclear Operations
Docket No. 50-271
License No. DPR-28

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Vermont Yankee Nuclear Power Station
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Vernon, VT 05354

Virgil C. Summer Nuclear Station
South Carolina Electric & Gas Company
Docket No. 50-395
License No. NPF-12

Mr. Thomas D. Gatlin, Vice President
Nuclear Operations
South Carolina Electric & Gas Company
Virgil C. Summer Nuclear Station
Post Office Box 88, Mail Code 800
Jenkinsville, SC 29065

Vogtle Electric Generating Plant
Southern Nuclear Operating Company, Inc.
Docket Nos. 50-424 & 50-425
License Nos. NPF-68 and NPF-81

Mr. C. R. Pierce
Regulatory Affairs Director
Southern Nuclear Operating Co., Inc.
P. O. Box 1295 / Bin 038
Birmingham, AL 35201-1295

Waterford Steam Electric Station
Entergy Operations, Inc.
Docket No. 50-382
License No. NPF-38

Vice President, Operations
Entergy Operations, Inc.
Waterford Steam Electric Station, Unit 3
17265 River Road
Killona, LA 70057-0751

Watts Bar Nuclear Plant
Tennessee Valley Authority
Docket Nos. 50-390 & 50-391
License Nos. NPF-90

Mr. Joseph W. Shea
Vice President, Nuclear Licensing
Tennessee Valley Authority
1101 Market Street, LP 3D-C
Chattanooga, TN 37402-2801

William B. McGuire Nuclear Station
Duke Energy Carolinas, LLC
Docket Nos. 50-369 and 50-370
License Nos. NPF-9 and NPF-17

Steven D. Capps
Duke Energy Carolinas, LLC
McGuire Nuclear Station
12700 Hagers Ferry Road
Huntersville, NC 28078-8985

Wolf Creek Generating Station
Wolf Creek Nuclear Operating Corporation
Docket No. 50-482
License No. NPF-42

Mr. Adam C. Heflin
President, Chief Executive Officer, and
Chief Nuclear Officer
Wolf Creek Nuclear Operating
Corporation
P.O. Box 411
Burlington, KS 66839

with stakeholders in the near future as part of the development of any revised guidance documents. Given the generic nature of the limited-scope evaluations, it is expected that these evaluations will be completed for plants within the next two years.

This letter transmits the NRC staff's results of the seismic hazard submittals for the purposes of screening and prioritizing the plants. It does not convey the staff's final determination regarding the adequacy of any plant's calculated hazard. As such, the NRC staff will continue its review of the submitted seismic hazard re-evaluations, and may request additional plant-specific information to support this review. The staff has placed a high priority on this review for the early identification of issues that might adversely affect each licensee's seismic risk evaluations. Initial interactions with licensees will occur as soon as practicable. The NRC staff plans to issue a staff assessment on the re-evaluated seismic hazard once each review is completed in approximately 12 to 18 months.

If you have any questions on this matter, please contact your NRC licensing Project Manager.

Sincerely,

/RA by Jennifer Uhle for/

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation

Enclosures:
1. Glossary of Evaluations
2. Screening and Prioritization Results
3. List of Licensee March 2014 Re-evaluated Seismic Hazard Submittals
4. List of Addressees

Distribution: See next page
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NAME	NDiFrancesco	SLent	MMitchell	DJackson	DSkeen
DATE	04/22/2014	04/22/2014	04/30/2014	05/05/2014	05/06/2014
OFFICE	NRO/DSEA/D	OGC	NRR/DORL/D	NRR/ D	
NAME	SFlanders	EWilliamson	MEvans	ELeeds (JUhle for)	
DATE	05/06/2014	05/02/2014	05/06/2014	05/9/2014	

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Letter to All Power Reactor Licensees and Holders of Construction Permits in Active or Deferred Status from Eric J. Leeds dated May 9, 2014.

SUBJECT: SCREENING AND PRIORITIZATION RESULTS OF REQUEST FOR 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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RidsNrrPMComanchePeak
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RidsNrrPMNorthAnna
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RidsOgcRp Resource
RidsRgn1MailCenter Resource
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RidsRgn4MailCenter Resource
RidsEdoMailCenter Resource

Attachment D

L44 140331 005

Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-14-048

March 31, 2014

10 CFR 50.4

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Sequoyah Nuclear Plant, Units 1 and 2
Facility Operating Licenses Nos. DPR-77 and DPR-79
NRC Docket Nos. 50-327 and 50-328

Watts Bar Nuclear Plant, Unit 1
Facility Operating License No. NPF-90
NRC Docket No. 50-390

Watts Bar Nuclear Plant, Unit 2
Construction Permit No. CPPR-92
NRC Docket No. 50-391

Subject: **Fourth Progress Update on Improved Flood Mitigation System Project**

References:

1. Letter from TVA to NRC, “Commitment to Install Improved Flood Mitigation Systems,” dated April 16, 2013 (ML13108A107)
2. Letter from TVA to NRC, “Progress Update on Improved Flood Mitigation System Project,” dated July 1, 2013 (ML13189A135)
3. Letter from TVA to NRC, “Second Progress Update on Improved Flood Mitigation System Project,” dated September 30, 2013 (ML13276A048)
4. Letter from TVA to NRC, “Third Progress Update on Improved Flood Mitigation System Project,” dated December 31, 2013

By letter dated April 16, 2013, the Tennessee Valley Authority (TVA) committed to install improved flood mitigation systems at the Sequoyah Nuclear Power Plant (SQN), Units 1 and 2, and the Watts Bar Nuclear Plant (WBN), Units 1 and 2 (Reference 1). TVA committed to complete implementation of the improved flood mitigation systems at SQN and WBN by December 31, 2016. TVA also committed to provide periodic written updates regarding the progress of the project. During a public meeting on June 27, 2013, TVA briefed the NRC regarding the status of the improved flood mitigation project and provided the first progress update on July 1, 2013 (Reference 2). TVA also committed in the first progress update (Reference 2) to develop a set of major tasks through TVA's engineering design and project controls processes and to discuss these major tasks as part of the periodic written progress updates. TVA submitted the second progress update on September 30, 2013 (Reference 3) and the third progress update on December 31, 2013 (Reference 4).

The purpose of this letter is to provide the fourth written update regarding the progress of the improved flood mitigation system project consistent with Commitment 2 in Enclosure 2 of the Reference 1 letter and Commitment 1 in Enclosure 1 of the Reference 2 letter.

During the June 27, 2013, public meeting and in the first update (Reference 2), TVA advised the NRC that engineering design and project controls for the project are being developed consistent with TVA's existing design and project management procedures. The Project Status Schedule, provided in Table 1 on page 3 of this letter, lists the major tasks associated with the design and project controls developed to implement the flood mitigation system. Table 1 will be used to provide the overall status of the improved flood mitigation system project each quarter. The status of the Table 1 tasks from December 14, 2013, to March 17, 2014, is provided below.

- Task 4, Perform Preliminary Design Phase is on schedule. Project Kickoff meetings with SQN and WBN were held on January 28, 2014 and February 27, 2014, respectively. The design vendor completed the draft failure modes and effects analysis (FMEA) on March 4, 2014. The results of the draft FMEA were reviewed by the TVA technical design oversight team on March 6, 2014.

  The following Task 4 actions are scheduled for completion by April 30, 2014:

  a. Preparation of system functional calculations.
  b. Preliminary system design/layout drawings.
  c. Preliminary equipment sizing and Bill of Materials.
  d. Budgetary cost estimate and schedule for Tasks 5, 6, and 7

- Task 5, Conduct Engineering Design Phase, is scheduled to start by May 1, 2014, following completion of the Task 4 as indicated in Table 1.

Task 8, Project Closeout, has been removed from Table 1. This task is for finalizing the project financial and demobilizing activities after implementation of the flood mitigation system and has no status or impact to completing the project.

TABLE 1
PROJECT STATUS SCHEDULE

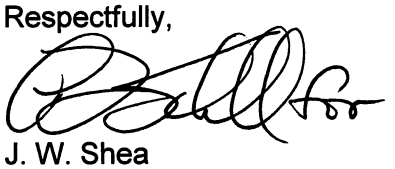
	Task	Scheduled Start	Scheduled Finish	Status
1	Team Organization Structure		05/29/13	Completed
2	Develop Project Plan		10/30/13	Completed
3	Perform Conceptual Design Phase		10/30/13	Completed
4	Perform Preliminary Design Phase	10/01/13	04/30/14	In-Progress
5	Conduct Engineering Design Phase	05/01/14	04/30/15	Not Started
6	Procure Long-Lead Items	01/07/15	10/21/15	Not Started
7	Implementation	05/01/15	12/30/16	Not Started

TVA will provide the fifth quarterly written progress update regarding the improved flood mitigation system project by June 30, 2014, consistent with Commitment 2 in Enclosure 2 of TVA's letter to NRC dated April 16, 2013 (Reference 1).

There are no new regulatory commitments contained in this letter.

If you have questions regarding this update, please contact Kevin Casey at (423) 751-8523.

Respectfully,



J. W. Shea
Vice President, Nuclear Licensing

cc:

NRC Regional Administrator - Region II
NRR Director - NRC Headquarters
NRC Senior Resident Inspector - Sequoyah Nuclear Plant
NRC Senior Resident Inspector - Watts Bar Nuclear Plant
NRR Project Manager - Sequoyah Nuclear Plant
NRR Project Manager - Watts Bar Nuclear Plant, Unit 1
NRR Project Manager - Watts Bar Nuclear Plant, Unit 2