



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

September 3, 2015

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

SUBJECT: SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2 - INTERIM STAFF
RESPONSE TO REEVALUATED FLOOD HAZARDS SUBMITTED IN
RESPONSE TO 10 CFR 50.54(f) INFORMATION REQUEST – FLOOD-
CAUSING MECHANISM REEVALUATION (TAC NOS. MF6032 AND MF6033)

Dear Mr. Shea:

The purpose of this letter is to provide a summary of the U.S. Nuclear Regulatory Commission (NRC) staff's assessment of the re-evaluated flood-causing mechanisms described in the March 12, 2015 (Agencywide Document Access and Management System (ADAMS) Accession No. ML15071A462), flood hazard reevaluation report (FHRR) submitted by Tennessee Valley Authority (TVA, the licensee) for Sequoyah Nuclear Plant, Units 1 and 2 (Sequoyah), as well as supplemental information resulting from requests for additional information and audits.

By letter dated March 12, 2012, the NRC issued a request for information pursuant to Title 10 of the *Code of Federal Regulations*, Section 50.54(f) (hereafter referred to as the 50.54(f) letter) (ADAMS Accession No. ML12053A340). The request was issued as part of implementing lessons-learned from the accident at the Fukushima Dai-ichi nuclear power plant. Enclosure 2 to the 50.54(f) letter requested licensees to re-evaluate flood-causing mechanisms using present-day methodologies and guidance. Concurrently, with the reevaluation of flooding hazards, licensees were required to develop and implement mitigating strategies in accordance with NRC Order EA-12-049, "Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" (ADAMS Accession No. ML12054A735). On March 30, 2015, the Commission provided Staff Requirements Memoranda (SRM) (ADAMS Accession No. ML15089A236) to COMSECY-14-0037, "Integration of Mitigating Strategies for Beyond-Design-Basis External Events and the Reevaluation of Flooding Hazards," dated November 21, 2014 (ADAMS Accession No. ML14309A256), affirming that licensees need to address the reevaluated flooding hazards within their mitigating strategies for beyond-design-basis external events.

The NRC staff has reviewed the information submitted by the licensee and has summarized the results of the review in the tables provided as Enclosure 1 to this letter. Table 1 provides the current design-basis flood hazard mechanisms.

Enclosure 2 transmitted herewith contains Security-Related Information. When separated from the Enclosure, this document is decontrolled.

J. Shea

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Table 2 provides reevaluated flood hazard mechanisms; however, reevaluated hazard mechanisms bounded by the current design-basis (Table 1) are not included. Because Table 2 includes security-related information, Enclosure 1 contains the redacted version of Table 2. Enclosure 2 is withheld from public disclosure and restores the security-related information to Table 2.

The NRC staff has concluded that the licensee's reevaluated flood hazards information, as summarized in the Enclosure, is suitable for the assessment of mitigating strategies developed in response to Order EA-12-049 (i.e., defines the mitigating strategies flood hazard information described in guidance documents currently being finalized by the industry and NRC staff) for Sequoyah. Further, the NRC staff has concluded that the licensee's reevaluated flood hazard information is a suitable input for other assessments associated with Near-Term Task Force Recommendation 2.1 "Flooding". The NRC staff plans to issue a staff assessment documenting the basis for these conclusions at a later time.

In addition, NEI 12-06 "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide" is currently being revised. This revision will include a methodology to perform a Mitigating Strategies Assessment (MSA) with respect to the reevaluated flood hazards. Once this methodology is endorsed by the NRC, flood event duration parameters and applicable flood associated effects should be considered as part of the Sequoyah MSA. The NRC staff will evaluate the flood event duration parameters (including warning time and period of inundation) and flood-related associated effects developed by the licensee during the NRC staff's review of the MSA.

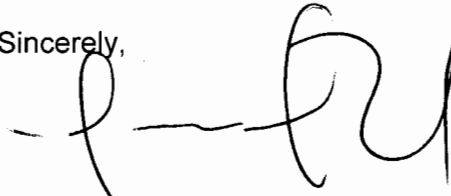
As stated above, Table 2 of the enclosure to this letter describes the reevaluated flood hazards that exceed the current design-basis. In order to complete its response to the information requested by Enclosure 2 to the 50.54(f) letter, the licensee is expected to submit an integrated assessment or a focused evaluation, as appropriate, to address these reevaluated flood hazards, as described in the NRC letter, "Coordination of Request for Information Regarding Flooding Hazard Reevaluation and Mitigating Strategies for Beyond-Design-Basis External Events" (ADAMS Accession No. ML15174A257). This letter describes the changes in the NRC's approach to the flood hazard reevaluations that were approved by the Commission in its SRM to COMSECY-15-0019, "Closure Plan for the Reevaluation of Flooding Hazards for Operating Nuclear Power Plants" (ADAMS Accession No. ML15209A682).

J. Shea

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If you have any questions, please contact me at (301) 415-3809 or e-mail at Juan.Uribe@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to be 'J. Uribe', written over a horizontal line.

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

Docket Nos. 50-327 and 50-328

Enclosures:

- 1) Summary of Results of Flooding
Hazard Re-Evaluation Report (Redacted Version)
- 2) Summary of Results of Flooding
Hazard Re-Evaluation Report (Non-Public Version)

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ENCLOSURE 1:

SUMMARY TABLES OF
REEVALUATED FLOOD HAZARD LEVELS-REDACTED VERSION

Table 1. Current Design Basis Flood Hazards for Use in the MSA

Mechanism	Stillwater Elevation	Waves/ Runup	Design Basis Hazard Elevation	Reference
Local Intense Precipitation	705.7 ft msl	Minimal	705.7 ft msl	FHRR Section 3.4.1
Streams and Rivers				
Diesel Generator Building	722.0 ft msl	1.2 ft	723.2 ft msl	FHRR Section 3.4.2 FHRR Section 3.4.8.1
ERCW Pumping Station	722.0 ft msl	4.2 ft	726.2 ft msl	FHRR Section 3.4.2 FHRR Section 3.4.8.1
Failure of Dams and Onsite Water Control/Storage Structures	708.6 ft msl	Not applicable	708.6 ft msl	FHRR Section 3.4.8.2
Storm Surge	Not included in DB	Not included in DB	Not included in DB	FHRR Section 3.4.4
Seiche	Not included in DB	Not included in DB	Not included in DB	FHRR Section 3.4.4
Tsunami	Not included in DB	Not included in DB	Not included in DB	FHRR Section 3.4.5
Ice-Induced Flooding	Not included in DB	Not included in DB	Not included in DB	FHRR Section 3.4.6

Table 1. Current Design Basis Flood Hazards for Use in the MSA

Mechanism	Stillwater Elevation	Waves/ Runup	Design Basis Hazard Elevation	Reference
Channel Migrations/Diversions	Not included in DB	Not included in DB	Not included in DB	FHRR Section 3.4.7

Note: Reported values are rounded to the nearest one-tenth of a foot.

Table 2. Reevaluated Flood Hazards for Flood-Causing Mechanisms for Use in the MSA

Mechanism	Stillwater Elevation	Waves/ Runup	Reevaluated Hazard Elevation	Reference
Local Intense Precipitation	706.3 ft msl	Minimal	706.3 ft msl	FHRR Table 11-1
Streams and Rivers				
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]

Note 1: The licensee is expected to develop flood event duration parameters and applicable flood associated effects to conduct the MSA. The staff will evaluate the flood event duration parameters (including warning time and period of inundation) and flood associated effects during its review of the MSA.

Note 2: Reevaluated hazard mechanisms bounded by the current design basis (see Table 1) are not included in this table.

Note 3: Reported values are rounded to the nearest one-tenth of a foot.

J. Shea

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If you have any questions, please contact me at (301) 415-3809 or e-mail at Juan.Uribe@nrc.gov.

Sincerely,

/RA/

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

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ADAMS Accession Nos.: PKG ML15240A163; LTR: ML15240A134; ENCL: ML15238B656 (PUBLIC)
ML15226A549 (NON-PUBLIC) *via email

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DATE	8 / 28 /15	8 / 28 /15	8 / 17 /15	8 / 17 /15
OFFICE	NRR/JLD/JHMB/BC	NRR/JLD/JHMB/PM		
NAME	MShams	JUribe		
DATE	8 / 28 /15	9 / 3 /15		

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