



Tennessee Valley Authority, Post Office Box 2000, Soddy Daisy, Tennessee 37384-2000

April 14, 2010

10 CFR 50.73

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

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

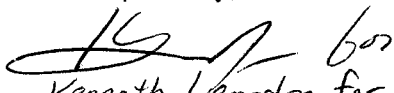
Subject: Licensee Event Report 327 and 328/2009-009, "Unanalyzed Condition Affecting Probable Maximum Flood Level," Revision 1

Reference: Letter from TVA to NRC, Licensee Event Report 327 and 328/2009-009, "Unanalyzed Condition Affecting Probable Maximum Flood Level," dated March 1, 2010

The enclosed licensee event report (LER) provides details concerning an unanalyzed condition affecting the probable maximum flood level for the plant. On March 1, 2010, the Tennessee Valley Authority (TVA) submitted Revision 0 of the enclosed LER. At that time, TVA was completing the root cause evaluation for the event. TVA has completed the root cause evaluation and is providing this LER revision. The revisions are annotated by a vertical bar to the right of the text.

This report is being submitted in accordance with 10 CFR 50.73(a)(2)(ii)(B), a condition that resulted in an unanalyzed condition that had the potential to significantly degrade plant safety.

Respectfully,


Kenneth Langdon for
Christopher R. Church
Site Vice President
Sequoyah Nuclear Plant

Enclosure:

Licensee Event Report 327 and 328/2009-009, "Unanalyzed Condition Affecting Probable Maximum Flood Level," Revision 1

cc: NRC Regional Administrator – Region II
NRC Senior Resident Inspector – Sequoyah Nuclear Plant

JE22
NRR

ENCLOSURE

**LICENSEE EVENT REPORT 327 AND 328/2009-009, UNANALYZED
CONDITION AFFECTING PROBABLE MAXIMUM FLOOD LEVEL
REVISION 1**

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME Sequoyah Nuclear Plant (SQN) Unit 1	2. DOCKET NUMBER 05000327	3. PAGE 1 OF 5
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4. TITLE:
Unanalyzed Condition Affecting Probable Maximum Flood (PMF) Level

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
12	30	2009	2009	- 009	- 01	04	14	2010	SQN Unit 2	05000328
									FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)										
	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)							
10. POWER LEVEL 100	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)							
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)							
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)							
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)							
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)							
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)							
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER							
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A								

12. LICENSEE CONTACT FOR THIS LER

NAME Donald Sutton	TELEPHONE NUMBER (Include Area Code) 423-843-6539
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
D				N					

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO			

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

This LER is being revised to include the results of the root cause evaluation for this event. On December 30, 2009, the issuance of an updated calculation titled "PMF Determination for Tennessee River Watershed" increased the SQN design basis PMF level from Elevation 719.6 feet to Elevation 722.0 feet. This increase in calculated PMF elevation resulted from several calculational changes including updated dam rating curves using model data and changes in reservoir operating policy. A previous change had decreased the SQN PMF elevation from 722.6 feet to 719.6 feet. However, SQN remains designed for a flood elevation of 722.6 feet with the current exception of the diesel generator sets and spent fuel pool cooling pumps. Because of the unanalyzed condition, the potential existed for SQN to exceed its PMF design basis and adversely affect plant safety. No actual flooding occurred. The root causes of this event were determined to be the failure to establish a PMF procedure or process that could be used to train personnel to perform, revise, and maintain accurate PMF calculations and inadequate communication between organizations. Contingency measures were put into place to protect the diesel generator sets and spent fuel pool cooling pumps. Applicable plant procedures are being revised to incorporate these contingency measures to protect plant equipment during a PMF event.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Sequoyah Nuclear Plant (SQN) Unit 1	05000327	YEAR	SEQUENTIAL NUMBER	REVISION	2 OF 5
		2009 --	009 --	01	

17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

I. PLANT CONDITION(S)

Units 1 and 2 were operating at approximately 100 percent power at the time the probable maximum flood (PMF) calculation was issued.

II. DESCRIPTION OF EVENT

A. Event:

On December 30, 2009, the Tennessee Valley Authority (TVA) issued an updated calculation titled "PMF Determination for Tennessee River Watershed" that increased the SQN design basis PMF level from Elevation 719.6 feet to Elevation 722.0 feet. The increase in calculated PMF elevation resulted from several calculational changes including better flood modeling and changes in river and reservoir operating policies. A previous change had decreased the SQN PMF elevation from 722.6 feet to 719.6 feet. However, SQN remains designed for Elevation 722.6 feet with the current exception of the diesel generator sets (EISS code EK) and spent fuel pool cooling pumps (EISS code DA). No actual flooding occurred; however, because of the unanalyzed condition, the potential existed for SQN to exceed its design basis PMF level and adversely affect plant safety.

B. Inoperable Structures, Components, or Systems that Contributed to the Event:

None.

C. Dates and Approximate Times of Major Occurrences:

Date	Description
March 19, 2008	The Nuclear Regulatory Commission (NRC) issued an inspection report and notice of violation on implementation of the quality assurance program governing the hydrology code for TVA's Bellefonte Nuclear Plant combined license application.
February 3, 2009	Based upon preliminary updated calculations indicating an increase in PMF elevation, SQN issued a standing order requiring contingency measures to protect the diesel generator sets and spent fuel pool cooling pumps during a PMF event.
December 30, 2009	Updated PMF calculation increased the design basis PMF elevation from 719.6 feet to 722.0 feet.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
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		2009 --	009 --	01	

17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

D. Other Systems or Secondary Functions Affected:

No other systems or secondary functions were affected by this event.

E. Method of Discovery:

The implementation of the quality assurance program governing TVA's PMF calculation for the Bellefonte Nuclear Plant combined license application was questioned by the NRC resulting in the issuance of an updated calculation titled "PMF Determination for Tennessee River Watershed" that increased the SQN design basis PMF level from Elevation 719.6 feet to Elevation 722.0 feet.

F. Operator Actions:

SQN Operations issued a standing order requiring contingency measures to protect the diesel generator sets and spent fuel pool cooling pumps during a PMF event.

G. Safety System Responses:

No safety system activation occurred. Contingency measures were put into place to protect the diesel generator sets and spent fuel pool cooling pumps.

III. CAUSE OF THE EVENT

A. Immediate Cause:

The immediate cause of this event was river system operational changes and incorrect assumptions regarding PMF calculations.

B. Root Cause:

The root cause of this event was determined to be the failure to establish a PMF procedure or process that could be used to train personnel to perform, revise, and maintain accurate PMF calculations. A second root cause was organizational and programmatic deficiencies caused by organizational breakdowns and inadequate communication between TVA organizations.

C. Contributing Factor:

Contributing factors were inadequate information and training, and incorrect assumptions regarding PMF calculations.

LICENSEE EVENT REPORT (LER)

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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

IV. ANALYSIS OF THE EVENT

On December 30, 2009, the issuance of an updated PMF calculation revealed that the PMF elevation had increased from Elevation 719.6 feet to Elevation 722.0 feet. Earlier preliminary calculations had indicated an increase in PMF elevation, and contingency measures to protect the diesel generator sets and spent fuel pool cooling pumps during a PMF event had already been put in place. These contingency measures required advance notification be given to SQN Operations of any rainfall conditions that would require implementation of contingency protection measures. Although no flooding occurred, because of the unanalyzed condition the potential existed for SQN to exceed its PMF design basis and adversely impact plant safety.

V. ASSESSMENT OF SAFETY CONSEQUENCES

Based on the above "Analysis of The Event," this event did not adversely affect the health and safety of plant personnel or the general public.

VI. CORRECTIVE ACTIONS

A. Immediate Corrective Actions:

SQN entered the information into the Corrective Action Program and issued a standing order requiring contingency measures to protect the diesel generator sets and spent fuel pool cooling pumps during a PMF event.

B. Corrective Actions to Prevent Recurrence:

The corrective actions are being managed by the TVA and Sequoyah Nuclear Plant Corrective Action Program.

Corrective actions consist of developing a PMF evaluation process that will include interface reviews between impacted TVA organizations, define ownership, roles and responsibilities of impacted TVA organizations, include a periodic review of critical PMF inputs, and provide training on management of the PMF process. Applicable plant procedures are being revised to incorporate the contingency measures during a PMF event. A design change has been initiated to permanently protect the diesel generator sets and spent fuel pool cooling pumps based on the increased PMF elevation.

LICENSEE EVENT REPORT (LER)

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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

VII. ADDITIONAL INFORMATION

A. Failed Components:

None.

B. Previous LERs on Similar Events:

A review of previous reportable events within the last three years did not identify any previous similar events.

C. Additional Information:

None.

D. Safety System Functional Failure:

This event did not result in a safety system functional failure in accordance with 10 CFR 50.73(a)(2)(v).

E. Unplanned Scram with Complications:

This condition did not result in an unplanned scram with complications.

VIII. COMMITMENTS

None.