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Jack L. Wilson
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July 5, 1991

U.S. Nuclear Regulatory Commission
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Gentlemen:

TENNESSEE VALLEY AUTHORITY - SEQUOYAH NUCLEAR PLANT UNIT 1 - DOCKET NO. 50-327 - FACILITY OPERATING LICENSE DPR-77 - LICENSEE EVENT REPORT (LER) 50-327/91010, REVISION 1

The enclosed LER, concerning a failure to conduct visual inspections of expansion joint seals previously not considered to be fire barriers and discovery that the seal material does not meet fire barrier requirements, is being revised to reflect the status of additional corrective actions associated with this event. This event was originally reported in accordance with 10 CFR 50.73 (a)(2)(i)(B), Unit 2 License Condition 2.H and Technical Specification Limiting Condition for Operation 3.7.12, Action Statement a, by letter dated May 29, 1991.

Revisions to the LER are annotated by vertical bars in the right-hand margin.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. L. Wilson

Enclosure
cc: See page 2

IE22
1/1

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NRC Form 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION Approved OMB No. 3150-0104 Expires 4/30/92

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1): Sequoyah Nuclear Plant, Unit 1 | DOCKET NUMBER (2): 05000327 | PAGE (3): 1 OF 4

TITLE (4): Failure to conduct visual inspection of expansion joint seals previously not considered to be fire barriers and discovery that seal material does not meet fire barrier requirements.

EVENT DAY (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
05	11	91	91	010	00	07	05	91	Sequoyah, Unit 2	05000328

OPERATING MODE (9): 1

POWER LEVEL (10): 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following)(11)

- 20.402(b)
- 20.405(a)(1)(i)
- 20.405(a)(1)(ii)
- 20.405(a)(1)(iii)
- 20.405(a)(1)(iv)
- 20.405(a)(1)(v)
- 20.405(c)
- 50.36(c)(1)
- 50.36(c)(2)
- XX 50.73(a)(2)(i)
- 50.73(a)(2)(ii)
- 50.73(a)(2)(iii)
- 50.73(a)(2)(iv)
- 50.73(a)(2)(v)
- 50.73(a)(2)(vii)
- 50.73(a)(2)(viii)(A)
- 50.73(a)(2)(viii)(B)
- 50.73(a)(2)(x)
- 73.71(b)
- 73.71(c)
- XX OTHER (Specify in Abstract below and in Text, NRC Form 366A) Special Report

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (AREA CODE)
Russell R. Thompson, Compliance Licensing	615 843-7470

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14): XX YES (If yes, complete EXPECTED SUBMISSION DATE) / NO

EXPECTED SUBMISSION DATE (15): MONTH 09, DAY 06, YEAR 91

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

This LER is being revised to update the corrective actions associated with this event. On May 15, 1991, at 1800 Eastern daylight time (EDT), with Units 1 and 2 operating in Mode 1 it was determined that the expansion joint material between the reactor building shield walls and the auxiliary building did not meet Underwriters Laboratory (UL) or Factory Mutual standards for a flame spread of less than 25 feet. Limiting Condition for Operation (LCO) 3.7.12 was entered on both units and appropriate fire watches established. The expansion joints between the auxiliary building and shield buildings at Elevations 669.0, 690.0, 706.0, 714.0, 734.0, and 759.0 contain a material for which specific documentation supporting fire resistiveness to an accepted UL or Factory Mutual standard is not available and therefore, the configuration cannot be considered a credited fire barrier. Investigation determined that these seals have been in place since initial construction, the initial design did not consider these seals to be a fire barrier; and accordingly, they were not included in the surveillance and subsequent Appendix R analysis. A preliminary test of the fire resistance of the expansion joint material provided reasonable assurance that the material is certifiable as a fire barrier and qualification testing is being pursued. This event is being reported in accordance with 10 CFR 50.73 (a)(2)(i)(B), Unit 2 License Condition 2.H and TS Limiting Condition for Operation 3.7.12 action a.

LICENSEE EVENT REPORT (LER)

TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Sequoyah Nuclear Plant Unit 1	0 5 0 0 0 3 2 7	9 1	-- 0 1 0	-- 0 1	0 2 OF 0 4

TEXT (If more space is required, use additional NRC Form 366A's) (17)

DESCRIPTION OF EVENT

On May 15, 1991, at 2111 Eastern daylight time (EDT), with Units 1 and 2 operating in Mode 1 (100 percent power, 2235 psig and 578 degrees Fahrenheit [F]) it was determined that the expansion joint material between the Reactor Building Shield Walls for both units and the auxiliary building did not meet Underwriters Laboratory (UL) or Factory Mutual Standard requirements. Limiting Condition for Operation (LCO) 3.7.12 was entered and appropriate fire watches established.

On April 5, 1991, a Quality Assurance (QA) monitoring activity was conducted to inspect fire barrier seals to determine whether conditions existed at SQN similar to those described in Nuclear Experience Review Operating Experience (NER OE) 4279. NER OE 4279 concerned degraded seismic expansion seals of a material that did not meet current 10 CFR 50, Appendix R, three hour fire barrier requirements. Similar expansion seals were noted to exist at the Shield Building to Auxiliary Building interfaces at SQN. SQN drawings indicated the material to be different than that described in the NER item. During efforts to find information on these seals, the personnel responsible for inspecting fire barrier penetration seals indicated that these seals were not inspected periodically nor did inspection criteria in the Surveillance Instruction (SI) 233 series address these seals. No degradation of the seals appeared to exist where observed. An adverse condition document was initiated.

The expansion joints between the Auxiliary Building and Shield Building at Elevations 669.0, 690.0, 706.0, 714.0, 734.0, and 759.0 contain a material for which specific documentation supporting fire resistiveness to an accepted UL or Factory Mutual standard (flame spread less than 25 feet) is not available. These joints contain an asphalt coated fiberglass as described on design drawings. Without documentation of certification of material, the configuration is not a credited fire barrier. Some rooms contain safe shutdown equipment and thus 10 CFR 50, Appendix R separation criteria cannot be considered satisfied; other rooms without safe shutdown equipment, do not meet the fire barrier requirements described in the updated final safety analysis report (UFSAR).

Walkdowns revealed that in Unit 1, Room A6, Elevation 690.0, approximately ten feet of joint sealant material was missing. It was also identified that the wall joint material near Door A227 on Unit 1 and near Door 226 on Unit 2 was of a cork material. This cork material was determined to be unacceptable.

Upon further review, it was determined that these seals have not been considered fire barriers; and therefore, were not inspected in accordance with Technical Specification (TS) 3.7.12.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

CAUSE OF EVENT

Initial investigation has determined that these seals have been in place since initial plant construction (prior to issuance of 10 CFR 50 Appendix R), and that the initial design did not consider these seals to be a fire barrier. Accordingly, these seals were not included in the surveillance and subsequent Appendix R analysis.

The expansion joint was part of the original plant design and was installed in 1970. During the initial design and construction of SQN, it was a standard engineering practice to place expansion joint material between buildings to mitigate structural interaction. The joint allows the structures to move independently of one another during a seismic event. While the control and auxiliary buildings are structurally attached and act integrally during a seismic event, an expansion joint was specified and used for the abutment of the auxiliary building to the reactor building shield wall.

The seismic expansion joint material installed between the auxiliary and reactor buildings is not qualified as a three-hour fire barrier. The seismic requirements are not impacted by this deficiency.

The joint material specified on design output documents requires fiberglass, Type 705, with SF facing (asphalt saturated craft) as manufactured by Owens-Corning Fiberglass Corporation, or equal. During construction the joint material was attached to the reactor building wall. The concrete was then poured for the auxiliary building floor slab or wall such that the joint material is compressed between the two buildings. The process allows sufficient space to prevent interaction between the two structures during a seismic event.

With the concrete structures in place, it is engineering practice to seal the expansion joints. Sealants are placed in the joint to keep debris, water, and other foreign objects out of the joint that could damage or destroy the joint material and jeopardize the design function of the joint. In addition, the sealant can provide a pressure seal, if desired, and a neat finished appearance that can be used with or without coatings. Sealants are normally very flexible, which allows building movement, and therefore complements the design function of the expansion joint.

ANALYSIS OF EVENT

This event is being reported in accordance with 10 CFR 50.73(a)(2)(i) as an operation prohibited by TSs, Unit 2 License Condition 2.H as a violation of 10 CFR 50, Appendix R, separation requirements, and TS LCO 3.7.12, Action a, because of inoperable fire barriers not restored operable within seven days.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

ANALYSIS OF EVENT

The areas affected by this design deficiency are included as part of the hourly, roving fire watch. In addition, 20 of the 28 interfacing rooms involved for both units have fire detection and suppression systems that would have been available to mitigate the effects of a fire. For the eight areas with no suppression or detection, the availability of standpipe systems and portable fire extinguishers (in conjunction with the roving fire watch) provides assurance that a fire will be quickly detected and extinguished. Given these considerations, there is adequate assurance that fires could be mitigated consistent with safe shutdown assumptions.

CORRECTIVE ACTIONS

Upon identifying the seal as inadequate, the required firewatch was established for affected areas. Additionally, the barrier seals have been visually inspected (with the exception of areas that are inaccessible) and determined to be intact.

A preliminary test of the fire resistance of the expansion joint material has been conducted. The test results provide reasonable assurance that the expansion joint material is certifiable as a fire barrier. Qualification testing is being pursued. A supplemental response will be provided by September 6, 1991, detailing the schedule for qualification testing.

COMMITMENTS

1. TVA will provide a supplemental response by July 5, 1991. (Completed by Revision 1)

2. Qualification testing is being pursued. A supplemental response will be provided by September 6, 1991, detailing the schedule for qualification testing.

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