



Tennessee Valley Authority, Sequoyah Nuclear Plant, P.O. Box 2000, Soddy Daisy, Tennessee 37384

January 22, 2019

10 CFR 50.73

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

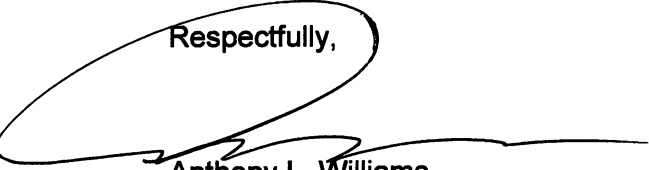
Sequoyah Nuclear Plant, Units 1 and 2
Renewed Facility Operating License Nos. DPR-77 and DPR-79
NRC Docket Nos. 50-327 and 50-328

Subject: Licensee Event Report 50-327 and 50-328/2018-002-00, Exceeded Breach Margin Renders Both Trains of the Auxiliary Building Gas Treatment System Inoperable

The enclosed licensee event report provides details concerning a breached door associated with the auxiliary building secondary containment enclosure boundary that resulted in both trains of the Auxiliary Building Gas Treatment System being declared inoperable. This report is being submitted in accordance with 10 CFR 50.73(a)(2)(v), as an event or condition that could have prevented the fulfillment of a safety function of structures or systems that are needed to: (C) control the release of radioactive material and (D) mitigate the consequences of an accident.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this submittal, please contact Mr. Jonathan Johnson, Site Licensing Manager, at (423) 843-8129.

Respectfully,



Anthony L. Williams
Site Vice President
Sequoyah Nuclear Plant

Enclosure: Licensee Event Report 50-327 and 50-328/2018-002-00
cc: NRC Regional Administrator – Region II
NRC Senior Resident Inspector – Sequoyah Nuclear Plant

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

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 Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@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 Unit 1

2. Docket Number

05000327

3. Page

1 OF 6

4. Title

Exceeded Breach Margin Renders Both Trains of the Auxiliary Building Gas Treatment System Inoperable

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
11	24	2018	2018	- 002	- 00	01	22	2019	Sequoyah Nuclear Plant Unit 2	05000328
									Facility Name	Docket Number
									N/A	05000

9. Operating Mode	11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)							
1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)				
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)				
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)				
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)				
10. Power Level	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)				
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)				
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)				
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(2)(ii)				
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(iii)				
				<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> Other (Specify in Abstract below or in NRC Form 366A)			

12. Licensee Contact for this LER

Licensee Contact

Scott Bowman

Telephone Number (Include Area Code)

423-843-6910

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable To ICES	Cause	System	Component	Manufacturer	Reportable To ICES
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

14. Supplemental Report Expected

☐ Yes (If yes, complete 15. Expected Submission Date) ☒ No

15. Expected Submission Date

Month	Day	Year
N/A	N/A	N/A

Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

On November 24, 2018, at 0930 eastern standard time (EST), Door A118 was breached to allow a hose to be routed from a vacuum truck outside to an ice bin inside the Unit 2 Additional Equipment Building. The auxiliary building secondary containment enclosure (ABSCE) breach permit required personnel to be stationed in the main control room (MCR) in communication with personnel responsible for closing Door A118. At 1420, it was discovered that no personnel were stationed in the MCR to perform this function. The open door created a breach of the ABSCE boundary that exceeded the allowed breach margin. As a result, both units entered Technical Specification (TS) Limiting Condition for Operation (LCO) 3.7.12, Condition E for a required train of Auxiliary Building Gas Treatment System (ABGTS) inoperable with fuel stored in the spent fuel pool and Unit 1 entered LCO 3.7.12, Condition B for two trains of the ABGTS inoperable due to an inoperable ABSCE boundary in Mode 1, 2, 3, or 4. At 1435, the door was closed and both units exited LCO 3.7.12, Condition E and Unit 1 exited LCO 3.7.12, Condition B.

An evaluation determined that the event was related, in part, to a failure to review the requirements of the ABSCE breach permit. Corrective actions included revising the associated work order to add a hold point to ensure the ABSCE permit is reviewed, understood, and adhered to prior to and during breach. The hold point now requires a supervisor's signature to proceed in the work order.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

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 Information Services Branch (T-2 F43), U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@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	2. DOCKET NUMBER	3. LER NUMBER		
Sequoyah Nuclear Plant Unit 1	05000-327	YEAR	SEQUENTIAL NUMBER	REV NO.
		2018	- 002	- 00

NARRATIVE**I. Plant Operating Conditions Before the Event**

At the time of the event, Sequoyah Nuclear Plant (SQN) Unit 1 was in Mode 1 at 100 percent rated thermal power. Unit 2 was in Mode 5 due to a refueling outage.

II. Description of Event**A. Event Summary:**

On November 24, 2018, at 0930 eastern standard time (EST), Maintenance Services personnel were removing surplus ice as part of ice condenser maintenance activities in connection with the Unit 2 refueling outage. This required a breach of auxiliary building [EIIS: NF] secondary containment enclosure (ABSCE) boundary Door [EIIS: DR] A118 to allow a hose to be routed from a vacuum truck outside to an ice bin inside the Unit 2 Additional Equipment Building. A breach permit was open and had been used by other work groups, performing different activities, prior to the event. Maintenance Services personnel were aware of the open breach permit, but were not aware of the compensatory measures required for the breach permit. The ABSCE breaching permit required personnel to be stationed in the main control room (MCR) in communication with personnel responsible for closing Door A118 within 3 minutes. At 1420, it was discovered that there were no personnel stationed in the MCR to perform this function.

The open door created a breach of the ABSCE boundary that exceeded the allowed breach margin. As a result, both units entered Technical Specification (TS) Limiting Condition for Operation (LCO) 3.7.12, Condition E for a required train of Auxiliary Building Gas Treatment System (ABGTS) [EIIS: VF] inoperable with fuel stored in the spent fuel pool and Unit 1 entered LCO 3.7.12, Condition B for two trains of the ABGTS inoperable due to an inoperable ABSCE boundary in Mode 1, 2, 3, or 4. At 1435, the door was closed and both units exited LCO 3.7.12, Condition E and Unit 1 exited LCO 3.7.12, Condition B.

An 8-hour non-emergency event notification (EN 53751) was made to the NRC in accordance with 10 CFR 50.72(b)(3)(v) as an event or condition that could have prevented fulfillment of a safety function of structures or systems that are needed to: (C) control the release of radioactive material and (D) mitigate the consequences of an accident. This LER documents the reportable event under 10 CFR 50.73(a)(2)(v)(C) and 10 CFR 50.73(a)(2)(v)(D).

B. Status of structures, components, or systems that were inoperable at the start of the event and contributed to the event:

No inoperable structures, components, or systems contributed to this event.

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C. Dates and approximate times of occurrences:

Date/Time (EST)	Description
11/24/18, 0930	Door A118 was breached to support ice condenser maintenance activities.
11/24/18, 1420	Operators identified that Door A118 was breached. The identified breach exceeded the allowed ABSCE breach margin. Operators directed Door A118 to be closed. Unit 1 entered LCO 3.7.12, Condition B and both units entered LCO 3.7.12, Condition E.
11/24/18, 1435	Door A118 was verified closed. This restored the ABSCE boundary. Unit 1 exited LCO 3.7.12, Condition B and both units exited LCO 3.7.12, Condition E.

D. Manufacturer and model number of each component that failed during the event:

There was no component that failed during the event.

E. Other systems or secondary functions affected:

There were no other systems or secondary functions affected by this event.

F. Method of discovery of each component or system failure or procedural error:

Operators identified that Door A118 was open creating a breach of the ABSCE boundary that exceeded the allowed ABSCE breach margin.

G. Failure mode, mechanism, and effect of each failed component:

There was no component that failed during the event.

H. Operator actions:

Both trains of ABGTS were declared inoperable due to the breach associated with Door A118 exceeding the allowed ABSCE breach margin. Unit 1 entered LCO 3.7.12, Condition B and both units entered LCO 3.7.12, Condition E.

I. Automatically and manually initiated safety system responses:

There were no automatic or manually initiated safety system responses associated with this event.

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III. Cause of the Event**A. Cause of each component or system failure or personnel error:**

Following are the identified causes of the event:

- There was a failure to cover the ABSCE breach permit and required compensatory measures in the pre-job brief.
- There was a failure to cover internal and external operating experience during the pre-job brief.

B. Cause(s) and circumstances for each human performance related root cause:

There was a communication gap within separate work groups that contributed to not identifying the ABSCE breach permit owner and the required compensatory measures.

Personnel involved were non-licensed, Maintenance Services contractors. They were performing work associated with ice condenser maintenance activities in connection with a refueling outage. There were no schedule or situational pressures present.

IV. Analysis of the Event:

The ABGTS filters airborne radioactive particulates from the area of the fuel pool following a fuel handling accident or loss of coolant accident (LOCA). In Mode 1, 2, 3, or 4, the ABGTS is required to be operable to provide fission product removal associated with Emergency Core Cooling System leaks due to a LOCA and leakage from containment and annulus. The analysis of the fuel handling accident assumes that the ABSCE boundary is capable of being established to ensure the releases from the auxiliary and containment buildings are consistent with the dose consequence analysis, no credit is taken for filtration by the ABGTS.

ABGTS is a standby system that consists of two independent and redundant trains. Each train consists of a heater, a prefilter, a high efficiency particulate air filter, an activated charcoal adsorber section for removal of gaseous activity, and a fan. The system initiates filtered ventilation of the auxiliary building following receipt of a high radiation signal from the fuel handling area radiation monitors, a high radiation signal from the train-specific Auxiliary Building exhaust vent monitor, a Phase A containment isolation signal from either reactor, or a high temperature signal from the Auxiliary Building air intakes.

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The breached door exceeded the allowed ABSCE breach margin rendering the ABSCE inoperable. This configuration could have prevented the ABGTS from maintaining a pressure greater than or equal to -0.25 inches water gauge with respect to atmospheric pressure during the post accident mode of operation.

V. Assessment of Safety Consequences

There were no actual safety consequences as a result of this event. Engineering evaluation determined that a delay associated with closing Door A118 would not have resulted in exceeding 10 CFR 100 dose limits. Accordingly, the risk associated with this event is considered to be small.

- A. Availability of systems or components that could have performed the same function as the components and systems that failed during the event:

There were no components or systems that failed during the event.

- B. For events that occurred when the reactor was shut down, availability of systems or components needed to shutdown the reactor and maintain safe shutdown conditions, remove residual heat, control the release of radioactive material, or mitigate the consequences of an accident:

The ABGTS is credited for mitigating the consequences of an accident and controlling the release of radioactive material. Unit 2 was in a refueling outage while the ABGTS was inoperable.

- C. For failure that rendered a train of a safety system inoperable, an estimate of the elapsed time from discovery of the failure until the train was returned to service:

The elapsed time from discovery of both trains of ABGTS being inoperable until both trains were restored to operable status was approximately 15 minutes.

VI. Corrective Actions

This event was entered into the Tennessee Valley Authority Corrective Action Program under Condition Report 1469554.

- A. Immediate Corrective Actions:

Briefings were conducted with maintenance services personnel to provide review and understanding of required compensatory actions for ABSCE breach permits.

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B. Corrective Actions to Prevent Recurrence or to reduce probability of similar events occurring in the future:

Corrective actions include revising the associated work order to add a hold point to ensure the ABSCE permit is reviewed, understood, and adhered to prior to and during breach. The hold point now requires a supervisor's signature to proceed in the work order.

VII. Previous Similar Events at the Same Site:

A review of SQN LERs identified an event in which a penetration affecting the ABSCE was breached without required compensatory measures. LER 327 and 328/2017-001, associated with the event, identified the cause to be a less than adequate single barrier breaching procedure exits at SQN. A contributing cause was an inconsistent approach to entry into the barrier breaching process. Corrective actions included revising the breaching procedure to address all possible breaches and include a matrix for doors and their associated impacts, and addressing potential knowledge deficiencies.

VIII. Additional Information

There is no additional information.

IX. Commitments:

There are no commitments.