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

Timothy P. Cleary
Site Vice President
Sequoyah Nuclear Plant

April 10, 2009

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

10 CFR 50.73

Gentlemen:

TENNESSEE VALLEY AUTHORITY - SEQUOYAH NUCLEAR PLANT (SQN) UNITS 1 AND 2 - DOCKET NOS. 50-327 AND 50-328 - FACILITY OPERATING LICENSE DPR-77 AND DPR-79 - LICENSEE EVENT REPORT (LER) 50-327 AND 50-328/2009-002-00

The enclosed LER provides details concerning a condition prohibited by the SQN technical specifications (TSs) regarding select SQN reactor coolant system leakage detection equipment. The leakage detection capability of the lower containment atmosphere gaseous radioactivity monitors may not have satisfied the leakage rate detection requirements during required plant conditions. This report is being submitted in accordance with 10 CFR 50.73 (a) (2) (i) (B), as an event that was prohibited by the plant's TS requirements.

Sincerely,

Timothy P. Cleary

Enclosure
cc: See page 2

printed on recycled paper

Enclosure
cc (Enclosure):

INPO Records Center
Institute of Nuclear Power Operations
700 Galleria Parkway, SE, Suite 100
Atlanta, Georgia 30339-5957

Mr. Tracy J. Orf, Project Manager
U.S. Nuclear Regulatory Commission
Mail Stop 08G-9a
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2739

NRC Resident Inspector
Sequoyah Nuclear Plant
2600 Igou Ferry Road
Soddy-Daisy, Tennessee 37379

NRC FORM 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 08/31/2010

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.

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Sequoyah Nuclear Plant (SQN) Unit 1	05000327	1 OF 6

4. TITLE:
Lower Containment Gaseous Radiation Monitor Channel Inoperable, a Resultant of Leakage Detection Capabilities

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
									SQN Unit 2	05000328
02	11	2009	2009	- 002 -	00	04	10	2009	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE
1

10. POWER LEVEL
100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*

- ☐ 20.2201(b)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☐ 50.73(a)(2)(i)(A)
- ☒ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☐ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☐ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER
  Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER *(Include Area Code)*
Zachary T Kitts	423-843-7018

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
B	IJ	RI	G063	NO					

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

On November 6, 2008, NRC verbally informed SQN that the lower containment atmosphere gaseous radioactivity monitors were considered inoperable. SQN subsequently declared the lower containment atmosphere gaseous radioactivity monitor channels inoperable and complied with the associated technical specification (TS) actions of Limiting Condition for Operation 3.4.6.1. On November 12, 2008, SQN submitted a license amendment request (LAR) to remove the lower containment atmosphere gaseous radioactivity monitor channels from the SQN TSs. NRC approved the SQN LAR on December 4, 2008. On February 11, 2009, NRC documented a violation of Units 1 and 2 TS 3.4.6.1, "Leakage Detection Instrumentation," for the SQN failure to maintain the gaseous lower containment atmosphere radioactivity monitors of the reactor coolant system (RCS) leakage detection instrumentation operable. NRC concluded that the Unit 1 and 2 monitors had been inoperable since June 1987 as a result of not being able to perform their safety function of detecting a RCS pressure boundary leak of 1 gallon per minute in one hour because of improvements in reactor fuel quality. In addition, NRC exercised enforcement discretion and did not issue enforcement action for this violation in accordance with Enforcement Guidance Memorandum 09-001, "Dispositioning Violations of NRC Requirements for Operability of Gaseous Monitors for Reactor Coolant System Leakage Detection."

I. PLANT CONDITION(S)

Unit 1 was operating at approximately 100 percent power when the lower containment atmosphere gaseous radioactivity monitor channel was declared inoperable. Unit 2 was in Mode 5, cold shutdown, and this condition does not require the lower containment atmosphere gaseous radioactivity monitor channel to be operable.

II. DESCRIPTION OF EVENT

A. Event:

On November 6, 2008, NRC verbally informed SQN that the lower containment atmosphere gaseous radioactivity monitors [EIIS Code RI] were considered inoperable. SQN subsequently declared the lower containment atmosphere gaseous radioactivity monitor channels inoperable and complied with the associated technical specification (TS) actions of Limiting Condition for Operation (LCO) 3.4.6.1, "Leakage Detector Instrumentation." On November 12, 2008, TVA submitted for a license amendment request (LAR) to remove the lower containment atmosphere gaseous radioactivity monitor channels from the SQN TSs. NRC approved the SQN LAR on December 4, 2008, and SQN implemented the change and exited the LCO requirement. NRC's inspection report dated February 11, 2009, documented the Unit 1 and 2 monitors had been inoperable since June 1987 as a result of not being able to perform their safety function of detecting a reactor coolant system (RCS) pressure boundary leak of 1 gallon per minute (gpm) in one hour because of improvements in reactor fuel quality.

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

None.

C. Dates and Approximate Times of Major Occurrences:

November 3, 2008	NRC resident questioned the capability of the lower containment atmospheric gaseous channels to meet TSs requirements. Regulatory Guidance-1.45 requires the leakage detection instrumentation in the TSs be capable of detecting a RCS pressure boundary leak of 1 gpm in one hour.
November 3, 2008	Unit 2 experiences a reactor trip in which a response by the leakage detection system is required.
November 4-5, 2008	TVA provided evidence to the NRC Resident Inspector regarding the SQN licensing basis of the RCS leakage detection system.

November 6, 2008	NRC verbally informed SQN that the lower containment atmosphere gaseous radioactivity monitors were considered inoperable.
November 6, 2008	With Unit 1 in Mode 1, SQN declared the Unit 1 lower containment atmosphere gaseous radioactivity monitor channel inoperable and complied with the appropriate LCO actions.
November 7, 2008	Prior to Unit 2 entering Mode 4, SQN declared the Unit 2 lower containment atmosphere gaseous radioactivity monitor channel inoperable and complied with the appropriate LCO actions.
November 8, 2008	SQN submitted an LAR to remove the lower containment atmosphere gaseous radioactivity monitor channel from the TSs.
December 4, 2008	NRC approved the LAR and SQN implemented the TS change.
February 11, 2009	NRC exercised enforcement discretion in regards to an identified violation at SQN for failure to maintain the lower containment atmosphere gaseous radioactivity monitor of the RCS leakage detection instrumentation operable in accordance with Units 1 and 2 TS 3.4.6.1.

D. Other Systems or Secondary Functions Affected:

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

E. Method of Discovery:

NRC resident questioned the capability of the lower containment atmospheric gaseous channels to meet TS LCO 3.4.6.1 requirements.

F. Operator Actions:

Subsequent to the dialogue with NRC on November 6, 2008, Operations declared the lower containment atmosphere gaseous radioactivity monitor channel inoperable for Unit 1 on November 6, 2008, at 1845 EST and Unit 2 on November 7, 2008, at 0426 EST during restart of the unit. Declaration of the Unit 2 lower containment atmosphere gaseous radioactivity monitor channel being inoperable was not performed until the unit was in the mode of applicability for the channel.

G. Safety-System Responses:

No safety-system response was required to function at the time SQN declared the lower containment atmosphere gaseous radioactivity monitor channels inoperable. These channels do not provide an automatic safety-system start signal.

III. CAUSE OF THE EVENT

A. Immediate Cause:

Regulatory requirement for the lower containment atmosphere gaseous radioactivity monitors to detect a 1 gpm in one hour of an RCS leak based on realistic source terms.

B. Root Cause:

SQN interpreted its licensing basis to not require detection of 1 gpm in one hour of an RCS leak by the lower containment atmosphere gaseous radioactivity monitors in all plant conditions, based on NRC correspondence during original plant licensing. Upon further review and discussions with the NRC, TVA made a decision to declare its lower containment gaseous radioactivity monitors inoperable and enter TS 3.4.6.1 for both units.

C. Contributing Factor:

TVA did not consider the SQN licensing basis for the RCS leakage detection system to require detection of 1 gpm in one hour RCS leak by the lower containment atmosphere gaseous radioactivity monitors during all plant conditions. This consideration is based on the NRC safety evaluation of the RCS leakage detection system in Section 5.2.4 of NUREG-0011, “Safety Evaluation Report by the Office Of Nuclear Reactor Regulation U.S. Nuclear Regulatory Commission In the Matter of Tennessee Valley Authority Sequoyah Nuclear Plant Units 1 And 2 Docket Nos. 50-327 and 50-328.” Also, TVA informed Atomic Energy Commission (AEC) of its RCS leakage detection system capability to meet Regulatory Guide (RG) 1.45, “Reactor Coolant Pressure Boundary Leakage Detection System,” May 1973. TVA’s response stated full compliance with RG-1.45 could not be met because the system was designed, contracted for, and partially installed prior to the issuance of the RG.

IV. ANALYSIS OF THE EVENT

On November 3, 2008, NRC resident questioned the capability of the lower containment atmospheric gaseous channels to meet LCO 3.4.6.1. RG-1.45 requires the leakage detection instrumentation in the TSs be capable of detecting a RCS pressure boundary leak of 1 gpm in one hour. Later on November 3, 2008, SQN Unit 2 experienced a reactor trip in which the leakage detection system responded. However, the lower containment atmosphere gaseous radioactivity monitor did not provide helpful information to the Operators.

The leakage detection system primarily consists of two lower containment atmospheric radioactivity monitors (gaseous and particulate) and the containment pocket sump level instrumentation [EIIS Code LI]. Although, the lower containment gaseous radioactivity monitor channel may not be capable of detecting a 1 gpm in one hour RCS leak under all plant conditions, the leakage detection system would meet the regulatory requirement for detection of leakage from the RCS pressure boundary and would have fulfilled the safety analysis requirements.

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 declared each unit’s lower containment atmosphere gaseous radioactivity monitor channel inoperable and entered into the appropriate action of LCO 3.4.6.1.

B. Corrective Actions to Prevent Recurrence:

On November 12, 2008, TVA requested an LAR for each SQN unit to remove the lower containment atmosphere gaseous radioactivity monitor channel from the TSs. On December 4, 2008, NRC approved SQN’s request.

VII. ADDITIONAL INFORMATION

A. Failed Components:

None.

B. Previous LERs on Similar Events:

Review of license event reports for Units 1 and 2 since 2004 found no previous similar events related to non-compliance with TSs.

C. Additional Information:

TVA selected February 11, 2009, as the starting date for reporting this event based on the issuance of NRC Inspection Report 0500327 and 0500328/2008-005, and the active NRC regulatory response to this issue.

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.