

April 23, 2003

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

10 CFR 50.73

Gentlemen:

**TENNESSEE VALLEY AUTHORITY - SEQUOYAH NUCLEAR PLANT UNIT 2 -
DOCKET NO. 50-328 - FACILITY OPERATING LICENSE DPR-79 -
LICENSEE EVENT REPORT (LER) 50-328/2003-003-00**

The enclosed report provides details concerning excessive leakage of a containment purge system containment isolation valve. This event is being reported, in accordance with 10 CFR 50.73(a)(2)(i)(B), as any operation or condition which was prohibited by Technical Specification.

This letter is being sent in accordance with NRC RIS 2001-05.

Sincerely,

Original signed by

Richard T. Purcell

Enclosure

cc (Enclosure):

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

Mr. Michael L. Marshall Jr., Senior Project Manager
U.S. Nuclear Regulatory Commission
MS-0-8G9A
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2739

NRC FORM 366 (7-2001)			U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004 Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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 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 Sequoyah Nuclear Plant (SQN) UNIT 2						2. DOCKET NUMBER 05000328			3. PAGE 1 OF 6		
4. TITLE Excessive Leakage of a Containment Purge System Containment Isolation Valve											
5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED		
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
02	28	2003	2003	003	00	04	23	2003	FACILITY NAME	DOCKET NUMBER	
9. OPERATING MODE			1			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)					
10. POWER LEVEL			100								
			20.2201(b)			20.2203(a)(3)(ii)			50.73(a)(2)(ii)(B)		
			20.2201(d)			20.2203(a)(4)			50.73(a)(2)(iii)		
			20.2203(a)(1)			50.36(c)(1)(i)(A)			50.73(a)(2)(iv)(A)		
			20.2203(a)(2)(i)			50.36(c)(1)(ii)(A)			50.73(a)(2)(v)(A)		
			20.2203(a)(2)(ii)			50.36(c)(2)			50.73(a)(2)(v)(B)		
			20.2203(a)(2)(iii)			50.46(a)(3)(ii)			50.73(a)(2)(v)(C)		
			20.2203(a)(2)(iv)			50.73(a)(2)(i)(A)			50.73(a)(2)(v)(D)		
			20.2203(a)(2)(v)			X 50.73(a)(2)(i)(B)			50.73(a)(2)(vii)		
20.2203(a)(2)(vi)			50.73(a)(2)(i)(C)			50.73(a)(2)(viii)(A)			OTHER Specify in Abstract below or in NRC Form 366A		
20.2203(a)(3)(i)			50.73(a)(2)(ii)(A)			50.73(a)(2)(viii)(B)					
12. LICENSEE CONTACT FOR THIS LER											
NAME J. Bajraszewski						TELEPHONE NUMBER (Include Area Code) (423) 843-7749					
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	VA	V	P340	Y							
14. SUPPLEMENTAL REPORT EXPECTED											
YES (If yes, complete EXPECTED SUBMISSION DATE)					X		NO		15. EXPECTED SUBMISSION DATE		
									MONTH DAY YEAR		
16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)											
<p>On February 28, 2003, at 1851 Eastern standard time (EST), Technical Specification (TS) Limiting Condition for Operation (LCO) 3.6.1.9, Action b, was exceeded because of excessive leakage through a containment purge exhaust containment isolation valve and the inability to repair the valve within the TS allowed outage time (AOT) of 24 hours. On February 27, 2003, during performance of a surveillance instruction it was determined that containment penetration X-6 leakage was above TS acceptance criteria of .05L_a. Penetration X-6 contains two 24-inch air-operated butterfly valves. Before expiration of the TS AOT, NRC staff enforcement discretion was obtained for an additional 144 hours to identify the source of leakage, repair or replace the components, and perform verification testing. Troubleshooting found the inboard containment isolation valve had failed to fully close resulting in leakage through the valve seat. The valve failed to fully close because the actuator yoke key sheared as a result of inadequate key engagement. The valve is air operated with the operator mounted below the valve centerline. The key was replaced, the valve was tested and found acceptable, and the system was returned to service. Review of historical documents determined that inadequate actuator key engagement occurred either during plant construction or during valve assembly by the manufacturer. Similar valves will be inspected for adequate key engagement.</p>											

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
Sequoyah Nuclear Plant (SQN) Unit 2	05000328	YEAR	SEQUENTIAL NUMBER	REVISION	2 OF 6
		2003 --	003 --	00	

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

I. PLANT CONDITION(S)

Unit 2 was in power operation at approximately 100 percent power.

II. DESCRIPTION OF EVENT

A. Event:

On February 28, 2003, at 1851 Eastern standard time (EST), Technical Specification (TS) Limiting Condition for Operation (LCO) 3.6.1.9, Action b, was exceeded because of excessive leakage through a containment purge exhaust [EIS Code VA] containment isolation valve [EIS Code V] and the inability to repair the valve within the TS allowed outage time (AOT) of 24 hours. On February 27, 2003, during performance of a surveillance instruction it was determined that containment penetration X-6 leakage was above TS acceptance criteria. Penetration X-6 contains two 24-inch air-operated butterfly valves. Before expiration of the TS AOT, NRC staff enforcement discretion was obtained for an additional 144 hours to identify the source of leakage, repair or replace the components, and perform verification testing. Troubleshooting found the inboard containment isolation valve had failed to fully close resulting in leakage through the valve seat.

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

None.

C. Dates and Approximate Times of Major Occurrences:

February 27, 2003, at 1520 EST Began local leak rate testing (LLRT) of containment purge valves at penetration X-6.

February 27, 2003, at 1851 EST Entered TS LCO 3.6.1.9 Action b (containment ventilation system) because penetration X-6 valves failed LLRT. The leak rate criterion was less than or equal to 11.25 standard cubic feet per hour (scfh) or .05L_a.

February 28, 2003, at 1806 EST NRC staff provided verbal approval for requested notice of discretionary enforcement of LCO 3.6.1.9.b for extension of the TS action time by an additional 144 hours.

February 28, 2003, at 1851 EST TS LCO 3.6.1.9.b allowed action time of 24 hours expires.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
Sequoyah Nuclear Plant (SQN) Unit 2	05000328	YEAR	SEQUENTIAL NUMBER	REVISION	3 OF 6
		2003 --	003 --	00	

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

March 4, 2003, at 1626 EST Valve repair completed, LLRT performed and found acceptable, and TS LCO 3.6.1.9, Action b, was exited.

D. Other Systems or Secondary Functions Affected:

None.

E. Method of Discovery:

The containment purge valve leakage was identified during routine surveillance instruction performance.

F. Operator Actions:

Control room operators evaluated the condition and took action to maintain the plant in a safe condition. The appropriate TS LCO was entered, plant management was notified, and work documents were initiated to troubleshoot and restore the valves to an operable condition.

G. Safety System Responses:

No safety system responses were required.

III. CAUSE OF THE EVENT

A. Immediate Cause:

The immediate cause of the event was the failure of a 24-inch air operated butterfly valve to close. Limit switch operated position indication lights indicated the valve moved to the closed position; however, penetration LLRT found leakage through one of the valves in excess of TS acceptance criteria for this penetration.

B. Root Cause:

The root cause of the event was inadequate engagement of an actuator yoke key, between the actuator yoke and valve stem, resulting in failure of the actuator yoke key. Actuator yoke key engagement was found to be approximately $\frac{1}{2}$ to $\frac{3}{4}$ inch. The actuator yoke key sheared resulting in the valve disk not responding to the valve operator. The valve is air operated, with the valve operator mounted below the valve centerline.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
Sequoyah Nuclear Plant (SQN) Unit 2	05000328	YEAR	SEQUENTIAL NUMBER	REVISION	4 OF 6
		2003 --	003 --	00	

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

Before completion of Unit 2 construction, a lack of key engagement was discovered on Unit 1, in a valve. That condition led to installation of actuator yoke key position retention bushing for valves with operators configured below the valve centerline. This configuration could result in the key shifting and becoming disengaged from the operator. Review of the document used to install key retention bushings found that the amount of key engagement was not verified during installation of the bushing. The failed containment purge valve did have a key position retention bushing in place, however; it could not be determined if the observed key engagement occurred during valve assembly by the factory or at some point before installation of the position retention bushing.

C. Contributing Factor:

None

IV. ANALYSIS OF THE EVENT

The containment ventilation system (reactor building purge system) provides mechanical ventilation of the primary containment (upper and lower), the instrument room (located inside containment), and the annulus area located between the steel containment vessel and the concrete shield building. The system is designed to supply fresh air for breathing and contamination control to allow personnel access for maintenance and refueling activities. The system consists of two purge air supply fans, two purge air exhaust fans for the containment and annulus areas, dampers, piping, and containment purge isolation valves at the containment penetrations. Each purge penetration is designed to isolate upon a containment isolation signal or upon detection of high radiation in the purge exhaust.

Leakage for 10 CFR 50, Appendix J, Type B and C penetrations combined, including the as found purge exhaust penetration leakage, results in a worst-case minimum path leakage of 33.5 scfh. This is much less than the TS limit for an allowable leakage of 135 scfh. Additionally, the leakage was much less than the overall containment leakage limit of 225 scfh. Therefore, the assumptions used for the plant accident analysis are not affected by the fail-to-seal condition of the purge valves and the results of the accident analyses remain bounding.

Additionally, compensatory measures were put in place to ensure that containment penetration X-6 was administratively controlled such that the penetration flow path would not contribute to additional containment leakage beyond the allowable limits.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
Sequoyah Nuclear Plant (SQN) Unit 2	05000328	YEAR	SEQUENTIAL NUMBER	REVISION	5 OF 6
		2003 --	003 --	00	

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

V. ASSESSMENT OF SAFETY CONSEQUENCES

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

VI. CORRECTIVE ACTIONS

A. Immediate Corrective Actions:

Measures were put in place to ensure that containment Penetration X-6 was administratively controlled such that the penetration flow path would not contribute to additional containment leakage beyond the allowable limits.

Troubleshooting identified a failed valve. The failed valve was removed, repaired, reinstalled, and successfully tested.

B. Corrective Actions to Prevent Recurrence:

To determine the extent of condition and prevent recurrence, air operated valves with operators configured below the valve centerline, that could impact TS LCOs of less than or equal to seven days, will be inspected to determine whether actuator key engagement is acceptable. This action is contained in the corrective action program.

VII. ADDITIONAL INFORMATION

A. Failed Components:

An actuator yoke key (Part Number 21084) of a 24-inch Pratt valve (Model Number N-SL-2FII) with a Bettis Actuator (Model Number 732C-SR80) sheared.

B. Previous LERs on Similar Events:

A review of previous reportable events for the past three years did not identify any similar events.

C. Additional Information:

None

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
Sequoyah Nuclear Plant (SQN) Unit 2	05000328	YEAR	SEQUENTIAL NUMBER	REVISION	6 OF 6
		2003 --	003 --	00	

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

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).

VIII. COMMITMENTS

None.