

TENNESSEE VALLEY AUTHORITY

6N 38A Lookout Place
December 7, 1989

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

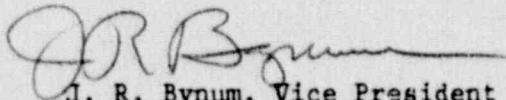
Gentlemen:

TENNESSEE VALLEY AUTHORITY - SEQUOYAH NUCLEAR PLANT UNIT 2 - DOCKET NO.
50-328 - FACILITY OPERATING LICENSE DPR-79 - LICENSEE EVENT REPORT (LER)
50-328/89014

The enclosed LER provides details concerning two containment ventilation isolations that resulted during venting of the pressurizer relief tank and removal of grinding residue from the reactor head vent piping cuts. This event is reported in accordance with 10 CFR 50.73, paragraph a.2.iv.

Very truly yours,

TENNESSEE VALLEY AUTHORITY


J. R. Bynum, Vice President
Nuclear Power Production

Enclosure

cc (Enclosure):

Regional Administration
U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II
101 Marietta Street, Suite 2900
Atlanta, Georgia 30323

INI J Records Center
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

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

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LICENSE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20585, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

Sequoia Nuclear P t, Unit 2

DOCKET NUMBER (2)

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PAGE (3)

TITLE (4) Two containment ventilation isolations were caused by directing undiluted noble gases to the containment purge system during reactor head vent valve replacement.

EVENT DATE (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)		
1	1	1	0	8	9	8	9	-	0 1 4	-	0 0 1 2 0 7 8 9	0 5 0 0 0

OPERATING MODE (9) 3 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

POWER LEVEL (10) 0 0 0	20.402(h)	20.405(c)	XX	60.73(a)(2)(iv)	73.71(d)
	20.405(a)(1)(ii)	50.36(c)(1)		60.73(a)(2)(v)	73.71(e)
	20.405(a)(1)(iii)	50.36(c)(2)		60.73(a)(2)(vii)	
	20.406(a)(1)(ii)	60.73(a)(2)(ii)		60.73(a)(2)(viii)(A)	OTHFR (Specify in Abstract below and in Text, NRC Form 366A)
	20.406(a)(1)(iv)	60.73(a)(2)(iii)		60.73(a)(2)(viii)(B)	
	20.406(a)(1)(v)	60.73(a)(2)(iii)		60.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER	
Sydney W. Spencer, Compliance Licensing Engineer	AREA CODE	6 1 1 5 8 1 4 3 1 - 7 1 5 1 4 0

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, continue EXPECTED SUBMISSION DATE)	XX NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

ABSTRACT (Limit to 140 words, i.e., approximately fifteen single-space typewritten lines) (16)

At approximately 1748 Eastern daylight time (EDT), on November 10, 1989, with Unit 2 in Mode 3, and at approximately 1010 EDT, on November 11 1989, containment ventilation isolations (CVIs) occurred on Unit 2. During planned work activities both of the isolations occurred as a result of noble gases being directed to the purge air exhaust system. The first CVI occurred when the pressurizer relief tank (PRT) was being vented in preparation for the replacement of the reactor head vent (RHV) valves. The PRT was being vented through a 1-inch line to the purge air exhaust system to remove any residual hydrogen gases prior to cutting and welding of the RHV valves. The second CVI occurred after the RHV valves were removed. During weld preparation efforts, a vacuum unit was being used to remove cuttings from the pipe opening leading to the PRT. While removing cuttings from the pipe opening radioactive noble gases were pulled from the PRT and exhausted to the containment purge exhaust system. Both CVIs resulted from a failure of personnel to evaluate the consequences of exhausting gases directly to the purge exhaust system. The safety-related systems functioned as designed. Corrective action consists of issuing a procedure that provides guidance for venting or breaching systems known or suspected to contain radioactive noble gases.

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20585, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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Sequoia Nuclear Plant, Unit 2	0 5 0 0 0 3 2 8 8 9 - 0 1 4 - 0 0 0 2 0 F 0 3									

TEXT IF more space is required, use additional NRC Form 386A's (17)

Description of Event

On November 10, 1989, with Unit 2 in Mode 3 (0 percent power, 450 pounds per square inch gauge, and 360 degrees Fahrenheit), a containment ventilation isolation (CVI) (EIIS Code JM) occurred on Unit 2 at approximately 1748 Eastern daylight time (EDT). Unit 2 had reduced power to replace four reactor head vent (RHV) valves that had developed an approximate four gallon-per-minute leak. The pressurizer relief tank (PRT) was purged with nitrogen gas for approximately nine hours prior to the initiation of the head vent valve and related piping purging. After the PRT and the RHV piping was verified to be isolated, a flange and a 1-inch diameter hose was connected downstream of the vent Valve 68-602. The other end of the hose was placed near the lower containment purge air exhaust inlet duct to remove any residual hydrogen in the RHV piping before performing cutting and welding involved with replacing the RHV valves. After Valve 68-602 was opened, the CVI occurred. Operations recovered from the CVI in accordance with System Operating Instruction (SOI) 30.2.

On November 11, 1989, at approximately 0830 the removal of the RHV valves began. The pipe cuts were completed using a glove box to minimize the potential for personnel contamination. Following removal of the valve, the pipe openings were covered. During weld preparation efforts, a vacuum unit was being used to remove cuttings from the pipe opening leading to the PRT. Radioactive noble gases were pulled from the PRT through the RHV piping and were exhausted directly into the purge air exhaust system. Consequently, at approximately 1010 EDT the second CVI occurred.

This venting process had been previously utilized to perform similar venting activities during refueling outages. There had been no previous CVIs using this process; therefore, no problems were anticipated. However, during refueling outages, the time period prior to opening of the system would be much longer, thus, allowing the noble gases sufficient time for the short-lived isotopes to decay.

Cause of Event

The root cause of the two CVIs was that plant personnel failed to fully evaluate the consequences of venting noble gases directly into the containment purge air exhaust system. Two contributing causes were identified: (1) no procedure existed for evaluating the venting processes for adequate dilution of the noble gases before exhausting to the purge air system and (2) actions taken concerning the first CVI did not consider the remaining gas concentration in the PRT to be high enough to cause a second CVI.

Analysis of Event

These events are reportable in accordance with 10 CFR 50.73, paragraph a.2.iv, as an engineered safety feature (ESF) actuation, which was not part of a preplanned sequence of steps. Following the CVIs, Operations personnel took appropriate actions to recover from the CVI and verified that the CVIs were the result of the work activities and that an actual high radiation condition in lower containment did not exist. The maximum permissible concentration (MPC) in lower containment that would be necessary to cause a

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TEXT CONTINUATION**

ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN, ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-630), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20585, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20585.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						PAGE (3)			
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Sequoia Nuclear Plant, Unit 2		0 5 0 0 0 3	2 8 8 9	- 0 1 4 -	0 0 0 3	0 0 0 3	0 0 0 3	0 0 0 3	0 0 0 3	0 0 0 3	0 0 0 3

TEXT IF ADDITIONAL SPACE IS REQUIRED. USE ADDITIONAL NRC FORM 388A IF (17)

Analysis of Event (continued)

CVI is 193. The actual MPC in lower containment for the first event was 3.3 and for the second event was 4.29. The CVI setpoint for the containment purge radiation monitor had not been adjusted and was set at 20 percent of the technical specification limit. Upon receipt of the CVI signals, the equipment required to actuate on a CVI signal performed as designed. Because these inadvertent CVI actuations were caused by small quantities of undiluted noble gases, no threat existed to plant personnel or to the general public. Therefore, no adverse safety consequences resulted from this event. The effects of these events would have been the same for any mode of operation.

Corrective Action

As immediate corrective action, Unit 2 Operations personnel verified that the CVIs were the result of the work activities and not an actual high radiation condition in the Unit 2 containment. Operations initiated recovery from the CVIs in accordance with SOI-30.2. At approximately 1222 on November 11, 1989, the second CVI was reset.

As interim corrective action, the Operations Manager will be contacted for approval prior to venting of systems not covered by existing plant procedures.

As long-term corrective action, TVA will issue a procedure to be used while venting systems known or suspected to contain radioactive noble gases. This procedure will provide direction to prevent unanticipated containment isolations. This procedure will not supersede established venting processes already existing in other approved plant procedures.

Additional Information

Since 1984, there have been 49 LERs reporting CVIs. The previously reported CVIs have been attributable to spurious actuations. The previous CVIs were reviewed by the task force that was established to review ESF actuators. The results of this evaluation were included in LER 1-89013.

Commitment

TVA will issue a procedure to be used during venting systems known or suspected to contain radioactive noble gases by April 6, 1990. This procedure will not supersede established venting processes already existing in other approved plant procedures.