TENNESSEE VALLEY AUTHORITY

6N 38A Lookout Place

June 14, 1989

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

Gentlemen:

TENNESSEE VALLEY AUTHORITY - SEQUOYAH NUCLEAR PLANT UNIT 1 - DOCKET NO. 50-327 - FACILITY OPERATING LICENSE DPR-77 - LICENSEE EVENT REPORT (LER) 50-327/89016

The enclosed LER provides details concerning a failure to block a radiation monitor before deenergization, which resulted in a containment ventilation isolation. This event is reported in accordance with 10 CFR 50.73, paragraph a.2.iv.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

for J. R. Bynum, Vice President
Nuclear Power Production

Enclosure
cc (Enclosure):
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NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

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TITLE (4) Failure to block radiation monitor before performance of work resulted in a containment ventilation isolation.

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)
0 5	1 6	8 9	8 9	— 0 1 6	— 0 0	0 6	0 9	8 9		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	1 0 0	20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

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

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)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

On May 16, 1989, at 2230 EDT, while Unit 1 was in mode 1, (100-percent power, 2235 psig, 578 degrees F) a Train A containment ventilation isolation (CVI) occurred. In preparation for radiation monitor 1-RM-90-130 pump replacement, the assistant shift operations supervisor (ASOS) had written hold orders to tag out the 480 volt (V) and 120V power supplies to the RM. The RM, which is a containment purge effluent radiation monitor, function is to initiate a containment ventilation isolation Train A on a high radiation signal. While the ASOS was opening and tagging the breakers for the RM, he was paged by the unit operator (UO) and informed that a CVI had been initiated. The UO then blocked the 1-RM-90-130 CVI signal. At the time of the CVI, the containment purge system was not in service. Subsequent to the CVI, the SOS contacted the instrument shop and requested their assistance to determine the initiating source of the CVI. The instrument shop notified the SOS that a loss of the 120V power supply would cause a high radiation signal and initiate a CVI. The root cause of the CVI has been determined to be inadequate corrective action. The CVI could have been prevented by blocking the output of the RMS analyzer module with a handswitch in the main control room before the 120V ac power was removed. As immediate corrective action (C/A), Operations personnel reset the CVI and generated a work request B265550 to have the isolation relay for 1-RM-90-130 removed to allow block switch O-HS-90-136A1 to be used for other RM blocking. Condition adverse to quality report SQP890306 was initiated to document ineffective C/A taken on previous LERs. For long term C/A, TVA will revise System Operating Instruction 90.1B to provide clear instructions for blocking engineered safety feature functions and removing the isolation relay before doing any instrument manipulation including clearances.

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

DESCRIPTION OF EVENT

On May 16, 1989, at 2230 Eastern daylight time (EDT), with Unit 1 in mode 1 (100-percent power, 2235 pounds per square inch gauge [psig], 578 degrees Fahrenheit [F]), a Train A containment ventilation isolation (CVI) (EIIS code JM) occurred. After shift relief for the 3-11 p.m. shift, the shift operations supervisor (SOS) gave the unit assistant shift operations supervisor (ASOS) several equipment clearance requests. During the shift, the ASOS proceeded to write, perform and issue the hold order clearance for radiation monitor (RM) 1-RM-90-130 (EIIS code IL), which is Train A containment purge effluent RM. The function of 1-RM-90-130 is to initiate a containment ventilation isolation on detection of a high radiation condition in the containment purge effluent. The containment purge system was not in service. After reviewing System Operating Instruction (SOI) 90.1, "Radiation Monitoring System," Section B, to verify valve numbers and power supplies, and electrical prints 45N706-1 and 45N756-2 to verify power supplies, the ASOS proceeded to open the breakers and hang the clearance tags to allow the work of replacing the sample pump to be initiated. The ASOS knew the RM was already out of service with the 480V power removed by the local switch being open. The ASOS decided to backup and tag the 480V supply breaker and the 120V module breaker to ensure craft safety because the the sample pump was being replaced and close tolerances inside the RM housing required extra protection. Immediately after opening the 120V breakers, the ASOS was paged by the UO and was informed that a CVI had been initiated. The UO recognized that the isolation was spurious because 1-RM-90-130 was already out of service and immediately blocked the 1-RM-90-130 CVI signal by use of hand switch O-HS-90-136A1 in the main control room. The CVI was reset and containment ventilation isolation valves were reopened for RM 1-RM-90-106 and 1-RM-90-112.

Subsequent to the CVI, the SOS contacted the instrument shop and requested their assistance in determining the source of the CVI. The review by the instrument shop concluded that deenergization of the 120V control circuit would cause initiation of a CVI because the pump status circuitry is powered from the 120V power supply that also supplies power to the radiation analyzer RP-30 module. Loss of power to the RP-30 module causes the relays to operate to the initiate position and a trip signal to be generated. Upon notification by the instrument shop, immediate attention list work request B26555D was initiated to have the isolation relay for 1-RM-90-130 removed to allow the 120V power to remain tagged out but enable the RM block switch O-HS-90-136A1 to be used as needed for other RM blocks. The handswitch O-HS-90-136A1 blocks all individual RM signals; therefore, it would be needed for blocking other RM in the future.

CAUSE OF EVENT

The root cause of the CVI, which occurred on May 16, 1989, has been determined to be inadequate corrective action taken as a result of previous CVIs. SOI-90.1B currently states the "Prior to placing in service, performing a functional source test or performing any maintenance activity, ensure the radiation monitor is blocked to prevent an inadvertent isolation signal from occurring. SOI-90.1B as written did not provide procedural guidance for this situation in that the procedure steps did not address removal of power from the RMs. Additionally, the ASOS did not consider the hanging of a clearance tag to be a maintenance activity, and, therefore, did not block the RM before removing power from the supply breaker. Contributing causes have been determined to be that training as a result of previous LERs performed for operation of RMs did not address the removal of power from the RMs, and the 120V power supply was not highlighted with a placard to alert personnel to refer to SOI-90.1 before opening the supply breaker.

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

CAUSE OF EVENT (Continued)

Sequoyah Standard Practice SQA199, "Integrated Schedule and Work Control," and Administrative Instruction (AI) 3, "Clearance Procedure," did not adequately interface to require an impact evaluation of clearance requests to be performed. An additional contributing cause was the task being performed was an infrequent task.

ANALYSIS OF EVENT

A CVI is an ESF actuation that is reportable for all modes of operation in accordance with 10 CFR 50.73, paragraph a.2.iv.

At the time of the event, the containment purge system was not in operation. The operators recognized that the isolation was spurious because the RM was already out of service and immediately block the 1-RM-90-130 signal. The containment isolation ventilation valves actuated to the closed position upon receipt of the isolation signal. The CVI signal was reset and the containment ventilation isolation valves that closed were reopened. If this event had occurred as a result of an actual high radiation condition, the required containment isolation valves would have performed their designed safety function. In summary, since no high radiation condition existed there was no threat posed to the health and safety to the public.

CORRECTIVE ACTION

As immediate C/A, Operations personnel blocked the 1-RM-90-130 signal and reset the CVI. The containment ventilation isolation valves, which moved to the closed position were reopened. Operations then contacted the instrument shop for confirmation of the signal source for the CVI and initiated WB265550 to remove the isolation relay for 1-RM-90-130. For long term C/A, TVA will revise SOI-90.1 to provide clear instructions for blocking ESF functions and removing the isolation relay before doing any RM instrument manipulation including clearances. TVA will counsel maintenance planners, impact evaluators, and operations personnel responsible for performing clearances, and reemphasize the importance of understanding and executing work in accordance with approved procedures. Operations will issue training letters to all Operations personnel to include all causes and recurrence control information for LERs involving ESF actuations cause by personnel errors, involving RMs. Training will also revise the lesson plans for operation of RMs to emphasize that deenergization of RMs will initiate a CVI. Place placards on RM 120V power supply breakers with the caution to refer to SOI-90.1 before opening or closing breaker. SQA199 and AI-3 will be reviewed and revised, as appropriate, to ensure clearance requests receive an impact evaluation. Additionally, this event will be reviewed as part of the task force established to review ESF activities as described in LER 1-89013.

ADDITIONAL INFORMATION

There have been three previous CVIs resulting from not blocking the containment purge RM before actuating or performing work to the RM: SQRO-50-327/88014, /88017, and /88023. Previous C/As taken had not considered the possibility that deenergization of the 120V power supply would initiate a CVI and therefore, the procedure revisions initiated had not addressed this issue.

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

COMMITMENTS

1. Counsel maintenance planners, impact evaluators, and operations personnel responsible for performing clearances, and reemphasize the importance of understanding, and executing work following approved procedures by June 30, 1989.

2. Issue training document to all Operations, planners and maintenance personnel to include causes and recurrence controls information for LERs involving ESF actuations caused by personnel errors involving RMs by July 30, 1989.

3. Revise SOI-90.1 to provide clear instructions for blocking ESF functions and removing the isolation relays before performing and instrument manipulation including clearances by July 30, 1989.

4. Place placards on RM 120V power supply breakers to refer to SOI-90.1 before opening and closing breaker. This will be completed by July 31, 1989.

5. Training will revise the lesson plans to reemphasize that deenergization of RMs will initiate a CVI. This will be completed by September 29, 1939.

6. SQA199 and AI-3 will be reviewed and revised as appropriate to ensure clearance requests receive an impact evaluation. This will be completed by September 1, 1989.