NRC Form 366 (9-83)			1							U.S. NU	CLEAR REGULAT	0RY COMMISSIO NO 3150-0104	
				LI	CENSE	E EVE	NT RE	PORT	(LER)		EXPIRES 8/31/88		
ACILITY NAME ()								D	OCKET NUMBER	(2)	PAGE (3)	
Sequoyah	, Un	it 1							0	15 0 0	0 3 2 7	1 OF 01	
NonCompl Of A Rad	ianco	With	h Configur nitor Resu	ation	Contro n A C	ol Reg ontain	uirem ment	ents Venti	Following lation Isc	A Postmo lation	dificatio	n Test	
EVENT DATE	(6)	1	LER NUMBER (¢I	R	PORT DAT	8 (7)		OTHER F	ACILITIES INVOL	VED (8)		
MONTH DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISI	R MONTH	DAY	YBIR		FACILITY NAM	ES	DOCKET NUMBER	R(\$)	
	-										0 5 0 0	10111	
alalala		1			1 ala	1.10	alal			4.4			
0 3 1 4	88	8 8	014		0 0 4	112	8 8			the following ist	0 151010	10111	
MODE (0)	1	THIS RE	PORT IS SUBMITTE	O PURSUAN	20 404	REQUIREME	NTS OF 10	XX	So 23(4)(2)((v)	ine torrowing) (1	73,71(b)		
POWER	15	20	405(a)(1)(i)	-	50.361	e)(1)			60,73(a)(2)(v)	김 씨는 것	73.71(c)		
LEVEL	010	20	405(a)(1)(i)		50.36	e)(2)			50.73(a)(2)(vii)	Sec.	OTHER IS	ecity in Abstract	
		20	405(a)(1)(iii)	· · · · · ·	50.73	*)(2)(i)		-	00.73(a)(2)(vill)(A	61141	54/0W #100 : 368.A.)	o Text, NRC Ford	
		20	405(a)(1)(iv)		\$0.73	(2)(v)		-	50.73(a)(2)(v(ii)(8)				
		20	.406(a)(1)(v)		50.73	a)(2)(m)			50.73(a)(2)(x)				
					LICENSE	CONTACT	FOR THIS	LER (12)					
AME										AREA CODE	TELEPHONE NUM	BEN.	
D. P. Si	ska				أشدعت								
B. E. Ki	lgore	a, P.	lant Opera	cions	Review	w Stai	f	PT PO B IBI		615	8 7 0 -	17 0 8	
			COMPLETE	THE LINE F	UH EACH C	OMPONENT	PAILURE	U. SURIBI		11.07	1		
CAUSE SYSTEM	COMP	ONENT	MANUFAC. TURER	TO NPRO	.*		CAUSE	SYSTEM	COMPONENT	TURER	TO NPROS		
	1	L.E.	(The f		13.5			1	111				
	-		i i na						111	1.1.1			
		L	SUSTICE ME	INTAL REPO	AT EXPECT	ED (14)		k	6	Exet ATE	MONTH	DAY YEA	
	uniniara A	XPECTED	SURMISSION DATE	r)	-	T NO				SUBMISSI DATE OF	0N 51 0.15	311 8	
ABSTRACT (Limit t	o 1400 si	aces i.e. a	approximately fifteen	single spece 1	pewritter 1	ines/ (16)					1717.	1 - 1 - 1 - 1	
On Mar	h 1/	195	RS with u	nit 1	in mor	te 5 (cold	shutde	own), a tr	ain "A"	containme	nt	
ventil	ation	isol	lation (CV	I) occ	urred	At	appro	timate	ely 1110 E	ST, Inst	rument		
Mainte	nance	(IM)) personne	1 impr	operly	y actu	ated 1	the lo	ocal start	switch	for the s	ample	
flow p	ump o	on cor	ntainment	purge	exhaus	st Rad	iation	Mon	itor (RM)	1-RM-90-	130. The		
switch	acti	ation	n caused a	spuri	ous hi	igh ra	diatio	on sp	ike which	was of s	ufficient		
magnit	ide a	ind di	uration to	trip	the as	ssocia	ted R	1 ciro	cuitry and	initiat	e a unit	1 "A"	
train (.IVS	Oper	rations pe	rsonne	1 veri	ified	that !	the C	VI was not	caused	by an act	ual	
high ra	adiat	ion o	condition	and th	en res	set the	e CVI	in a	chordance	with Sys	tem Opera	ting	
Instru	ction	(\$0]	[)-30.2.B,	"Cont	ainmer	nt Ven	tilat	ion Sy	ystem Isol	ation."			
			in the set				10000		stin inter	forence	(RMT) ind	ucod	
The imr	nedia	ite ca	ause of th	is eve	nt was	s an e	lectro	omagne	etic inter	determi	(EMI)-ING	acea	
nigh re	adiat	10n 8	spike. Du	ring s	ubsequ	ENT P	nvest:	PM er	on, it was	etatue	(on/off)		
actuat	ion o	of the	e pump swi	ten in	uucea ur 1	Cho rou	ot car	100 01	f this avo	nt was th	he failur	e of	
CIFCUIT	cry a	ind re	comply wi	th ann	licabl	le con	figura	tion	control r	equireme	nts. Fol	lowing	
in pers	sonne	ion	of a postm	odific	ation	test	the	ubier	t switch	was not	returned	to its	
oniain.	al /	1011 0	aposta	on A	s soot	as TI	M Der	onne	l discover	ed this.	they ret	urned	
the en	itch	to th	le proper	positi	on wit	hout	notify	ring (Operations	and requ	uesting t	he RMs	
out out	sier	als t	to be bloc	ked.	For in	amedia	te con	rect	ive action	, the CV	I was res	et	
accord	ine t	0 501	-30.2.B.	and a	memory	indum i	488 84	ant to	all IF p	ersonnel	stating	that	
Operati	ions	perso	onnel shal	1 be c	ontact	ed, a	nd the	RM	trip signa	1 blocker	d, before		
perform	ning	any v	ork on RM	s capa	ble of	actu	ating	ESF (equipment.	Also,	the RM sa	mple	
pump me	otor	swite	h will be	repla	ced by	Elec	trical	Main	ntenance b	efore un	it 1 ente	ry to	
mode 4	TV	Ais	continuin	g the	invest	igati	on of	this	event and	will sul	bmit a	7277	
suppler	nente	l rer	port by Ma	y 31.	1988,	to de:	scribe	the	specific	actions !	taken to	11	
prevent	rec	urrer	nce of thi	s even	4.		20400	0.270	990412			14	
			and the second second			P	DR 4	DOCK	0500032	7			
RC Form 366						9			DCL)			

.

NRC Form 366A (9-63)	T REPORT (LER) TEXT CONTINUATION			U.S. NUCLEAR REGULATORY COMMISSION APPROVED OMB NO. 3150-0104 EXPIRES: 8/31/38							
FACILITY NAME (1)	DOCKET NUMBER (2)	1	U.E	RNUN	MBER 16	0			PAGE (3)		
		YEAR		SEQU	ENTIAL	1	NUMBER		T	T	
Sequoyah, Unit 1	0 5 0 0 3 2 7	8 8		01	14	-	00	0 2	0	0	15
TEXT (If more space is required, use additional NRC Form 3664's/ (17)										-	

DESCRIPTION OF EVENT

On March 14, 1988, with unit 1 in mode 5 (0 percent power, 6 psig, 130 degrees F), a train "A" containment ventilation isolation (CVI) (EIIS Code JM) occurred. At approximately 1110 EST, Instrument Maintenance (IM) personnel actuated the local start switch for the sample flow pump on containment purge exhaust Radiation Monitor (RM) 1-RM-90-130 (EIIS Code IL). The switch was actuated to return the RM to the "run" position following the completion of a postmodification test. The switch actuation caused a spurious high radiation spike which was of sufficient magnitude and duration to trip the associated RM circuitry and initiate a unit 1 "A" train CVI. IM personnel contacted the unit 1 control room to inform Operations personnel that the high radiation trip was the result of the sample pump switch actuation. Operations personnel confirmed that an "A" train CVI had occurred and, following verification that no high radiation condition actually existed, reset the CVI in accordance with System Operating Instruction (SOI)-30.2.B, "Containment Ventilation System Isolation."

On March 6, 1988, IM personnel were performing Workplan (WP) 7343-02 to modify 1-RM-90-130. This modification included the addition of seal-in circuitry to reduce the potential for CVIs which could occur as the result of electromagnetic interference (EMI) generated from low sample flow switch chatter (i.e., repeated actuation which occurs during low flow conditions - reference LER SQR0-50-328/87010). The subject WP modified RMs which could actuate engineered safety feature (ESF) equipment.

To ensure a CVI did not occur during implementation of the modification, Operations blocked the output signals from the radiation analyzer module (RP-30) with the handswitch in the main control room (1-HS-90-136A) in accordance with the WP. While the handswitch was in the block position, the RM high radiation trip relay (K3) was removed. Removing the K3 relay ensured that a spurious high radiation trip signal would not initiate a CVI during the modification. Once the trip relay was removed, the handswitch was returned to its normal (unblocked) position, and the seal-in modification was performed.

On March 14, 1988, after completion of the modification, a functional test was performed to test the installed seal-in circuitry. The functional test required that the 480-volt power supply to the RM sample pump motor (from unit 1 Containment and Auxiliary Building ventilation (C&A vent) board [Al-A) and the vital 120-voit power supply (from unit 1 vital 120 volt distribution board 1-I) to be returned to service. These power supplies were tagged out on Hold Order (HO) 1-88-398. The 480-volt supply had also been tagged out on HO 1-88-340 as a result of an overload condition discovered on the IA1-A unit 1 C&A went board (reference LER SQRO-50-327/87001). On March 7, 1988, following the completion of the seal-in modification, HO 1-88-398 was released on both the 120-volt and 480-volt power supplies; however, the 480 volt power supply was still tagged out on HO 1-88-340.

NRC Form 386A (9-83) LICENSEE EVE	LICENSEE EVENT REPORT (LER) TEXT CONTINUATION					
FACILITY NAME (1)	DOCKET NUMBER (2)	1	LER NUMBER I	i.	PAGE (3)	
	[문화학원 문화] · · · · · · · · · · · · · · · · · · ·	YEAR	SEQUENTIAL	REVISION NUMBER		
Sequoyah, Unit 1	0 5 0 0 0 3 2 7	8 8	- 01114	- 010	0 3 01	0/5
TEXT (If many shares is maniford, use additional MRC from \$66.4's) (17)	And the second se					

On March 14, 1988, at 0905 EST, HO 1-88-340 was released to allow IM personnel to perform the functional test on the RM. To ensure the unit 1 C&A went board was not overloaded during the postmodification test, the 1A-A containment spray pump room cooler was tagged out. After the functional test was performed. Operations was notified that the test was complete, and 1-RM-90-130 was available to be returned to service. Operations then reinstated HO 1-38-340 on the 480-volt RH sample pump motor supply to ensure that the unit 1 C&A vent board 1A1-A did not exceed its load capacity.

After Operations was notified that the postmodification test was complete and the RM was available to be returned to service, a review of the completed work instructions and Instrument Maintenance Instruction (IMI)-134, "Configuration Control of Instrument Maintenance Activities," was performed by IM personnel. IMI-134 provides configuration control during IM activities affecting critical structures, systems, and components (CSSC). IMI-134 contains a work performance sheet which is used to document coordination with Operations, work performed, and equipment configuration. Following the instrument mechanics completion of the postmodification test, the local sample pump switch was left in the stop position, since the 480-volt power supply would be tagged out in accordance with HO 1-88-340 upon notification that the subject test was complete. To complete the IMI and return the switch to its normal operating configuration, the instrument mechanics, after discussion with their General Foreman, returned the local RM pump switch to the normal (run) position without notifying Operations to block the RM output signal.

Immediately following this pump switch actuation, the local high radiation trip indicator (RP-30 module light) came in. Operations was then informed of the high radiation trip annunciation by the instrument mechanics. Operations acknowledged that an "A" train CVI had occurred. The CVI was indicated by the "A" train valve position indicator lights in the main control room being in the closed position. After verifying that the CVI did not result from an actual high radiation condition, Operations personnel reset the CVI in accordance with SOI-30.2.B.

CAUSE OF EVENT

The immediate cause of the CVI was an EMI-induced high radiation spike. A subsequent investigation of this event under Work Request (WR) B262490 revealed that with the 480-volt power supply to the RM sample pump motor switch removed, a spurious high radiation spike could be induced to the radiation analyzer (RP-30 module) when the 480-volt local sample pump motor switch was actuated. When the sample pump motor switch is actuated, a auxiliary set of contacts (isolated from the 480-volt supply) open or close to provide continuity for the circuitry necessary to actuate the RM sample pump status indication lights (run/stop). The pump status circuitry is powered from the 120-volt vital power supply that also supplies power to the radiation analyzer RP-30 module.

NRC Form 366A (3-83) LICENSEE EVI	NSEE EVENT REPORT (LER) TEXT CONTINUATION					
FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER	6)	PAGE (3)		
		YEAR SEQUENTIA	L REVISION			
Sequoyah, Unit 1	0 5 0 0 3 2 7	8 8 - 0 1	4 - o p	0 4 0F	0 5	

The investigation found that repeated actuation of the local sample pump switch intermittently produced EMI and that the contacts for the subject switch appeared to be worn. TVA has concluded that the worn contacts intermittently induced EMI to the 120-volt pump status circuitry. Thus, the actuation of the pump switch and subsequent switch contact closure induced an EMI spike of sufficient duration and magnitude to the RM radiation analyzer (RP-30 module) to trip the associated RM circuitry to initiate a unit 1 "A" train CVI.

The root causes of this event were (1) the failure of IM personnel to comply with the configuration control requirements of IMI-134 and (2) the WP written to install the modification to the RMs was inadequate. Following the completion of the postmodification test (and before notification of Operations that the work was complete), IM personnel should have returned the switch to its normal position in accordance with IMI-134. As soon as the instrument mechanics discovered that the subject switch was not in its proper position, Operations personnel should have been notified. Following this notification, main control room (MCR) operators could have blocked the output signals from the radiation monitor (by use of the main control room handswitch) before the pump switch was returned to its normal position. In addition, following a review of Workplan 7343-02, it was determined that the subject WP did not contain sufficient detail to ensure that the RM sample pump was maintained in the proper configuration.

ANALYSIS OF EVENTS

A CVI is an engineered safety feature (ESF) actuation which is reportable for all modes of operation in accordance with 10 CFR 50.73, paragraph a.2.iv.

There were no safety consequences associated with this event. The MCR operators took appropriate actions to ensure that a high radiation condition did not exist and to reset the CVI (i.e., performance of SOI-30.2.B). At the time of the event, the containment purge system was tagged out with its isolation valves closed. The train "A" RM containment isolation valves were subsequently verified to be in the closed position. Thus, if this event had occurred in a different operational mode or as a result of an actual high radiation condition, the required containment isolation valves would have performed their designed safety function.

NRC Form 366A (9-83)	LICENSEE EVENT REPORT (LER) TEXT C	INSEE EVENT REPORT (LER) TEXT CONTINUATION			
FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUN	ABER (6)	PAGE (3)	
		YEAR SEOU	ENTIAL REVISION		

0 |5 |0 |0 |0 |3 |2 | 7 8 |8 - 0 |1 | 4 - 0 |0 0 |5 OF 0 | 5

TEXT (If more space is required, use additional NRC Form 3664's/ (17)

Sequoyah, Unit 1

CORRECTIVE ACTION

As immediate corrective action, the MCR operators took appropriate actions to verify that a high madiation condition did not exist and, subsequently, reset the CVI in accordance with SOI-30.2.B. In addition, a memorandum was sent to all IM personnel stating that Operations personnel shall be contacted, and the RM trip signal blocked before performing any work on RMs capable of actuating ESF equipment. Also, the RM sample pump motor switch will be replaced by Electrical Maintenance before unit 1 entry to mode 4. TVA is continuing the investigation of this event to determine the specific corrective actions necessary to prevent recurrence. A supplement to this report will be submitted by May 31, 1988, to describe the corrective actions taken by TVA to prevent the recurrence of this event.

ADDITIONAL INFORMATION

There have been no previous occurrences of CVIs resulting from noncompliance of configuration control.

0911Q

TENNESSEE VALLEY AUTHORITY Sequoyah Nuclear Plant Post Office Box 2000 Soddy-Daisy, Tennessee 37379

April 12, 1988

.

. *.

U. S. Nuclear Regulatory Commission Document Control Desk Washington, DC 20555

Gentlemen:

TENNESSEE VALLEY AUTHORITY - SEQUOYAH NUCLEAR PLANT UNIT 1 - DOCKET NO. 50-327 - FACILITY OPERATING LICENSE DPR-77 - REPORTABLE OCCURRENCE REPORT SQR0-50-327/88014

The enclosed licensee event report provides details concerning a noncompliance with configuration control requirements following a postmodification test of a radiation monitor 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

S. J. Smith Plant Manager

Enclosure cc (Enclosure):

> J. Nelson Grace, Regional Administrator U. S. Nuclear Regulatory Commission Suite 2900 101 Marietta Street, NW Atlanta, Georgia 30323

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

NRC Inspector, Sequoyah Nuclear Plant