NRC For (9-83)	n 366			1	•	LIC	ENSE	E EVE	NT RE	PORT	(LER)	U.S. NUC	CLEAR REGULAT APPROVED OMB EXPIRES: 8/31/88	NO. 3150-0104
FACILITY	NAME (	1)										DOCKET NUMBER	(2)	PAGE (3)
TITLE 14		Coo	oper	Nuc	lear Sta	ation						0 5 0 0	0 2 9 8	1 OF 0 1 5
		Exc	cove	ve	During	Contai	nment	Rate	Testi	no				
EVI	NT DATE	E (5)	I	L	ER NUMBER (	6)	RE	PORT DAT	TE (7)		OTHER	FACILITIES INVOL	VED (8)	
MONTH	DAY	YEAR	YEA	R	SEQUENTIAL	REVISION	MONTH	DAY	YEAR		FACILITY NA	MES	DOCKET NUMBE	R(S)
													0 15 0 10	
0 1	0 8	8	7 8	7 -	0 0 4	00	0 2	0 6	8 7				0 15 10 10	10111
OPE	RATING		THIS	REPORT	IS SUBMITTE	D PURSUANT	TO THE R	EQUIREM	ENTS OF 10	CFR §	Check one or more	c) the following) (11	, , , ,	
POWE	A	11		20.402(2	1) 1)(1)(i)	-	20.405( 50.36(c	(c)		-	50.73(a)(2)(iv)		73.71(b)	
LEVE (10)	0	010	H	20.405(	)(1)(ii)	-	50.36(c	)(2)			50.73(a)(2)(vii)		OTHER /SA	ecify in Abstract
				20.405(	a)(1)(iii)		50.73(a	)( <b>2</b> )(i)			50.73(a)(2)(viii)	(A)	below and i 366A)	n Text, NRC Form
				20.405 (a	1)(1)(iv)	X	60.73(a	)(2)(ii)			50.73(a)(2)(viii)	(8)		
				20.405(8	1)(1)(v)		50.73(a	)(2)(iii)	-	150 (12)	50.73(a)(2)(x)			
NAME							ICENSEE	CONTACT	PORTHIS	LER (12)			TELEPHONE NUM	BER
												AREA CODE		
		D.	L.	Ree	ves, Jr							4012	812151-	13   8   1   1
				1.	COMPLETE	ONE LINE FOR	EACH CO	OMPONEN	TFAILURE	DESCRIB	ED IN THIS REPO	RT (13)	1 1	
CAUSE	SYSTEM	COM	PONENT	1	TURER	TO NPROS			CAUSE	SYSTEM	COMPONENT	TURER	TO NPRDS	
В	BJJ	I	s <sub>I</sub> v <sub>I</sub>	Н	1 9 5	Y			В	B <sub>1</sub> J	IISIVI	A131 915	Y	
В	NIH	P1 1	EINI	C	131110	N			В	JIM	II SIVI	A131 915	Y	
				-	SUPPLEME	NTAL REPORT	EXPECTE	ED (14)				EVALOTE	MONTH	DAY YEAR
			EVAPAT					-				SUBMISSIO DATE (15)	N	
ABSTRAC	T (Limit t	to 1400	IDBCBS, I.B	approx	imately fifteen	single-spece typ	ewritten lin	( NO (16)						
Per mai scf pan wer (RW (HF val rat	form nten h. agra e fo /CU) CI) .ves es.	ance ance The ph 4 und Retu Pump were	tota .7.A to b rn t Suc als	loca age 1 al .2, e th o Re tion o de	al leak resulte llowable is 189 ne Main eactor Main from S etermine	rate t ed in a e leak scfh. Feedwa Vessel Suppres ed to b	estin dete rate The ter c check sion e lea	g acc rmina as sp majon heck valv Pool king	compli- ation becific cont valve ve and isola in ex	shed of to ed in ribut s, th the tion cess	during t otal "as- n the CNS tors to t he Reacto High Pre valve. of their	he 1986 re found" lea Technical he excessi r Water Cl ssure Cool An additio individua	efueling/ akage of Specifi tve leak leanup Sy lant Inje onal eigh al allowa	major 3314.09 cations, rate stem ection ateen able
Con Ret lea was	rect esti ak ra det	ive ng c te, ermi	main onfi base ned	tena rmec d up to b	ance was d the ac pon leal be 63.29	s perfo dequacy k rate 9 scfh.	rmed of a testi	on al 11 re ng ac	ll of epairs compl	the wade	valves de e. The t d followi	termined to otal calcung complet	to be def lated lo lon of 1	ficient. ocal cepairs,
Spe the rep val	ecifi sea blace ves Loc	c cc t ri ment whice al I	ng m fre h we leak	quer re Rate	e action rial in ncy from identif: e Trend	n which the Fe m three ied as Progra	is p edwat year major m and	er cl s to cont the	ed inc neck v each tribut Nonco	ludes alves refue ors v	s evaluat s and an eling out will be f mance Rep	ion of the increase i age. The urther eva orting Pro	e adequad in the se two rema aluated t ogram.	ey of eat ring aining chrough
		870 PDR S	2100 Al	042 DOCI	1 8702 K 0500	06 0298 PDR							7	Err

NRC Form 366 (9.83)

\*

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION APPROVED OMB NO. 3150-0104

	EXFINES. 0/31/00										
FACILITY NAME (1)	DOCKET NUMBER (2)		L	ER NUMBER (6)	PAGE (3)						
		YEAR		SEQUENTIAL NUMBER	REVISION		T				
Cooper Nuclear Station	0 5 0 0 0 2 9 8	8 7	-	0 0 4	-010	0 2	OF	01	5		
TEXT (If more space is required, use additional NRC Form 366A's) (17)									1		

## A. EVENT DESCRIPTION

Performance of local leak rate testing accomplished during the 1986 refueling/major maintenance outage resulted in a determination of total "as-found" leakage of 3314.09 scfh. The total allowable leak rate, as specified in CNS Technical Specifications, paragraph 4.7.A.2, is 189 scfh. The major contributors to the excessive leak rate were found to be the Main Feedwater check valves (RF-CV-16CV, 15CV, 14CV, and 13CV), the Reactor Water Cleanup System (RWCU) Return to Reactor Vessel check valve (RWCU-CV-15CV), and the HPCI Pump Suction from Suppression Pool isolation valve (HPCI-MOV-58MV). In accordance with Procedure 6.3.1.1, Local Leak Rate Testing, the allowable combined leakage rate through these valves is 35 scfh. The as-found leakage was determined to be 3094.60 scfh, accounting for 93% of the total as-found leakage. In addition to these six identified deficiencies, a total of eighteen additional primary containment valves were determined to be leaking in excess of their individual allowable rates, contributing 177.98 scfh to the total leakage. The combined allowable leakage for these valves is 29.60 scfh.

### B. PLANT STATUS

Shutdown for a refueling/major maintenance outage which had commenced on October 4, 1986. Prior to performance of the local leak rate testing on those isolation valves which serve as the primary boundary, the valves were closed using their normal means of cycling.

## C. BASIS FOR REPORT

Excessive primary containment leakage; hence, reportable in accordance with 10CFR50.73, paragraph (a)(2)(ii).

# D. CAUSE OF EVENT

The cause attributed to the Main Feedwater check valve excessive leak rate is believed to be due to the overestimated lifetime of the seat ring material. In 1983, in an effort to resolve past local leak rate testing concerns, a soft seat material was installed in these valves. At the time, a preventive maintenance schedule was established to replace this material every third outage. During this most recent test, the leak rates for each of the four Feedwater check valves were unsatisfactory. Hence, the purported lifetime of the seat ring material was not realized and a replacement interval of three years is now considered to be unsatisfactory.

The Reactor Water Cleanup check valve (RWCU-CV-15CV) was replaced in 1984. Following replacement, an acceptable leak rate test was performed. However, the valve was found to be deficient during this most recent round of testing. During inspection, a slight deformity in the flapper seat was believed to exist. The flapper seat was lapped and, following reassembly, an acceptable leak rate test was performed. LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION APPROVED OM8 NO. 3150-0104

EN DIDE	n. n.		20	
<b>FXPIME</b>	S: M/	31/	2424	

AB	TREALENTIAL						
	NUMBER	NUMBER		T			
8 7 - 0 0 4 - 0 0	0   3	3 OF	0	15			
17	-	- 0101	_ 01014_	- 01014-010	_ 0 0 4_0 00 3	_ 0 0 4_0 0 3 OF	- 0 0 4-0 00 3 OF 0

The cause of the excess leakage through HPCI-MOV-58MV could not be precisely determined. Maintenance had been performed on the valve in 1983 when the seats were re-stellited and the gate polished. The valve successfully passed the leak rate test conducted in 1984. Following the unsuccessful initial test during the 1986 outage, the valve was disassembled and the seats and gate were lapped. The valve was reassembled and successfully passed the leak rate test. No specific deficiencies or observations regarding the condition of the seats or gate were noted.

Finally, with respect to the eighteen other valves which were determined to be leaking in excess of the allowable limits, the cause of the majority of the failures is believed to be due to wearing of seating surfaces which might reasonably be expected.

## E. SAFETY SIGNIFICANCE

RC Form 366A

Numerically, the as-found leakage determined from the local leak rate testing constitutes a leak rate in excess of ten times the allowable test leak rate defined in the Bases for Technical Specifications, paragraphs 3.7.A.2 and 4.7.A.2 (page 177). Consequently, under LOCA conditions, the potential for release of fission products to attached fluid systems or directly to Secondary Containment would be markedly increased.

In Chapter XIV of the USAR, paragraph 6.3.6, Fission Product Release to Environs, it is assumed that in calculating the release to the environs, the design leakage is directly from Primary to Secondary Containment. With respect to the discrepancies (failures) determined during local leak rate testing, a substantial majority of the excessive leak rate was not associated with Primary to Secondary penetrations, but rather constituted Reactor Coolant System pressure boundary (isolation valve) leakage to attached systems; e.g., Main Feedwater, HPCI, and RWCU. Only a minor portion of the leakage constituted direct leakage from Primary to Secondary Containment. Hence, on a more practical basis, the safety significance of these leak rate testing failures is considered to be substantially less than that which is inferred from a purely numerical perspective.

### F. CORRECTIVE ACTION

All of the discrepancies identified during the performance of the local leak rate testing were corrected and satisfactorily retested. With respect to the six most significant testing failures, new seat rings were installed in the four Feedwater Check Valves and, as previously noted, the seating surfaces for the RWCU and HPCI valves were lapped. Maintenance action performed on the eighteen other penetrations, following which successful leak rate tests were accomplished, primarily involved replacement of seat rings or lapping of seating surfaces. As a result of these maintenance actions, the leak rate attributed to the testing discrepancies was reduced from 3272.58 scfh to 49.68 scfh. The total calculated local leak rate following repairs was calculated to be 63.29 scfh. NRC Form 368A 19-83)

# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

FACILITY NAME (1)	DOCH	DOCKET NUMBER (2)									LE	RNU	PAGE (3)						
									YEA	R		NUMBER			REVISION				
Cooper Nuclear Station	0	0  5	5   0	0 0 0	2	2 9	8	8	7	_	0	0 4	-	010	0 4	OF	0	5	
TEXT (If more space is required, use additional NRC Form 366A's) (17)																			

Specific corrective action which is planned includes evaluation of the adequacy of the seat ring material in the Feedwater check valves and an increase in the seat ring replacement frequency from three years to each refueling outage. The two remaining valves which were identified as major contributors will be further evaluated through the Local Leak Rate Trend Program and the Nonconformance

Reporting Program.

G. PAST SIMILAR EVENTS

LER 85-005, Revision 1, dated January 16, 1986.

Add(17) MAM (1)       Lab Masker (1)       Value (17) MAM (10)         Cooper Nuclear Station       0  5  0  0  0  2  3  8  7  -0  0  0  -5 0  5 0  5 0  5 0  5 0  5	NAC For (9-83)	n 3668	LIC	ENSEE EVER	NT REPORT	(LER) FAI	LURE	CONTI	NUATION	U.S. NU	APPROVED OMB A	TORY CON (0. 3150-0	IMISSION	
Cooper Nuclear Station         Interference         Interference <thinterference< th="">         Interference         Inte</thinterference<>	FACILIT	Y NAME (1	)			DOCKET NU	MBER (2)		1	ER NUMBER (6)	(6) PAGE (3)			
B       B       D <thd< th=""> <thd< th=""> <thd< th=""></thd<></thd<></thd<>									YEAR	NUMBER	REVISION			
CAULY         PATE         CONDEXT         MARIAGE         PERMIANC         CAURA DALASE CONDEXT         CAURA DALASE CONDEXT         MARIAGE         PERMIANC         PERMIAN		C	ooper Nucl	lear Statio	on	0   5   0	1010	2 9	887-	01014 -	-0100	5 OF	0 5	
B       N/H       P/E       N/H       G/O/B       V       1 <td< th=""><th>CAUSE</th><th>SYSTEM</th><th>COMPONENT</th><th>MANUFAC</th><th>REPORTABLE</th><th>EACH COMPONE</th><th>CAUSE</th><th>SYSTEM</th><th>COMPONENT</th><th>MANUFAC</th><th>REPORTABLE</th><th></th><th></th></td<>	CAUSE	SYSTEM	COMPONENT	MANUFAC	REPORTABLE	EACH COMPONE	CAUSE	SYSTEM	COMPONENT	MANUFAC	REPORTABLE			
B       B       B       F	В	NIH	PIEINI	G101810	Y					1 1 1			•• ••••••	
J       I	В	BIN	IISIVI	AI 31915	Y									
B       B       I	В	SIB	ISIVI	A] 3   9   5	Y									
B       B       B       I	В	BIO	1 [S   V]	A 3 9 5	Y									
B       SIJ       IISIVI       AI31915       Y       I	В	BB	I  S   V	A 1 8 0	Y			1		111				
B       B       I	В	SIJ	ISIVI	A  3 9  5	Y				111					
B       N   H       A   L   L       C   3   1   0       Y       I       I       I   1   1   1       I   1   1       I   1   1	В	BIM	ISIVI	A 3 9 5	Y					111				
	В	NH	ALLI	C[3]1]0	Y					111				
		1							111					
	-	1		111			-							
	-			111					111					
	-	+ +					-							
							-							
										<u> </u>				
									111					
		1												
		1	111						111					
		1	111						111					
		1	111	1.1.1					111					
	-	1	111	111			-		111	111				
		1		111					111					

.

.



Nebraska Public Power District

COOPER NUCLEAR STATION P.O. BOX 98, BROWNVILLE, NEBRASKA 68321 TELEPHONE (402) 825-3811

CNSS870064

February 6, 1987

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

Dear Sir:

Cooper Nuclear Station Licensee Event Report 87-004 is forwarded as an attachment to this letter.

Sincerely,

G. R. Horn

Division Manager of Nuclear Operations

GRH:1b Attach. cc: R. D. Martin L. G. Kuncl K. C. Walden C. M. Kuta INPO Records Center ANI Library

IE22 ,11