

# ACCELERATED DOCUMENT DISTRIBUTION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9309020200    DOC. DATE: 93/08/25    NOTARIZED: NO    DOCKET #  
 FACIL: 50-400 Shearon Harris Nuclear Power Plant, Unit 1, Carolina    05000400  
 AUTH. NAME    AUTHOR AFFILIATION  
 VERRILLI, M.    Carolina Power & Light Co.  
 ROBINSON, W.R.    Carolina Power & Light Co.  
 RECIP. NAME    RECIPIENT AFFILIATION

SUBJECT: LER 93-003-01: on 930628, discovered possible design deficiency in containment vacuum relief sys due to inconsistent interpretation of TS. Reduced containment vacuum relief automatic actuation setpoint. W/930825 ltr.

DISTRIBUTION CODE: IE22T    COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4  
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: Application for permit renewal filed. 05000400

	RECIPIENT ID CODE/NAME	COPIES LTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTR ENCL	
	PD2-1 LA	1 1	PD2-1 PD	1 1	
	LE, N	1 1			
INTERNAL:	ACNW	2 2	ACRS	2 2	
	AEOD/DOA	1 1	AEOD/DSP/TPAB	1 1	
	AEOD/ROAB/DSP	2 2	NRR/DE/EELB	1 1	
	NRR/DE/EMEB	1 1	NRR/DORS/OEAB	1 1	
	NRR/DRCH/HHFB	1 1	NRR/DRCH/HICB	1 1	
	NRR/DRCH/HOLB	1 1	NRR/DRIL/RPEB	1 1	
	NRR/DRSS/PRPB	2 2	NRR/DSSA/SPLB	1 1	
	NRR/DSSA/SRXB	1 1	<del>REG-ELGE</del> 02	1 1	
	RES/DSIR/EIB	1 1	RGN2 FILE 01	1 1	
EXTERNAL:	EG&G BRYCE, J.H	2 2	L ST LOBBY WARD	1 1	
	NRC PDR	1 1	NSIC MURPHY, G.A	1 1	
	NSIC POORE, W.	1 1	NUDOCS FULL TXT	1 1	

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK,  
 ROOM P1-37 (EXT. 504-2065) TO ELIMINATE YOUR NAME FROM DISTRIBUTION  
 LISTS FOR DOCUMENTS YOU DON'T NEED!

FULL TEXT CONVERSION REQUIRED  
 TOTAL NUMBER OF COPIES REQUIRED: LTR 32 ENCL 32

A04



**Carolina Power & Light Company**

HARRIS NUCLEAR PLANT  
P.O. Box 165  
New Hill, North Carolina 27562

AUG 25 1993

Letter Number: HO-930148

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

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1  
DOCKET NO. 50-400  
LICENSE NO. NPF-63  
LICENSEE EVENT REPORT 93-003-01

Gentlemen:

In accordance with Title 10 to the Code of Federal Regulations, the enclosed Licensee Event Report is submitted. The original report fulfilled the requirement for a written report within thirty (30) days of a reportable occurrence. This supplement is being submitted to provide additional information related to the Containment Vacuum Relief System design deficiency, that was identified during subsequent system testing following the original report. Please reference the "Event Description" section on page #2 for this information. This report is in accordance with the format set forth in NUREG-1022, September 1983.

Very truly yours,

W. R. Robinson  
General Manager  
Harris Nuclear Plant

MV:smh

Enclosure

c: Mr. S. D. Ebnetter (NRC - RII)  
Mr. N. B. Le (NRC - PM/NRR)  
Mr. J. E. Tedrow (NRC - SHNPP)

MEM/LER93-03.1/1/OS1

9309020200 930825  
PDR ADOCK 05000400  
S PDR

JEZ

**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Shearon Harris Nuclear Power  
Plant - Unit #1

DOCKET NUMBER (2)  
05000/400

PAGE (3)  
1 OF 3

TITLE (4) Containment Vacuum Relief System design deficiency resulting in Technical Specification violation.

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 NAME	DOCKET NUMBER
06	28	93	93	-- 003 --	01	8	23	93	FACILITY NAME	DOCKET NUMBER 05000
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)																
1	100	20.402(b)	20.405(a)(1)(i)	20.405(a)(1)(ii)	20.405(a)(1)(iii)	20.405(a)(1)(iv)	20.405(a)(1)(v)	20.405(c)	50.73(a)(2)(iv)	50.73(a)(2)(v)	50.73(a)(2)(vii)	50.73(a)(2)(viii)(A)	50.73(a)(2)(viii)(B)	50.73(a)(2)(ix)	73.71(b)	73.71(c)	OTHER	
																		(Specify in Abstract below and in Text, NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)

NAME: Michael Verrilli  
TELEPHONE NUMBER (Include Area Code): (919) 362-2303

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)

YES (If yes, complete EXPECTED SUBMISSION DATE). X NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On March 31 1993, during a routine procedure review, Operations personnel discovered a possible design deficiency in the Containment Vacuum Relief System. Technical Specification (TS) 3.6.5 provides operability requirements for the system and refers to the differential pressure (D/P) across containment as "containment less atmospheric pressure". The D/P transmitters at Harris that provide input for the automatic vacuum relief actuation were identified to actually sense D/P from containment to the Reactor Auxiliary Building (RAB), rather than outside atmospheric pressure. Due to the fact that the RAB is maintained at a slight vacuum (nominally -.125 " H<sub>2</sub>O), the automatic actuation would not have occurred until the required setpoint, plus .125" H<sub>2</sub>O was reached. During subsequent system walkdowns it was also discovered that the D/P transmitters that provide indication in the Main Control Room, which are used to satisfy TS 3.6.1.4, are configured in the same manner. Following evaluation by plant and corporate engineering groups these conditions were determined to constitute a TS violation and are being reported in accordance with 10CFR50.73(a)(2)(i)(B). Interim corrective actions were to decrease the automatic relief actuation setpoint and monitor actual containment to outside atmospheric pressure from alternate indications. A modification that rerouted the sensing points to outside of the RAB was completed on August 20, 1993 to provide permanent corrective actions.

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Shearon Harris Nuclear Plant Unit #1	05000/400	93	003	01	2 OF 3

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

**EVENT DESCRIPTION:**

On March 31, 1993 with the plant in Mode-1 at 100 percent power, Operations personnel performing a routine procedure review discovered the Differential Pressure (D/P) Transmitters PDS-01CB-7680 A2 and B2 that are required to sense D/P from containment to outside atmospheric pressure, actually sense the D/P from containment to the Reactor Auxiliary Building (RAB). Technical Specification (TS) 3.6.5, requires that "the containment vacuum relief system be OPERABLE with an actuation setpoint of equal to or less negative than -2.5 inches water gauge differential pressure (containment less atmospheric pressure)". With the as-found instrumentation configuration, the automatic relief actuation setpoint would be affected in a non-conservative direction, due to the fact that the RAB is normally maintained at a slight vacuum (approximately .125" H<sub>2</sub>O) and that past calibration practices have been to set the actuation point precisely at -2.5" H<sub>2</sub>O. This combination would result in the actuation not occurring until the required setpoint, plus .125" H<sub>2</sub>O was reached.

During subsequent system walkdowns and drawing review, it was also discovered that the D/P transmitters that provide indication in the Main Control Room (PDI-7680 SA & SB) are configured in the same manner. Operations personnel use these transmitters to satisfy TS requirement 3.6.1.4. which states "Primary containment internal pressure shall be maintained between -1.0" H<sub>2</sub>O and 1.6 PSIG." This TS requirement is currently being satisfied by Operations personnel by adding the RAB to outside D/P to the indicated Containment to RAB D/P.

After thorough investigation into the design and licensing bases for the Containment Vacuum Relief and Containment D/P Indication System, it was determined that the requirements of the above listed technical specifications were not being adequately implemented and that a reportable condition existed per 10CFR50.73 (a)(2)(i)(B).

On June 28, 1993 a related Containment Vacuum Relief System design concern was identified during routine monthly surveillance testing for the RAB Emergency Exhaust System. This concern has to do with the order in which RAB supply and exhaust fans are started during normal RAB Ventilation System start up and the effect this has on the actuation setpoint for the containment vacuum breakers. RAB Ventilation Operating Procedure (OP-172) directs control room operators to start two exhaust fans first, then start a supply fan. During the short period of time that the exhaust fans are running, prior to a supply fan being started (normally 5 to 10 seconds), RAB internal pressure is driven down to a negative value. Testing revealed this value to reach approximately -2.4" H<sub>2</sub>O. This condition would have prevented the containment vacuum breakers from actuating at their design setpoint due to the incorrect location of the Containment D/P transmitters

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Shearon Harris Nuclear Plant Unit #1	05000/400	93	003	01	3 OF 3

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

EVENT DESCRIPTION: (cont.)

Interim actions were taken to correct this condition until the permanent modification that rerouted the D/P sensing locations was completed. They included changing the RAB Ventilation System start up sequence by revising procedure OP-172 and disseminating this information to Operations personnel.

No similar reports have been submitted.

CAUSE:

This event was caused by an inconsistent interpretation during the development of site Technical Specifications, related to the design basis of the Containment Vacuum Relief System and D/P Indication. This mistake resulted in the wording of the Technical Specifications not reflecting the actual plant design which had the high side sensing points located inside the RAB, rather than the outside atmosphere.

SAFETY SIGNIFICANCE:

There were no significant safety consequences as a result of this event. The current design calculation verifies that the containment design limit of 2 PSIG internal vacuum would not be exceeded assuming a beginning vacuum of -4.0 " H<sub>2</sub>O.

CORRECTIVE ACTIONS:

1. The containment vacuum relief automatic actuation setpoint was temporarily reduced to -1" H<sub>2</sub>O to ensure compliance with the TS limit of -2.5" H<sub>2</sub>O, prior to correcting the D/P sensing locations. (see #3)
2. Operations personnel continued to obtain the actual containment to outside D/P as described in the event description above.
3. A modification (PCR-6875) was completed on August 20, 1993 that rerouted the transmitter's high side sensing locations to the outside atmosphere as required.

EIIS INFORMATION:

Containment Vacuum Relief System - BF

