

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9201210195 DOC.DATE: 92/01/16 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.
 HINNANT, C.S. Carolina Power & Light Co.
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 91-021-00: on 911218, error discovered in program utilized to determine containment sump in-leakage flow rate. Caused by personnel error during computer design development. Erroneous error corrected & event reviewed. W/920116 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

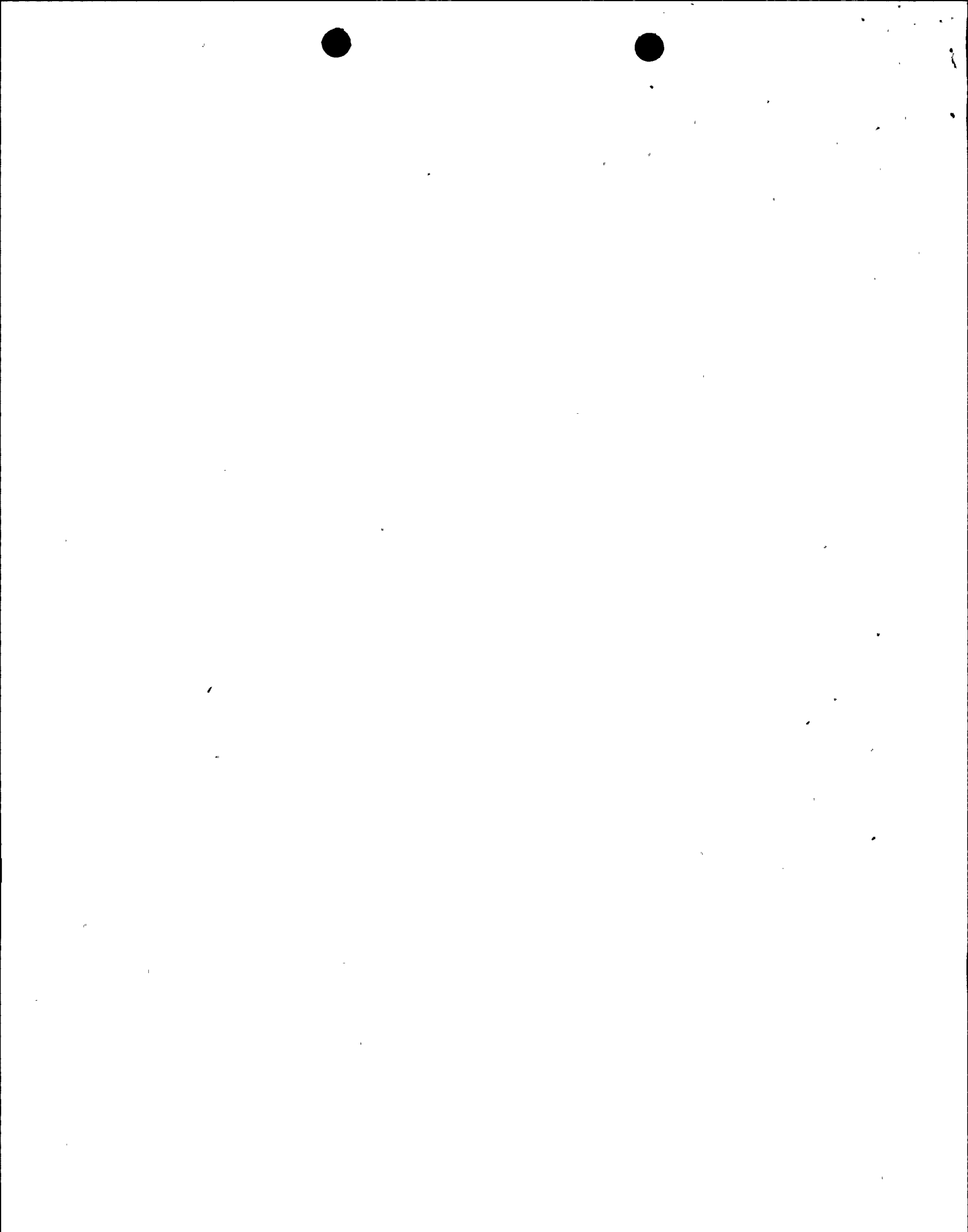
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	PD2-1 LA		1	1		PD2-1 PD		1	1	
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INTERNAL:	ACNW		2	2		ACRS		2	2	
	AEOD/DOA		1	1		AEOD/DSP/TPAB		1	1	
	AEOD/ROAB/DSP		2	2		NRR/DET/ECMB 9H		1	1	
	NRR/DET/EMEB 7E		1	1		NRR/DLPQ/LHFB10		1	1	
	NRR/DLPQ/LPEB10		1	1		NRR/DOEA/OEAB		1	1	
	NRR/DREP/PRPB11		2	2		NRR/DST/SELB 8D		1	1	
	NRR/DST/SICB8H3		1	1		NRR/DST/SPLB8D1		1	1	
	NRR/DST/SRXB 8E		1	1		REG FILE 02		1	1	
	RES/DSIR/EIB		1	1		RGN2 FILE 01		1	1	
EXTERNAL:	EG&G BRYCE, J.H		3	3		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:

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A04





Carolina Power & Light Company

P.O. Box 165 • New Hill, N.C. 27562

C. S. HINNANT
General Manager - Harris Plant

JAN 16 1992

Letter Number: HO-920006 (0)

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 91-021-00

Gentlemen:

In accordance with Title 10 to the Code of Federal Regulations, the enclosed Licensee Event Report is submitted. This report fulfills the requirement for a written report within thirty (30) days of a reportable occurrence and is in accordance with the format set forth in NUREG-1022, September 1983.

Very truly yours

C. S. Hinnant
General Manager - Harris Plant

MV:dmw

Enclosure

cc: Mr. S. D. Ebnetter (NRC - RII)
Ms. B. L. Mozafari (NRC - RII)
Mr. J. E. Tedrow (NRC - SHNPP)

9201210195 920114
PDR ADOCK 05000400
S PDR
MEM/LER91-021/1/OS1

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 600 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Shearon Harris Nuclear Plant - Unit #1 DOCKET NUMBER (2) 0 5 0 0 0 4 0 0 PAGE (3) 1 OF 3

TITLE (4) Technical Specification violation due to deficient containment sump leakrate computer program.

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	2	1	8	9	1	9	1	0	2	1	0	0	0	1	1	6	9	2	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) 0 1 0 1 1	20.402(b)	20.405(e)	50.73(a)(2)(iv)	73.71(b)
	20.405(a)(1)(i)	50.38(c)(1)	50.73(a)(2)(v)	73.71(c)
	20.405(a)(1)(ii)	50.38(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: Michael Verrilli Specialist - Regulatory Compliance TELEPHONE NUMBER: 919 316 1212 3103

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) NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

ABSTRACT:

On 12/18/91, an error was discovered in the program utilized by the plant process computer for determination of containment sump inleakage flowrate. This error would have prevented the computer from detecting a one gallon per minute increase in flow under certain conditions, as required by Technical Specifications (TS). This condition was discovered by the control room staff during an evolution that included discharging water into the containment sump. The expected level increase was observed, but the computer generated flow rate remained unchanged at zero. The computer program was declared inoperable at this point and compensatory measures were commenced to comply with TS requirements. Investigation revealed that this condition was caused by personnel error during the development of the plant modification that installed this capability into the plant computer in September of 1988. Subsequent corrective actions included correcting the error in the computer program and restoring it to service. This is being reported in accordance with 10CFR50.73 (a)(2)(i)(B) as a TS violation. No similar events have been reported.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Shearon Harris Nuclear Plant - Unit #1	DOCKET NUMBER (2) 0 5 0 0 0 4 0 0	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 1	- 0 2 1	- 0 0	0 2	OF	0 3

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

EVENT DESCRIPTION:

On 12/18/91, while in Mode-1 at 100% power, a normally scheduled Post Accident Sample System (PASS) sample was obtained for Reactor Coolant System (RCS) chemistry analysis. This evolution returns the unused portion of the sample to the Containment Sump. Control room personnel anticipated an increase in sump level and an increase in the sump inleakage flow rate. The level increase was observed, but the computer generated inleakage flow rate remained unchanged at 0 gallons per minute. Control room personnel initially felt that the program was not executing properly, but after discussion with computer group personnel and examination of several parameters, it was determined that the program was executing as designed and that the flow rate increase had been ignored by the computer program.

This program calculates inleakage based on level increases over a one minute period of time. It then sums the increases every thirty minutes and determines an average inleakage flowrate. A deadband margin was installed in the program to ensure that instrument noise would not be mistaken for a level decrease caused by an automatic sump pumpdown. When level decreases occurred that were greater than the deadband margin, the program began accumulating data points for the flowrate calculation immediately upon a detected level increase. If the level decrease was less than the deadband margin, the program would not begin reaccumulating data points until level increased above the original point detected prior to the level dropping. This program was installed into the plant process computer per a Plant Modification (PCR-2109) in September, 1988. The value mistakenly installed per this PCR for instrument noise compensation was .50 FEET instead of .50 INCHES. This error would have permitted an increase in containment sump level, of greater than one gallon per minute, to not be detected by the computer program under the following conditions; With a deadband value of .50 FEET installed, sump level could have potentially decreased six inches prior to the program beginning to reaccumulate a level increase. Had a RCS leak occurred at this point, the program would not have begun reaccumulating the level increase until the original level was reached. There are 157 gallons per vertical foot of containment sump. Therefore, a level increase of nearly six inches, with a corresponding flowrate of 78.5 gallons per minute could go undetected until the original level was reached. With the correct deadband value of .50 inches installed, this situation would not be possible.

Upon determination that this deficiency existed, control room personnel declared the program inoperable and commenced the required compensatory actions to monitor sump level.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1) Shearon Harris Nuclear Plant - Unit #1	DOCKET NUMBER (2) 0 5 0 0 0 4 0 0	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 1	- 0 2 1	- 0 0	0 3	OF	0 3

TEXT (If more space is required, use additional NRC Form 368A's) (17)

CAUSE:

The cause of this event was personnel error during the design development process for PCR-2109. Had the proper conversion been used in the leak rate calculation to compensate for instrument noise, the program would have properly detected the increase in flow and complied with TS requirements. Additionally, had adequate post modification testing been performed after installation of the program, this error would have been revealed.

SAFETY SIGNIFICANCE:

The safety consequences of this event were minimal. Indication of RCS inventory (Volume Control Tank level) is monitored continuously and logged once per hour by control room personnel. Containment sump level is logged every six hours and a total RCS leak rate calculation is performed daily. A VCT low level alarm is also available that would alert operators of a potential lowering of RCS inventory and the associated increase in containment sump inleakage flow rate. Had a leak occurred in the RCS that was large enough to increase the containment sump in leakage flow rate by one gallon per minute, adequate means to detect this condition were available for control room personnel.

This condition is being reported in accordance with 10CFR50.73 (a)(2)(i)(B) as a Technical Specification (TS) violation. No similar events have been reported.

CORRECTIVE ACTIONS:

1. The erroneous value originally entered into the computer program to compensate for instrument noise was corrected on 12/18/91. This restored the computer program to operability.
2. This event will be reviewed with applicable plant personnel to help prevent recurrence.

EIIS CODE INFORMATION:

Leak Monitoring System - IJ (calculation performed by plant process computer)