REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8803010169 DOC. DATE: 88/02/24 NOTARIZED: NO DOCKET #
FACIL: 50-400 Shearon Harris Nuclear Power Plant, Unit 1, Carolina 05000400
AUTH. NAME AUTHOR AFFILIATION
JOHNSON, J. R. Carolina Power & Light Co.
WATSON, R. A. Carolina Power & Light Co.
RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-004-00: on 880125, resultant level indication revealed that actual tank level was less than that required by Tech Spec 3.6.2.2. Caused by air trapped in sensing lines of level transmitters. Sensing line vented. W/880224 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4
TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: Application for permit renewal filed. 05000400

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD2-1 LA	1	1	PD2-1 PD	1	1
	BUCKLEY, B	1	1			
INTERNAL:	ACRS MICHELSON	1	1	ACRS MOELLER	2	2
	AEOD/DOA	1	1	AEOD/DSP/NAS	1	1
	AEOD/DSP/ROAB	2	2	AEOD/DSP/TPAB	1	1
	ARM/DCTS/DAB	1	1	DEDRO	1	1
	NRR/DEST/ADS7E4	1	0	NRR/DEST/CEB8H7	1	1
	NRR/DEST/ESB 8D	1	1	NRR/DEST/ICSB7A	1	1
	NRR/DEST/MEB9H3	1	1	NRR/DEST/MTB 9H	1	1
	NRR/DEST/PSB8D1	1	1	NRR/DEST/RSB 8E	1	1
	NRR/DEST/SGB 8D	1	1	NRR/DLPQ/HFB10D	1	1
	NRR/DLPQ/QAB10A	1	1	NRR/DOEA/EAB11E	1	1
	NRR/DREP/RAB10A	1	1	NRR/DREP/RPB10A	2	2
	NRR/DRIS/SIB9A1	1	1	NRR/PMAS/ILRB12	1	1
	REG FILE 02	1	1	RES TELFORD, J	1	1
	RES/DE/EIB	1	1	RES/DRPS DIR	1	1
	RGN2 FILE 01	1	1			
EXTERNAL:	EG&G GROH, M	5	5	FORD BLDG HOY, A	1	1
	H ST LOBBY WARD	1	1	LPDR	1	1
	NRC PDR	1	1	NSIC HARRIS, J	1	1
	NSIC MAYS, G	1	1			

TOTAL NUMBER OF COPIES REQUIRED: LTTR 46 ENCL 45

NRC Form 366
(9-83)

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

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1	0 5 0 0 0 4 0 0	1 OF 0 3

TITLE (4)
LOW LEVEL IN CONTAINMENT SPRAY ADDITIVE TANK DUE TO INCORRECT LEVEL INDICATION

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 0 0 0
0 1	2 5	8 8	8 8	— 0 0 4	— 0 0	0 2	2 4	8 8		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
	1	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)	1 0 0	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)	X 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
JOSEPH R. JOHNSON SENIOR SPECIALIST REGULATORY COMPLIANCE	AREA CODE 9 1 9 3 6 2 - 2 0 0 7

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)

ABSTRACT:

On January 25, 1988, at 1315, the plant was in Mode 1 at 100% power. After completing the scheduled calibration of the Containment Spray (EIIS:BE) Additive Tank Level Indicators (LT-1CT-7150SA and LT-1CT-7166SB), the resultant level indication revealed that the actual tank level was less than that required by Technical Specification 3.6.2.2. With the level out-of-specification, the Containment Spray Additive System was declared inoperable, and actions were taken to restore the level to normal.

The low level in the tank was due to incorrect level indication which was attributed to air in the sensing lines to the level transmitters. Apparently, this condition has existed since initial plant startup, resulting in a violation of Technical Specification 3.6.2.2. The level transmitters were calibrated and the sensing lines properly vented. Approximately 165 gallons of Sodium Hydroxide (NaOH) solution was pumped into the tank to restore the proper level, and the system was declared operable on January 26, 1988 at 1542.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1	0 5 0 0 0 4 0 0	8 8	— 0 0 4	— 0 0	0 2 OF 0 3

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

DESCRIPTION:

On January 25, 1988, at 1315, while the plant was operating in Mode 1 at 100% power, instrument control technicians performed a routine Maintenance Surveillance Test (MST-I0183, Containment Spray Additive Tank Level Loop (L7166) Calibration) on the Containment Spray Additive Tank Level Transmitter, LT-1CT-7166SB. The Spray Additive Tank level indication before the calibration was 81%. After calibration and venting of the sensing lines, the level indicated 77%, which was out-of-specification. Technical Specification 3.6.2.2 requires a minimum level of 2736 gallons, which is equivalent to approximately 79%. The Containment Spray Additive System was declared inoperable and maintenance personnel were instructed to perform a calibration of the other level transmitter, LT-1CT-7150SA. MST-I0182, Containment Spray Additive Tank Level Loop (L-7150) Calibration, was completed at 1620. After calibration and venting of the sensing lines, this level transmitter also indicated a level of 77%.

CAUSE:

The cause of the incorrect level indication is believed to be due to air trapped in the sensing lines of the level transmitters. The level transmitters measure the differential pressure across a bellows assembly, with a sensing line from the bottom of the tank sensing pressure from the height of liquid in the tank (plus cover gas pressure) on one side of the bellows, and cover gas pressure from the top of the tank on the other side of the bellows. The sensing lines are arranged in a "U" shaped pattern which would allow air to be trapped in one of the vertical legs when a tank is initially filled or after draining and refilling. Since a correction factor is utilized to account for the offsetting weight of the liquid in the vertical portions of the sensing lines, the density difference between air and liquid would produce an error.

A review of plant maintenance records revealed that level transmitter LT-1CT-7166SB was last calibrated on July 23, 1986, and LT-1CT-7150SA was last calibrated on October 3, 1986. Both of these calibrations were performed before the Spray Additive Tank was filled; therefore, air would have been in the sensing lines. The tank was initially filled on December 3, 1986. The plant records indicate that procedure SPP-005 "Instrument Venting and Valve Lineup Procedure," was begun on December 1, 1986. This procedure provides for venting and valve lineup verification of the instrumentation for many plant systems. The venting of the Spray Additive Tank level transmitters was included in the performance of SPP-005, but the exact date they were done can only be determined to be between December 1 and December 9, 1986. Because of the problems found, it is apparent that the sensing lines were either inadequately vented, or the venting must have preceded the initial fill of the Spray Additive Tank.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1	0 5 0 0 0 4 0 0	8 8	— 0 0 4	— 0 0	0 3 OF 0 3

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

CAUSE (continued)

Since both level transmitters had the same degree of error, it is most likely that the instruments were vented prior to initial fill of the tank. The failure to adequately coordinate the filling and venting activities may have resulted in the error in the level indication.

SPP-005 was performed again following a maintenance outage in the fall of 1987, but venting of the Spray Additive Tank level transmitters was not done because there were no activities in the outage that would have required it.

ANALYSIS OF EVENT:

The Containment Spray Additive System has been operated since initial plant startup with the Spray Additive Tank level approximately 2% lower than that required by plant Technical Specifications. This corresponds to approximately 86 gallons of Sodium Hydroxide solution. The Technical Specification minimum tank level is 2736 gallons, and the actual tank level was approximately 2650 gallons.

The purpose of the Containment Spray Additive Tank is to provide sufficient Sodium Hydroxide solution (28% - 30% by weight) for injection into the Containment Spray to enhance absorption of iodine through chemical reaction by maintaining a pH value between 8.5 and 11.0 during the long term recirculation period following the design base Loss of Coolant Accident (LOCA). The solution would be injected into the Containment Spray Pump suction at approximately 20 gpm. At this flow rate, the proper NaOH solution could be injected for over 2 hours before emptying the tank. Following injection of the NaOH solution, the Containment Spray Additive Tank isolation valves would automatically close when the tank is empty. If needed, additional NaOH solution could be added to the tank or through an emergency NaOH addition line outside the Tank Building. The reduced tank volume (approximately 86 gallons low) would not have had a significant impact on the performance of the Containment Spray Additive System if called upon during a design basis LOCA.

There have been no previous events similar to this event.

CORRECTIVE ACTIONS:

The Containment Spray Additive Tank level transmitters were calibrated and the sensing lines were properly vented. Approximately 165 gallons of Sodium Hydroxide solution was added to the tank.

The applicable unit managers have reviewed the procedural controls in place to prevent a repetition of this event and have found them to be acceptable. In particular, General Operating Procedure GP-002 requires satisfactory completion of SPP-5 as a prerequisite to plant heat-up. To prevent an isolated event, such as occurred in this LER, the Operations Manager will provide follow-up instructions to the Clearance Center so that, whenever a tank or system is deliberately emptied, a work request is initiated to have the transmitters vented.

CP&L
Carolina Power & Light Company

HARRIS NUCLEAR PROJECT
P.O. Box 165
New Hill, NC 27562

2-24-88

File Number: SHF/10-13510C
Letter Number: HO-880073 (O)

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 88-004-00

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,

R. A. Watson
Vice President
Harris Nuclear Project

RAW:acm

Enclosure

cc: Dr. J. Nelson Grace (NRC - RII)
Mr. B. Buckley (NRR)
Mr. G. Maxwell (NRC - SHNPP)

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