

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9604080305 DOC. DATE: 96/04/04 NOTARIZED: NO DOCKET #
 FACIL: 50-400 Shearon Harris Nuclear Power Plant, Unit 1, Carolina 05000400
 AUTH. NAME AUTHOR AFFILIATION
 PRUNTY, R.W. Carolina Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 96-004-01: on 960205, RWST level transmitters failed & violation of TS action statement occurred. Caused by freezing of level transmitter sensing lines. Frozen lines thawed & missing insulation replaced. W/960404 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: Application for permit renewal filed.

05000400

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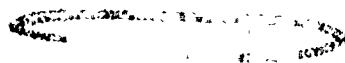
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Carolina Power & Light Company
Harris Nuclear Plant
PO Box 165
New Hill NC 27562

U.S. Nuclear Regulatory Commission
ATTN: NRC Document Control Desk APR 04 1996
Washington, DC 20555

Serial: HNP-96-057
10CFR50.73

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1
DOCKET NO. 50-400
LICENSE NO. NPF-63
LICENSEE EVENT REPORT 96-004-01

Gentlemen:

In accordance with Title 10 to the Code of Federal Regulations, the enclosed Licensee Event Report revision is submitted. The report relates to a freezing event involving two Refueling Water Storage Tank (RWST) level transmitters. This revision changes the completion date for reviewing the implementation procedures for complying with Technical Specification action statements related to the Engineered Safety Features Actuation System, Reactor Protection System, and Radiation Monitoring System and for completing the revision to the cold weather procedure to April 30, 1996. These changes are necessary due to the reallocation of engineering and operations resources to support a recent forced outage. Also, one of the planned corrective actions from the original LER has been completed.

Sincerely,

080120

RWP

9604080305 960404
PDR ADCK 05000400
S PDR

Enclosure

c: Mr. J. B. Brady (NRC - HNP)
Mr. S. D. Ebner (NRC - RII)
Mr. N. B. Le (NRC - PM/NRR)

IF22
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NRC FORM 366 (4-95)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB NO. 3150-0104 EXPIRES 04/30/98 <small>ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-8 F33) 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.</small>	
LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)					
FACILITY NAME (1) Harris Nuclear Plant Unit-1				DOCKET NUMBER (2) 50-400	
PAGE (3) 1 OF 4					
TITLE (4) Refueling Water Storage Tank (RWST) Level Transmitters failure high due to freezing, resulting in entry into Technical Specification LCO 3.0.3 and a subsequent violation of Technical Specification Action Statement.					
EVENT DATE (5)		LER NUMBER (6)		REPORT DATE (7)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
2	5	96	96	-- 004	-- 01
4	4	96			
OTHER FACILITIES INVOLVED (8)					
FACILITY NAME				DOCKET NUMBER	
				05000	
FACILITY NAME				DOCKET NUMBER	
				05000	
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
1		20.2201(b)		20.2203(a)(2)(v) <input checked="" type="checkbox"/>	
100%		20.2203(a)(1)		50.73(a)(2)(i) <input type="checkbox"/>	
		20.2203(a)(2)(i)		50.73(a)(2)(ii) <input type="checkbox"/>	
		20.2203(a)(2)(ii)		50.73(a)(2)(iii) <input type="checkbox"/>	
		20.2203(a)(2)(iii)		50.73(a)(2)(iv) <input type="checkbox"/>	
		20.2203(a)(2)(iv)		50.73(a)(2)(v) <input type="checkbox"/>	
		50.36(c)(1)		50.73(a)(2)(vi) <input type="checkbox"/>	
		50.36(c)(2)		50.73(a)(2)(vii) <input checked="" type="checkbox"/>	
LICENSEE CONTACT FOR THIS LER (12)					
NAME				TELEPHONE NUMBER (Include Area Code)	
R. W. Prunty, Jr., Project Engineer - Licensing/Regulatory Programs				(919) 362-2030	
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)					
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS	REPORTABLE TO NPDOS
SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	
YES (If yes, complete EXPECTED SUBMISSION DATE).				X NO	
				MONTH DAY YEAR	
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)					
<p>On February 5, 1996 the plant was operating in Mode 1 with Reactor Power at 100%. At approximately 0335 Refueling Water Storage Tank (RWST) Level Transmitter LT-991 failed high due to a frozen sensing line and was declared inoperable. The transmitter was placed in the bypassed condition at 0418 to meet the Technical Specification Limiting Condition for Operation (LCO) 3.3.2 Action Statement #16. At approximately 0900 a second RWST Level Transmitter (LT-990) was also declared inoperable due to freezing. This resulted in the plant entering Technical Specification LCO 3.0.3, which requires action to bring the plant to a shutdown condition within seven hours. The level transmitter sensing lines were thawed. LT-990 was declared operable, and LCO 3.0.3 was exited at 1122. LT-991 was declared operable the following day (2/6/96) at 1406. The event was caused by freezing of the level transmitter sensing lines, caused by a combination of missing insulation, heat trace not installed per design, and inappropriate insulation type for wet locations. Completed corrective actions included thawing the frozen lines, replacing missing insulation, and providing additional freeze protection guidance to Operations personnel. Future corrective actions include an upgrade of heat trace configuration and wattage and a change of insulation type and configuration.</p> <p>Also on February 5, 1996, at approximately 1000, while restoring Main Control Board (MCB) indication, the bypassed condition on LT-991 required by the Technical Specification LCO was unknowingly removed because of a procedure error. This was identified the following day (2/6/96) during testing at approximately 0930. This resulted in a violation of LCO 3.3.2 Action Statement #16 for approximately 23.5 hours. The cause of this condition was a procedural error in that the step being performed to restore MCB indication did not recognize or acknowledge that the bypassed condition would also be removed. Completed corrective actions include procedure revisions to correct the steps that caused the bypassed condition to be removed during trouble shooting and increased emphasis on Engineering technical review of selected procedures.</p> <p>This revision includes revised completion dates for planned corrective actions.</p>					

LICENSEE EVENT REPORT (LER)

TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)	
Harris Nuclear Plant - Unit 1	50-400	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4	
		96	.. 004	.. 01		

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

EVENT DESCRIPTION:

On February 5, 1996, the plant was operating in Mode 1 with reactor power at 100%. At approximately 0335 Refueling Water Storage Tank (RWST) Level Transmitter (EIS Code BQ-LT) LT-991 failed high due to a frozen sensing line and was declared inoperable. The transmitter was placed in the bypassed condition at 0418 to meet Technical Specification Limiting Condition for Operation (LCO) 3.3.2 Action Statement #16. (This involved placing a Process Instrumentation Control (PIC) card bistable switch in the test position and lifting a lead/jumper.) This action changes the coincidence logic for the RWST Low-Low Level switchover sequence from 2 of 4 to 2 of 3.

At approximately 0815, a second RWST Level Transmitter (LT-990) indication started to trend upward due to a freezing sensing line. It went into high alarm at 0845 and was declared inoperable at approximately 0900. With only 2 of 4 channels operable, the plant was unable to comply with the LCO action statement. Thus, Technical Specification LCO 3.0.3 was entered, requiring action to bring the plant to a shutdown condition within the following seven hours. Initial investigation of this condition noted missing insulation on the transmitters' sensing line drains. External heating was applied to thaw the transmitters. At approximately 1122, LT-990 was satisfactorily channel checked and declared operable, thus exiting the LCO 3.0.3. LT-991 was declared operable at 1406 the following day (February 6, 1996) after a channel calibration was completed.

Also on February 5, 1996, at approximately 1000, while restoring Main Control Board (MCB) indication for transmitter LT-991, a procedure step returned the PIC card bistable switch to the normal position from the test position. This action removed the bypassed condition of LT-991, violating the Technical Specification LCO 3.3.2 Action Statement #16. (The procedure was incorrect in stating that the step could be completed to allow trouble shooting without affecting the bypassed condition of the instrument. The procedure error was introduced during a November 1995 revision.) At approximately 0930 on February 6, 1996, maintenance personnel identified the procedure error and restored the channel to the bypassed condition as required by the LCO. The LCO action statement was violated for approximately 23.5 hours. As noted above, LT-991 was declared operable at 1406 on February 6, 1996.

CAUSE:

The cause of the transmitter freezing event was a combination of ineffective construction controls which resulted in heat trace not being installed per design, failure to restore insulation after maintenance, and insulation type not being adequate for wet locations. The significance of missing insulation was not sufficiently understood. Additionally, Operations personnel did not act sufficiently to prevent freezing of the second transmitter sensing line. The cause of the procedure error was inadequate self checking during the revision process to ensure that the intended action was correct, including not referencing required drawings.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Harris Nuclear Plant - Unit 1	50-400	96	004	01	3 OF 4

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

SAFETY SIGNIFICANCE:

There were no adverse safety consequences as a result of this event. The loss of two RWST level transmitters minimizes the redundancy of the inputs that initiate the RWST Low-Low Level switchover sequence. With two of the transmitters not in service, the 2 of 4 coincidence logic was not available. However, the two remaining operable transmitters were capable of initiating the RWST Low-Low Level switchover sequence if required. Additionally, when required, the Emergency Operating Procedure (EOP) network directs operators to take action to manually initiate the switchover. When the bypass was unknowingly removed from LT-991, the Low-Low Level switchover logic was restored to the original 2 of 4 coincidence logic. An Engineering Evaluation of LT-991 has concluded that the instrument was functional and that the instrument loop was capable of performing its intended safety function when its MCB indication was restored by returning the switch to the normal position.

These events are being reported per 10CFR50.73(a)(2)(i) and 10CFR50.73(a)(2)(vii).

PREVIOUS SIMILAR EVENTS:

There have been no LERs which have resulted in the simultaneous loss of more than one RWST level transmitter. However, there were prior freeze events associated with individual RWST level transmitters in 1987, 1989, 1994, and 1995. Prior corrective actions were ineffective because they focused on the transmitters themselves and failed to detect the source of the problem in the sensing line drain.

Regarding the incorrect procedure, LER 95-009 was submitted November 3, 1995, relating to the unanticipated actuation of Engineered Safety Features (ESF) components during Refueling Outage #6. Corrective action included the revision of the procedure review and approval process (Plant Procedure AP-006) to specify the use of multi-discipline technical reviews when warranted. The AP-006 revision was approved in the same time frame (November 1995) as the RWST procedure revision. Thus the corrective action to utilize the multi-discipline technical reviews was not incorporated into the RWST procedure revision which caused this event. Additionally, an Operations root cause investigation into human performance issues (CR 95-01474) identified inappropriate procedure revisions. Corrective actions are still in progress.

CORRECTIVE ACTIONS COMPLETED:

1. Missing insulation was replaced and the sensing lines were thawed.
2. Plant history was reviewed for previous freezing problems, and a walkdown of critical components was performed to identify potential short term freezing concerns. The results of the observations were provided to Operations, and an Operations Night Order was subsequently issued.
3. The OWP-ESF procedure was corrected by removing the steps that caused the bypassed condition of the level channel to be inadvertently removed.
4. Disciplinary action has been taken for the incorrect procedure change.
5. The OWP-ESF procedure was revised to allow restoration of MCB indication for trouble shooting while still maintaining the channel in the bypassed condition.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Harris Nuclear Plant - Unit 1	50-400	96	004	01	4 OF 4

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CORRECTIVE ACTIONS COMPLETED (cont):

6. Operations procedure changes which require a review by Engineering prior to approval have been identified.
7. The adverse weather procedure (AP-301) was revised to incorporate appropriate recommendations related to RWST level transmitter insulation verification and use of temporary external heat sources.
8. An Event Review Team has been established to determine other actions required to ensure future Operations procedure revisions are correct.
9. Operator Rounds Guidance regarding RWST pit pump/drain down prior to the water level reaching the transmitter sensing line insulation has been revised and issued to appropriate Operations personnel.

CORRECTIVE ACTIONS PLANNED:

1. The heat trace configuration and wattage will be upgraded, the insulation type will be changed to a type that will not absorb water, and the insulation configuration will be changed to better allow for removal/replacement by August 31, 1996.
2. Appropriate maintenance surveillance tests will be revised to include verification that drain valve insulation is reinstalled by April 8, 1996.
3. The adverse weather procedure (AP-301) will be further revised to incorporate priority equipment identification and control and more specific walkdown/inspection guidance by April 30, 1996. A requirement to perform an annual self assessment of operating experience/lessons learned from the previous year at HNP and the industry will also be included in this revision.
4. Implementation procedures for complying with Technical Specification action statements related to the Engineered Safety Features Actuation System, Reactor Protection System, and Radiation Monitoring System will be reviewed by April 30, 1996.
5. Recently revised surveillance procedures with a quarterly frequency or longer will be reviewed for technical accuracy prior to next performance. This action will continue until the Event Review Team discussed in Corrective Actions Completed Item #8 above presents its findings.

EIIS CODES:

Refueling Water Storage Tank (RWST) Level Transmitter (BQ-LT)

