CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9902260069 DOC.DATE: 99/02/22 NOTARIZED: NO DOCKET #
FACIL:50-400 Shearon Harris Nuclear Power Plant, Unit 1, Carolina 05000400
AUTH.NAME AUTHOR AFFILIATION
ELLINGTON,M. Carolina Power & Light Co.
CLARK,B.H. Carolina Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 99-003-00:on 990123,noted that plant was outside design basis due to isolation of fire protection containment sprinkler sys.Caused by human error.Restored containment sprinkler sys to operable status.With 990222 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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Serial: HNP-99-030
10CFR50.73

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1
DOCKET NO. 50-400
LICENSE NO. NPF-63
LICENSEE EVENT REPORT 1999-003-00

Sir or Madam:

In accordance with 10CFR50.73, the enclosed Licensee Event Report is submitted. This report describes a condition outside the design basis due to isolating the fire protection containment sprinkler system.

Sincerely,

B.H. Clark
General Manager
Harris Plant

MSE/mse

Enclosure

c: Mr. J. B. Brady (HNP Senior NRC Resident)
Mr. L. A. Reyes (NRC Regional Administrator, Region II)
Mr. S. C. Flanders (NRC - NRR Project Manager)

IE22

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION
(6-1998)

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Harris Nuclear Plant, Unit 1	05000400	1 OF 3

TITLE (4)
Plant outside the design basis due to isolation of the fire protection containment sprinkler system.

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
										05000
01	23	1999	1999	-- 003 --	00	02	22	1999	FACILITY NAME	DOCKET NUMBER 05000

		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
OPERATING MODE (9)	1	20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)
POWER LEVEL (10)	82	20.2203(a)(1)	20.2203(a)(3)(i)	X 50.73(a)(2)(ii)	50.73(a)(2)(x)
		20.2203(a)(2)(i)	20.2203(a)(3)(ii)	50.73(a)(2)(iii)	73.71
		20.2203(a)(2)(ii)	20.2203(a)(4)	50.73(a)(2)(iv)	OTHER
		20.2203(a)(2)(iii)	50.36(c)(1)	50.73(a)(2)(v)	Specify in Abstract below
		20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)	or in NRC Form 366A

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Mark Ellington, Senior Analyst - Licensing	(919) 362-2057

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO				

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

At approximately 0230 on January 23, 1999, with the unit at 82% power, plant personnel isolated the containment fire protection sprinkler system. Following isolation, the containment sprinkler system was inadvertently left inoperable for approximately four and a half days. The Harris Nuclear Plant (HNP) safe shutdown analysis credits the containment sprinkler system to provide protection (in lieu of a fire barrier or the required distance for separation criteria) for the pressurizer heaters. The inoperability of the containment sprinkler system for an extended duration placed the plant in a condition outside the design basis.

The **root cause** of this event is human error by Operations personnel in that applicable plant procedures were not used to operate the containment sprinkler system. **Contributing causes include:** (1) Improper communications between watch stations (2) Procedure non-compliance (3) Inadequate training (4) Inadequate management oversight of the fire protection program. **Completed Corrective Actions:** (1) The containment sprinkler system has been restored to operable status. (2) Interim measures have been established to heighten sensitivity to fire protection equipment inoperabilities and fire protection procedure usage. (3) Operations personnel involved were counseled. **Planned corrective actions:** (1) Re-emphasize the expectations for Operations supervision and personnel that performance of, and adherence to, fire protection system procedures is to be commensurate with procedure performance and adherence expected for other plant systems. (2) Perform training for appropriate plant personnel on proper operation of applicable fire protection components. (3) Complete a high level investigation into the inadequate management oversight of the fire protection program.

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

I. DESCRIPTION OF EVENT

At approximately 0230 on January 23, 1999, with the unit at 82% power, plant personnel isolated the containment fire protection sprinkler system. Following isolation, the containment sprinkler system was inadvertently left inoperable for approximately four and a half days. The Harris Nuclear Plant (HNP) safe shutdown analysis credits the containment sprinkler system to provide protection (in lieu of a fire barrier or the required distance for separation criteria) for the pressurizer heaters. The inoperability of the containment sprinkler system for an extended duration placed the plant in a condition outside the design basis.

The HNP containment sprinkler system is a multi-action system that uses a fire detection system to automatically open a sprinkler header isolation valve (deluge valve). The open deluge valve fills the sprinkler header with water. The sprinkler system does not emit water until the sprinkler nozzle head fusible link is melted by a fire. The HNP containment sprinkler system has a backup mode of operation, called the low pressure mode, that allows continued operability of the containment sprinkler system should the containment fire detection system become inoperable. The low pressure mode of operation monitors air pressure in the containment sprinkler header. The containment sprinkler header is normally pressurized to 20 - 25 psig by a small air compressor connected to the sprinkler system piping. During operation of the containment sprinkler system in the low pressure mode, if a fire should melt a sprinkler head fusible link in containment, the air pressure in the sprinkler header would be reduced below a preset limit which would in turn open the containment sprinkler header deluge valve.

At 2219, on January 22, 1999, HNP received an erroneous fire detection system alarm in containment which actuated the containment sprinkler system deluge valve. There was no fire in containment therefore the sprinkler heads did not melt and water was not emitted from the containment sprinkler system. Shift personnel entered containment and verified that there was no fire. Shift personnel isolated the sprinkler system until Maintenance could repair the containment fire detection system. A fire protection specialist recommended to the main control room that the containment sprinkler system be drained and placed in the low pressure. The main control room directed the containment sprinkler system be drained and placed in the low pressure mode. The fire protection specialist attempted to place the sprinkler system in the low pressure mode but left the containment sprinkler header isolated until Maintenance on the fire detection system could be completed. The action to isolate the containment sprinkler system was unnecessary because maintenance on the fire detection system would not impact sprinkler operation in the low pressure mode. Additionally, the fire protection specialist only partially drained the fire protection header. The containment sprinkler system contains a check valve located inside containment close to the containment wall. The fire protection specialist drained the containment sprinkler system from outside containment and did not drain water downstream of the check valve. A fire inside containment would melt the applicable sprinkler head but would not release air pressure in the sprinkler header upstream of the check valve and thus actuate the deluge valve. Leaving water in the system disabled the low pressure mode of operation and prevented the containment sprinkler system from being capable of performing its required function. The fire protection specialist informed the main control room that the containment sprinkler system was in the low pressure mode with the sprinkler system isolated. The maintenance on the fire detection system was stopped but the system was left isolated. At approximately 2100 on January 24, 1999, an auxiliary operator discovered the sprinkler system isolated and reported this information to the main control room. At approximately 2343 on January 24, 1999, the sprinkler system was unisolated. On January 25, 1999, the fire protection specialist and the fire protection engineer discussed placing the containment sprinkler system in the low pressure mode. The fire protection engineer questioned the method of draining the containment sprinkler header given the check valve located inside containment. At approximately 1230 on January 27, 1999, the remainder of the sprinkler header inside containment was drained. On February 4, 1999, the fire protection engineer, after consulting with the manufacturer, determined that the containment sprinkler system would not have operated in the low pressure mode with the sprinkler header inside containment filled with water. As a result, the containment sprinkler system was inoperable from 0230 on January 23, 1999 to 1230 on January 27, 1999.

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

II CAUSE OF EVENT

The **root cause** of this event is human error by Operations personnel in that applicable plant procedures were not used to operate the containment sprinkler system. **Contributing causes include:** (1) Improper communications between watch stations (2) Procedure non-compliance (3) Inadequate training (4) Inadequate management oversight of the fire protection program.

III. SAFETY SIGNIFICANCE

The containment sprinkler system was inoperable for approximately four and half days. In the event of a fire in containment, the pressurizer heaters may not have been available for HNP to achieve and maintain safe shutdown.

IV. CORRECTIVE ACTIONS

Completed Corrective Actions:

(1) The containment sprinkler system has been restored to operable status. (2) Interim measures have been established to heighten sensitivity to fire protection equipment inoperabilities and fire protection procedure usage. (3) Operations personnel involved were counseled.

Planned Corrective Actions:

(1) Re-emphasize the expectations for Operations supervision and personnel that performance of, and adherence to, fire protection system procedures is to be commensurate with procedure performance and adherence expected for other plant systems. (2) Perform training for appropriate plant personnel on proper operation of applicable fire protection components. (3) Complete a high level investigation into the inadequate management oversight of the fire protection program.

V. SIMILAR EVENTS

HNP has previously reported outside design basis conditions in Fire Protection due to not maintaining separation criteria. These previous reportable events were caused by design or construction deficiencies rather than mal-operation.