CP&L

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Harris Nuclear Plant
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MAR 1 2 2001

U.S. Nuclear Regulatory Commission
ATTN: NRC Document Control Desk
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Serial: HNP-01-051
10CFR50.73

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1
DOCKET NO. 50-400
LICENSE NO. NPF-63
LICENSEE EVENT REPORT 2000-007-01

Sir or Madam:

In accordance with 10CFR50.73, the enclosed Licensee Event Report is submitted. This report describes a Technical Specifications violation due to inoperable Charging Safety Injection Pump.

Sincerely,

R. J. Duncan II
General Manager
Harris Plant

MSE/mse

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

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)

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

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

TITLE (4)
Technical Specifications violation due to inoperable Charging Safety Injection Pump

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
05	15	1999	2000	- 007 -	01	03	12	2001	FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
			20.2201(b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)
POWER LEVEL (10)	100		20.2203(a)(1)		20.2203(a)(3)(i)		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, Project 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
X	CB	P	PACIFIC	Y						

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	X NO				

On September 4, 2000 with Harris Nuclear Plant (HNP) at approximately 100% reactor power, HNP determined that the "C" Charging Safety Injection Pump (CSIP) was inoperable for a period of time longer than that allowed by Technical Specifications. These periods occurred between May 15, 1999 through June 4, 1999, November 13, 1999 through December 18, 1999 and between January 3, 2000 through January 7, 2000. On June 19, 2000, the "C" CSIP was disassembled for scheduled mechanical seal replacement. Upon removal of the bearing housing, the outboard thrust bearing shoes were found to have significant damage. HNP determined that the "C" CSIP was inoperable due to this condition after further evaluation and discussions with the vendor.

Cause of this event: Potential causes include partial loss of lubricant flow to the outboard thrust bearing (most probable cause) or improper fill and vent of the "C" CSIP.
Corrective actions include (1)Repaired the "C" CSIP with vendor support using the vendor manual in conjunction with plant procedures.(2)Reinforced expectations to Operations personnel that describe the consequences of an improper fill and vent with regard to the CSIP. (3)Establish oil analysis criteria for components that would result in further analysis for the increased particulate count and actions as appropriate. (4)Reinforce expectations to individuals involved for timely disposition of abnormal indications. (5)Increased CSIP lube oil sampling frequency to a quarterly interval. (6)Reviewed the system configuration for venting, and revised the operating procedure to specify the minimum volume of water to be collected to ensure proper fill and vent. (7)Revise the maintenance procedure associated with CSIP reassembly (CM-M0019) with lessons learned from vendor guidance. (8)Implement a design modification to install temperature and proximity probes on the CSIPs, which allow for improved monitoring and failure detection of the CSIPs.

I. DESCRIPTION OF EVENT

On September 4, 2000 with Harris Nuclear Plant (HNP) at approximately 100% reactor power, HNP determined that the "C" Charging Safety Injection Pump (CSIP) was inoperable for a period of time longer than that allowed by Technical Specifications. These periods occurred between May 15, 1999 through June 4, 1999, November 13, 1999 through December 18, 1999 and between January 3, 2000 through January 7, 2000. On June 19, 2000, the "C" CSIP was disassembled for scheduled mechanical seal replacement. Upon removal of the bearing housing, the outboard thrust bearing shoes were found to have significant damage. Although physical damage was present at disassembly, the "C" CSIP had performed successfully during normal operation and surveillance testing. However, after further evaluation and discussions with the vendor, HNP determined that the "C" CSIP was inoperable due to this condition.

Three CSIPs are provided in the plant design. Only two of the three CSIPs are aligned for operation at any one time. The CSIPs provide a safety-related function as part of the emergency core cooling system (ECCS). Upon receipt of a safety injection signal, the standby CSIP automatically starts and the flowpath of both CSIPs is realigned for the injection phase of the ECCS. "C" CSIP is the installed spare Charging and Safety Injection Pump. It is a dual-purpose centrifugal pump (normal operation of approximately 110 gpm charging flow and approximately 650 gpm during safety injection) with a nominal operating speed of 4900 rpm. The "C" CSIP is not normally in service and is used to replace the "A" or "B" CSIP should either require extended maintenance.

An oil sample was drawn for analysis for the "C" CSIP on September 29, 1999. The particulate count from this sample indicated a step increase from the previous sample. This step change in particulate count may indicate any number of abnormal conditions including normal component wear. HNP did not, at that time, have criteria in place that would require additional analysis for substantial changes in particulate count. The oil was replaced on December 21, 1999. The next routine oil sample was taken in February 2000. The oil sample indicated high particulate level and trace amounts of iron and tin. On June 19, 2000, the "C" CSIP was disassembled for scheduled mechanical seal replacement. At that time, the significant damage to the outer thrust bearing shoes was discovered. HNP has assumed that the damage to the outer thrust bearing shoes occurred some time between May 15, 1999 to September 29, 1999.

II. Cause of the event

Potential causes include partial loss of lubricant flow to the outboard thrust bearing (most probable cause) or improper fill and vent of the "C" CSIP.

III. SAFETY SIGNIFICANCE

During the period of time the "C" CSIP was in-service, a redundant 100% capacity pump was operable except for two occasions for testing (the time this occurred was limited to less than 30 minutes and capability existed to rapidly return the redundant pump to service). Although physical damage was present at disassembly, the "C" CSIP performed successfully during normal operation and surveillance testing. Therefore, the potential exists that the "C" CSIP could have performed as required. HNP performed a probabilistic risk analysis on this condition. The incremental core damage probability (ICDP) was determined to be 8.4E-6 for the period during which the C CSIP was degraded. HNP could not conclusively determine operability therefore HNP is reporting this event as a violation of the HNP TS pursuant to the criteria of 10CFR50.73(a)(2)(i) for a violation to the HNP TS. HNP TS that were violated include TS 3.1.2.2 "Reactivity Control Systems-Flow Paths", TS 3.1.2.4 "Reactivity Control Systems-Charging Pumps", TS 3.5.2, "ECCS Subsystems", and TS 3.0.4. Additionally, TS 3.0.3 was entered on two occasions for a short period of time.

IV. CORRECTIVE ACTIONS

(1) Repaired the "C" CSIP with vendor support using the vendor manual in conjunction with plant procedures.
(2) Reinforced expectations to Operations personnel that describe the consequences of an improper fill and vent with regard to the CSIP.
(3) Establish oil analysis criteria for components that would result in further analysis for the increased particulate count and actions as appropriate.
(4) Reinforce expectations to individuals involved for timely disposition of abnormal indications.
(5) Increased CSIP lube oil sampling frequency to a quarterly interval.
(6) Reviewed the system configuration for venting, and revised the operating procedure to specify the minimum volume of water to be collected to ensure proper fill and vent.
(7) Revise the maintenance procedure associated with CSIP reassembly (CM-M0019) with lessons learned from vendor guidance. Specifically, identify critical activities necessary to ensure the lube oil system will function as expected and to include the use of appropriate verification of these activities.
(8) Implement a design modification to install temperature and proximity probes on the CSIPs that allow for improved monitoring and failure detection of the CSIPs.

V. SIMILAR EVENTS

There have been no previous reported events at HNP where the thrust bearing shoes of a CSIP were found to have significant damage.