



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

JAN 13 2000

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

Serial: HNP-00-004  
10CFR50.73

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1  
DOCKET NO. 50-400  
LICENSE NO. NPF-63  
LICENSEE EVENT REPORT 1999-009-00

Sir or Madam:

In accordance with 10CFR50.73, the enclosed Licensee Event Report is submitted. This report describes a condition which resulted in a manual reactor trip and auxiliary feedwater system actuation.

Sincerely,

B. H. Clark  
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)

JE 22 1/1

PDR Adcock 05000400

**LICENSEE EVENT REPORT (LER)**

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

<b>FACILITY NAME (1)</b> Harris Nuclear Plant, Unit 1	<b>DOCKET NUMBER (2)</b> 05000400	<b>PAGE (3)</b> 1 OF 3
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<b>TITLE (4)</b> Reactor Trip and Auxiliary Feedwater Actuation
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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
12	14	1999	1999	- 009 --	00	01	13	2000	FACILITY NAME	DOCKET NUMBER 05000
									FACILITY NAME	DOCKET NUMBER 05000

<b>OPERATING MODE (9)</b> 1	<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check one or more) (11)</b>									
	20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)			
<b>POWER LEVEL (10)</b> 100	20.2203(a)(1)		20.2203(a)(3)(f)		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)	x	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			

<b>LICENSEE CONTACT FOR THIS LER (12)</b>										
<b>NAME</b> Mark Ellington, Senior Analyst - Licensing						<b>TELEPHONE NUMBER (Include Area Code)</b> (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	SD	P	Siemens-Allis	Y						

<b>SUPPLEMENTAL REPORT EXPECTED (14)</b>					<b>EXPECTED</b>			<b>MONTH</b>	<b>DAY</b>	<b>YEAR</b>
<b>YES</b> (If yes, complete EXPECTED SUBMISSION DATE).		x	<b>NO</b>							

On December 14, 1999 at 0353, the Harris Nuclear Plant (HNP) manually tripped the reactor from 60% power. At 0352 on December 14, 1999 the "A" Condensate Pump tripped due to a ground fault on the associated motor. The trip of the "A" Condensate Pump resulted in subsequent trips of the "A" Condensate Booster Pump and the "A" Main Feedwater Pump. The main turbine load control circuitry sensed the trip of the "A" Main Feedwater Pump and automatically reduced turbine power to approximately 60% (turbine runback). The reactor trip coupled with the loss of the "A" Condensate and Feedwater train resulted in a reduction of steam generator water levels. The main control room staff manually started the three auxiliary feedwater pumps in accordance with the applicable abnormal operating procedure. The steam generator levels continued to lower until the main control room staff manually tripped the reactor at approximately 40% steam generator level prior to reaching the steam generator low-low level automatic trip setpoint of 38.4%. Additionally, following the trip an auxiliary feedwater (AFW) actuation signal was generated due to the low-low steam generator level. However, as stated previously, the auxiliary feedwater pumps had been manually started during the transient therefore, the AFW actuation signal did not start any additional components.

**Cause of this event:** A ground fault on the "A" Condensate Pump motor caused a loss of the "A" Condensate and Feedwater train that resulted in low steam generator water levels and a subsequent manual reactor trip and AFW actuation.

**Corrective actions include:** The "A" Condensate Pump motor was replaced on December 16, 1999.

**LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)		
Harris Nuclear Plant, Unit 1	05000400	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3		
		1999	-- 009	-- 00			

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

**I. DESCRIPTION OF EVENT**

On December 14, 1999 at 0353, the Harris Nuclear Plant (HNP) manually tripped the reactor from 60% power. At 0352 on December 14, 1999 the "A" Condensate Pump (EIS SD-P) tripped due to a ground fault on the associated motor. The trip of the "A" Condensate Pump resulted in subsequent trips of the "A" Condensate Booster Pump and the "A" Main Feedwater Pump. The main turbine load control circuitry sensed the trip of the "A" Main Feedwater Pump and automatically reduced turbine power to approximately 60% (turbine runback). The reactor trip coupled with the loss of the "A" Condensate and Feedwater train resulted in a reduction of steam generator water levels. The main control room staff manually started the three auxiliary feedwater pumps in accordance with the applicable abnormal operating procedure. The steam generator levels continued to lower until the main control room staff manually tripped the reactor at approximately 40% steam generator level prior to reaching the steam generator low-low level automatic trip setpoint of 38.4%. Additionally, following the trip an auxiliary feedwater (AFW) actuation signal was generated due to the low-low steam generator level. However, as stated previously, the auxiliary feedwater pumps had been manually started during the transient therefore, the AFW actuation signal did not start any additional components.

After the reactor trip, the main control room staff stabilized plant conditions and recovered inventory in all three steam generators. All safety related systems responded as expected during this event.

The HNP Condensate and Feedwater design includes two redundant trains each with a condensate pump, a condensate booster pump, and a main feedwater pump. The condensate pumps take suction from the main condenser hotwell. The discharge from both condensate pumps combine and flow through the condensate polishers to the suction of both condensate booster pumps. The discharge of the condensate booster pumps flow through a series of feedwater heaters and combine with the discharge of the heater drain pumps to provide a suction to the two main feedwater pumps. The main feedwater pumps discharge flow through two additional feedwater heaters and then is separated into three lines to provide inventory to the three steam generators. HNP condensate and feedwater system design causes a trip of the associated condensate booster pump and main feedwater pump when a condensate pump trips.

At HNP, steam generator levels lower (shrink) during a rapid load reduction such as a turbine runback or reactor trip. The shrink coupled with the loss of the condensate and feedwater train resulted in steam generator levels becoming unacceptably low and caused the main control room staff to manually trip the reactor to avoid challenging the automatic steam generator low-low level reactor trip.

**II. CAUSE OF EVENT**

A ground fault on the "A" Condensate Pump motor caused a loss of the "A" Condensate and Feedwater train that resulted in low steam generator water levels and a subsequent manual reactor trip and AFW actuation.

**III. SAFETY SIGNIFICANCE**

There were no actual safety consequences as a result of this event. The plant was manually tripped as required for plant conditions and all safety related systems functioned as required during the transient. This report is being submitted pursuant to the criteria of 10CFR50.73(a)(2)(iv) for the reactor trip and the automatic actuation of AFW (Engineered Safety Feature signal).

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Harris Nuclear Plant, Unit 1	05000400	1999	-- 009	-- 00	3	OF 3

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

**IV. CORRECTIVE ACTIONS**

The "A" Condensate Pump motor was replaced on December 16, 1999.

**V. SIMILAR EVENTS**

There have been no previous reactor trips due to a ground fault on a condensate pump motor.