



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

Serial: HNP-02-025
10CFR50.73

MAR 4 2002

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1
DOCKET NO. 50-400
LICENSE NO. NPF-63
LICENSEE EVENT REPORT 2002-001-00

Sir or Madam:

The enclosed Licensee Event Report is submitted in accordance with 10CFR50.73. This report describes a reactor trip caused by a failure of a main feedwater regulating valve bypass valve.

Sincerely,

R. J. Duncan II
General Manager
Harris Plant

MSE/mse

Enclosure

c: Mr. J. B. Brady (HNP Senior NRC Resident)
Mr. J. M. Goshen (NRC-NRR Project Manager)
Mr. B. S. Mallett (NRC Regional Administrator, Region II - Acting)

NRC FORM 366 (MM-YYYY)	U.S. NUCLEAR REGULATORY COMMISSION	Estimated burden per response to comply with this mandatory information collection request: 5 0 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 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. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.
LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)		

FACILITY NAME (1) Harris Nuclear Plant	DOCKET NUMBER (2) 05000400	PAGE (3) 1 OF 3
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TITLE (4) Reactor Trip due to Main Feedwater Regulating Valve Bypass Valve Failure

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MO	DAY	YEAR	YEAR	SEQUENT IAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
01	02	02	2002	- 01 -	00	03	04	2002	FACILITY NAME	DOCKET NUMBER
										05000
										05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR ' : (Check all that apply) (11)								
POWER LEVEL (10)	007		20.2201(b)	20.2203(a)(3)(i)	50.73(a)(2)(i)(C)	50.73(a)(2)(vii)				
			20.2201(d)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(A)				
			20.2203(a)(1)	20.2203(a)(4)	50.73(a)(2)(ii)(B)	50.73(a)(2)(viii)(B)				
			20.2203(a)(2)(i)	50.36(c)(1)(i)(A)	50.73(a)(2)(iii)	50.73(a)(2)(ix)(A)				
			20.2203(a)(2)(ii)	50.36(c)(1)(ii)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	50.73(a)(2)(x)				
			20.2203(a)(2)(iii)	50.36(c)(2)	50.73(a)(2)(v)(A)	73.71(a)(4)				
			20.2203(a)(2)(iv)	50.46(a)(3)(ii)	50.73(a)(2)(v)(B)	73.71(a)(5)				
			20.2203(a)(2)(v)	50.73(a)(2)(ii)(A)	50.73(a)(2)(v)(C)	OTHER				
	20.2203(a)(2)(vi)	50.73(a)(2)(i)(B)	50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A						

LICENSEE CONTACT FOR THIS LER (12)	
NAME Mark Ellington, Project Analyst - Licensing	TELEPHONE NUMBER (Include Area Code) (919) 362-2057

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	
B	SJ	LCV	Masoneilan	Y						

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

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

On January 2, 2002 at 0305, the Harris Nuclear Plant (HNP) was manually tripped, during a plant startup following RFO-10, due to a failure of a Main Feedwater Regulating Valve Bypass Valve. The plant trip was initiated at approximately 7% reactor power when Steam Generator (SG) divergent level swings were observed on all three SGs. SG level was being controlled in automatic by the Main Feedwater Regulating Valve Bypass Valves (MFRVBV) and the valves were traveling full open to full shut in response to the level swings. Following a full shut swing, "C" MFRVBV (1FW-198) failed to respond to an automatic open demand signal from the associated controller located on the Main Control Board. The Balance of Plant operator attempted to open 1FW-198 by taking the controller to manual with a 100% demand, however, indication of actual valve position showed the valve to be shut. With "C" SG level at 30% narrow range level indication, the Unit Senior Control Operator (USCO) directed a manual reactor trip. The manual reactor trip was successful.

Cause: Component Failure: Component degradation. The I/P converter for "C" MFRVBV (1FW-198) experienced a failure attributed to an internal blockage of air. **Corrective actions:** Replaced the I/P on "C" MFRVBV with a Masoneilan Model 7000 I/P.

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

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
Harris Nuclear Plant, Unit 1	0500040	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3
		2002	-- 001	-- 00	

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

I. DESCRIPTION OF EVENT

SUMMARY:

On January 2, 2002 at 0305, the Harris Nuclear Plant (HNP) was manually tripped, during a plant startup following RFO-10, due to a failure of a Main Feedwater Regulating Valve Bypass Valve (EIIS: SJ-LCV). The plant trip was initiated at approximately 7% reactor power when Steam Generator (SG) divergent level swings were observed on all three SGs. SG level was being controlled in automatic by the Main Feedwater Regulating Valve Bypass Valves (MFRVBV) and the valves were traveling full open to full shut in response to the level swings. Following a full shut swing, "C" MFRVBV (1FW-198) failed to respond to an automatic open demand signal from the associated controller located on the Main Control Board. The Balance of Plant (BOP) operator attempted to open 1FW-198 by taking the controller to manual with a 100% demand, however, indication of actual valve position showed the valve to be shut. With "C" SG level at 30% narrow range level indication, the Unit Senior Control Operator (USCO) directed a manual reactor trip. The manual reactor trip was successful.

Event Summary:

During the plant start-up following RFO-10, power ascension to 7% power was needed to satisfy the initial conditions of plant procedure EPT-848T, Temporary Procedure for Steam Generator Water Level Control Test. The purpose of this test was to evaluate the automatic response of the MFRVBV to a 5% level deviation following a steam generator replacement which included a new main feedwater pump impeller resulting in a larger differential pressure across the MFRVBV. The plant was placed in the test condition at approximately 7% reactor power. At that point, oscillations occurred in the steam generator level control circuitry. Following full shut demand swings of the MFRVBV, the BOP operator observed that "C" MFRVBV (1FW-198) had a 20% open demand but indicated shut (singular green light) on the associated status light box valve position indication and that "C" SG had a lowering level trend by MCB level indication. The MFRVBV for "A" and "B" SGs were responding as expected to Manual/Automatic (M/A) station demand signal. With "C" MFRVBV controller at 100% open and the valve indicating full shut, the BOP reactor operator placed the "C" MFRVBV controller in manual. The USCO entered plant procedure AOP-010, Feedwater Malfunctions. The operator cycled the controller from 100% to 0% and back to 100% but the valve did not respond as evidenced by full shut indication on the main control board and lowering level in "C" SG. The MCR staff used the guidance of plant procedure GP-005, Power Operation (mode 2 to mode 1), to place "C" Feedwater Regulating Valve in service to recover "C" SG level. In accordance with the operations pre-job brief, when "C" SG level decreased to 30%, the USCO ordered a manual reactor trip. The manual trip was successful. Reactor trip due to low SG level occurs automatically at 25% level.

HNP investigated the cause of the malfunction of 1FW-198. The most probable cause of the malfunction of 1FW-198 was determined to be an intermittent airflow obstruction in the current-to-pneumatic converter(I/P). Operating experience review showed numerous events where the I/P experienced intermittent failures. The "C" MFRVBV is the only one of the three MFRVBV to still use a Masoneilan model # 8005A I/P, which has no internal air filter, increasing the potential for contaminants to disrupt operation. HNP concluded that replacing the Masoneilan model # 8005A I/P with a Masoneilan Model 7000 I/P would reduce the probability of this failure from reoccurring.

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

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
Harris Nuclear Plant, Unit 1	05000	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 3
		2002	001	00	

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

II. CAUSE OF EVENT

Component Failure: Component degradation. The I/P converter for "C" FRV Bypass Valve (1FW-198) experienced a failure attributed to an internal blockage of air.

III. SAFETY SIGNIFICANCE

HNP Final Safety Analysis Report section 7.7 identifies the MFRVBV safety function is to shut in 10 seconds or less on a Main Feedwater Isolation Signal and is required to be operable in modes 1 through 4. This event describes a condition whereby a MFRVBV failed shut and that is the safety-related position of the valve. The reactor trip was successful and no significant adverse conditions occurred as a result of the reactor trip. Additionally, the Auxiliary Feedwater System automatically actuated following the trip as expected for the plant conditions. The Auxiliary Feedwater System remained available during and after the event to provide heat sink makeup capability. Therefore, this event is not considered safety significant. This condition is being reported in accordance with 10 CFR 50.73(a)(2)(iv) as a System Actuation.

IV. CORRECTIVE ACTIONS

Replaced the I/P on "C" MFRVBV with a Masoneilan Model 7000 I/P.

V. PREVIOUS SIMILAR EVENTS

On December 22, 1989, with HNP preparing to start up following a refueling outage, operators attempted to open the "B" steam generator MFRVBV from the main control board. The MFRVBV would not open from the main control board. The I/P Converter for this air-operated valve was found to have an obstruction in the metering tube. The most probable cause of this failure was determined to be foreign material in the air system related to outage related maintenance. The metering tube was cleaned and reinstalled and the valve was tested satisfactorily.

The corrective actions identified in this report are designed to prevent recurrence of problems of the type identified in this event.