Progress Energy

AUG 1 1 2003

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

Serial: HNP-03-086
10CFR50.73

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1
DOCKET NO. 50-400/LICENSE NO. NPF-63
LICENSEE EVENT REPORT 2003-003-00

Ladies and Gentlemen:

The enclosed Licensee Event Report 2003-003-00 is submitted in accordance with 10 CFR 50.73. This report describes a manual reactor trip due to a loss of the "B" main feedwater pump. Event notification EN# 39938 previously reported this event in accordance with 10 CFR 50.72.

Please refer any questions regarding this submittal to Mr. John Caves, Supervisor – Licensing/Regulatory Programs, at (919) 362-3137.

Sincerely,

B. C. Waldrep
Plant General Manager
Harris Nuclear Plant

BCW/jpy

Enclosure

c: Mr. R. A. Musser (HNP Senior NRC Resident)
Mr. C. P. Patel (NRC-NRR Project Manager)
Mr. L. A. Reyes (NRC Regional Administrator, Region II)

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NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004
Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
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4. TITLE

Manual Reactor Trip Due to Loss of "B" Main Feedwater Pump

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
06	14	2003	2003	- 003 -	00	08	11	2003	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	1
10. POWER LEVEL	100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR : (Check all that apply)

20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(i)(B)	50.73(a)(2)(ix)(A)
20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)
20.2203(a)(1)	50.36(c)(1)(i)(A)	X 50.73(a)(2)(iv)(A)	73.71(a)(4)
20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)
20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A
20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)	
20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)	
20.2203(a)(2)(v)	50.73(a)(2)(i)(B)	50.73(a)(2)(vii)	
20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)	
20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)	

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Robert Hill – Lead Licensing Engineer	(919) 362-2033

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
X	SJ	ECBD		Y					

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

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

On June 14, 2003 at 1053 EST with the reactor at 100% power, the reactor was manually tripped in response to an automatic trip of one of two operating main feedwater pumps (MFPs). The "B" MFP tripped following the failure of a Westinghouse (NAL2) bistable comparator card associated with MFP feedwater flow control system. This card failure generated a spurious low-flow alarm and low-flow trip signal to the "B" MFP. Both motor-driven auxiliary feedwater (AFW) pumps and the turbine-driven AFW pump auto-started due to lo-lo steam generator level. Safety systems functioned as required. The operations crew responded to the event in accordance with applicable plant procedures.

The cause of the unplanned trip of the "B" MFP was due to a failed T30 transistor on a NAL2 comparator card. Immediate corrective action was to replace the failed card. In addition, HNP will modify the system by the end of the next refueling outage (Fall, 2004) such that failure of an NAL2 bistable comparator card in the MFP control system will not cause an unnecessary MFP trip.

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

I. DESCRIPTION OF EVENT

On June 14, 2003 at 1053 EST with the reactor at 100% power, the reactor was manually tripped as directed by plant procedures in response to an automatic trip of one of two operating main feedwater pumps (MFPs) [SJ-P]. The "B" MFP tripped following the failure of a Westinghouse (NAL2) bistable comparator card [ECBD] associated with MFP feedwater flow control system. This card failure generated a spurious low-flow alarm and low-flow trip signal to the "B" MFP. The "A" MFP remained operable. Both motor-driven auxiliary feedwater (AFW) pumps [BA-P] and the turbine-driven AFW pump [BA-P] auto-started due to lo-lo steam generator level. Safety systems functioned as required. The operations crew responded to the event in accordance with applicable plant procedures. The plant was stabilized at normal operating no-load reactor coolant system (RCS) [AB] temperature and pressure following the reactor trip

The root cause of the unplanned trip of the "B" MFP was due to a random electrical failure of a T30 transistor on a NAL2 bistable comparator card. The transistor failed resulting in an electrical short circuit and the loss of the output voltage to the Operational Amplifiers (Op. Amp.) on the card. The Op. Amps generate the reference signal (setpoint) and perform the comparison between the setpoint and the input flow signal. This card has not been found out of calibration during any preventative maintenance calibration.

Energy Industry Identification System (EIIS) codes are identified in the text within brackets [ ].

II. CAUSE OF EVENT

The cause of the unplanned trip of the "B" MFP was due to a failed T30 transistor on a NAL2 comparator card.

III. SAFETY SIGNIFICANCE

Other than the transient induced by the manual reactor trip, there were no safety significant consequences as a result of this event. The plant was manually tripped from 100% power by control room operators as directed by plant procedures. The plant is designed for a loss of main feedwater, and it responded as expected for this condition. The initial plant conditions were well within the bounding conditions for the plant design. The plant was promptly stabilized at normal operating no-load RCS temperature and pressure, and no unusual conditions were observed for plant equipment following the manual reactor trip. All safety equipment functioned as required. No additional or compensatory measures were required for this event. The operating staff performed the required actions for the trip.

The potential safety consequences under other alternate conditions, such as simultaneous random failures leading to loss of both MFPs, may have increased the severity of the transient and caused an automatic reactor trip, but they would not significantly increase the potential safety consequences of this event. The severity of the plant transient generally increases with increasing power, so the same event initiated at a lower power would be expected to result in a less severe transient.

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

IV. CORRECTIVE ACTIONS

Immediate corrective action was to replace the failed card. In addition, HNP will modify the system by the end of the next refueling outage (Fall, 2004) such that failure of an NAL2 bistable comparator card in the MFP control system will not cause an unnecessary MFP trip leading to a reactor trip.

V. PREVIOUS SIMILAR EVENTS

There have been no previous reactor trips at HNP caused by a failure of this type of transistor on this card type. There are thousands of this type of transistor and hundreds of cards in service. Failures have occurred on a very small fraction of the installed components where the cause is either indeterminate or assumed to be age related. Age-based component replacement or refurbishment was considered but not implemented, consistent with vendor recommendations.