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

JUN - 2 2000

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

Serial: HNP-00-098
10CFR50.73

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1
DOCKET NO. 50-400
LICENSE NO. NPF-63
LICENSEE EVENT REPORT 2000-003-00

Sir or Madam:

In accordance with 10CFR50.73, the enclosed Licensee Event Report is submitted. This report describes an inadvertent Safety Injection actuation.

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)

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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

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Information and 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.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Harris Nuclear Plant, Unit 1	05000400	1 OF 4

TITLE (4)
Inadvertent Safety Injection Actuation

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	04	2000	2000	- 003 -	00	06	01	2000	FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	5
POWER LEVEL (10)	000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
	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)	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

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

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

On May 4, 2000 at approximately 1324, with the Harris Nuclear Plant HNP)in Mode 5 at 0% reactor power, an inadvertent Safety Injection (SI) was generated by a Pressurizer Low Pressure SI signal. The signal was generated when Instrument Bus S-III, which provides power to Channel 3 instruments, was de-energized to return it to its normal power supply concurrent with plant procedure MST-I0604, Time Response Test for Channel I Pressurizer Pressure being in progress. Since the same pressure channels supply the Low Pressurizer Pressure SI Block Permissive (P-11), the block feature was lost and SI actuated. The Boron Injection Tank outlet valves were closed and de-energized in preparation for OST-1826, which prevented ECCS discharge to the RCS. Other equipment operated as required in response to the SI signal.

Cause of this event: (1) Failure to validate or verify information upon which key decisions were made. (2) Less than adequate sensitivity to activities that may cause an SI actuation during shutdown conditions.

Corrective actions include: (1) Formally incorporate the "sensitive activity" work control, scheduling, and associated expectations for pre-job briefs and oversight into a plant procedure. (2) Counsel involved operators. (3) Provide training to applicable operators to reinforce actions when faced with complex knowledge challenges.

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Harris Nuclear Plant, Unit 1	05000400	2000	-- 003 --	00	2 OF 4

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

I. DESCRIPTION OF EVENT

On May 4, 2000 at approximately 1324, with the Harris Nuclear Plant (HNP) in Mode 5 at 0% reactor power, an inadvertent Safety Injection (SI) was generated by a Pressurizer Low Pressure SI signal. The signal was generated when Instrument Bus S-III, which provides power to Channel 3 instruments, was de-energized to return it to its normal power supply concurrent with plant procedure MST-I0604, Time Response Test for Channel I Pressurizer Pressure being in progress. Since the same pressure channels supply the Low Pressurizer Pressure SI Block Permissive (P-11), the block feature was lost and SI actuated. The Boron Injection Tank outlet valves were closed and de-energized in preparation for OST-1826, which prevented ECCS discharge to the RCS. Other equipment operated as required in response to the SI signal.

Specific procedure steps directed the operators to evaluate bi-stable status prior to de-energizing the instrument bus to determine if a trip or actuation signal would be generated. This procedure step was inadequately completed in that the operators did not correctly determine the impact of dropping the bus. The operators recognized that de-energizing the SIII bus would provide the second input, but did not recognize that this would UNBLOCK the SI signal. The operators did not use appropriate error-reduction techniques such as pre-job briefs or all available information to evaluate the plant impact.

The Solid State Protection System (SSPS) provides the actuation logic for the Reactor Protective System (RPS) and Engineered Safety Features Actuation Systems (ESFAS). The purpose of the RPS/ESFAS is to process input signals from selected plant parameters and send a reactor trip signal to the reactor trip breakers or actuation signals to the ESFAS equipment when plant parameters exceed predetermined values. The system also provides interlocks and permissives to limit the severity of accidents at lower power levels. The permissives are used to block the trips or safeguards actions so that full power can be obtained or an orderly shutdown can be done. The SSPS receives bistable signals from the Process Instrumentation and Control (PIC) cabinets, nuclear instrumentation system, plant contacts, and control board switches. There are independent and redundant channels monitoring each applicable plant parameter.

Safety Injection is one of eight functional signals used to actuate ESFAS and supporting systems. Safety Injection can be initiated manually from the main control board or automatically by two out of three Hi-1 containment pressures, low pressurizer pressure when not blocked below P-11 with the Pressurizer SI block control switch, or two out of three low steamline pressures in any loop when not blocked below P-11 by the Steamline SI Block/Reset switch.

P-11 allows for an orderly reduction of RCS pressure without causing an SI and reduces the possibility of a loss of coolant accident due to inadvertent opening of the Pressurizer PORVs. When two out of three pressurizer pressure signals are less than 2000 psig, the following functions occur:

Permissive P-11 allows the operator to manually block SI from being initiated due to low pressurizer pressure.

Permissive P-11 allows the operator to manually block a safety injection and steamline isolation initiation due to a low steamline pressure; this same blocking action enables steamline isolation actuation which could result from a high rate of decrease of steam pressure.

Permissive P-11 blocks auto operation of the pressurizer PORVs and accumulator discharge valves as pressure decreases below the setpoint.

Permissive P-11 changes state based on the input status of 3 channels of pressurizer pressure. With 2 out of 3 channels less than 2000 psig, the operator is allowed to block Low Pressurizer SI and Low steamline pressure SI signals.

The block of these signals is sealed-in until the respective train switches are taken to reset or until 2 of 3 P-11 input relays de-energize, as would be caused when pressurizer pressure exceeds 2000 psig.

The 120V ESF un-interruptible AC system consists of four 7.5kVA inverter power supplies. Channels I and III are powered from the "A" 480V Emergency Bus and the "A" 125V DC Emergency Bus. Channels II and IV are powered from the "B" 480V Emergency Bus and the "B" 125V DC Emergency Bus. The four inverters normally feed four separate instrument busses. The instrument busses can alternatively be powered directly from the 480V emergency busses. Power for Instrument Bus S-III was being switched from the alternate source to the normal source when the event occurred.

The power for input relays for process instruments comes from its respective PIC cabinet. When power was secured to PIC 3, input relays powered from this cabinet de-energized. When the channel 3 input relay for P-11 de-energized concurrent with the response time testing in progress on the channel 1 instrument, 2 out 3 channels indicated Pressurizer Pressure as >2000 psig and the P-11 permissive was unblocked.

II. CAUSE OF EVENT

(1) Failure to validate or verify information upon which key decisions were made.
(2) Less than adequate sensitivity to activities that may cause an SI actuation during shutdown conditions.

III. SAFETY SIGNIFICANCE

There were no actual safety consequences as a result of this event. The plant was in a cold shutdown condition with SI not required, per HNP Technical Specifications, to mitigate the consequences of an accident. Additionally, the SI high head injection path was blocked so that no water was injected into the reactor coolant system as a result of this event. This report is being submitted pursuant to the criteria of 10CFR50.73(a)(2)(iv) for actuation of an Engineered Safety Feature or the RPS.

IV. CORRECTIVE ACTIONS

(1) Formally incorporate the "sensitive activity" work control, scheduling, and associated expectations for pre-job briefs and oversight into a plant procedure.

(2) Counsel involved operators.

(3) Provide training to applicable operators to reinforce actions when faced with complex knowledge challenges.

V. SIMILAR EVENTS

There have been no previous reportable events at HNP where a SI occurred as a result of de-energizing an instrument bus concurrent with testing a separate channel of instrumentation.