



NOV 23 2004

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

Serial: HNP-04-145
10 CFR 50.73

**SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1
DOCKET NO. 50-400/LICENSE NO. NPF-63
LICENSEE EVENT REPORT 2004-004-00**

Ladies and Gentlemen:

The enclosed Licensee Event Report (LER) 2004-004-00 is submitted in accordance with 10 CFR 50.73. This report describes an unanalyzed condition due to inadequate separation of associated circuits. LER 2002-004-05, submitted on November 15, 2004, described similar unanalyzed conditions. However, the cause of LER 2004-004-00 is different than LER 2002-004-05, so this condition is being submitted separately.

Corrective actions underway in response to the previously identified conditions include a comprehensive review and validation of the safe shutdown analysis (SSA). This validation is a detailed analysis of the routing of cables affecting equipment credited in the SSA. The commitments and associated due dates identified in Section VI of this LER correspond with those for LER 2002-004-05. Compensatory actions, including fire watches, ensure safety pending permanent resolution of the identified conditions.

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

Sincerely,

A handwritten signature in black ink, appearing to read 'B. C. Waldrep', written over a horizontal line.

FOR B. WALDREP

B. C. Waldrep
Plant General Manager
Harris Nuclear Plant

BCW/jpy

Enclosure

Progress Energy Carolinas, Inc.
Harris Nuclear Plant
P.O. Box 165
New Hill, NC 27562

IE22

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

NRC FORM 366 (6-2004)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB: NO. 3150-0104	EXPIRES: 06/30/2007
<h2 style="margin: 0;">LICENSEE EVENT REPORT (LER)</h2>		Estimated burden per response to comply with this mandatory 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 and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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 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.	

1. FACILITY NAME Harris Nuclear Plant – Unit 1	2. DOCKET NUMBER 05000400	3. PAGE 1 OF 6
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4. TITLE
 Unanalyzed Condition Due to Inadequate Separation of Associated Circuits

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	27	2004	2004	- 004 -	00	11	26	2004	N/A	05000
									FACILITY NAME	DOCKET NUMBER
									N/A	05000

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: <i>(Check all that apply)</i>			
10. POWER LEVEL 100	<input type="checkbox"/> 20.2201(b) <input type="checkbox"/> 20.2201(d) <input type="checkbox"/> 20.2203(a)(1) <input type="checkbox"/> 20.2203(a)(2)(i) <input type="checkbox"/> 20.2203(a)(2)(ii) <input type="checkbox"/> 20.2203(a)(2)(iii) <input type="checkbox"/> 20.2203(a)(2)(iv) <input type="checkbox"/> 20.2203(a)(2)(v) <input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 20.2203(a)(3)(i) <input type="checkbox"/> 20.2203(a)(3)(ii) <input type="checkbox"/> 20.2203(a)(4) <input type="checkbox"/> 50.36(c)(1)(i)(A) <input type="checkbox"/> 50.36(c)(1)(ii)(A) <input type="checkbox"/> 50.36(c)(2) <input type="checkbox"/> 50.46(a)(3)(ii) <input type="checkbox"/> 50.73(a)(2)(i)(A) <input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(i)(C) <input type="checkbox"/> 50.73(a)(2)(ii)(A) <input checked="" type="checkbox"/> 50.73(a)(2)(ii)(B) <input type="checkbox"/> 50.73(a)(2)(iii) <input type="checkbox"/> 50.73(a)(2)(iv)(A) <input type="checkbox"/> 50.73(a)(2)(v)(A) <input type="checkbox"/> 50.73(a)(2)(v)(B) <input type="checkbox"/> 50.73(a)(2)(v)(C) <input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 50.73(a)(2)(vii) <input type="checkbox"/> 50.73(a)(2)(viii)(A) <input type="checkbox"/> 50.73(a)(2)(viii)(B) <input type="checkbox"/> 50.73(a)(2)(ix)(A) <input type="checkbox"/> 50.73(a)(2)(x) <input type="checkbox"/> 73.71(a)(4) <input type="checkbox"/> 73.71(a)(5) <input type="checkbox"/> OTHER
Specify in Abstract below or in NRC Form 366A				

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME John Yadusky – Lead Licensing Engineer	TELEPHONE NUMBER (Include Area Code) (919) 362-2020
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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

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO
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15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

On September 27, 2004, the Harris Nuclear Plant (HNP) identified that certain cables for redundant components credited by the Safe Shutdown Analysis (SSA) lack the required degree of separation in one fire area. This discovery was identified during a comprehensive review of the HNP SSA as part of the corrective actions for previously reported conditions (reference HNP LER 2002-004-05 submitted November 15, 2004).

As a potential result, spurious opening of multiple valves in the Reactor Coolant System (RCS) could transfer some coolant inventory to containment. However, by the design of this potential pathway, any transfer of coolant inventory is less than the make-up capacity of one charging pump.

The most probable cause of this historical condition is that the drawing change requiring these cables to be protected by fire barrier material was apparently never issued during plant construction. Subsequently, the fire barrier material was never installed as required by the SSA.

At the time of this discovery, a roving fire watch was already posted in the fire area of concern and remains posted. Design changes or other methods approved by the NRC will be used to restore compliance. No corrective actions are associated with the cause of this historical condition since it is the only condition of its type identified during the comprehensive review of the HNP SSA.

NRC FORM 366A U.S. NUCLEAR REGULATORY COMMISSION
(1-2001)**LICENSEE EVENT REPORT (LER)**

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

On September 27, 2004, with the Unit in Mode 1 at 100% power, HNP identified that certain cables for redundant components credited by the Safe Shutdown Analysis (SSA) lack the required degree of separation in one fire area. This discovery was identified during a comprehensive review and validation of the HNP SSA. This review and validation were being performed as part of the corrective actions for previously reported conditions (reference HNP LER 2002-004-05 submitted November 15, 2004).

HNP identified that spurious opening of multiple valves [V] in the Reactor Coolant System (RCS) [AB] could potentially result in the transfer of some coolant inventory to containment. For a postulated fire in SSA fire area 1-A-CSRFB, located in the Reactor Auxiliary Building (RAB) elevation 261', certain cabling [CBL3] for the RCS High Point Vent System Valves (1RC-901, 1RC-903, and 1RC-905) [AB-FSV] were not protected from spurious actuation in accordance with the requirements of NUREG 0800, Attachment 1 (Branch Technical Position CMEB 9.5-1) Section C.5.b. Specifically, the control power cables for RCS solenoid operated valve (SOV) 1RC-905 are routed in cable trays with no fire barrier within five feet of the conduit with no fire barrier which contains the control power cables for RCS SOVs 1RC-901 and 1RC-903 in SSA fire area 1-A-CSRFB. Therefore, the cables for these SOVs could be vulnerable to fire-induced hot shorts. During normal plant operation, these RCS vent valves are closed and the valves' control power is removed via a pull-to-lock switch in the main control room. However, a postulated fire in this area could result in spurious opening of multiple valves 1RC-905, Combined Head Vent and Steam Space Vent Valve, and either 1RC-901, Reactor Vessel [RPV] Head Vent Valve, or 1RC-903, Pressurizer [PZR] Steam Space Vent Valve, and thus could potentially create a pathway from the RCS to the containment atmosphere. At the time of this discovery, a roving fire watch was already posted in the fire area of concern as interim compensatory action for previously reported conditions, and the fire watch remains posted.

Based on a review of historical plant documents, this condition was previously identified during plant construction and was considered to have been resolved at that time. However, the drawing change requiring these cables to be protected by fire barrier material was apparently never issued during plant construction. Subsequently, the fire barrier material was never installed as required by the SSA. No other condition similar to this historical one has been identified during the comprehensive review and validation of the HNP SSA.

The RCS High Point Vent System is designed to remove non-condensable gases from the primary system to assist core cooling during natural circulation. The system is designed with one-inch (nominal size) piping to provide adequate venting capacity while ensuring that any transfer of coolant inventory is less than the make-up capacity of one charging pump in the event of a Safety Class 2 pipe break or inadvertent valve actuations. In addition, the path from the reactor vessel head utilizes a 3/8-inch diameter orifice [OR]. This orifice also limits flow to less than the make-up capacity of one charging pump in the event of a Safety Class 2 pipe break or inadvertent valve actuations.

This finding of an unanalyzed condition is being reported pursuant to 10 CFR 50.73(a)(2)(ii)(B). No systems, structures, or components were inoperable at the time of discovery that significantly contributed to the event.

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

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(1-2001)**LICENSEE EVENT REPORT (LER)**

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II. CAUSE OF EVENT

The most probable cause of this historical condition is that the drawing change requiring these cables to be protected by fire barrier material was apparently never issued during plant construction. Subsequently, the fire barrier material was never installed as required by the SSA. No other condition similar to this historical one has been identified during the comprehensive review and validation of the HNP SSA.

III. SAFETY SIGNIFICANCE

All of the findings are based on scenarios that have not actually occurred. Therefore, there are no actual adverse safety consequences.

The potential safety consequence for a postulated fire in fire area 1-A-CSR (261' elevation) that also results in spurious opening of multiple SSA SOVs may include:

- Transfer of some RCS inventory to containment atmosphere. However, the system is designed to ensure that any transfer of coolant inventory is less than the make-up capacity of one charging pump in the event of a Safety Class 2 pipe break or inadvertent valve actuations. In addition, the path from the reactor vessel head utilizes a 3/8-inch diameter orifice, which also limits flow to less than the make-up capacity of one charging pump in the event of a Safety Class 2 pipe break or inadvertent valve actuations.

In addition, the defense-in-depth provided by the fire protection program mitigates this potential safety consequence by:

- Prevention of fire initiation,
- Prompt detection of fires or incipient fire conditions by installed automatic detection systems,
- Effective suppression of fires by installed automatic fire suppression systems with fire brigade backup.

IV. CORRECTIVE ACTIONS

At the time of this discovery, a roving fire watch was already posted in the fire area of concern as interim compensatory actions to minimize the impact of a postulated fire for previously reported conditions, and the fire watch remains posted.

Complete a validation of the HNP safe shutdown analysis.

Restore the identified conditions of this LER to compliance by design changes or other methods approved by the NRC.

These actions are scheduled to be completed by refueling outage (RFO) 13 (Currently scheduled for May 13, 2006).

No corrective actions are associated with the cause of this historical condition since it is the only condition of its type identified during the comprehensive review and validation of the HNP SSA.

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(1-2001)**LICENSEE EVENT REPORT (LER)**

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V. PREVIOUS SIMILAR EVENTS

NRC Inspection Report 50-400/00-09 (dated February 3, 2000)

This inspection identified two unresolved items (URIs) concerning adequacy of a Thermo-Lag fire barrier to meet plant licensing basis requirements and the adequacy of the 10 CFR 50.59 for changes made to the FSAR to revise the fire rating of selected Thermo-Lag fire barriers. The identified fire barrier serves as the fire area separation barrier between the "B" Train Switchgear Room/Auxiliary Control Panel (ACP) Room and the "A" Train Cable Spreading Room. Based on Thermo-Lag barrier fire resistance tests conducted in 1994 and 1995, this fire barrier did not have the required three-hour fire resistance rating. Therefore, a single fire in the "B" Train Switchgear Room, of significant intensity and duration, could breach the Thermo-Lag fire barrier assembly and damage certain redundant "A" train cables and their associated functions of safe shutdown systems. The final significance determination for these two items was one notice of violation (White finding). The root cause was inadequate fire testing of the installed fire barrier. The corrective actions included modifications to the affected rooms and establishing review criteria to ensure that future fire barrier modifications do not invalidate test results. The root cause for this previous event is not significant in relation to the subject event, therefore, the previous corrective actions would not be expected to identify or prevent the deficiency identified by this LER.

HNP LER 97-006-00 (reported 4/17/97)

This LER reported that an undocumented breach was identified in the thermo-lag wall while sealing penetrations through the Thermo-Lag Wall in the 286' Cable Spreading Room "A." Follow-up investigation revealed an additional thermo-lag fire barrier deficiency in a floor drain assembly in the cable spread room. These conditions do not comply with the 3-hour fire-rated barrier requirements specified in the HNP FSAR. The root cause was identified to be incomplete design, incomplete construction, and incomplete final construction walkdown. The penetration was modified per ESR 95-00715. The root cause investigation (CR 97-01123) stated, "Nothing indicates a common trend to the fact of an area of a Thermo-lag panel being missed both in design and in the final construction walkdown." The root cause for this previous event is not significant in relation to the subject event, therefore, the previous corrective actions would not be expected to identify or prevent the deficiency identified by this LER.

HNP LER 97-020-00 (reported 9/12/97)

This LER reported that design discrepancies were identified during an Engineering review of the Safe Shutdown Analysis in Case of Fire. These discrepancies pertain to safety-related electrical cables in 261' elevation of the RAB for the EDG Fuel Oil Transfer Pumps "A" and "B". These cables did not comply with separation requirements to maintain safe shutdown capability. These deficiencies were caused by engineering oversight and inadequate design verification during initial plant construction. A plant modification was installed to provide the required protection for the cited cables. The root cause investigation (CR 97-03861) stated, "A review of the safe shutdown cables in the unit 2 areas north of column line 43 was performed and no additional cable protection discrepancies were found. Also, an in-depth review of an additional fire area (1-A-EPB) was performed . . . and no similar deficiencies were identified." The root cause for this previous event is not significant in relation to the subject event, therefore, the previous corrective actions would not be expected to identify or prevent the deficiency identified by this LER.

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(1-2001)**LICENSEE EVENT REPORT (LER)**

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V. PREVIOUS SIMILAR EVENTS (Continued)

HNP LER 2002-004-00 through -05 (reported February 18, 2003, March 26, 2003, September 19, 2003, April 12, 2004, and November 15, 2004, respectively)

This LER and its associated revisions reported that unanalyzed conditions exist due to inadequate separation of associated circuits. HNP identified postulated fires that could cause spurious actions of multiple valves and components that could also result in some of the following potential conditions:

- Spurious opening of multiple valves in the safety injection system or the containment spray system could result in transfer of Reactor Water Storage Tank (RWST) inventory to the containment recirculation sump. However, this water inventory would still be available for use, if needed, from the containment recirculation sump.
- Spurious opening of multiple valves in the safety injection system could result in damage to the Charging/Safety Injection Pump (CSIP) in service due to run out conditions.
- Spurious closure of valves in the charging system could result in loss of flow and subsequent damage to the running CSIP credited by the Safe Shutdown Analysis (SSA).
- Spurious closure of valves in the Component Cooling Water (CCW) System could result in loss of CCW flow credited by the SSA for Reactor Coolant Pump (RCP) seal cooling.
- Spurious closure of multiple valves in the charging and CCW systems could result in loss of RCP seal cooling and subsequent degradation of the RCP seals, possibly leading to an RCP seal LOCA without credited CSIPs.
- Spurious opening of a valve and spurious start of a containment spray pump could result in discharge of RWST inventory to the containment via the containment spray ring header.
- Loss of RCS pressure and level indication credited by the SSA which could potentially impact pressure and level monitoring.

The cause of these conditions was inadequate original Safe Shutdown Analysis. Specifically, certain conductor-to-conductor interactions (i.e., hot shorts) were not adequately evaluated in the initial Safe Shutdown Analysis. The root cause for LER 2002-004-00 through -05 was an old design deficiency (i.e., certain conductor-to-conductor interactions such as hot shorts were not adequately evaluated in the initial SSA) and is not significant in relation to the current event. However, the corrective actions for this previous event would be expected to identify or prevent the deficiency identified by the current LER, and, in fact, did identify this deficiency during the ongoing comprehensive review and validation of the HNP SSA. This review and validation are being performed as part of the corrective actions for the previously reported conditions.

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(1-2001)

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

VI. COMMITMENTS

The actions committed to by Carolina Power & Light Company doing business as Progress Energy Carolinas, Inc. (PEC) in this document are identified below. Any other actions discussed in this submittal represent intended or planned actions by PEC. They are described for the NRC's information and are not regulatory commitments.

Commitment(s)	Scheduled Completion Date
1. Complete a validation of the HNP safe shutdown analysis.	June 20, 2005
2. Restore the identified conditions of this LER to compliance by design changes or other methods approved by the NRC.	Refueling Outage 13 (Current schedule May 13, 2006)