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NLS2007075
October 24, 2007

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Subject: Licensee Event Report No. 2007-005-01
Cooper Nuclear Station, NRC Docket 50-298, DPR-46

Dear Sir or Madam:

The purpose of this correspondence is to forward Licensee Event Report 2007-005-01.

Sincerely,

Michael J. Colomb
General Manager of Plant Operations

/dm

Enclosure

cc: Regional Administrator w/enclosure
USNRC - Region IV

Cooper Project Manager w/enclosure
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector w/enclosure
USNRC - CNS

SRAB Administrator w/enclosure

NPG Distribution w/enclosure

INPO Records Center w/enclosure

SORC Administrator w/enclosure

CNS Records w/enclosure

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IE22
NRR

NRC FORM 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2007

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 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 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.

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Cooper Nuclear Station	05000298	1 of 4

4. TITLE
Inadequate Post Fire Procedure Could Have Prevented Achieving Safe Shutdown

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
										05000
06	14	2007	2007	- 005 -	01	10	24	2007	FACILITY NAME	DOCKET NUMBER
										05000

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)(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)	☐ 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)(i)(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

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
David W. Van Der Kamp, Licensing Manager	(402) 825-2904

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
				No					

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

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

On June 14, 2007, during validation of plant procedures associated with achieving safe shutdown during and after an Appendix R fire, Cooper Nuclear Station (CNS) determined there was no readily available success path to secure High Pressure Coolant Injection (HPCI) when required. Based on a conservative analysis and assumptions, the postulated scenario involves a fire-induced spurious HPCI initiation that must be terminated within 10 minutes to prevent flooding main steam lines and disabling both Reactor Core Isolation Cooling and Automatic Depressurization System, each representing available strategies for achieving hot shutdown. As written, the post-fire procedure steps would not have been sufficient to isolate steam to the HPCI turbine.

CNS took immediate actions to revise procedures to provide adequate and effective validated instructions to isolate HPCI when required after a spurious initiation. This event was reported June 14, 2007 under 10 CFR 50.72(b)(3)(v)(A) by Emergency Notification Number 43421 as a condition that could have prevented the plant from achieving safe shutdown. The condition has been determined to be of low safety significance.

PLANT STATUS

Cooper Nuclear Station (CNS) was in Mode 1 at 100 percent steady state power at the time of the identified condition.

BACKGROUND

The High Pressure Coolant Injection (HPCI) System (EIIS:BJ) provides protection to the core for a small break in the reactor coolant pressure boundary which does not result in rapid depressurization of the reactor vessel. The HPCI System permits the nuclear plant to be shutdown while maintaining sufficient reactor vessel water inventory until the reactor vessel is depressurized. The HPCI System continues to operate until reactor vessel pressure is below the pressure at which Low Pressure Coolant Injection (EIIS: BO) or Core Spray System (EIIS:BM) can be used to maintain core cooling.

HPCI consists of a steam turbine assembly driving a multi-stage booster and main pump assembly and system piping, valve, controls and instrumentation. The HPCI turbine is driven by steam from the reactor which is generated by decay and residual heat. The steam is extracted from the associated main steam line upstream of the main steam line isolation valves (EIIS:ISV).

The Reactor Core Isolation Cooling (RCIC) (EIIS: BN) system provides makeup water to the reactor vessel following a reactor vessel isolation in order to prevent the release of radioactive materials to the environs as a result of inadequate core cooling. The RCIC system consists of a steam driven turbine-pump unit and associated valves and piping capable of delivering makeup water to the reactor vessel.

The Automatic Depressurization System (ADS) consists of six of the eight safety relief valves (EIIS: RV) installed on the main steam lines inside primary containment. ADS provides depressurization of the reactor during a small break loss of coolant accident if HPCI fails or is unable to maintain required water level in the reactor pressure vessel (RPV) (EIIS:RPV). ADS operation reduces the RPV pressure to within the operating pressure range of the low pressure Emergency Core Cooling subsystems so that these subsystems can provide coolant inventory makeup.

EVENT DESCRIPTION

On June 14, 2007, during validation of plant procedures for achieving safe shutdown during and after an Appendix R fire, CNS determined there was no readily available success path to secure HPCI when required. This condition was discovered during the Nuclear Regulatory Commission Triennial Fire Protection Inspection. The postulated scenario involves a fire-induced spurious HPCI initiation that must be terminated within 10 minutes to prevent flooding the main steam lines and disabling both available strategies of hot shutdown. For this event, RCIC is one defined method of temperature and pressure control to achieve hot shutdown. The other defined method requires ADS valves to lower pressure to allow Core Spray to provide makeup water. The postulated scenario utilizes extremely conservative (unlikely) assumptions such as multiple cables damaged and an assumed failure of the low pressure injection systems due to loss of room cooling. As written, the procedure steps in the post-fire procedure would not have been sufficient to isolate steam to the HPCI turbine. The specific instruction deficiency had existed in the post-fire procedure from the time of its initial development January 1987.

Based on the current conservative analysis, other methods to secure HPCI that would have been reasonably available required operation of components that could have been affected by the same fire that would cause the spurious initiation of HPCI.

This event was reported June 14, 2007 under 10 CFR 50.72(b)(3)(v)(A) by Emergency Notification Number 43421 as a condition that could have prevented the plant from achieving safe shutdown.

BASIS FOR REPORT

This condition is reportable in accordance with 10 CFR 50.73(a)(2)(v)(A) as "Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to: (A) Shut down the reactor and maintain it in a safe shutdown condition."

SAFETY SIGNIFICANCE

A review of steps in the post-fire procedure determined that local operation of the equipment credited to mitigate consequences of fires in certain areas would not be effective. The response to these fire events was reconsidered with operator actions

in the control room being credited. Design review of cable locations within the affected fire areas was performed to confirm postulated adverse affects for unsuppressed fire events. The results validated that other means were available to the operator to successfully control RPV water level from the control room with a postulated failure of the HPCI high level trip logic.

The delta core damage frequency (CDF) of this scenario has been determined to be of low safety significance, less than 1E-6/yr. This delta CDF includes the fire areas affected by the procedure deficiency. Treating the consequences of fires in these areas separately further supports low significance of the deficiency.

CAUSE

The process associated with preparation of Appendix R items within the Safe Shutdown Analysis Report (SSAR) lacked formal review.

Validations of the post-fire procedure were not fully effective because station practices concerning "don't open" type electrical enclosures prevented applicable procedure steps from being field verified as specified in the procedure change process.

CORRECTIVE ACTION

Immediate actions consisted of revising the procedures to provide adequate and effective validated instructions to isolate HPCI when required after a spurious initiation.

The following corrective actions are being tracked in the CNS corrective action program:

1) Appendix R inputs to the SSAR shall be classified as Engineering Evaluations, and shall be subject to the same processes as Engineering Evaluations.

2) Revise the procedure governing generation or revision of procedures to provide explicit, step-by-step guidance with respect to addressing validation of procedure steps that involve components inside "don't open" or otherwise inaccessible closures or cabinets.

PREVIOUS EVENTS

There have been no reportable events identified in the past three years related to safe shutdown procedural deficiencies.

ATTACHMENT 3 LIST OF REGULATORY COMMITMENTS©

Correspondence Number: NLS2007075

The following table identifies those actions committed to by Nebraska Public Power District (NPPD) in this document. Any other actions discussed in the submittal represent intended or planned actions by NPPD. They are described for information only and are not regulatory commitments. Please notify the Licensing Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITMENT NUMBER	COMMITTED DATE OR OUTAGE
None	N/A	N/A