Nebraska Public Power District

COOPER NUCLEAR STATION
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NLS960100

May 24, 1996

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

Dear Sir:

Cooper Nuclear Station Licensee Event Report 96-003, Supplement 1, is forwarded as an attachment to this letter.

Sincerely,

J. T. Herron
Plant Manager

/cct

Attachment

cc: Regional Administrator
USNRC - Region IV

Senior Project Manager
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector
USNRC

NPG Distribution

INPO Records Center

W. Turnbull
MidAmerica Energy

IE22
1/1

NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 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.

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Cooper Nuclear Station	05000298	1 OF 3

TITLE (4)

Single Train RCIC System Inoperable Due to Equipment Malfunction

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
03	20	96	96	-- 003 --	01	05	24	96	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
POWER LEVEL (10)	100	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)	50.73(a)(2)(iv)	OTHER
		20.2203(a)(2)(iii)	50.36(c)(1)	X 50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
		20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Calvin C. Taylor, Licensing & Compliance Specialist	(402) 825-3811

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
K	CEA	MECFUN	W290	Y						

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

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

At 1213 CST on March 20, 1996, the single train Reactor Core Isolation Cooling (RCIC) System was declared inoperable due to a failed monthly operability surveillance test. Upon RCIC pump turbine start, speed initially increased to approximately 4500 rpm (normal speed) but subsequently decreased and stabilized at approximately 2000 rpm. The governor valve was initially in the standby position of open and went towards the closed position as expected but then did not ramp open. Control Room indication of flow was approximately 200 gpm. Normal flow is greater than 400 gpm.

A seven day LCO was entered due to the inoperable RCIC system. Trouble shooting determined an erroneous output from the Woodward EGM control box in the turbine governor control system. The EGM control box was replaced and satisfactorily tested and the RCIC system passed the monthly operability surveillance test. The seven day LCO was exited at 0508 on March 21, 1996.

Investigation of the failure could not determine a cause, (NUREG 1022 Appendix B Root Cause Code X, "Other").

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

PLANT STATUS

During the period of inoperability, the plant was at power operation.

EVENT DESCRIPTION

At 1213 CST on March 20, 1996, the single train Reactor Core Isolation Cooling (RCIC) System was declared inoperable due to a failed monthly operability surveillance test. Upon RCIC pump turbine start, speed initially increased to approximately 4500 rpm (normal speed) but subsequently decreased and stabilized at approximately 2000 rpm. The governor valve was initially in the standby position of open and went towards the closed position as expected but then did not ramp open. Control Room indication of flow was approximately 200 gpm. Normal flow is greater than 400 gpm.

A seven day LCO was entered due to the inoperable RCIC system. Initial trouble shooting determined an erroneous output from the Woodward EGM control box in the turbine goverr or control system. The EGM control box was replaced and satisfactorily tested and the RCIC system passed the monthly operability surveillance test. The seven day LCO was exited at 0508 on March 21, 1996.

Troubleshooting of the RCIC system determined that the EGM Control Box (S/N 2266683) was defective. Per the MWR, voltage at the EGM output terminals to the EGR was measured. A reading of -8.8 VDC (which corresponds to a EGR closure demand signal) was obtained, instead of an expected value between 0 and +2 VDC.

On March 22, 1996, calibration procedure 14.25.2 was performed to troubleshoot the malfunctioning EGM, however, it could not be calibrated at the high frequency point. A visual check of the EGM internals did not discover any burnt components or obvious disconnections.

The EGM Control Box was sent to Woodward Governor Company for examination and repair. The EGM Control Box was tested as received per Woodward Test Specification (TSP) 4675 under the observation of an NPPD QA Inspector. The EGM was found to be operating satisfactorily with the as-found settings. The EGM was then adjusted to TSP required settings and again operated satisfactorily. The EGM was left operating for approximately one and a half hours, then verified to still be operating satisfactorily even after the repair technician and product engineer tapped potentiometers and moved various connections and components in an attempt to initiate a failure.

Because there was no problem found, Woodward replaced all capacitors in the EGM to enhance EGM reliability. Later, upon a request from the CNS investigative team, Woodward retested the EGM per the requirements of CNS Procedure 14.25.2 and again found it to be operating satisfactorily. Although the EGM condition had changed, Woodward provided assurance that the replacement of the capacitors did not compromise the ability of this test to expose a potential problem with the EGM.

On April 11, 1996, the EGM Control Box was returned to CNS. A bench calibration was performed and the EGM satisfied the acceptance criteria of Procedure 14.25.2.

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

CAUSE

It is apparent that the RCIC System failed the operability test due to a problem related with the EGM Control Box (RCIC-CBX-3067). This problem was resolved by replacing the EGM with a spare unit.

The specific cause of failure could not be determined and therefore NUREG 1022 Appendix B Cause Code X is assigned, "Other."

SAFETY SIGNIFICANCE

The RCIC 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. Due to the apparent EGM Control Box failure, the RCIC System could not satisfy a monthly surveillance procedure which demonstrates system operability. As a result, the RCIC System was declared inoperable and a 7-day LCO statement per TS 3.5.D.2 was entered. During this event, the High Pressure Coolant Injection (HPCI) System was operable. Therefore, this event presented no adverse potential consequences for public health and safety.

CORRECTIVE ACTIONS

The malfunctioning EGM was replaced.

PREVIOUS EVENTS

LER 76-007 reported a failure of a routine RCIC operability surveillance to reach rated flow and pressure due to heat buildup inside the RCIC control cabinet which damaged the resistors in the Ramp Generator Signal Convertor (RGSC). After repair, vent fans were installed in the RCIC and HPCI control cabinets to reduce the probability of event recurrence.

LER 78-011 reported a RCIC post-maintenance operability surveillance failure due to the ramp generator being misaligned due to drift. After repair, a surveillance procedure was written to periodically check, in place, the functioning of the RGSC.

LER 84-004 reported a failure of a routine RCIC operability surveillance due to a broken solder joint on a resistor in the RGSC. The RGSC was replaced.

Correspondence No: NLS960100

The following table identifies those actions committed to by the District in this document. Any other actions discussed in the submittal represent intended or planned actions by the District. They are described to the NRC for the NRC's information 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	COMMITTED DATE OR OUTAGE
None.	