



## Nebraska Public Power District

COOPER NUCLEAR STATION  
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NLS960220  
November 25, 1996

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

Gentlemen:

Subject: Licensee Event Report No. 96-013, Supplement 1  
Cooper Nuclear Station, NRC Docket 50-298, DPR-46

The subject Licensee Event Report is forwarded as an enclosure to this letter.

Sincerely,

M. F. Peckham  
Plant Manager

/crm  
Enclosure

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

9612020020 961125  
PDR ADOCK 05000298  
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1/1

## LICENSEE EVENT REPORT (LER)

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

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 (IT-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.

FACILITY NAME (1)

COOPER NUCLEAR STATION

DOCKET NUMBER (2)

05000298

PAGE (3)

1 OF 3

TITLE (4)

Inoperable High Pressure Coolant Injection System Due to Control Oil Leak on Turbine Stop Valve Actuator

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
09	25	96	96	-- 013 --	01	11	25	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

Chris R. Moeller, Senior Staff Licensing Engineer

TELEPHONE NUMBER (Include Area Code)

(402) 825-3811

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
D	BJ	ISV	S075	Y					

## SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).	X NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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## ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On September 25, 1996, at 1450 hours, the High Pressure Coolant Injection System (HPCIS) was declared inoperable due to a control oil leak from the hydraulically actuated turbine stop valve. The leakage, discovered while the HPCIS was in service for the monthly operational surveillance test, originated from the bolted flange that attaches the oil relay control valve to the valve hydraulic operator. While replacing the flange gasket, it was discovered that the threads were stripped on one of the four flange studs. Although the HPCIS would have remained functional for an estimated 24 hours or more assuming no further degradation, the leak was significant enough to prevent continued system operation over a long term period. When discovered, the plant was at full power operation.

Based on a work history review, the oil relay control valve was last removed from the valve hydraulic operator for maintenance in 1991.

The apparent cause for stripped stud is over-torquing. The over-torquing resulted from a lack of adequate guidance in the procedure used to reassemble the hydraulic actuator. Specifically, the procedure directs the studs be "tightened" as opposed to being "torqued" to a specified value. Accordingly, the cause classification for this condition is Defective Procedure (NUREG 1022, Appendix B, Cause Code D). Immediate corrective actions were taken to replace the flange gasket and stripped stud, and to return the HPCIS to an operable status. As a result of a detailed review of maintenance procedures, six additional procedures were identified as inappropriately specifying "tighten" as opposed to a torque value. These procedures have been placed on administrative hold pending revision. Additionally, the accessible components affected by the identified procedures have been visually examined for signs of over-torquing or looseness. No such indications were found.

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TEXT CONTINUATION

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

PLANT STATUS

At the time of discovery, the plant was at full power operation.

EVENT DESCRIPTION

On September 25, 1996, at 1450 hours, the High Pressure Coolant Injection System (HPCIS) was declared inoperable due to a control oil leak from HPCI-HO-HOV10 (HPCIS Turbine Stop Valve Hydraulic Actuator). At the time of discovery, the HPCIS was in operation per Procedure 6.HPCI.101, "HPCI Monthly Test Mode Surveillance Operation." Upon investigation, it was determined that the leakage originated from the bolted flange where the oil relay control valve attaches to the valve hydraulic operator. While replacing the flange gasket, it was discovered that the threads were stripped on one of the four flange studs. Following replacement of the stud, the actuator was reassembled, the surveillance satisfactorily completed and the HPCIS returned to an operable status.

Based on a work history review, the oil relay control valve was last removed from the valve hydraulic operator for maintenance in 1991 and reassembled per Procedure 7.2.63, "HPCI Stop Valve Hydraulic Cylinder Maintenance."

CAUSE

The apparent cause for stripped stud is over-torquing. The over-torquing resulted from a lack of adequate guidance in procedure used in 1991 to reassemble the hydraulic actuator. Specifically, the procedure directs the studs be "tightened" as opposed to being "torqued" to a specified value. As a result of the stripped stud, the integrity of the flanged connection was compromised which ultimately led to the failure.

The cause classification for this condition is Defective Procedure (NUREG 1022, Appendix B, Cause Code D).

SAFETY SIGNIFICANCE

This condition had minimal safety significance. The HPCIS control oil and bearing oil systems are supplied from the same header; therefore, a loss of oil from any point in the system will eventually result in a low oil pressure condition if not otherwise discovered and corrected. This condition is annunciated in the Control Room and prompts the operators to check the system for oil leaks.

Had this condition existed during a postulated accident and the HPCIS was inaccessible due to environmental conditions, the system could have functioned for 24 hours or more with the observed leakage. (This figure is based on the reservoir capacity using an estimated leakage rate developed by the System Engineer assuming no further degradation in the flanged joint configuration.) Thus with no mitigation, the HPCIS would have been available for immediate and short term response to an accident situation.

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

CORRECTIVE ACTIONS

As previously stated, following replacement of the stripped stud, the actuator was reassembled, the surveillance satisfactorily completed and the HPCIS returned to an operable status.

To assess the adequacy of maintenance procedures with respect to torquing requirements, a key-word search was done on "tighten." As a result of this key-word search, 114 procedures were identified. These procedures were subsequently reviewed to determine if the application of "tighten" was acceptable for the given application or if a torquing specification should be required. Through this review, six procedures, in addition to Procedure 7.2.63 discussed above, were identified for revision:

Procedure 7.2.1, "Fuel Pool Cooling Pump Maintenance"

Procedure 7.2.16, "Backup Fire Pump Maintenance"

Procedure 7.2.26.4, "SW-AOV-TCV451A and SW-AOV-TCV451B Removal and Installation"

Procedure 7.2.28, "HPCI Turbine Inspection and Overhaul"

Procedure 7.2.29, "RCIC Terry Steam Turbine Maintenance"

Procedure 7.2.41, "RWCU Filter Demineralizer Septum Change"

These procedures, including Procedure 7.2.63, have been placed on administrative hold pending revision.

Additionally, the accessible components affected by the above procedures have been visually examined for signs of over-torquing or looseness. No such indications were found.

PREVIOUS EVENTS

LER 96-011, "Inoperable High Pressure Coolant Injection System Due to Loose Nut on Stop Valve Spout Coupling"

EQUIPMENT SPECIFICATIONS

Component: Turbine Stop Valve Hydraulic Actuator

Manufacturer: Miller Fluid Power Corporation

Model: J53

Correspondence No: NLS960220

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.

[illegible]