



**Nebraska Public Power District**

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NLS2015093

July 28, 2015

U.S. Nuclear Regulatory Commission

Attention: Document Control Desk

Washington, D.C. 20555-0001

Subject: Licensee Event Report No. 2015-003-00  
Cooper Nuclear Station, Docket No. 50-298, DPR-46

Dear Sir or Madam:

The purpose of this correspondence is to forward Licensee Event Report 2015-003-00.

There are no new commitments contained in this letter.

Sincerely,

Oscar A. Limpas  
Vice President Nuclear-  
Chief Nuclear Officer

/jo

Attachment: Licensee Event Report 2015-003-00

cc: Regional Administrator w/attachment  
USNRC - Region IV

NPG Distribution w/attachment

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

INPO Records Center w/attachment  
via ICES entry

Senior Resident Inspector w/attachment  
USNRC - CNS

SORC Chairman w/attachment

SRAB Administrator w/attachment

CNS Records w/attachment

**COOPER NUCLEAR STATION**

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www.nppd.com

IE22  
NRR



## LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@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

Cooper Nuclear Station

## 2. DOCKET NUMBER

05000298

## 3. PAGE

1 of 3

## 4. TITLE

Failure of Main Steam Isolation Limit Switches Results in a Condition Prohibited by Technical Specifications and Also a Common Cause Inoperability

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	
05	30	2015	2015	003	00	07	28	2015	FACILITY NAME	DOCKET NUMBER	
										05000	
9. OPERATING MODE			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)								
4			<input type="checkbox"/> 20.2201(b)			<input type="checkbox"/> 20.2203(a)(3)(i)			<input type="checkbox"/> 50.73(a)(2)(i)(C)		<input checked="" type="checkbox"/> 50.73(a)(2)(vii)
			<input type="checkbox"/> 20.2201(d)			<input type="checkbox"/> 20.2203(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)
			<input type="checkbox"/> 20.2203(a)(1)			<input type="checkbox"/> 20.2203(a)(4)			<input type="checkbox"/> 50.73(a)(2)(ii)(B)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)
			<input type="checkbox"/> 20.2203(a)(2)(i)			<input type="checkbox"/> 50.36(c)(1)(i)(A)			<input type="checkbox"/> 50.73(a)(2)(ii)		<input type="checkbox"/> 50.73(a)(2)(ix)(A)
			<input type="checkbox"/> 20.2203(a)(2)(ii)			<input type="checkbox"/> 50.36(c)(1)(ii)(A)			<input type="checkbox"/> 50.73(a)(2)(iv)(A)		<input type="checkbox"/> 50.73(a)(2)(x)
10. POWER LEVEL  000			<input type="checkbox"/> 20.2203(a)(2)(iii)			<input type="checkbox"/> 50.36(c)(2)			<input type="checkbox"/> 50.73(a)(2)(v)(A)		<input type="checkbox"/> 73.71(a)(4)
			<input type="checkbox"/> 20.2203(a)(2)(iv)			<input type="checkbox"/> 50.46(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(v)(B)		<input type="checkbox"/> 73.71(a)(5)
			<input type="checkbox"/> 20.2203(a)(2)(v)			<input type="checkbox"/> 50.73(a)(2)(i)(A)			<input type="checkbox"/> 50.73(a)(2)(v)(C)		<input type="checkbox"/> OTHER
			<input type="checkbox"/> 20.2203(a)(2)(vi)			<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)			<input type="checkbox"/> 50.73(a)(2)(v)(D)		Specify in Abstract below or in NRC Form 366A

## 12. LICENSEE CONTACT FOR THIS LER

## LICENSEE CONTACT

Jim Shaw, Licensing Manager

## TELEPHONE NUMBER (Include Area Code)

(402) 825-2788

## 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

☒ YES (If yes, complete 15. EXPECTED SUBMISSION DATE)☐ NO

## 15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR
12	18	2015

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

In January 2015, during Quarterly Surveillance Testing on the Main Steam Isolation Valves (MSIVs), inboard MSIV C failed to actuate its associated Reactor Protection System (RPS) relay. The limit switch and associated RPS relay were declared inoperable and the associated RPS channel was placed in trip to satisfy Technical Specifications requirements.

In May 2015, during Quarterly Surveillance Testing on the MSIVs, the inboard MSIV A and inboard MSIV B also failed to actuate their associated RPS relay. The limit switches and associated RPS relay were declared inoperable and the associated RPS channel was placed in trip to satisfy Technical Specifications requirements.

As a result, the plant was in an increased risk of an inadvertent full scram. A decision was made to shut the plant down and replace the limit switches.

The limit switches were removed and are being evaluated for cause.

The event is currently under investigation. CNS will provide a supplement to this Licensee Event Report.



**LICENSEE EVENT REPORT (LER)**

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**NARRATIVE**

**PLANT STATUS**

Cooper Nuclear Station (CNS) was at 0 psig reactor pressure, in Mode 4, Cold Shutdown, at the time of discovery.

**BACKGROUND**

The Reactor Protection System (RPS) provides timely protection against the onset and consequences of conditions that threaten the integrity of the reactor coolant pressure boundary. Excessive temperature threatens to perforate the cladding or melt the uranium dioxide. Excessive pressure threatens to rupture the reactor coolant pressure boundary. The RPS limits the uncontrolled release of radioactive material from the fuel and reactor coolant pressure boundary by terminating excessive temperature and pressure increases through the initiation of an automatic scram.

The Main Steam system conducts steam from the reactor vessel, via four steam lines, through the Primary Containment to the Main Steam Turbine. Each steam line has two, normally open, Main Steam Isolation Valves (MSIVs), one inside and one outside the Primary Containment. The MSIVs close automatically upon receipt of certain isolation signals to prevent damage to the fuel cladding by limiting the loss of reactor water during a steam line break outside Primary Containment; and also to limit the release of radioactive materials in case of a major leak from Primary Containment.

MSIV closure results in loss of the main turbine and the condenser as a heat sink for the nuclear steam supply system and indicates a need to shut down the reactor to reduce heat generation. Therefore, a reactor scram is initiated on a MSIV-closure signal before the MSIVs are completely closed in anticipation of the complete loss of the normal heat sink and subsequent over pressurization transient.

The RPS MSIV closure signals are initiated from position switches located on each of the eight MSIVs. Each MSIV has two position switches; one inputs to RPS trip system A while the other inputs to RPS trip system B. Each RPS trip system receives an input from four MSIV-closure channels, each consisting of two position switches (one for the inboard MSIV and one for the outboard MSIV in the same steam line) in series with a sensor relay. The logic for the MSIV-closure function is arranged such that either the inboard or outboard valve on three or more of the main steam lines must close in order for a scram to occur. The design permits closure of any two lines without a full scram being initiated.

**EVENT DESCRIPTION**

During the October 2014 Refueling Outage 28 (RE28), limit switches A, D, and F associated with inboard MSIVs (80A-D) were replaced.

In January 2015, Quarterly Surveillance Testing was performed on the inboard MSIVs (80A-D). At this time, inboard MSIV C failed to actuate its associated RPS relay. Subsequently, the limit switch and



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associated RPS relay were declared inoperable and the associated RPS channel was placed in trip per Technical Specifications (TS) LCO 3.3.1.1, Condition A.

In May 2015, Quarterly Surveillance Testing was performed on the MSIVs. At this time limit switches associated with inboard MSIV A and inboard MSIV B also failed to actuate their associated RPS relay. The limit switches and associated RPS relay were declared inoperable and the associated RPS channel was placed in trip per TS LCO 3.3.1.1, Condition A, resulting in a continuous half scram.

With the plant being in an increased risk of an inadvertent full scram due to placing the RPS channel logic in a tripped condition, a decision was made to shutdown the plant and replace the limit switches. CNS shutdown on May 29, 2015, and the limit switches were replaced. The limit switches that were removed are being evaluated for cause.

The event is currently under investigation. CNS will provide additional event details, the safety significance, cause evaluation, and corrective action(s) to reduce the probability of recurrence in a supplement to this Licensee Event Report.

**BASIS FOR REPORT**

This event is potentially reportable under 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications and 10 CFR 50.73(a)(2)(vii), common cause inoperability.

Other criteria, if determined to be applicable, will be provided in the supplemental report.

**PREVIOUS EVENTS**

There have been no events reported in the last three years related to MSIV limit switches.