



Nebraska Public Power District

Always there when you need us

NLS2015122
November 5, 2015

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

Subject: Licensee Event Report No. 2015-003-01
Cooper Nuclear Station, Docket No. 50-298, DPR-46

Dear Sir or Madam:

The purpose of this correspondence is to forward Licensee Event Report 2015-003-01.

There are no new commitments contained in this letter.

Sincerely,

Oscar A. Limpias
Vice President Nuclear-
Chief Nuclear Officer

/jo

Attachment: Licensee Event Report 2015-003-01

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

P.O. Box 98 / Brownville, NE 68321-0098

Telephone: (402) 825-3811 / Fax: (402) 825-5211

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	01	11	05	2015	FACILITY NAME	DOCKET NUMBER
										05000
										05000

9. OPERATING MODE 4

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

<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"/> 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"/> 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"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)
			<input checked="" type="checkbox"/> OTHER

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	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
B	SB	33	N007						

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

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 evaluated. The limit switch condition was reported to the Nuclear Regulatory Commission in a Part 21 Notification by NAMCO Controls on July 31, 2015.



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	2. DOCKET	6. LER NUMBER			3. PAGE
Cooper Nuclear Station	05000298	YEAR	SEQUENTIAL NUMBER	REV NO	2 of 3
		2015	- 003	- 01	

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 [EIS:JC] (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 [EIS:SB] conducts steam from the reactor vessel [EIS:RPV], via four steam lines, through the Primary Containment [EIS:NH] to the Main Steam Turbine [EIS:TA]. Each steam line has two, normally open, Main Steam Isolation Valves (MSIVs) [EIS:ISV], 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 [EIS:COND] 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 [EIS:33] 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



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	2. DOCKET	6. LER NUMBER			3. PAGE
Cooper Nuclear Station	05000298	YEAR	SEQUENTIAL NUMBER	REV NO	3 of 3
		2015	- 003	- 01	

time, inboard MSIV C failed to actuate its associated RPS relay. Subsequently, the limit switch and 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 were inspected by NAMCO Controls and the switch performance problem was determined to be an inadequately stress relieved return spring resulting in decreased return spring force. NAMCO Controls reported this condition to the Nuclear Regulatory Commission in a Part 21 Notification on July 31, 2015.

BASIS FOR REPORT

This event is 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. In addition, this event is reportable as a Part 21 issue.

SAFETY SIGNIFICANCE

The safety significance is determined to be negligible based on the following:

- The safety function of the RPS SCRAM logic associated with the MSIV limit switches was preserved by placing the failed sensor channels in trip.
- All of the MSIV limit switches potentially subject to the common cause failure mechanism that had not previously failed were tested and found to be functional when the plant was shut down in May 2015.
- All of the MSIV limit switches potentially subject to the common cause failure mechanism were replaced during the May 2015 outage.

PREVIOUS EVENTS

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