



**Nebraska Public Power District**

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NLS2017077  
August 17, 2017

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

Subject: Licensee Event Report No. 2017-005-00  
Cooper Nuclear Station, Docket No. 50-298, DPR-46

Dear Sir or Madam:

The purpose of this correspondence is to forward Licensee Event Report 2017-005-00.

There are no new commitments contained in this letter.

Sincerely,

*KHplw Dic for John Dent Jr*

John Dent, Jr.  
Vice President Nuclear-  
Chief Nuclear Officer

/lb

Attachment: Licensee Event Report 2017-005-00

cc: Regional Administrator w/attachment                      NPG Distribution w/attachment  
USNRC - Region IV

Cooper Project Manager w/attachment                      INPO Records Center w/attachment  
USNRC - NRR Plant Licensing Branch IV                      via ICES entry

Senior Resident Inspector w/attachment                      SORC Chairman w/attachment  
USNRC - CNS

SRAB Administrator w/attachment                      CNS Records w/attachment

*IEZZ  
NRR*



**LICENSEE EVENT REPORT (LER)**

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

(See NUREG-1022, R 3 for instruction and guidance for completing this form  
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

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 Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to [Infocollects.Resource@nrc.gov](mailto: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.

<b>1. FACILITY NAME</b> Cooper Nuclear Station	<b>2. DOCKET NUMBER</b> 05000298	<b>3. PAGE</b> 1 of 3
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**4. TITLE**  
Traversing In-core Probe In-shield Limit Switch Mounting Failure Results in Common Cause Inoperability of Independent Trains or Channels and Condition Prohibited by Technical Specifications

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
06	22	17	2017	005	00	08	17	2017	FACILITY NAME	05000
									FACILITY NAME	05000

<b>9. OPERATING MODE</b>	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:</b> (Check all that apply)			
1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
<b>10. POWER LEVEL</b>  100	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
	<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)(D)	<input type="checkbox"/> 73.77(a)(2)(i)
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)
		<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> OTHER	Specify in Abstract below or in NRC Form 366A

<b>12. LICENSEE CONTACT FOR THIS LER</b>	
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

<b>14. SUPPLEMENTAL REPORT EXPECTED</b>	<b>15. EXPECTED SUBMISSION DATE</b>	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)

On June 21, 2017, Traversing In-core Probe (TIP) C failed to stop at its in-shield position when being withdrawn from the core. Cooper Nuclear Station (CNS) Operations personnel declared the associated TIP C ball valve inoperable as a Primary Containment Isolation Valve (PCIV) at 0524 and entered Technical Specification (TS) Limiting Condition for Operation (LCO) 3.6.1.3, Condition A. On June 22, 2017, TIP D failed to stop at its in-shield position when being withdrawn from the core. CNS Operations personnel declared the associated TIP D ball valve inoperable as a PCIV at 0445 and entered TS LCO 3.6.1.3, Condition A.

Subsequent investigation determined the cause of the failures was inadequate mounting and securing of the in-shield limit switch to the chamber shield. Corrective actions included repair of the mounting of the in-shield limit switches for all TIP channels, and improved procedure guidance for properly mounting the in-shield limit switches.

Both valves were declared operable on July 13, 2017, at 1133.

There were no safety consequences associated with this condition.



**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Cooper Nuclear Station	05000- 298	2017	- 005	- 00

**NARRATIVE**

**PLANT STATUS**

Cooper Nuclear Station (CNS) was in Mode 1, Power Operations, 100 percent power, at the time of discovery; i.e., June 22, 2017.

**BACKGROUND**

The Traversing In-Core Probe (TIP) subsystem is a part of the Neutron Monitoring System [EIS:IG]. The TIP subsystem allows calibration of Local Power Range Monitor (LPRM) [EIS:MON] signals by correlating TIP signals to LPRM signals as the TIP is positioned in various locations in the core. A TIP drive mechanism [EIS:DRIV] uses an ionization chamber attached to a flexible drive cable, which is driven from outside Primary Containment [EIS:NH] and is contained by guide tubes that continue into the reactor core.

A valve system is provided with a valve on each TIP guide tube entering the primary containment. A ball valve [EIS:V] and a cable shearing valve [EIS:V] are mounted in the TIP guide tubing just outside of the primary containment. The ball valve opens when the TIP is being inserted and closes automatically upon receipt of the proper signal and after the TIP cable and ionization chamber have been retracted. An in-shield limit switch [EIS:33] actuates to stop withdrawal of the TIP detector and also provides a permissive for closing the ball valve. The shear valve is used in the event the ball valve should fail to close or the chamber drive cable should fail to retract during the time that primary containment isolation is required.

CNS Technical Specifications (TS) Limiting Condition for Operation (LCO) 3.6.1.3 requires each Primary Containment Isolation Valve (PCIV) to be operable. The TIP ball valves are PCIVs.

**EVENT DESCRIPTION**

On June 21, 2017, TIP C failed to stop at the designated in-shield position when being withdrawn from the core. The TIP machine was manually stopped approximately seven inches beyond the in-shield position, and was then manually moved to the correct position by Operations. The TIP C ball valve was declared inoperable as a PCIV due to the failure of the in-shield limit switch. TS LCO 3.6.1.3, Primary Containment Isolation Valves, Condition A, was entered at 0524 and the Required Actions taken.

On June 22, 2017, TIP D failed to stop at the designated in-shield position when being withdrawn from the core. The TIP machine was manually stopped at approximately six inches past the in-shield position, and was then manually returned to in-shield location by Operations. The TIP D ball valve was declared inoperable as a PCIV due to failure of the in-shield limit switch. TS LCO 3.6.1.3, Primary Containment Isolation Valves, Condition A, was entered at 0445 and the Required Actions taken.

In each case, the condition would have prevented the ball valve from automatically closing on initiation of a Group 2 containment isolation signal.



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Cooper Nuclear Station	050 00-	298	2017	- 005	- 00

**NARRATIVE**

The valves were declared operable on July 13, 2017, at 1133, and TS LCO 3.6.1.3, Condition A, was exited.

**BASIS FOR REPORT**

CNS is reporting these events under 10 CFR 50.73(a)(2)(vii) as common cause inoperability of independent trains or channels, as the primary containment isolation ball valves on TIPs C and D were inoperable at the same time. It is also being reported as a condition prohibited by Technical Specifications as defined in 10 CFR 50.73(a)(2)(i)(B).

**SAFETY SIGNIFICANCE**

There were no safety consequences associated with this condition. The potential safety significance of this event was low. The TIP ball valves are able to be closed by taking manual action to remove power in the case of a primary containment isolation signal. In addition, the TIP shear valves remained operable during the period of time the TIP ball valves were inoperable. The safety function of the primary containment isolation system was maintained. This condition did not cause an impact to the safety of the general public, nuclear safety, industrial safety, or radiological safety.

**CAUSE**

Inadequate mounting and securing of the in-shield limit switch to the chamber shield caused the limit switch to fail to actuate as designed.

**CORRECTIVE ACTIONS**

A Work Order was implemented to repair the mounting of the in-shield limit switches for all TIP channels.

In addition, the procedure for TIP chamber shield maintenance was revised to provide guidance for properly mounting the TIP in-shield limit switches.

**PREVIOUS EVENTS**

CR-CNS-2016-02424 – On May 3, 2016, TIP B detector failed to stop at its in-shield position when being retracted back into its chamber shield. This failure was attributed to inadequate maintenance associated with mounting the limit switch to the chamber shield.

CR-CNS-2016-08539 – On November 29, 2016, TIP C detector failed to stop at its in-shield position when being retracted back into its chamber shield. This failure was attributed to inadequate maintenance associated with mounting the limit switch to the chamber shield.