



**Nebraska Public Power District**

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NLS2017019  
February 15, 2017

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

Subject: Licensee Event Report No. 2016-010-00  
Cooper Nuclear Station, Docket No. 50-298, DPR-46

Dear Sir or Madam:

The purpose of this correspondence is to forward Licensee Event Report 2016-010-00.

There are no new commitments contained in this letter.

Sincerely,

Kenneth Higginbotham  
Vice President Nuclear-  
Chief Nuclear Officer

/jo

Attachment: Licensee Event Report 2016-010-00

cc: Regional Administrator w/attachment  
USNRC - Region IV

NPG Distribution w/attachment

Cooper Project Manager w/attachment  
USNRC - NRR Plant Licensing Branch IV

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


IEZZ  
NRR

**COOPER NUCLEAR STATION**

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<b>NRC FORM 366</b> (11-2015)		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>			<b>APPROVED BY OMB: NO. 3150-0104</b> <b>10/31/2018</b>		<b>EXPIRES:</b>					
		<b>LICENSEE EVENT REPORT (LER)</b> (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 e-mail to Infocollections.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOF-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 4					
<b>4. TITLE</b> Inadequate Compensatory Measures Results in a Condition Prohibited by Technical Specifications												
<b>5. EVENT DATE</b>			<b>6. LER NUMBER</b>			<b>7. REPORT DATE</b>			<b>8. OTHER FACILITIES INVOLVED</b>			
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET		
07	11	2016	2016 -	010 -	00	02	15	2017	FACILITY NAME	DOCKET		
										05000		
										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 checked="" 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)	
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 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>												
<b>LICENSEE CONTACT</b> Jim Shaw, Licensing Manager								<b>TELEPHONE NUMBER (Include Area Code)</b> (402) 825-2788				
<b>13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT</b>												
CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	TO EPIX			
A	BO			Y								
<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						
<b>ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)</b>  From July 11, 2016, to July 15, 2016, the Torus area and Reactor Building floor drain valve control switches were placed in the OPEN position, per alarm card FP-1/C-4, due to fire detector FP-TD-19-2 being impaired. Subsequently, it was determined that by placing the floor drain valve control switches to OPEN, the automatic flood protection function that is credited in Cooper Nuclear Station's internal flooding analysis, was defeated. During the time the detector was impaired, there were no credited compensatory actions taken to ensure Division 1 Core Spray (CS) and Division 1 Residual Heat Removal (RHR) systems were protected from postulated flooding caused by a high-energy line break. As such, it was determined that both Division 1 CS and Division 1 RHR were inoperable for a period greater than allowed by Technical Specifications.  The cause was determined to be that when the flooding requirements in the Reactor Building changed, a review of alarm cards did not identify alarm card FP-1/C-4 as needing updated.  Alarm card FP-1/C-4 was revised to remove taking radwaste valves out of AUTO for each quad. In addition, the applicable procedure has been revised to ensure actions taken will ensure operability is maintained for environmentally qualified components in each of the Reactor Building quads; and a review of fire panel alarm cards will be performed for similar occurrences where monitoring is the only action taken.												

NRC FORM 366  
(11-2015)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104

EXPIRES: 10/31/2018

**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 FOIA, Privacy and Information Collections Branch (T-5 F53), 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.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
Cooper Nuclear Station	05000- 298	YEAR	SEQUENTIAL NUMBER	REV NO.
		2016	- 010	- 00

**NARRATIVE****PLANT STATUS**

Cooper Nuclear Station was in Mode 1, Power Operations, at 100 percent power, at the time of the event.

**BACKGROUND**

The Emergency Core Cooling System (ECCS) is designed, in conjunction with the primary and secondary containment, to limit the release of radioactive materials to the environment following a loss of coolant accident (LOCA). The ECCS uses two independent methods (flooding and spraying) to cool the core during a LOCA. The ECCS network consists of the High Pressure Cooling Injection (HPCI) System [EIS:BJ], the Core Spray (CS) System [EIS:BM], the Low Pressure Coolant Injection (LPCI) mode of the Residual Heat Removal (RHR) System [EIS:BO], and the Automatic Depressurization System (ADS). The suppression pool provides the required source of water for the ECCS. The emergency condensate storage tanks (ECSTs) are capable of providing a source of water for the HPCI system.

ECCS components located in the four Reactor Building [EIS:NG] quads are subject to flooding from line breaks such as the steam tunnel feedwater line break. The Technical Specifications (TS) related equipment contained in these quads are: Division 1 CS and Reactor Core Isolation Cooling [EIS:BN] in the Northeast quad; Division 1 RHR in the Northwest quad; Division 2 CS in the Southeast quad, and Division 2 RHR and HPCI in the Southwest quad. Division 2 CS is assumed and evaluated as lost during the 18-inch feedwater flooding event.

The Reactor Building floor drain and Torus drain valves [EIS:V] are designed to close on respective sump hi-hi level conditions to divert water to the Torus area. The Reactor Building floor drain and the Torus drain valve closure are barriers credited in the internal flooding analysis.

FP-TD-19-2 causes the following valves to fail closed:

RW-AOV-AO767, Torus Drain to Sump A  
 RW-AOV-AO770, Reactor Building Drains to Sump A  
 RW-AOV-AO768, Torus Drain to Sump B  
 RW-AOV-AO771, Reactor Building Drains to Sump B  
 RW-AOV-AO773, Reactor Building Drains to Sump C  
 RW-AOV-AO772, Reactor Building Drains to Sump D

**EVENT DESCRIPTION**

On July 11, 2016, at 1430 hours, while performing fire detection systems examination per surveillance procedure, it was identified that detector FP-TD-19-2 would not reset, thus initiating alarm FP-1/C-4, Reactor Building Southeast Quad Zone 19. Per the alarm card, if no fire is detected, and the detectors cannot be reset, the Operator is to place the floor drain valve control switches to OPEN and periodically

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		YEAR	SEQUENTIAL NUMBER	REV NO.
Cooper Nuclear Station	05000- 298	2016	- 010	- 00

**NARRATIVE**

monitor sump levels. As such, Operations placed the Torus area and Reactor Building floor drain valve control switches in the OPEN position and commenced hourly checks of the Reactor Building floor drain sump levels for unusual changes.

Detector FP-TD-19-2 was replaced, post work testing completed satisfactory, and the detector was declared unimpaired on July 15, 2016, at 14:32 hours. Additionally, the control switches for the applicable valves were placed to AUTO.

It was subsequently determined that by placing the drain valve control switches to OPEN, the automatic flood protection function that is credited in CNS' internal flooding analysis, was defeated.

During the time the detector was impaired, there were no compensatory actions taken to ensure Division 1 CS and Division 1 RHR systems were protected from postulated flooding caused by a high-energy line break. As such, it was determined that both Division 1 CS and Division 1 RHR were inoperable for a period greater than allowed by TS 3.5.1, Condition H.

**BASIS FOR REPORT**


This event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) as any operation or condition which was prohibited by the plant's Technical Specifications, and also in accordance with 10 CFR 50.73(a)(2)(ix)(A) as any event or condition that as a result of a single cause could have prevented the fulfillment of a safety function for two or more trains or channels that are needed to remove residual heat.

**SAFETY SIGNIFICANCE**

The safety significance of this event is low. The Division 1 CS and Division 1 RHR Systems were inoperable for approximately 4 days. In the case of postulated flooding caused by a main feedwater break, Division 2 RHR system and the ADS were available to mitigate the event. This event did not cause an impact to the safety of the general public, nuclear safety, industrial safety, or radiological safety.

**CAUSE**

The apparent cause was determined to be that when the flooding requirements in the Reactor Building changed, a review of alarm cards did not identify alarm card FP-1/C-4 as needing updated.

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Cooper Nuclear Station	05000- 298	YEAR	SEQUENTIAL NUMBER	REV NO.
		2016	- 010	- 00

**NARRATIVE****CORRECTIVE ACTIONS**

Alarm card FP-1/C-4 was revised to remove taking radwaste valves out of AUTO for each quad. In addition, the applicable procedure has been revised to ensure actions taken will ensure operability is maintained for environmentally qualified components in each of the Reactor Building quads; and a review of fire panel alarm cards will be performed for similar occurrences where monitoring is the only action taken.

**PREVIOUS EVENTS**

There have been no recent reportable events related to inadequate internal flooding protection compensatory measures.