



**Nebraska Public Power District**

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NLS2011081  
August 8, 2011

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

Subject: Licensee Event Report No. 2011-003-00  
Cooper Nuclear Station, Docket No. 50-298, DPR-46

Dear Sir or Madam:

The purpose of this correspondence is to forward Licensee Event Report 2011-003-00.

Sincerely,

Demetrius L. Willis  
General Manager of Plant Operations

/bk

Attachment

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

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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JE22  
NRR

<b>NRC FORM 366</b> (10-2010)		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>		APPROVED BY OMB NO. 3150-0104      EXPIRES 10/31/2013  <small>Estimated burden per response to comply with this mandatory information collection request: 80 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Service Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to <a href="mailto:infocollects.resource@nrc.gov">infocollects.resource@nrc.gov</a>, 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.</small>	
<b>LICENSEE EVENT REPORT (LER)</b> (See reverse for required number of digits/characters for each block)					
<b>1. FACILITY NAME</b> Cooper Nuclear Station			<b>2. DOCKET NUMBER</b> 05000298		<b>3. PAGE</b> 1 of 3
<b>4. TITLE</b> Potential Loss of Safety Function of Service Water Strainers					
<b>5. EVENT DATE</b>		<b>6. LER NUMBER</b>		<b>7. REPORT DATE</b>	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.
06	07	2011	2011	- 003 -	00
				MONTH	DAY
				08	08
				YEAR	
				2011	
<b>8. OTHER FACILITIES INVOLVED</b>					
FACILITY NAME				DOCKET NUMBER	
				05000	
FACILITY NAME				DOCKET NUMBER	
				05000	
<b>9. OPERATING MODE</b> 1		<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 6:</b> <i>(Check all that apply)</i>			
<b>10. POWER LEVEL</b> 100		<input type="checkbox"/> 20.2201(b) <input type="checkbox"/> 20.2203(a)(3)(i) <input type="checkbox"/> 50.73(a)(2)(i)(C) <input 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)(iii) <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)			
		<input type="checkbox"/> 20.2203(a)(2)(iii) <input type="checkbox"/> 50.36(c)(2) <input checked="" type="checkbox"/> 50.73(a)(2)(v)(B) <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)(C) <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)(D) <input type="checkbox"/> OTHER			
		<input type="checkbox"/> 20.2203(a)(2)(vi) <input type="checkbox"/> 50.73(a)(2)(i)(B) <input type="checkbox"/> 50.73(a)(2)(v)(D) <input type="checkbox"/> OTHER			
<b>12. LICENSEE CONTACT FOR THIS LER</b>					
FACILITY NAME				TELEPHONE NUMBER (Include Area Code)	
David W. Van Der Kamp, Licensing Manager				(402) 825-2904	
<b>13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT</b>					
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	
<b>14. SUPPLEMENTAL REPORT EXPECTED</b>				<b>15. EXPECTED SUBMISSION DATE</b>	
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input type="checkbox"/> NO				MONTH	DAY
				10	15
				YEAR	
				2011	
<b>ABSTRACT</b> <i>(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)</i>					
<p>On March 27, 2010, the 'A' Service Water (SW) strainer failed to operate as expected. Cooper Nuclear Station (CNS) personnel investigated and found the strainer wiper motor-to-gearbox coupling was not engaged to turn the gearbox shaft. The gear side key had become dislodged allowing the coupling half to move enough to disengage the coupling sleeve. This condition impacted the ability of the strainer to successfully perform the automatic backwash function to keep it clear of debris.</p> <p>CNS maintenance personnel restored the coupling on March 27, 2010, and staked the gear side keyway to prevent the key from coming out. On July 19, 2010, and October 25, 2010, CNS completed installation of new worm gear shafts and couplings with solid sleeves for both SW strainers.</p> <p>The condition was discovered during a backend review of the resulting 2010 root cause evaluation. CNS is reevaluating this evaluation and will provide additional event details, the safety significance, cause, corrective action(s) to prevent recurrence, and previous events in a supplement to this Licensee Event Report.</p>					

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

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Cooper Nuclear Station	05000298	YEAR	SEQUENTIAL NUMBER	REV NO.	2 of 3
		2011	-- 003	-- 00	

**17. NARRATIVE****PLANT STATUS**

Cooper Nuclear Station (CNS) was in Mode 1, Power Operation, at 100 percent power at the time of the event discovery date, i.e., June 7, 2011.

**BACKGROUND**

The service water (SW) [EIS:BI] system is designed to provide cooling water for the removal of heat from equipment, such as the diesel generators [EIS:DG] and reactor equipment cooling (REC) system heat exchangers [EIS:HX], and to provide a supply of water for the residual heat removal (RHR) [EIS:BO] SW heat exchangers through the RHR SW booster system pumps [EIS:P]. The SW system also provides cooling to turbine building [EIS:NM] non-essential loads and other unit components, as required, during normal operation.

The SW system consists of four pumps located in the intake structure [EIS:ME]. These pumps are separated into two pairs. Each pair takes suction from the SW bay in the intake structure and discharges through a motorized, self-cleaning strainer [EIS:STR] to the SW supply header. The two SW strainers remove suspended particles equal to or larger than 1/8 inch in size from the water in order to prevent or minimize fouling of the heat transfer surfaces in the downstream REC and RHR SW heat exchangers.

Debris accumulated in the SW strainers is removed through a backwash function. This creates a low pressure area in between a set of wiper blades that draws a portion of the strained water backward through the strainer, down between the wiper blades, and out the backwash outlet. This backwash water is then returned to the Missouri River.

**EVENT DESCRIPTION**

On March 27, 2010, at 12:25 Central Daylight Time (CDT), when operators placed the 'A' SW strainer in the mode for continuous operation, the strainer did not operate as expected. Further investigation revealed that the SW strainer wiper motor-to-gearbox coupling [EIS:CPLG] was not engaged to turn the gearbox shaft. The gear side key had become dislodged allowing the coupling half to move enough to disengage the coupling sleeve. This condition impacted the ability of the SW strainer to successfully perform the automatic backwash function to keep it clear of debris.

At the time of the failure, differential pressure across the 'A' SW strainer was steady at 0.1 to 0.2 psid and was not approaching the operational limit of 15 psid. CNS control room operators considered the SW 'A' subsystem operable based on the fact that differential pressure remained within operational limits, the ability existed to take manual actions to perform the strainer's backwash function per alarm card response procedures, and the lack of available information indicating an inoperable condition existed. As such, the applicable technical specification limiting condition for operation for SW was not entered.

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**17. NARRATIVE**

CNS maintenance personnel restored the coupling at approximately 17:19 CDT on March 27, 2010, and staked the gear side keyway to prevent the key from coming out. On July 19, 2010, and October 25, 2010, CNS installed new worm gear shafts and couplings with solid sleeves for both SW strainers.

The condition was discovered during a backend review of the resulting 2010 root cause evaluation. CNS is reevaluating the previous root cause evaluation for this event. Additional event details, the safety significance, root cause, corrective action(s) to prevent recurrence, and previous events will be provided in a supplement to this Licensee Event Report (LER). CNS expects to submit the supplemental report by October 15, 2011.

**BASIS FOR REPORT**

CNS determined that the March 2010 SW strainer coupling failure was reportable on June 7, 2011. Therefore, the LER is due 60 days from the date of discovery, i.e., August 8, 2011.

CNS is reporting this event in accordance with 10 CFR 50.73(a)(2)(v) – An event or condition that could have prevented fulfillment of the safety function of structures or systems that are needed to: (B) remove residual heat.

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

Correspondence Number: NLS2011081

The following table identifies those actions committed to by Nebraska Public Power District (NPPD) in this document. Any other actions discussed in the submittal represent intended or planned actions by NPPD. They are described for information only 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.

COMMITMENT	COMMITMENT NUMBER	COMMITTED DATE OR OUTAGE
None		