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NLS2011074
July 26, 2011

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

Subject: Licensee Event Report No. 2011-002-01
Cooper Nuclear Station, Docket No. 50-298, DPR-46

Dear Sir or Madam:

The purpose of this correspondence is to forward Licensee Event Report 2011-002-01.

Sincerely,

Demetrius L. Willis
General Manager of Plant Operations

/jo

Attachment

cc: Regional Administrator w/attachment
USNRC - Region IV

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

Senior Resident Inspector w/attachment
USNRC - CNS

SRAB Administrator w/attachment

NPG Distribution w/attachment

INPO Records Center w/attachment

SORC Chairman 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

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NRR

NRC FORM 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 10/31/2013

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 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.

LICENSEE EVENT REPORT (LER)

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

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4. TITLE
Technical Specification Prohibited Condition for Service Water Booster Pump

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
										05000
04	17	2011	2011	- 002 -	01	07	26	2011	FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE
5

10. POWER LEVEL
000

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

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER *(Include Area Code)*
David W. Van Der Kamp, Licensing Manager	(402) 825-2904

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
E	BO	MO	S188	Y					

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES *(If yes, complete EXPECTED SUBMISSION DATE)* ☒ NO				

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

On April 17, 2011, Cooper Nuclear Station (CNS) observed that the outboard oiler reservoir for Service Water Booster Pump (SWBP) B motor was low, and there was an oil sheen on the floor and motor. As a result, oil was added to the reservoir.

On April 27, 2011, the outboard oiler reservoir was discovered empty. SWBP B was declared inoperable at 15:40 Central Daylight Time (CDT) on April 28, 2011. Further investigation found that the four cap bolts that hold the upper bearing in place were loose, the lock washers were not compressed, and the seal between the bearing halves was cracked. The two bearing halves were resealed, the bolts tightened, the lock washers compressed, and oil added to the reservoir. SWBP B was declared operable at 02:30 CDT on May 7, 2011.

The root cause of the event is a lack of inspection protocol for large electric motors which includes a check for loose bolts. To prevent recurrence, CNS will develop a process that requires inspection of large motors to include loose, damaged, or missing components. CNS will conduct a vendor inspection of the Appendix B programs of the supplier(s) for the SWBP motors provided to CNS. This shall include a review of the corrective action to fix the loose bolts problem and a review of the effectiveness of that fix.

This event was not risk significant.

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17. NARRATIVE

PLANT STATUS

Cooper Nuclear Station (CNS) was in Mode 5, Refueling, at 0 percent power, at the time of the event.

BACKGROUND

The Residual Heat Removal [EIIS:BO] Service Water Booster (RHRSWB) System is designed to provide cooling water for the Residual Heat Removal (RHR) System heat exchangers [EIIS:HX], required for a safe reactor shutdown following a Design Basis Accident or transient. The RHRSWB System is operated whenever the RHR heat exchangers are required to operate in the shutdown cooling or suppression pool cooling mode.

The system is initiated manually from the control room. If operating during a loss of coolant accident (LOCA), the system is automatically tripped to allow the diesel generators [EIIS:DG] to automatically power only that equipment necessary to reflood the core. The system is assumed in the analyses to be manually started 10 minutes after the LOCA.

The RHRSWB System removes heat from the suppression pool via the RHR System to limit the suppression pool temperature and primary containment [EIIS:NH] pressure following a LOCA. This ensures that the primary containment can perform its function of limiting the release of radioactive materials to the environment following a LOCA.

The analyses assume that the RHRSWB System will provide adequate cooling support to the equipment required for safe shutdown. These analyses include the evaluation of the long term primary containment response after a design basis LOCA.

EVENT DESCRIPTION

On April 17, 2011, the outboard oiler reservoir [EIIS:RVR] for Service Water Booster Pump (SWBP) B motor [EIIS:MO] was observed to be low, and there was an oil sheen on the floor and motor. As a result, oil was added to the reservoir.

On April 27, 2011, the outboard oiler reservoir was discovered empty, there was oil in the windings area of the motor, and oil coated the motor mount area. SWBP B was subsequently declared inoperable at 15:40 Central Daylight Time (CDT) on April 28, 2011. Inspection of the motor's outboard bearing and oil reservoir was conducted to identify the source of the oil leakage. The upper bell housing at the outboard end of the motor was removed. Further investigation found that the four cap bolts that hold the upper bearing in place were only "finger tight" and the corresponding lock washers were not compressed. The motor was reassembled, the two bearing halves were resealed, the bolts were tightened compressing the lock washers, and oil was added to the reservoir. SWBP B was declared operable at 02:30 CDT on May 7, 2011.

The motor was supplied to CNS in 2008 and installed in July 2010 with the four cap bolts on the outboard motor bearing loose. The outboard motor bearing halves were sealed at the factory

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17. NARRATIVE

with a compound. This compound would limit the leakage of oil despite the loose cap bolts. Following continued operation of the motor, the seal cracked, causing oil to leak through the split line between the upper and lower outboard motor bearing halves at the outboard end of the motor. Some oil was entrained into the motor's cooling air flow. Some of the oil spread and migrated to the floor, and some oil was carried by airflow into the outboard end of the motor. Due to the split seal between the two bearing valves at the outboard motor end, the oil in the outboard oil reservoir drained as the oiler attempted to re-establish the lubrication level in the bearing.

An extent of condition review was performed to identify if the additional two motors that were purchased under the same contract as the motor for SWBP B, had the same issue. These two motors had been installed and operated, with no leaks identified.

BASIS FOR REPORT

This event is being reported as an operation or condition prohibited by plant Technical Specifications per 10 CFR 50.73(a)(2)(i)(B), because SWBP B was determined to be inoperable since July 2010, when it was installed.

SAFETY SIGNIFICANCE

The safety significance of the SWBP B motor outboard bearing oil leak is low due to the fact that three other SWBPs were unaffected by the condition and SWBP B would have operated for an extended period of time at the leak rates observed without any adverse impact. This condition resulted in a negligible increase to the core damage frequency reflected in the base model of the CNS Probabilistic Risk Assessment.

CAUSE

CNS determined the root cause to be a lack of inspection protocol for large electric motors including a check for loose bolts.

CORRECTIVE ACTIONS

To prevent recurrence of this event, CNS will establish a process that requires inspection of large motors to include loose, damaged, or missing components. CNS will conduct a vendor inspection of the Appendix B programs of the supplier(s) for the SWBP motors provided to CNS. This shall include a review of the corrective action to fix the loose bolts problem and a review of the effectiveness of that fix.

PREVIOUS EVENTS

There have been no events reported in the past three years related to the SWBP motors.

ATTACHMENT 3 LIST OF REGULATORY COMMITMENTS©[4]

Correspondence Number: NLS2011074

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		