Nebraska Public Power District

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NLS2019013
May 6, 2019

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

Subject: Licensee Event Report No. 2018-003-01
Cooper Nuclear Station, Docket No. 50-298, DPR-46

Dear Sir or Madam:

The purpose of this correspondence is to forward Licensee Event Report 2018-003-01.

There are no new commitments contained in this letter.

Sincerely,

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

/jo

Attachment: Licensee Event Report 2018-003-01

cc: Regional Administrator w/attachment
USNRC - Region IV

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

Senior Resident Inspector w/attachment
USNRC - CNS

SRAB Administrator w/attachment

NPG Distribution w/attachment

INPO Records Center w/attachment
via ICES entry

SORC Chairman w/attachment

CNS Records w/attachment

IE22
NRR

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NRC FORM 366 (04-2018) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 03/31/2020

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, 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 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/)

1. Facility Name	2. Docket Number	3. Page
Cooper Nuclear Station	05000298	1 of 3

4. Title

Safety Valve Failure Results in Loss of Safety Function

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
10	10	2018	2018	- 003	- 01	05	06	2019	Facility Name	Docket Number
										05000

9. Operating Mode	11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: *(Check all that apply)*			
5	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
10. Power Level	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
000	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☒ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
		☐ 50.73(a)(2)(i)(C)	☐ Other (Specify in Abstract below or in NRC Form 366A	

12. Licensee Contact for this LER

Licensee Contact	Telephone Number (Include Area Code)
Jim Shaw, Licensing Manager	(402) 825-2788

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable To ICES	Cause	System	Component	Manufacturer	Reportable To ICES
B	SB	RV	P388	Y					

14. Supplemental Report Expected	15. Expected Submission Date	Month	Day	Year
☐ Yes (If yes, complete 15. Expected Submission Date) ☒ No				

Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

On September 29, 2018, at 20:53, Cooper Nuclear Station (CNS) commenced Refueling Outage 30 (RE30) and subsequently entered Mode 5 on October 2, 2018, at 02:41.

During RE30 activities, MS-RV-70ARV (Serial Number BL-2463) was removed from service and sent off-site for as-found setpoint pressure testing per station procedure. On October 10, 2018, the as-found testing was performed at National Technical Systems Laboratories (formerly Wyle Laboratories). The valve was tested three times. Per procedure, the acceptance criterion is 1202.8 psig – 1277.2 psig. The as-found testing result for the first test was 1278.6 psig. The second and third tests were performed with the results being 1260.0 psig and 1263.2 psig, respectively. Technical Specifications Surveillance Requirement setpoint criteria for the safety valves are 1240 +/-37.2 psig.

The safety valve was inspected at the testing facility to determine the cause of the valve failure. It was determined that the potential cause was binding or increased friction between the disc holder/guide or spindle areas. To bound this potential cause, the spindle, disc, disc holder, disc collar, lift stop, lower adjusting ring, upper adjusting ring, and compression screw will be replaced and the CNS maintenance procedure will be revised to incorporate foreign material covers during the removal and installation steps.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Cooper Nuclear Station	05000-298	2018	- 003	- 01

NARRATIVE

PLANT STATUS

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

BACKGROUND

The pressure relief system includes three American Society of Mechanical Engineers code safety valves (SV) [EIIS:SB] which are located on the main steam lines [EIIS:SB] within the drywell [EIIS:NH], between the reactor vessel [EIIS:RPV] and the first main steam isolation valve [EIIS:ISV]. The SVs provide protection against over pressurization of the nuclear system and discharge directly into the interior space of the drywell.

Technical Specification (TS) Limiting Condition for Operation 3.4.3 requires the safety function of three SVs to be operable. The nominal set pressure and tolerances for these valves are established in CNS TS Surveillance Requirement (SR) 3.4.3.1.

EVENT DESCRIPTION

On September 29, 2018, at 20:53, CNS commenced Refueling Outage 30 (RE30) and subsequently entered Mode 5 on October 2, 2018, at 02:41.

During RE30 activities, MS-RV-70ARV (Serial Number BL-2463) was removed from service and sent off-site for as-found setpoint pressure testing per station procedure. On October 10, 2018, the as-found testing was performed at National Technical Systems (NTS) Laboratories (formerly Wyle Laboratories).

The valve was tested three times. Per procedure, the acceptance criterion is 1202.8 psig – 1277.2 psig. The as-found testing result for the first test was 1278.6 psig. The second and third tests were performed with the results being 1260.0 psig and 1263.2 psig, respectively.

TS Surveillance Requirement setpoint criteria for the safety valves are 1240 +/-37.2 psig.

One SV is tested every outage and all three SVs are tested every six years. In addition, TS specify that all three SVs shall be operable. The last time MS-RV-70ARV was tested was in 2012 during RE27. The result of that test was within acceptance criteria at 1255 psig.

The remaining two valves, MS-RV-70BRV and MS-RV-70CRV were also tested for as-found setpoint pressure at NTS on November 1, 2018 and October 30, 2018, respectively. Both of these valves passed the acceptance criteria.

NTS provided a repair report following completion of inspection and repair activities. The repair report identified debris on top of the disc holder, which could result in minor binding and an increased setpoint. The origin of foreign material and when the foreign material was introduced could not be definitively identified; however, the CNS procedure guiding the removal and installation of the valve was reviewed and

enhancements to the procedure were identified to prevent the introduction of foreign material. In addition, the vendor manual troubleshooting guide states subcomponent issues could cause sticking, binding and misalignment. Based on the recommended corrective actions provided in the vendor manual troubleshooting guide, it was recommended to replace several components on the valve to return the valve to an as-new condition. These components include the spindle, disc, disc holder, disc collar (lower castle nut), lift stop (upper castle nut), lower adjusting ring, upper adjusting ring, and compression screw.

BASIS FOR REPORT

This event is being reported per 10 CFR 50.73(a)(2)(v)(D) as any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

SAFETY SIGNIFICANCE

General Electric Hitachi subsequently performed an analysis of the MS-RV-70ARV set point failure to ensure the reload licensing over pressure transient analysis, Anticipated Transient without Scram analysis, and thermal analysis specific to the CNS reload analysis were within limits. The analysis concluded all over pressure transient peak pressure remained below the American Society of Mechanical Engineers overpressure limits and the CNS reload thermal limits were unaffected. As such, this event is not considered a Safety System Functional Failure nor a loss of safety function.

CAUSE

Binding or increased friction between the disc holder/guide or spindle areas was identified as the potential cause.

CORRECTIVE ACTIONS

CNS will replace the spindle, disc, disc holder, disc collar (lower castle nut), lift stop (upper castle nut), lower adjusting ring, upper adjusting ring, and compression screw.

The applicable CNS maintenance procedure will be revised to incorporate foreign material covers during the removal and installation steps.

PREVIOUS EVENTS

There have been no SV failures reported in the last 3 years.