



Nebraska Public Power District

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NLS2015047
April 16, 2015

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

Subject: Licensee Event Report No. 2015-002-00
Cooper Nuclear Station, Docket No. 50-298, DPR-46

Dear Sir or Madam:

The purpose of this correspondence is to forward Licensee Event Report 2015-002-00.

There are no new commitments contained in this letter.

Sincerely,

Oscar A. Limpas
Vice President Nuclear-
Chief Nuclear Officer

/jo

Attachment: Licensee Event Report 2015-002-00

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 via ICES entry
Senior Resident Inspector w/attachment USNRC - CNS	SORC Chairman w/attachment
SRAB Administrator w/attachment	CNS Records w/attachment

IE22
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LICENSEE EVENT REPORT (LER)
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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 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.

1. FACILITY NAME Cooper Nuclear Station	2. DOCKET NUMBER 05000298	3. PAGE 1 of 4
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4. TITLE
Failure of Main Steam Differential Pressure Indicating Switches Results in a Condition Prohibited by Technical Specifications and a Common Cause Inoperability of Independent Trains or Channels

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
02	19	2015	2015	002	00	04	16	2015	FACILITY NAME	DOCKET NUMBER
										05000
										05000

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

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT Jim Shaw, Licensing Manager	TELEPHONE NUMBER (Include Area Code) (402) 825-2788
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
E	NH	PDS	I204	N					

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE MONTH: _____ DAY: _____ YEAR: _____
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On February 19, 2015, during performance of surveillance procedures, three of eight Division 2 Main Steam Differential Pressure Indicating Switches failed to trip prior to exceeding limits set in Technical Specifications (TS).

Investigation revealed that the setpoint change calculations and surveillance procedures had been inappropriately revised during implementation of TSTF-493. The applicable setpoint change calculations and surveillance procedures have been revised to pre-TSTF-493 values.

This event is being reported as an operation or condition prohibited by TS, and also as a common cause inoperability of independent trains or channels.

The event has negligible safety significance based on the safety function associated with the main steam high flow isolation signal was preserved through successful testing of five of the eight Division 2 switches.



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NARRATIVE

PLANT STATUS

Cooper Nuclear Station (CNS) was in Mode 1, Power Operation, at 100 percent power, when the event was discovered on February 19, 2015.

BACKGROUND

The primary containment isolation instrumentation automatically initiates closure of appropriate primary containment [EIIS: NH] isolation valves [EIIS: ISV] (PCIV). The function of the PCIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated Design Basis Accidents.

The isolation instrumentation includes the sensors, relays, and switches that are necessary to cause initiation of primary containment and reactor coolant pressure boundary isolation. Most channels include electrical equipment (e.g., pressure switches), that compares measured input signals with pre-established setpoints. When the setpoint is exceeded, the channel output relay actuates, which then outputs a primary containment isolation signal to the isolation logic.

The Main Steam Line (MSL) Flow-High is provided to detect a break of the MSL and to initiate closure of the Main Steam Isolation Valves (MSIVs).

The MSL flow signals are initiated from 16 differential pressure switches [EIIS: PDS] that are connected to the four MSLs. The differential pressure switches are arranged such that, even though physically separated from each other, all four connected to one MSL would be able to detect the high flow. Four channels of Main Steam Line Flow-High Function for each MSL (two channels per trip system) are available and are required to be OPERABLE so that no single instrument failure will preclude detecting a break in the MSL.

The MSL switches are Barton ITT model 288A differential pressure-indicating switches that measure differential pressure (dP) at venturis upstream from the MSIVs. These switches are calibrated on a 24-month frequency and functionally tested on a 92-day frequency.

EVENT DESCRIPTION

On February 19, 2015, during performance of surveillance procedures, three of eight Division 2 Main Steam Differential Pressure Indicating Switches (DPIS) failed to trip prior to exceeding limits set in Technical Specification 3.3.6.1, Primary Containment Isolation Instrumentation.

Prior to the failures, TSTF-493, "Clarify Application of Setpoint Methodology for Limiting Safety System Settings," was implemented concurrently with the station shifting from an 18-month refueling cycle to a 24-month refueling cycle. With the implementation of TSTF-493, the Technical Requirements Manual (TRM)



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was revised to add a new section, T 5.14, "Setpoint Control Program (SCP)." A table exists in this section identifying Nominal Trip Setpoints (NTSP) for automatic protective instrumentation channels that have Limiting Safety System Settings in the Technical Specifications (TS). The SCP ensures the NTSP values and As-Left Tolerance and As-Found Tolerance methodologies are listed for the applicable Functions in the following TS: "Reactor Protection System (RPS) Instrumentation," "Control Rod Block Instrumentation," "Emergency Core Cooling System (ECCS) Instrumentation," and "Reactor Core Isolation Cooling (RCIC) System Instrumentation."

When the 24-month refueling cycle License Amendment was implemented in 2012, all setpoint calculations and their related setpoint change requests were revised to make reference to TRM T 5.14. However, the Main Steam DPIS setpoint was inappropriately changed as the Main Steam DPIS Function is not in the TRM.

Investigation revealed that prior to implementation of TSTF-493, the switches had an As-Left Tolerance of +/- 3.0". Review of the calibration/functional log sheets illustrate that the switches had been reliable and very rarely required an adjustment with the As-Left Tolerance of +/- 3.0". When TSTF-493 was inappropriately applied, the As-Left tolerance was tightened to +/- 1.12", causing additional switch adjustments that normally would have been in tolerance in 2012 and 2014. On August 21, 2014, all of the switches had drifted low, with seven of the eight switches requiring adjustment up.

As part of the resolution, the calculations that did not require a setpoint change as part of TSTF-493 implementation were revised, new setpoint changes were generated, and surveillance procedures were revised back to the pre-TSTF-493 values.

BASIS FOR REPORT

CNS is reporting this event as an operation or condition prohibited by plant TS per 10 CFR 50.73(a)(2)(i)(B), and also as a common cause inoperability of independent trains or channels as defined under 10 CFR 50.73(a)(2)(vii).

SAFETY SIGNIFICANCE

Actual and potential safety consequences are minimal in that an adequate number of high MSL flow DPIS remained within tolerance to provide needed high flow isolation of the MSLs. Although three of the eight Division 2 main steam high flow DPIS did not trip prior to reaching their TS limit, the other five Division 2 switches were within tolerance, and would have provided the needed isolation signal prior to exceeding TS setpoint limits. The design of the main steam high flow isolation function represents a "one out of two taken twice" logic. By this design, the five in tolerance switches would have provided the main steam isolation regardless of the out of tolerance actuation of the three failed switches. Because the in tolerance switches preserved the isolation function as part of the "one out of two taken twice" main steam high flow logic, the associated safety function was available for a main steam line break event.



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Based on the fact that the safety function associated with the main steam high flow isolation signal being preserved through successful testing of five of the eight Division 2 switches, safety significance is negligible with regard to an increase in core damage probability.

CAUSE

Two apparent causes were identified:

1. TSTF-493 requirements were inappropriately applied to the Main Steam DPIS instruments during the original 24-month cycle project for changing the TS, causing a much smaller As-Left tolerance which forced unnecessary equipment adjustments.
2. Inappropriately applied TSTF-493 requirements were not removed in a timely manner as they were viewed as administrative only (no change in setpoint and viewed as conservatively tightening the As-Left Tolerance).

CORRECTIVE ACTIONS

The applicable surveillance procedures have been revised to remove the TSTF-493 As-Found Tolerance. In addition, the As-Left Tolerance was returned to +/- 3.0 psid.

PREVIOUS EVENTS

There have been no reportable events in the past three years related to setpoint calculations.