

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Arkansas Nuclear One, Unit 2														DOCKET NUMBER (2) PAGE (3) 015010013618110F012															
TITLE (4) Degraded RTD Response Time																													
EVENT DATE (5)				LER NUMBER (6)				REPORT DATE (7)				OTHER FACILITIES INVOLVED (8)																	
Month		Day		Year		Year		Sequential		Revision		Month		Day		Year		Facility Names				Docket Number(s)							
0	3	1	9	8	4	8	4	--	0	0	9	--	0	0	0	4	1	7	8	4			0	5	0	0	0		
OPERATING THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:																													
MODE (9) 1 (Check one or more of the following) (11)																													
POWER				20.402(b)				20.405(c)				50.73(a)(2)(iv)				73.71(b)													
LEVEL				20.405(a)(1)(i)				50.36(c)(1)				50.73(a)(2)(v)				73.71(c)													
(10)		11010		20.405(a)(1)(ii)				50.36(c)(2)				50.73(a)(2)(vii)				Other (Specify in													
				20.405(a)(1)(iii)		X		50.73(a)(2)(i)				50.73(a)(2)(viii)(A)				Abstract below and													
				20.405(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)				in Text, NRC Form													
				20.405(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(x)				366A)													
LICENSEE CONTACT FOR THIS LER (12)																													
Name														Telephone Number															
														Area															
														Code															
Donald B. Lomax, Plant Licensing Supervisor														5101191614321151															
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																													
Cause		System		Component		Manufacturer		Reportable		to NPRDS		Cause		System		Component		Manufacturer		Reportable		to NPRDS							
X	J	C	T	E		R	3	6	9	Y																			
X	J	C	T	E		W	1	0	8	Y																			
SUPPLEMENT REPORT EXPECTED (14)														EXPECTED															
														SUBMISSION															
Yes (If yes, complete Expected Submission Date) X No														DATE (15)															
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																													

Measurements of Reactor Coolant System (RCS) resistance temperature detectors (RTD's) response time required by Technical Specification (TS) 3.3.1.1 were performed between 3/7/84 and 3/19/84. Upon completion of analysis of the test results it was determined that the response time of one RTD supplying Reactor Protection System (RPS) channel "A" hot leg temperature indication and one RTD supplying RPS channel "D" cold leg temperature indication were beyond the TS allowable value. Conservative penalty factors were applied within one hour after determination. However, due to the time delay between measurement and analysis of data, the event is reportable since the degraded response time existed longer than allowed by the action requirements of TS 3.3.1.1. Degraded response time is believed to be caused by inadequate thermal coupling between the RTD sensing element and RTD thermowell. The affected RTD's are a model 104AF, manufactured by Rosemount, and model N9004, manufactured by Weed. Similar occurrences were reported in LER's 81-017, 82-001, 83-009, 83-014 and 83-025.

NRC Form 366A
(9-83)U.S. Nuclear Regulatory Commission
Approved OMB No. 3150-0104
Expires: 8/31/85

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Arkansas Nuclear One, Unit 2	10510101 3 6 8	8 4	-- 0 0 9	-- 0 0	02 OF 02

TEXT (If more space is required, use additional NRC Form 366A's) (17)

While in Mode 1 operation at 100% full power, measurements of Reactor Coolant System (RCS) resistance temperature detector's (RTD's) response time required by Technical Specification (TS) 3.3.1.1 were performed between 3/7/84 and 3/19/84 by Analysis and Measurement Services (AMS). Upon completion of analysis of the test results it was determined that the response times of one RTD which input hot leg temperature indication to Reactor Protection System (RPS) channel "A" and one RTD which input cold leg temperature indication to RPS channel "D" had degraded beyond the TS allowable values. Conservative penalty factors were applied to the departure from nucleate boiling ratio (DNBR), local power density (LPD), and DNBR power operating limit (POL) calculations within one hour. The penalty factors installed within the one hour time account for the measured degradation plus an additional amount to compensate for any further degradation which would be likely to occur during the next surveillance interval.

This event is believed to be caused by inadequate thermal coupling between the RTD's sensing element and the RTD's thermowell. RTD's involved are 2TE-4710-1 and 2TE-4711-4-2. RTD 2TE-4710-1 is a model 104AF manufactured by Rosemount and RTD 2TE-4711-4-2 is a model N9004 manufactured by Weed.

This event did not constitute a safety concern. Three RPS channels were available, although two RTD's response time degraded beyond TS allowable values, because of the actual usage of the signals within the Core Protection Calculators (CPCs). Degradation of hot leg RTD 2TE-4710-1 for RPS channel "A" led to non-conservative penalty factor application for the DNBR and LPD calculations for the anticipated operational occurrences of loss of load and single control element assembly (CEA) withdrawal in channel "A" only. RPS channels B, C and D would have provided protective function should those events occurred. Degradation of cold leg RTD 2TE-4711-4-2 for RPS channel D led to nonconservative penalty factor application for the DNBR calculation for asymmetric steam generator transients in channel D only. RPS channels A, B and C would have provided protective function should these type transients occur.

This event is being reported due to the time delay between measurement and discovery. The degraded response times existed longer than allowable by the action requirements of TS 3.3.1.1.

Similar occurrences were reported in LER's 81-017, 82-001, 83-009, 83-014 and 83-025. Because of previous problems involving use of a fluid couplant in the Rosemount RTD thermowells, the RPS D channel RTD's were replaced with detectors and thermowells manufactured by Weed, Inc. during the last refueling outage. Experience to date is insufficient to conclude that this change has been effective. This occurrence involving one dual element Weed RTD is presently believed to be an isolated problem with one Thermowell and not necessarily indicative of a generic problem.



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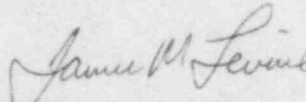
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Subject: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
Licensee Event Report
No. 84-009-00

Gentlemen:

In accordance with 10CFR50.73(a)(2)(i), attached is the subject report concerning degraded resistance temperature detector (RTD) response time.

Very truly yours,


James M. Levine
General Manager

JML:mab

Attachment

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