NRC FORM 366
(7-77)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

EXHIBIT A

CONTROL BLOCK: | | | | | | |

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

| 0 | 1 | LICENSEE CODE: A R A N O 2 | LICENSE NUMBER: 0 0 - 0 0 0 0 0 - 0 0 | LICENSE TYPE: 4 1 1 1 1 | CAT: |

| 0 | 1 | REPORT SOURCE: L | DOCKET NUMBER: 0 5 0 0 0 3 6 8 | EVENT DATE: 0 2 2 5 8 3 | REPORT DATE: 0 3 1 8 8 3 |

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES

| 0 | 2 | During Mode 1 operations on 2/25/83, a surveillance test was conducted on the resistance temperature detectors
| 0 | 3 | (RTD's) which provide input to the Core Protection Calculators (CPC's). When the results of the analysis of
| 0 | 4 | the surveillance became available on 3/4/83, it was determined that 5 of the 32 RTD's had a response time
| 0 | 5 | greater than the required 6.0 seconds. This situation could have the effect of degrading reactor protective
| 0 | 6 | instrumentation response times. Similar occurrences have been reported by LERs (50-368) 82-001 and 81-017.
| 0 | 7 | This is reportable per Technical Specification 6.9.1.8.e.
| 0 | 8 |

| 0 | 9 | SYSTEM CODE: I B | CAUSE CODE: E | CAUSE SUBCODE: E | COMPONENT CODE: I N S T R U | COMP SUBCODE: E | VALVE SUBCODE: Z |

LER/RO REPORT NUMBER: EVENT YEAR: 8 3 | - | SEQUENTIAL REPORT NO.: 0 0 9 | / | OCCURRENCE CODE: 0 1 | REPORT TYPE: T | - | REVISION NO.: 0

ACTION TAKEN	FUTURE ACTION	EFFECT ON PLANT	SHUTDOWN METHOD	HOURS	ATTACHMENT SUBMITTED	NPRD-4 FORM SUB	PRIME COMP. SUPPLIER	COMPONENT MANUFACTURER
X	X	Z	Z	0 0 0 0	Y	N	N	R 3 6 9

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS

| 1 | 0 | This event was caused by the degradation of the couplant used in mating the RTD's into the thermowells.
| 1 | 1 | Corrective action was to install additional penalty factors in the two affected CPC channels per Technical
| 1 | 2 | Specification 3.3.1.1. Additional corrective action has been to install penalty factors corresponding to an
| 1 | 3 | effective RTD time constant of 8.0 seconds in all four CPC channels and in the Core Operating Limits Super-
| 1 | 4 | visory System (COLSS). An investigation into solving this problem of RTD time constant degradation continues.

| 1 | 5 | FACILITY STATUS: E | % POWER: 0 9 3 | OTHER STATUS: NA | METHOD OF DISCOVERY: B | DISCOVERY DESCRIPTION: Surveillance Testing |

| 1 | 6 | ACTIVITY RELEASED: Z | CONTENT OF RELEASE: Z | AMOUNT OF ACTIVITY: NA | LOCATION OF RELEASE: NA |

PERSONNEL EXPOSURES

| 1 | 7 | NUMBER: 0 0 0 | TYPE: Z | DESCRIPTION: NA |

PERSONNEL INJURIES

| 1 | 8 | NUMBER: 0 0 0 | DESCRIPTION: NA |

LOSS OF OR DAMAGE TO FACILITY

| 1 | 9 | TYPE: Z | DESCRIPTION: NA |

PUBLICITY

| 2 | 0 | ISSUED: N | DESCRIPTION: NA |

NRC USE ONLY

NAME OF PREPARER Phillip B. Wade

PHONE: (501) 964-3100

Occurrence Date: 02/25/83

Cause Description and Corrective Action (Continued)

The degraded couplant is "Never-Seez", which was recommended by the NSSS vendor to improve heat transfer between the thermowell and the RTD.

1. Reportable Occurrence Report No. 50-368/83-009/01T-0

2. Report Date: 3.0 Occurrence Date:

4. Facility: Arkansas Nuclear One - Unit
Russellville, Arkansas

5. Identification of Occurrence:
Five (5) Reactor Coolant System Resistance Temperature Detectors (RTD's) di. not meet the required six (6) second response time as per Technical Specifications (T.S.) Table 3.3-2 based on a surveillance test. This occurrence is reportable per T.S. 6.9.1.8.e.

6. Conditions Prior to Occurrence:

Steady-State Power	X	Reactor Power	2618 MWth
Hot Standby		Net Output	830 MWe
Cold Shutdown		Percent of Full Power	93 %
Refueling Shutdown		Load Changes During Routine Power Operation	
Routine Startup Operation			
Routine Shutdown Operation			
Other (specify)			

7. Description of Occurrence:
On 2/25/83 with the Unit in Mode 1 operations (approximately 93% full power), a surveillance test was conducted per T.S. on the RTD's which provide input to the Plant Protective System (PPS) via the Core Protection Calculators (CPC's). Analysis and Measurement Services (AMS) of Knoxville, TN conducted the test, performed the subsequent data analysis, and informed AP&L on 3/4/83 of the results. The results of the analysis indicated that five (5) of the RTD's exceeded the required six (6) second response time. This is similar to LER's 82-001 and 81-017.

8. Designation of Apparent Cause of Occurrence:

Design	_____	Procedure	_____
Manufacture	_____	Unusual Service Condition Including Environmental	_____
Installation/ Construction	_____	Component Failure	_____
Operator	_____		

Other (specify)

This occurrence was caused by the degradation of the couplant ("Never-Seez") used to mate the RTD into the thermowell. "Never-Seez" is recommended for this application by the NSSS vendor to improve heat transfer between the Thermowell and the RTD.

9. Analysis of Occurrence:
The degraded RTD response time would increase the PPS response time in protecting against low DNBR or High Local Powe Density occurrences. This occurrence affected two (2) of four (4) CPC channels and their respective PPS channels. This is a continuing problem at ANO 2 and has been and is the subject of investigation. Previous analysis of degraded RTD response times has shown the couplant to be dried out, leaving a powdery residue which fails to provide the necessary thermal conductance between the Thermowell and the RTD. A recent T.S. revision provided the necessary action of installing appropriate penalty factors into the two (2) affected CPC channels rather than shutting the unit down.

10. Corrective Action:
Corrective action was to install penalty factors corresponding to the degraded RTD response times in the two (2) affected CPC's, per T.S. 3.3.1.1. In anticipation of further RTD response time degradation, additional penalty factors corresponding to an effective RTD time constant of 8.0 seconds have been installed in all four (4) CPC's and in the Core Operating Limits Supervisory System (COLSS). The first set of penalty factors was installed on 3/4/83 shortly after receiving the surveillance test results; the additional penalty factors were installed on 3/11/83 after Plant Safety Committe approval.

11. Failure Data:
"Never-Seez" is the brand of couplant which caused this event.