

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Arkansas Nuclear One, Unit Two DOCKET NUMBER (2) PAGE (3)
101510101 31 61 81101013
TITLE (4) Reactor Trip Circuit Breaker Undervoltage Devices Found In Mid-Position

EVENT DATE (5)			LER NUMBER (6)		REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
Month	Day	Year	Sequential Number	Revision Number	Month	Day	Year	Facility Names	Docket Number(s)
11	21	78	01	01	11	21	78		101510101
OPERATING MODE (9) 1 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10) 1013101									
20.402(b) 20.405(c) 50.73(a)(2)(iv) 73.71(b)									
20.405(a)(1)(i) 50.36(c)(1) 50.73(a)(2)(v) 73.71(c)									
20.405(a)(1)(ii) 50.36(c)(2) 50.73(a)(2)(vii) X Other (Specify in									
20.405(a)(1)(iii) 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 Dwight J. Johnson, Plant Licensing Engineer Telephone Number
Area
Code
15101191641-1311010

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
D	J	D	512	G101810	Y				

SUPPLEMENT REPORT EXPECTED (14)
EXPECTED SUBMISSION DATE (15)
Month Day Year
1 1 78
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On 12/17/85, at 1300 hours, with the plant operating at 30% power, a Plant Protective System (PPS) monthly surveillance revealed that the armatures on undervoltage devices for reactor trip circuit breakers (RTCBs) 4 and 8 were in a mid-position. The technician responsible for performance of the Channel 'B' PPS test suspended the test and notified the shift supervisor of his finding. A licensed control room operator and electrical maintenance personnel were dispatched to the RTCBs to verify and evaluate the finding. The electrical maintenance personnel tripped the RTCBs by perturbing the magnetic field of the undervoltage device causing it to actuate the RTCB trip shaft demonstrating actuation capability. At ~1330 hours, the RTCBs were removed for testing and assessment of the undervoltage devices. These tests showed that from the approximated "as found" condition, the undervoltage devices could successfully trip the RTCBs open when power was removed from the device simulating a PPS actuation. The cause of the event is unknown, but proper verification of the position of the undervoltage devices when the RTCBs were closed for plant startup on 12/14/85 could possibly have prevented this incident. As a result, procedures are being changed to require a visual verification of the undervoltage armature position when closing the RTCBs. Since the undervoltage devices were capable of performing their design function, there was no degradation of the level of safety afforded by this system nor was there a violation of the unit's Technical Specification. This report is being supplied for information and there have been no similar occurrences.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Arkansas Nuclear One, Unit Two	105101013 618	<table border="1"> <tr> <th data-bbox="1015 361 1123 393">Sequential</th> <th data-bbox="1123 361 1288 393">Revision</th> </tr> <tr> <td data-bbox="1015 393 1123 414">Year</td> <td data-bbox="1123 393 1288 414">Number</td> </tr> </table>	Sequential	Revision	Year	Number	01210F1013
Sequential	Revision						
Year	Number						
TEXT (If more space is required, use additional NRC Form 366A's) (17)							

I. Description of Event

A. Unit Status

The Unit was at 30% power and holding for a boric acid soak of the secondary system prior to power escalation. The unit had been shutdown the previous week for maintenance and was returned to power operations on 12/14/85.

B. Component Identification

Reactor Trip Circuit Breakers (RTCBs); EIIIS Identifiers = 2JD-52-RTCB4 and 2JD-52-RTCB8

The RTCBs used at Arkansas Nuclear One, Unit Two are General Electric Company Type AK-2-25 Series Reactor Trip Breakers.

C. Sequence of Events

During a Plant Protective System (PPS) monthly surveillance test conducted on 12/17/85, an Instrument and Controls (I&C) technician observed that the undervoltage trip devices associated with reactor trip circuit breakers RTCB 4 and 8 were in an intermediate position. This observation was made at 1300 hours as a required part of the normal activity associated with the surveillance. Upon discovery of this condition, the I&C technician immediately suspended the surveillance testing and notified the unit shift supervisor who dispatched a licensed control room operator to the RTCB location to evaluate the situation. The licensed operator observed the RTCBs undervoltage trip device armature in an intermediate position. Repeated attempts to place both undervoltage device armatures in the required position (resting on an airgap adjustment screw) failed. At 1322 hours an electrical maintenance supervisor accompanied by two maintenance electricians arrived at the RTCB location to evaluate the status of the undervoltage devices. The electrical personnel determined that the undervoltage devices were in an intermediate position and in an effort to place the undervoltage devices in the desired position broke the magnetic field of the undervoltage devices and tripped the two RTCBs. The breakers were subsequently reset, and the undervoltage device armature was verified to reset in the required position. The two breakers were then replaced and taken to be tested and evaluated by the electrical maintenance department. Also, the PPS surveillance test was completed without further incident.

II. Event Cause

A. Event Analysis

Although the absolute root cause of this event is unknown, the event appears to be similar to the event described in NRC I.E. Information Notice 83-76, "Reactor Trip Breaker Malfunctions" (November 2, 1983). In an attempt to reproduce the "as found" undervoltage device armature position during testing of the RTCBs, the electrical maintenance technicians had to physically bind the armature on a copper shading ring. However, even from the approximated intermediate position, the undervoltage device would still trip the breaker open when power was removed (simulating a PPS actuation).

B. Root Cause

An evaluation of the operational sequence leading up to the discovery of the mis-positioned undervoltage device armatures showed that the RTCBs were closed at approximately 0530 hours, 12/14/85 in preparation for plant heatup and for pre-critical plant operations. However, due to a misinterpretation of the administrative requirement for closure of the RTCBs contained in the plant startup procedure, the on shift control room operators failed to visually verify the position of the undervoltage devices at the time the RTCBs were closed on 12/14/85. Additionally, the pre-critical surveillance test of the RTCBs operability had been performed within the previous week (for a prior startup attempt) which further added to the confusion over the actual administrative requirements to visually inspect the RTCBs.

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Arkansas Nuclear One, Unit Two		Year	Sequential Number	Revision Number	
	10151010101 31 61 81 81 51 --	01 21 71 --	01	0101310F1013	

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

II. Event Cause (cont.)

C. Basis for Reportability

NRC I.E. Information Notice 83-76 directs that should the undervoltage armature of an RTCB be found in an improper position the RTCB would be considered "technically inoperable". Considering this position and in light of the fact that the undervoltage armature misposition probably occurred on 12/14/85 during the resetting of the RTCBs it would appear that this event is reportable per 10 CFR 50.73 (a)(2)(i) as an event that is prohibited by the unit's Technical Specifications (i.e., a Limiting Condition for Operation has been exceeded). In reviewing this event it should be noted that the capability of the undervoltage devices to trip the RTCBs was proven on several occasions. As was previously stated when the magnetic field of the undervoltage device was perturbed during the "in situ" electrical supervisor's initial evaluation, the undervoltage devices actuated to trip the breakers from the "as found" condition. Also, the testing performed by the electrical maintenance technicians further prove that from the "as found" condition, the undervoltage devices would have responded to a PPS actuation to trip the RTCBs open. Based on the evaluation of the plant staff of the RTCB response, both "in situ" and during testing, it is felt that:

- 1) the RTCBs were not "technically inoperable".
- 2) the incident represents no serious degradation in the level of safety or required response of this system.
- 3) the health and safety of the general public was not degraded.
- 4) there was no violation of the unit's Technical Specification.

Therefore, this report is being submitted for informational purposes.

IV. Corrective Actions

A. Immediate

Immediate corrective actions included removal and replacement of the affected RTCBs to assess the operability of the undervoltage devices to trip the breakers. The evaluations performed by the plant staff (electrical maintenance) showed that from the "as found" configuration, the undervoltage devices were capable of performing as required should they be de-energized on a PPS actuation.

B. Subsequent

Plant maintenance and operating procedures were reviewed for administrative requirements consistent with verifying the undervoltage devices properly reset before RTCB closure (Reference Combustion Engineering, Inc. ADP Info Bulletin 83-13). Based on this evaluation, procedures are being changed to require visual verification of the undervoltage device armature position when resetting the RTCBs. The existing operating procedure currently accomplishes this through the use of a cautionary statement. Additionally, a caution placard will be placed at the RTCB reset locations to serve as a human factors enhancement to the operating procedure requirement.

C. Future

There are no future actions planned.

V. Additional Information

A. Similar Events

There have been no similar events.



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January 18, 1986

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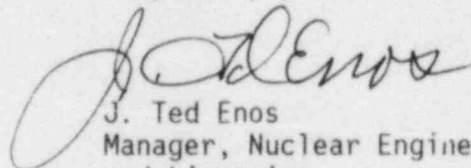
U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Subject: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
Licensee Event Report
No. 85-027-00

Gentlemen:

The subject report concerns a Plant Protective System monthly surveillance which revealed that the armatures on undervoltage devices for reactor trip circuit breakers 4 and 8 were in a mid-position. Although this event is not reportable per the requirements of 10CFR 50.73, the attached report was determined to be appropriate for information only.

Very truly yours,



J. Ted Enos
Manager, Nuclear Engineering
and Licensing

JTE:RJS:1w

Attachment

cc: Mr. James M. Taylor, Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, DC 20555

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