SSINS NO.: 6835
IN 85-49

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

July 1, 1985

IE INFORMATION NOTICE NO: 85-49: RELAY CALIBRATION PROBLEM

Addressees:

All nuclear power reactor facilities holding an operating license (OL) or a construction permit (CP).

Purpose:

This information notice provides information on a potentially significant problem pertaining to relay orientation during calibration and operation. It is expected that recipients will review the information for applicability to their facilities and consider actions, if appropriate, to preclude a similar problem occurring at their facilities. However, suggestions contained in this information notice do not constitute NRC requirements; therefore, no specific action or written response is required.

Discussion:

South Carolina Electric and Gas Company, at the Summer nuclear power plant, recently discovered that there was a significant error in the calibration of several E-7000 series Agastat time-delay relays. The licensee's procedure for replacement of Agastat timing relays did not require calibration of these relays in the installed position. During relay replacement, these time-delay relays were "bench" calibrated in a horizontal position, then field mounted in a vertical orientation. Subsequent time-delay measurements determined that the delay times of the installed devices were as much as 30% greater than that established during "bench" calibration.

Licensee investigation of this anomaly determined that the manufacturer's data sheet for installation and operation of these relays identifies a potential for the observed calibration error. This data sheet states that a dial calibration error may result if the device is mounted horizontally without the manufacturer's supplied horizontal operation options. Because these relays were mounted vertically at this facility, the potential for error as a result of horizontal "bench" calibration was overlooked. Because of this oversight, the licensee's relay replacement procedure did not specify device orientation during calibration. Several of these relays were functionally arrayed (sequentially or in parallel) in safety-related applications, such as in the emergency diesel generator under-voltage start circuitry. The above identified time-delay error went undetected for a period of approximately 4 months for some of these relays. This occurred because the licensee's replacement procedure specified only an operational or functional postmaintenance test of the system containing the relays. This method of testing did not detect the individual relay time-delay calibration errors.

The licensee has subsequently revised their relay calibration procedures to calibrate or check the calibration of relays after mounting in place, where practical. The procedures were also revised to ensure "bench" calibrations are performed in the same orientation as mounted, where applicable. Personnel involved in relay calibration have received training on the revised procedures.

No specific action or written response is required by this information notice. If you have any questions about this matter, please contact the Regional Administrator of the appropriate NRC Regional Office or this office.

Edward L. Jordan, Director
Division of Emergency Preparedness
and Engineering Response
Office of Inspection and Enforcement

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Attachment: List of Recently Issued IE Information Notices

Attachment 1
IN 85-49
July 1, 1985

LIST OF RECENTLY ISSUED
IE INFORMATION NOTICES

Information Notice No.	Subject	Date of Issue	Issued to
85-48	Respirator Users Notice: Defective Self-Contained Breathing Apparatus Air Cylinders	6/19/85	All power reactor facilities holding an OL or CP, research, and test reactor, fuel cycle and Priority 1 material licensees
85-47	Potential Effect Of Line-Induced Vibration On Certain Target Rock Solenoid-Operated Valves	6/18/85	All power reactor facilities holding an OL or CP
85-46	Clarification Of Several Aspects Of Removable Radioactive Surface Contamination Limits For Transport Packages	6/10/85	All power reactor facilities holding an OL
85-45	Potential Seismic Interaction Involving The Movable In-Core Flux Mapping System Used In Westinghouse Designed Plants	6/6/85	All power reactor facilities holding an OL or CP
85-44	Emergency Communication System Monthly Test	5/30/85	All power reactor facilities holding an OL
85-43	Radiography Events At Power Reactors	5/30/85	All power reactor facilities holding an OL or CP
85-42	Loose Phosphor In Panasonic 800 Series Badge Thermoluminescent Dosimeter (TLD) Elements	5/29/85	All power reactor facilities holding an OL or CP
85-41	Scheduling Of Pre-Licensing Emergency Preparedness Exercises	5/24/85	All power reactor facilities holding a CP

OL = Operating License
CP = Construction Permit