

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555

August 11, 1995

NRC INFORMATION NOTICE 95-10, SUPPLEMENT 2: POTENTIAL FOR LOSS OF AUTOMATIC
ENGINEERED SAFETY FEATURES
ACTUATION

Addressees

All holders of operating licenses or construction permits for nuclear power reactors.

Purpose

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice supplement to alert addressees to the changes that the licensee for the Salem nuclear power plant has made to surveillance and maintenance practices for the solid-state protection system (SSPS) logic matrix power supplies. These modifications were made in response to problems the licensee encountered while attempting to alter an aspect of the design of the SSPS for both units. The modifications were being made to correct a design deficiency that had the potential for causing the loss of the automatic actuation function of the engineered safety features (ESF) as a result of electrical faults in non-Class 1E input signals. It is expected that recipients will review the information for applicability to their own facilities and will consider actions, as appropriate, to avoid similar problems. However, suggestions contained in this information notice are not NRC requirements; therefore, no specific action or written response is required.

Background

Information Notice 95-10 informed licensees of a condition that could lead to the failure of one or both trains of the SSPS during a main steamline break in the turbine building or during a seismic event. The conditions were originally reported by the licensees for the Diablo Canyon and Salem facilities and subsequently by the licensees for the J. M. Farley, North Anna, Sequoyah, Shearon Harris, V. C. Summer, and Watts Bar facilities.

While attempting to correct the problematic design, the licensee for the Salem facility encountered difficulties. The source range high voltage block signal was inadvertently deenergized and several SSPS power supply anomalies occurred while performing the modification and during subsequent power supply testing and evaluation. Supplement 1 to Information Notice 95-10 gave details of these difficulties.

Description of Circumstances

On the basis of its assessment of the difficulties encountered at Salem, the licensee has revised the maintenance and surveillance requirements for the

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SSPS power supplies. The revised requirements incorporate vendor recommendations and lessons learned during the recent modification and testing of the SSPS. The licensee is implementing the following preventive maintenance activities to enhance the performance of the SSPS and similar power supplies:

1. Refurbish the SSPS Train A and B 48-V dc and 15-V dc power supplies by replacing such age sensitive components as electrolytic capacitors and semiconductors, as necessary, every 72 months. Refurbishment is to consist of inspection of wiring, inspection of connectors (including solder joints), and cleaning as required. In addition, the 48-V dc and 15-V dc power supplies for the control board demultiplexor and the 48-V dc and 15-V dc power supplies for the computer demultiplexor were incorporated into the enhanced preventive maintenance program.
2. Every 36 months, bench tests of all SSPS power supplies are to include output power ripple checks, load tests from zero to 110 percent of full load, and overcurrent and overvoltage trip tests.
3. With SSPS supplies normally loaded, perform output power ripple checks on logic cabinet rear terminations every 18 months in conjunction with existing surveillance tests.
4. Periodically energize replacement SSPS power supplies in inventory to ensure operability.

The licensee is also reviewing the design of the SSPS general warning alarm for possible modification. The licensee stated that the general warning alarm will not be received if the failure mode of the power supply is such that it will not hold load but still maintain an acceptable in situ voltage. This is because the general warning circuit design is intended to initiate a general warning alarm only upon a total loss of a power.

In addition, Westinghouse has informed its customers that resistor R28 in the 48-V dc SSPS power supply (Westinghouse part No. 2374A07G01) is undersized and may overheat. Westinghouse recommended changing the value of resistor R28 from 1.8K ohm, 0.5 watt +/- 5%, to 18K ohm, 0.5 watt +/- 5%. This change is also applicable to the control board demultiplexor and computer demultiplexor 48-V dc power supplies.

This information notice requires no specific action or written response. If you have any questions about the information in this notice, please contact one of the technical contacts listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.


Dennis M. Crutchfield, Director
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

Technical contacts: Cliff Douth, NRR
(301) 415-2847

E. Nick Fields, NRR
(301) 415-1173

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LIST OF RECENTLY ISSUED
 NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
95-32	Thermo-Lag 330-1 Flame Spread Test Results	08/10/95	All holders of OLs or CPs for nuclear power reactors.
95-31	Motor-Operated Valve Failure Caused by Stem Protector Pipe Interference	08/09/95	All holders of OLs or CPs for nuclear power reactors.
95-30	Susceptibility of Low-Pressure Coolant Injection and Core Spray Injection Valves to Pressure Locking	08/03/95	All holders of OLs or CPs for nuclear power reactors.
94-66, Supp. 1	Overspeed of Turbine-Driven Pumps Caused by Binding in Stems of Governor Valves	06/16/95	All holders of OLs or CPs for nuclear power reactors.
95-29	Oversight of Design and Fabrication Activities for Metal Components Used in Spent Fuel Dry Storage Systems	06/07/95	All holders of OLs or CPs for nuclear power reactors.
95-28	Emplacement of Support Pads for Spent Fuel Dry Storage Installations at Reactor Sites	06/05/95	All holders of OLs or CPs for nuclear power reactors.
95-27	NRC Review of Nuclear Energy Institute, "Thermo-Lag 330-1 Combustibility Evaluation Methodology Plant Screening Guide"	05/31/95	All holders of OLs or CPs for nuclear power plants.
95-26	Defect in Safety-Related Pump Parts due to Inadequate Heat Treatment	05/31/95	All holders of OLs or CPs for nuclear power reactors.

OL = Operating License
 CP = Construction Permit

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DATE	04/24/95		04/19/95		04/22/95		04/24/95		04/24/95	
OFFICE	SC:OECB/DOPS	N	OECB/DOPS	E	C:OECB/DOPS	N	D:DRCH	N	D:BRPM	
NAME	EGoodwin*		RKiessel*		AChaffee*		BBoger*		DMCrutchfield	
DATE	04/25/95		05/11/95		05/15/95		04/25/95		08/7/95	

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EFGoodwin	AED [initials] ATB	BABoger [initials]	BKGrimes					
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