UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
230 PEACHTREE STREET, N.W. SUITE 1217
ATLANTA, GEORGIA 30303

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In Reply Refer To:
RII:JPO
50-438, 50-439, 50-259,
50-260, 50-296, 50-518,
50-519, 50-520, 50-521,
50-327, 50-328, 50-390,
50-391

Tennessee Valley Authority
Attn: Mr. Godwin Williams, Jr.
Manager of Power
830 Power Building
Chattanooga, Tennessee 37401

Gentlemen:

Enclosed is IE Bulletin No. 77-03 which requires action by you with regard to your power reactor facility(ies) with an operating license or a construction permit.

Should you have questions regarding this Bulletin or the actions required of you, please contact this office.

Sincerely,

for James P. O'Reilly
Director

Enclosure:
IE Bulletin No. 77-03

AO 7
GD

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

ON-LINE TESTING OF THE WESTINGHOUSE W SOLID STATE PROTECTION SYSTEM (SSPS)

Description of Circumstances:

Westinghouse has recently reported that operation of the safeguards actuation block/reset circuitry is not being verified during the periodic semi-automatic logic testing of the Solid State Protection System as required by licensees technical specifications. Even though this portion of the logic system is tested prior to initial plant operation, circuit failure during operation is undetectable. Consequently, if any part of this circuitry fails, safety injection could not normally be reset and/or blocked. Resetting and blocking of safety injection signals are necessary for switchover to the recirculation mode of operation during accident conditions. The enclosed W Technical Bulletin NSD TB-77-11 was sent to affected Westinghouse plants notifying them of the problem and of the corrective action necessary to resolve the issue. The technical bulletin provides detailed information to augment established on-line test procedures. The method has been confirmed recently by successful verification tests of the WSSPS at both W Nuclear Instrumentation and Control Division (WNICD), Hunt Valley, Maryland, and North Anna Nuclear Station.

Action To Be Taken By Licensees and Permit Holders:

For all W Power Reactor Facilities with an operating license or a Construction Permit:

1. If your facility utilizes or plans to utilize the WSSPS, describe what action you have taken or plan to take to assure adequate periodic testing of all portions of the system. Further information regarding the necessary periodic testing procedures can be obtained from Westinghouse Nuclear Energy Systems in Monroeville, Pa.

2. Report to this office in writing within 45 days for facilities with an operating license and within 60 days for facilities with a construction permit, your plan of action with regard to Item 1.

Approval of NRC requirements for reports concerning possible generic problems has been obtained from the U. S. General Accounting Office. (GAO approval B-180225 (R0072, expires 7/31/80.

Enclosures:
1. Extract from W Technical Bulletin NSD TB 77-11 Entitled: Periodic Testing of Safety Injection Reset Timing Circuit
2. List of IE Bulletins Issued in 1977

COPY

(Extracted From W Technician Bulletin NSD TB 77-11)

Subject:	Periodic Testing of Safety Injection Reset Timing Circuit
Number:	NSD-TB-77-11
System(s);	Solid State Protection System (SSPS)
Date:	July 21, 1977
Affected Plants:	All with above supplied equipment
S. O. (s):	385
References:	SSPS Schematic, Sheet 20

BACKGROUND INFORMATION

Aportion of the safeguards actuation reset circuitry which would not normally be tested during periodic on-line testing of the Solid State Protection System has been re-evaluated and does now require periodic test. The specific circuit consists of timing relay TD1, slave relay K602, control board SI block/reset pushbutton and associated wiring including wiring back to universal card A216-19 beyond which is included in the semi-automatic logic tests. Should any part of this circuit fail, safety injection could not normally be reset and/or blocked to allow initiation of recirculation.

Westinghouse has concluded that this constitutes a Potential Substantial Safety Hazard and has notified the U.S. NRC in accordance with reporting requirements.

IMMEDIATE CORRECTIVE ACTION

The following scheme is to be employed during periodic on-line testing of the Solid State Protection System:

1. Place "Input Error Inhibit" switch on logic test panel to "Inhibit."
2. Place the "Mode Selector" switch in output cabinet to "Test."
3. Select position 9 on "Memories" switch on the logic test panel and, if the "Memory Set" light is on, depress the adjacent black push button to extinguish.

4. If K602 actuates any external loads, first block these loads from the external test circuitry. Do not attempt to energize K602 from this circuitry.

5. Connect a DC voltmeter (Simpson Model 260) between time delay relay (TD1) terninal 6 (+) and logic ground (GND) on the logic test panel using the 50 volt scale. The meter should read 48VDC (nominal).

6. Move the positive (+) probe from TD1-6 to TD1-2. The meter should read 0 VDC.

7. Latch-up K602 by physically depressing the latch plunger and releasing. Time the interval beginning with that action until the volt meter reads 48 VDC (nominal). This period should agree with that specified on the applicable technical specification.

8. From the main control board, firmly depress and release the SI block/reset pushbutton and the following will occur simultaneously:

   a. The "Memory Set" lamp will light.

   b. The voltmeter will go to zero.

   c. K602 will reset as evidenced by the protruding latch plunger.

   At this point, the operation of K602 and latch, the operation of TD1 coil and contacts, the application of an SI block (memory set light), the operation of the control board reset switch and all associated wiring has been checked and verified.

9. Return the "Memories" switch to "Off" position.

10. Return the "Mode Selector" switch to "Operate."

11. IMPORTANT: Since use of the "Memories" switch could have negated valid blocks which existed before its use, reinstate all blocks from the control board by actuating ALL manual block pushbuttons.

12. After performing step 11, return "Input Error Inhibit" switch to "Normal."

In order to verify that all contacts returned to their initial conditions, do the following:

13. Connect the voltmeter between TD1-6 (+) and logic ground (GND). The meter should read 48 VDC (nominal).

14. Switch to ohms Rx1 range and measure for an open circuit between TD1-2 and logic ground (GND).

15. Connect the meter to read volts AC (150 VAC Range) across TD1-1 and 5. The meter should read 0 VAC.

16. Switch to Rx1 range and measure for an open circuit between TD1-1 and 5.

17. If applicable, return the slave relay K602 external testing circuit to its non-blocking state thus restoring the entire system to full service.

The circuit has now been verified as being in its initial state after having performed.

LISTING OF IE BULLETINS ISSUED IN 1977

Bulletin No.	Subject	First Date Issued	Issued To
77-01	Pneumatic Time Delay Set Point Drift	4-29-77	All Holders of Operating License (OL) or Construction Permit (CP)
77-02	Potential Failure Mechanism in Certain W AR Relays with Relays with Latch Attachments	9-12-77	All Holder of Operating License (OL) or Construction Permit (CP)