

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

IE Bulletin 77-03
Date: September 12, 1977

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 licensee's 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 MSD 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.

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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



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(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

A portion 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.

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4. If K602 actuates any external loads, first block these loads from the external test circuitry. Do not attempt to energize K502 from this circuitry.
5. Connect a DC voltmeter (Simpson Model 26) between time delay relay (TD1) terminal 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 TD] 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."

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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 nonblocking state thus restoring the entire system to full service.

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

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IE Bulletin 77-03

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 Construc- tion Permit (CP)
77-02	Potential Failure Mechanism in Certain W AR Relays with Relays with Latch Attachments	9-12-77	All Holders of Operating License (OL) or Construc- tion Permit (CP)

Enclosure 2
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ROCHESTER GAS AND ELECTRIC CORPORATION • 89 EAST AVENUE, ROCHESTER, N.Y. 14649

LEON D. WHITE, JR.
VICE PRESIDENTTELEPHONE
AREA CODE 716 546-2700

June 8, 1977

Mr. James P. O'Reilly, Director
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Subject: IE Circular 76-06: Stress Corrosion Cracks in Stagnant, Low
Pressure Stainless Piping Containing Boric
Acid Solution at PWR's
R. E. Ginna Nuclear Power Plant, Unit #1
Docket No. 50-244

Dear Mr. O'Reilly:

In our December 21, 1976 letter in response to IE Circular No.
76-06 we stated that certain actions would be taken during the 1977
refueling and maintenance outage to verify the integrity of the containment
spray and safety injection systems. The LER 76-24/10 update report
transmitted today within a separate letter provides the results of the
completed actions.

Very truly yours,

L. D. White, Jr.

xc: NRC Office of Inspection and Enforcement
Division of Reactor Inspection Programs
Washington, D. C. 20555

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LEON D. WHITE, JR.
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TELEPHONE
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May 31, 1977

Mr. James P. O'Reilly, Director
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Subject: IE Bulletin No. 77-01: Pneumatic Time Delay Relay Setpoint
Drift
R. E. Ginna Nuclear Power Plant, Unit #1
Docket No. 50-244

Dear Mr. O'Reilly:

This letter is in response to Inspection and Enforcement Bulletin 77-01, dated April 29, 1977, and received at Ginna Station on May 2, 1977 concerning a number of malfunctions of pneumatic time delay relays at the Millstone and North Anna facilities. No time delay relays of the type identified in the subject Bulletin are used at Ginna Station. To date none of the Agastat time delay relays used throughout Ginna Station have caused any unwanted equipment response.

The manufacturer's specifications for these devices state that for units set at 200 seconds or under, repeat accuracy is better than $\pm 5\%$ of pre-set adjustment. Timing verification checks of Agastat relays, where used to perform critical operations in safety related systems, are performed at each refueling outage. The systems in which relay timing is verified include the A & B Diesel Generators and the A & B Safeguard train equipment sequencing operation. Other time delay relays are in service to which safety connotation may be attributed; these relays, while not checked for specific time response, are proven to be functionally adequate as witnessed by correct overall system operation which is dependent upon the time delay units. A review of all Agastat time delay relays which are presently not being "time checked" will be conducted, and if warranted will be added to the surveillance program for subsequent refueling outages.

Very truly yours,

L. D. White, Jr.

L. D. White, Jr.

xc: NRC Office of Inspection and Enforcement
Division of Reactor Inspection Programs
Washington, D. C. 20555

CENTRAL FILES

