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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

DEC 19 1978

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In Reply Refer To:
RII:JPO
50-395

South Carolina Electric and Gas Company
Attn: Mr. M. C. Johnson, Vice President
and Group Executive - Special
Services and Purchasing
P. O. Box 764
Columbia, South Carolina 29218

Gentlemen:

The enclosed Bulletin 78-14 is forwarded to you for information. No written response is required. If you desire additional information regarding this matter, please contact this office.

Sincerely,

for James P. O'Reilly
Director

Enclosures:
1. IE Bulletin 78-14
2. List of IE Bulletins
Issued in 1978

cc w/encl:
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T. B. Conners, Jr.
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

December 19, 1978

IE Bulletin No. 78-14

DETERIORATION OF BUNA-N COMPONENTS IN ASCO SOLENOIDS

Description of Circumstances:

Following a reactor scram at the Monticello Nuclear Power Station on July 27, 1978, one control rod was determined to have a slow scram insertion time. While measuring the average control rod scram insertion times (as required by Technical Specifications), the same control rod failed to scram. Subsequent investigation revealed that a Buna-N disc in the scram pilot valve solenoid core assembly had fractured. Small pieces of the Buna-N material wedged between the core assembly and the valve pilot body. This prevented proper movement of the core assembly (plunger), and thus prevented the valve from properly venting control air from the scram valves. A similar event occurred during scram testing on June 5, 1978. On both occasions the control rod failed to scram during control rod surveillance testing. In these instances, had a scram occurred during normal operation of the reactor, the affected rods would have inserted by action of the backup scram solenoid valves.

The reactor was placed in cold shutdown on July 28, 1978. All of the scram pilot solenoid valves and scram backup valves were disassembled and inspected. Six additional fractured Buna-N discs were found, all in scram pilot solenoid valves. Northern States Power Company replaced the plunger Buna-N discs in all 242 scram pilot valves and the 2 backup scram valves.

In addition to the Monticello failures, similar events were recently reported from the Big Rock Point and Pilgrim facilities. At Big Rock Point, two failures were experienced in October while at Pilgrim one failure was found in July and two in December. All of these failures were encountered during surveillance testing.

General Electric had previously issued Service Information Letters, SIL 128 (March 31, 1975) and SIL 128 Revision 1 (January 30, 1976), addressing the deterioration through natural aging of Buna-N components in CRD scram pilot valves. These letters recommended that a maintenance program be adopted which replaced certain Buna-N components in scram pilot valves on a regularly scheduled basis. However, the Buna-N discs

in the scram pilot valve core assemblies were not included in these recommendations. As a result of the Monticello experience and subsequent investigation, General Electric has issued in August 1978, SIL 128 Revision 1, Supplement 1, which recommends that all BWR operators take the following actions:

> "Establish a preventive maintenance program to replace all core assemblies, diaphragms and associated parts in all CRD scram pilot valves, backup scram valves, scram discharge volume vent and drain pilot valves, and scram discharge volume test valves, at periodic intervals. The Buna-N parts used in these valves have at least a seven year shelf and in-service life from the packaging date on the rebuild kit. Thus, the valves should be rebuilt periodically to assure that the Buna-N parts are not used in excess of seven years. It is recommended that the work be scheduled in any one outage such that the associated CRDs are selected from a distributed checkerboard pattern. The remaining valves can be rebuilt during subsequent outages."

For clarity, it is noted that the above seven year limit recommended by GE includes all of the time from packaging through installation to the end of service life. In addition, it is noted that the March 31, 1975 issue of SIL 128 stated that the design specification for Buna-N specified a minimum design life of three years.

Action to be Taken by Licensees:

For all GE BWR power reactor facilities with an operating license:

1. Review Buna-N material applications in your control rod scram systems and determine the time since installation, and for installed material, the time since packaging.

2. Report the results of the review set forth in item 1 above and describe your schedule for replacement, both in response to this Bulletin and for periodic maintenance.

3. Describe the bases for your schedule of replacement identified in response to item 2 above. Justify any proposed replacement time in excess of three years.

4. Within 45 calendar days of the date of issue of this Bulletin, report in writing to the Director of the appropriate NRC Regional Office, the results of your review, schedule and bases for replacement with regard to Items 1 through 3. A copy of your report should be sent to the United States Nuclear Regulatory Commission, Office of Inspection and Enforcement, Division of Reactor Operations Inspection, Washington, D.C. 20555.

For all BWR facilities with a construction permit and all other power reactor facilities with an operating license or construction permit, this Bulletin is for information only and no written response is required.

Approved by GAO B180225 (R0072); clearance expires 7/31/80. Approval was given under a blanket clearance specifically for identified generic problems.

Enclosure:
List of IE Bulletins
Issued in 1978

IE Bulletin No. 78-
Date:

LISTING OF IE BULLETINS
ISSUED IN 1978

Bulletin No.	Subject	Date Issued	Issued To
78-01	Flammable Contact - Arm Retainers in G.E. CR120A Relays	1/16/78	All Power Reactor Facilities with an OL or CP
78-02	Terminal Block Qualification	1/30/78	All Power Reactor Facilities with an OL or CP
78-03	Potential Explosive Gas Mixture Accumulations Associated with BWR Offgas System Operations	2/8/78	All BWR Power Reactor Facilities with an OL or CP
78-04	Environmental Qualification of Certain Stem Mounted Limit Switches Inside Reactor Containment	2/21/78	All Power Reactor Facilities with an OL or CP
78-05	Malfunctioning of Circuit Breaker Auxiliary Contact Mechanism-General Model CR105X	4/14/78	All Power Reactor Facilities with an OL or CP
78-06	Defective Cutler-Hammer, Type M Relays With DC Coils	5/31/78	All Power Reactor Facilities with an OL or CP
78-07	Protection afforded by Air-Line Respirators and Supplied-Air Hoods	6/12/78	All Power Reactor Facilities with an OL, all class E and F Research Reactors with an OL, all Fuel Cycle Facilities with an OL, and all Priority 1 Material Licensees

Enclosure 1
Page 1 of 2

IE Bulletin No. 78-
Date:

LISTING OF IE BULLETINS ISSUED IN 1978

Bulletin No.	Subject	Date Issued	Issued To
78-08	Radiation Levels from Fuel Element Transfer Tubes	6/12/78	All Power and Research Reactor Facilities with a Fuel Element transfer tube and an OL.
78-09	BWR Drywell Leakage Paths Associated with Inadequate Drywell Closures	6/14/78	All BWR Power Reactor Facilities with an OL or CP
78-10	Bergen-Paterson Hydraulic Shock Suppressor Accumulator Spring Coils	6/27/78	All BWR Power Reactor Facilities with an OL or CP
78-11	Examination of Mark I Containment Torus Welds	7/21/78	BWR Power Reactor Facilities for action: Peach Bottom 2 and 3, Quad Cities 1 and 2, Hatch 1, Monticello and Vermont Yankee
78-12	Atypical Weld Material in Reactor Pressure Vessel Welds	9/29/78	All Power Reactor Facilities with an OL or CP
78-12A	Atypical Weld Material in Reactor Pressure Vessel Welds	11/24/78	All Power Reactor Facilities with an OL or CP
78-13	Failures in Source Heads of Kay-Ray, Inc., Gauges Models 7050, 7050B, 7051 7051B, 7060, 7060B, 7061 and 7061B	10/27/78	All General and Specific Licensees with Kay-Ray Gauges