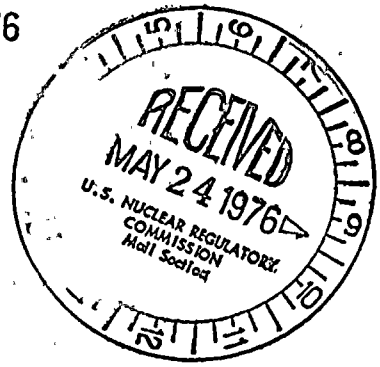
830 Power Building
TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

Reactor Facilities Br.

MAY 19 1976



Mr. Norman C. Moseley, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II - Suite 818
230 Peachtree Street, NW.
Atlanta, Georgia 30303

Dear Mr. Moseley:

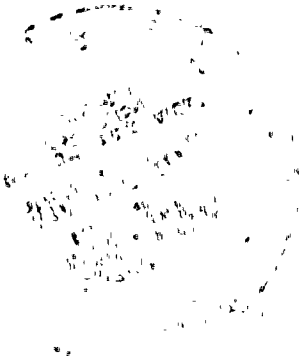
BROWNS FERRY NUCLEAR PLANT UNIT 3 - REPORTABLE DEFICIENCY - DEFECTIVE CAM FOLLOWERS IN GENERAL ELECTRIC TYPE SBM SWITCHES

Initial report of the subject reportable deficiency was made to G. R. Klingler, NRC-IE, Region II, on April 16, 1976. In compliance with paragraph 50.55(e) of 10 CFR Part 50, we submit the following interim report of the deficiency.

While conducting a preoperational test on the unit 1 Reactor Core Isolation Cooling (RCIC) System, a General Electric type SBM switch failed; this failure was reported in Licensee Event Report BFAO-50-259/764.

During the investigation of this deficiency, switches of the same type have been inspected throughout the plant. The inspection revealed a large number of cam followers with a crazed appearance similar to the condition described in the enclosed General Electric Company Information Letter SIL No. 155. We have found crazed conditions existing on switches which were manufactured outside the dates of manufacture specified in the service letter. The condition has been found on switches installed in each of the three Browns Ferry units. The investigation is continuing. Interim plans include replacement of all crazed switches installed in safeguards systems and all switches manufactured during the period defined in the enclosed GE Information Letter.

[redacted] 0536



Mr. Norman C. Moseley

MAY 19 1976

A final report will be prepared once the investigations and replacements at the plant are completed.

Very truly yours,

/s/

J. E. Gilleland
Assistant Manager of Power

Enclosure
CC (Enclosure):
Dr. E. Volgenau, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

operating plant services

ENCLOSURE

information letter

March 19, 1976
File Tab A

SIL No. 155
Category 1

POSSIBLE FAILURES OF TYPE SBM CONTROL SWITCHES

Recent failures of General Electric Type SBM Control Switches have been reported by the original component manufacturer. The application of these switches is widespread throughout operating fossil and nuclear (both BWR and PWR) plants. The reported failures, however, have been limited to SBM switches installed at fossil plants. It should be noted that, to date, the reported number of failed SBM switches is extremely low, (i.e., approximately 0.03 percent for the quantity of switches manufactured and shipped during the period of concern) and that none of the switch failures have occurred in essential circuits. The purpose of this Service Information Letter (SIL) is to list the affected BWR operating plants, to define the conditions causing the problem and to present corrective action recommendations for nuclear application of SBM switches.

DISCUSSION

The reported failures of GE Type SBM Control Switches have been diagnosed as fracture of the Lexan cam followers (an integral part of the switch). The failures have been attributed to exposure of some Lexan cam followers to hydrocarbons. Contamination by hydrocarbons contributes to degradation of the Lexan material. This degradation could eventually progress to a fracture of the cam follower resulting in failure of the switch assembly in any of the following three modes:

1. Failure of the switch to open.
2. Failure of the switch to close.
3. Jamming of the switch mechanism which would prevent any further action.

Cam followers in question which have been exposed to the hydrocarbon are a part of SBM switches manufactured during the period from July 1972 through May 1975. SBM switches manufactured during this time period may be

identified by a small sticker label affixed to the back end or side of each switch having a number less than 50 and two letters in the following series:

AJ	DJ	GJ	KJ
AK	DK	GK	KK
AL	DL	HH	LH
BJ	EJ	HJ	LJ
BK	EK	HK	LK
BL	EL	JH	MH
CJ	FJ	JJ	MJ
CK	FK	JK	MK
CL	GH	KH	

Examples would be: "14GH" and "16HJ"

Appendix A lists the results of a records search conducted by General Electric-Nuclear Energy Division of the known application of Class 1E SBM switches in operating BWRs, including the specific location of the SBM switches that are identifiable to the A through M series discussed above. The records review was limited to operating BWRs original equipment hardware as well as hardware in support of Field Disposition Instructions (FDIs) shipped to BWR operating plants after June 30, 1972.

RECOMMENDED ACTION

General Electric recommends the following action:

1. Replace any SBM Control Switch currently installed in a BWR plant which is identified in the A through M series listed above and used in Class 1E application as indicated in Appendix A.

2. Order SBM switch replacements by the Panel Parts List General Electric Part Number to assure that such replacements will be to their original configuration requirements.

3. For switches identifiable in the A through M series and having a number less than 50 as described above, and with applications other than Class 1E, the cam followers can be inspected for cracks with an auxiliary light source of adequate intensity through the opening near the terminals of each switch deck. It is advisable to refrain from switch dissassembly for purposes of this inspection.

4. The switch application and its frequency of use as well as the results of the visual inspection should determine if immediate replacement would be in the best interest.

Contact your local GE service representative for additional information and for assistance in ordering replacement parts.

Prepared by: M.J. Sierra/L.A. Gonzalez

Approved by: D R Layton
D.L. Layton, Manager
Product Service

Issued by: D R Layton
D.L. Layton, Acting Manager
Performance Analysis and
Service Communications

Product Reference:
A71 - Plant Recommendations

APPENDIX A

LOCATION AND DATE CODES OF GE TYPE SBM CONTROL SWITCHES IN ESSENTIAL (CLASS IE) APPLICATIONS

BWR PLANT	PANEL	QTY	DEVICE LOCATION	DRAWING #	DATE CODE
Fitzpatrick	9-3	1	23A-S20	234A9327P002	14AJ
	9-8	3	32B, 32E, 32F	248A9615P001	Please check No cert. available
	9-21 9-3	2	32, 33, 41, 42	234A9327P002	14AJ
	9-75	1	9-075-000	235A1127P002	14MH
	9-75	2	15-MOV-102 15-MOV-103	248A9117P001	14JH
Peach Bottom II	9-4 9-41	2	16A-18B 16A-19B	234A9329P003	14MH 14LH
	9-4A	1	32, 39	234A9327P002	Cert. dated 10/13/75. No Date Code Could be KL
Peach Bottom III	9-4B	1	32, 39	234A9327P002	Cert. dated 10/13/75. No Date Code Could be KL
	9-4 9-41	2	16A-18B 16A-19B	234A9329P003	14MH, 14LH
Brunswick II (Carolina I)	H12-P601	1	E51AS15	234A9330P002	14MH