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GENERAL ELECTRIC

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DR ITEM

May 24, 1985

MFN# 077-85

U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Washington, D.C. 20555

Attention: Mr. C. E. Rossi

SUBJECT: TELECON-GERMANE TO SAFETY - CONTROL ROD DRIVE MALFUNCTION

Please find the attached memo of my telecon to you of May 24, 1985. The telecon provides information about a valve failure on the hydraulic control units. The failure was a wedge-to-stem separation in a scram outlet manual isolation valve. This information had been previously communicated to E. W. Weiss of your staff.

Very truly yours,

George Stramback

G. B. Stramback, Manager
Safety Evaluations Program

GBS:pes/119H

cc: L. S. Gifford, GE-Bethesda

EGCB Wegner
Info Weiss

IE19

MEMO OF TELECON

DATE: May 24, 1985

TIME: 11:00AM

PERSON CALLING: G. B. Stramback

PERSON CALLED: C. E. Rossi (NRC-I&E, 301-492--4193

SUBJECT: CONTROL ROD DRIVE MALFUNCTION

Ernie Rossi was called in order to inform the NRC of a condition determined to be not reportable but considered to be Germane-to-Safety. This conclusion is based upon GE completing its evaluation as to reportability under 10CFR Part 21.

The concern involves the failure of Control Rod Drive (34-27) to scram at Dresden-3 on October 20, 1984. The cause of the individual Control Rod Drive (CRD) scram failure was a wedge-to-stem separation in the scram outlet manual isolation valve (#112) on the hydraulic control unit (HCU) which prevented the scram over-piston exhaust water from being discharged. A metallurgical examination of the wedge at GE-Vallecitos indicated that the failure mechanism was intergranular stress corrosion cracking in the area where the "L" shaped ears on the wedge project form the main portion of the wedge.

It is GE's conclusion that the failed wedge at Dresden-3 which impaired an individual CRD scram did not create a substantial safety hazard. The basis for this conclusion is as follows:

a. The valves in each HCU are associated only with its related CRD and are independent of all other CRDs.

b. Transient analyses performed for each fuel cycle assume that the highest worth control rod fails to scram.

c. The Dresden-3 event is the first reported case where IGSCC of a manual isolation gate valve prevented an individual CRD from scramming. There is a total population of approximately 15,000 valves which have been in service for many plant years.

d. While additional destructive examination of 7 valves from Peach Bottom Unit 2 did reveal some minor IGSCC, imminent valve failure was not indicated.

e. Technical specifications require each licensee to perform a rod operability check at one week intervals. This periodic surveillance test would identify any drive function abnormalities in the event that the wedge from either HCU valve #101 or #102 (design and materials are similar to the #112 valve) had separated from its stem and blocked CRD insert or withdraw flows.

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f. Technical specifications require that at least 10% of the CRDs be scram time tested at least once every 120 days of operation. (Note: some early plants are required to perform scram time testing for 50% of the CRDs every 16 weeks.)

h. The manual isolation gate valves (#101, #102 and #112) are oriented in the horizontal plane on the HCU and are normally open. Consequently, if the wedge separated from the stem some other mechanism besides gravity (such as vibration) is required to move the wedge into its seat.

Thus, the independence of the HCUs, current surveillance requirements and the randomness of the event ensure that the probability of a significant number of CRDs failing to scram is acceptably small.

Service Information Letter 419, was issued with the recommendation that each utility establish a preventative matintenance program to identify and replace suspect valves. For long term resolution GE has established an action plan to evaluate alternative valve materials for this application.

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