

84-417

GENERAL  ELECTRIC

NUCLEAR POWER SYSTEMS DIVISION

GENERAL ELECTRIC COMPANY • 175 CURTNER AVENUE • SAN JOSE, CALIFORNIA 95125

MC 682, (408) 925-1913

August 21, 1984

MFN# 125-84

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

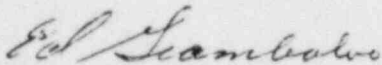
Attention: C. E. Rossi

Gentlemen:

SUBJECT: TELECON - CONDITION GERMANE TO SAFETY

Please find attached a copy of our telecon of August 8, 1984. This telecon updated the information reported in the interim report made to Mary Wegner June 15, 1984. The June 15, 1984 telecon provided information on ground fault failures of actuation solenoids which initiate operation of Automatic Depressurization System valves manufactured by Crosby Valve & Gauge Company.

Very truly yours,



E. W. Giambalvo, Senior Licensing Engineer
Safety Evaluation Programs
BWR Standardization
Nuclear Safety and Licensing Operation

EWG:pes/108C

- cc: E. Kelly, NRC Region 1
- L. S. Gifford, GE - Bethesda
- U. Potapovs, NRC - Bethesda
- M. Wegner, NRC - Bethesda

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(Company Private)

MEMO OF TELECON

Date: August 8, 1984
Person Calling: E. W. Giambalvo *E. W. Giambalvo*
Person Called: C. E. Rossi, NRC - I&E
SUBJECT: GERMANE CONDITION - PILOT VALVE SOLENOIDS FOR
CROSBY SAFETY RELIEF VALVES PRC 84-24

The call was made to Mr. C. E. Rossi as a follow-up to the interim report telecon made by G. B. Stramback to Mr. Rossi June 15, 1984 on the same subject.

I informed Mr. Rossi that GE had completed the evaluation and this telephone call is to confirm that GE still considers this concern to be a germane condition. Mr. Rossi was told that except for some GE testing, the information he had previously received had not changed. Mr. Rossi informed me he would appreciate the additional information be sent to him under a letter of transmittal. He informed me that the concern has been delegated to Mary Wegner and to expect a call from her if the information received must be clarified.

Attached is the Summary of Justifications and Actions Taken, (SJ&AT) which I alluded to as the additional information Mr. Rossi had not received. Included under item 4 of the SJ&AT Report are the conclusions of recently completed GE tests that confirmed the adequacy of the solenoid coil insulation system and verified that the solenoid will perform its safety function in the existing circuit configuration.

E. W. Giambalvo, Senior Licensing Engineer
Safety Evaluation Programs
Nuclear Safety & Licensing Operation
MC 682, Ext. 53525

EWG:pes/108D

(COMPANY PRIVATE)

ATTACHMENT (PRC 84-24)

SUMMARY OF JUSTIFICATIONS AND ACTIONS TAKEN

1. The DC bus floating ground fault detection system provides advance warning of solenoid to ground failures. A grounded solenoid will remain functional unless simultaneous additional faults exist on the DC bus. With operators alerted to keep such faults cleared, grounded solenoids can be detected and replaced before any operational failures occur.
2. The neon test lamps provided on the ADS panels can be used to confirm solenoid continuity, as well as proper ADS channel logic operations. Every ADS solenoid has two such indicators which cease to glow should the solenoid become open-circuited. Surveillance checks of these lamps assures coil wire has neither burned open nor become disconnected.
3. Every ADS valve can be actuated by either of two redundant solenoids (A or B). Operational and testing experience, as well as the recent coil insulation system test, supports the following conclusion. The frequency of solenoid grounds will be sufficiently low, when combined with steps 1 and 2 above, that redundant solenoids will provide assurance of the ADS valves remaining functional throughout the remainder of their 5-year service life.
4. All solenoids except the ones in use at LaSalle 1 have been resistance checked, meggered at 500 volts (coil-to-case), actuated 5 to 10 times, then resistance checked again and/or remeggered. Of 240 tested, 33 were found to be grounded under the 500V stress condition. These tests have been effective in culling out solenoids most susceptible to grounding. A probability study was performed to evaluate the failure rate effect on the ADS logic. The results suggested that ADS capacity would have been sufficient even if the anomalies had not been discovered and corrected.

Recently completed GE tests confirmed the adequacy of the solenoid coils insulation system and verified that the solenoid will perform its safety function in the existing circuit configuration. It has also been concluded that the coil insulation system does not present a potential for common mode failure. The presence of a suppression diode in the control room portion of the circuit is essential to these conclusions.

Units at LaSalle 1, though not individually meggered, were functionally tested in February and no ground faults presently exist on either of the redundant divisions of the DC power buses. Prior to functional testing in February, the solenoids had successfully withstood hydrodynamic load testing of the containment. No solenoids have ever grounded on LaSalle 1.

5. In the event of a postulated Design Basis Accident (DBA), the need for the Automatic Depressurization System is generally precluded by HPCI/HPCS and RCIC systems capability to keep the core covered. Normal depressurization occurs via the main steam lines through the turbine bypass system to the main condensers. The large-break LOCA would itself depressurize the vessel. ADS is required only for the small-break LOCA with loss of high pressure injection systems. The probability of actual need for ADS is therefore quite low, particularly when coupled with the probability of the DBA itself. Even in the unlikely event ADS is required, the system is completely redundant including the solenoids on each valve as explained in Item 3 above.