Central File

August 22, 1991

MEMORANDUM FOR: Carl Berlinger, Chief
Generic Communications Branch
Division of Operational Events Assessment

FROM: Scott Newberry, Chief
Instrumentation and Control Systems Branch
Division of Systems Technology

SUBJECT: CLOSEOUT OF PART 21 NOTIFICATION #91-065

In accordance with the enclosure, the Instrumentation and Control Systems Branch have completed action on the Part 21 Notification. The original of the tracking sheet has been submitted. No further action is anticipated.

Original signed by:

Scott Newberry, Chief
Instrumentation and Control Systems Branch
Division of Systems Technology

Enclosure:
OGCB 10 Part 21 Tracking Sheet #91-065

cc:
A. Thadani
N. Campbell
J. Ramsey

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DATE	:8/16/91	:8/16/91	:8/20/91	:	:	:	:

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Document Name: LOESER/CLOSEOUT OF PART 21

ENCLOSURE

OGCB 10 PART 21 TRACKING SHEET

LOG NO.: 91-065 SUBMITTER: W120 DATE: 6/24/91

ASSIGNED TO: SICB NEWBERRY DUE BY: 8/16/91

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RELATED PART 21 LOG NOS. (IF KNOWN)

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CLOSEOUT SECTION

REVIEWER PAUL LOESER PHONE NO 20825 DATE CLOSED _____

REASON FOR CLOSEOUT

VASU

REMARKS/AMPLIFICATION ON REASON FOR CLOSEOUT

The WESTINGHOUSE "Recommended Corrective Action" AS discribed in the PART 21 IS Adequate for This problem. No Further NRC ACTION IS WARRANTED.

(CONTINUE ON ANOTHER PAGE IF REQUIRED)

RETURN TO NRR/DOEA/OGCB MAIL STOP 8-D-22 WHEN COMPLETE DATE ENTERED: 6/25/91

Westinghouse Electric Corporation Energy Systems

Box 355
Pittsburgh Pennsylvania 15230 0355

June 24, 1991
NS-NRC-91-3603

Document Control Desk
US Nuclear Regulatory Commission
Washington, DC 20555

Attention: Dr. Thomas E. Murley, Director
Office of Nuclear Reactor Regulation

Dear Dr. Murley:

The following information is provided pursuant to the requirements of 10 CFR Part 21 to report the potential for the existence of a substantial safety hazard as communicated by Ms. P. A. Loftus of Westinghouse to Mr. C. E. Rossi of the Nuclear Regulatory Commission by telephone on June 20, 1991. This issue concerns the non-safety related Auxiliary Relay Racks (ARRs) at the Diablo Canyon Nuclear Power Plant which were supplied by Westinghouse incorporating a safety related interlock for the safety injection and containment spray systems.

BACKGROUND

Westinghouse included in the non-safety related ARRs at both units of the Diablo Canyon nuclear power plant relays whose contacts provided a safety-related function. This was identified during March/April 1991 while providing technical support to Pacific Gas & Electric (PG&E) on a separate issue. The reason for the safety function being located in the ARRs at Diablo Canyon is believed to have been due to a lack of a sufficient number of position switches on the RHR suction isolation valves. Therefore, relays were added by Westinghouse to the ARRs for contact multiplication by placing the relay coils in series with the valve limit switches. The relays in question provided interlocks to permit high head safety injection and containment spray recirculation following a postulated loss of coolant accident.

Pacific Gas & Electric (PG&E) verbally informed Westinghouse that the safety-related function under discussion has already been relocated to the safeguards cabinets as part of a previous plant modification.

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EVALUATION

The ARRs have historically contained various non-safety related functions. The ARRs are not seismically qualified and are not required to receive safety related power. The ARRs were previously known as the Miscellaneous Relay Racks (MRRs), consequently, safety-related functions may also be housed in the MRRs in older plants.

Even though the ARRs have not been provided as safety-related equipment, they were traditionally given train designations (i.e., Train A and Train B). The ARRs are of a design similar to the safeguards racks because many of the control functions performed in the ARRs are important to plant operation, even if not safety functions. Some plants may have provided isolated, safety-related power to the ARRs to further enhance the reliability of functions performed in them. Though other specific cases of Westinghouse having located safety-related functions in the ARRs have not been identified, it is possible that other instances such as the one at Diablo Canyon may exist. In addition, Westinghouse is unable to evaluate the potential for modifications initiated by others after the original equipment was supplied to have added other safety functions.

Westinghouse was advised by two utilities other than PG&E that external ARR circuit wiring was routed with safety-related wiring, although, safety-related actuations were not performed in the ARRs at these plants. In order to satisfy qualification and separation requirements, the ARRs and AR relays were seismically qualified for structural integrity at these plants and isolation tests were performed on the AR relays.

SAFETY IMPACT

For the system configuration as supplied for the Diablo Canyon plant, a seismic event of sufficient magnitude may have prevented the ability of the system to initiate the recirculation phase of high head safety injection and containment spray in the event of a Loss of Coolant Accident.

Generally, the location of safety-related functions in the ARRs and MRRs, without proper isolation and qualification, could potentially affect the ability of the equipment to perform required safety-related functions.

The reliability of safety functions incorrectly located in the ARRs and MRRs may be high despite the fact that they were not explicitly designed or seismically qualified as safety related equipment.

1. Although the ARRs and MRRs are not seismically qualified, their basic design is similar to other cabinets that are qualified. The ARRs at two different plants were seismically qualified for structural integrity and isolation tests were performed on the AR relays.

2. For safety-related functions that may be located in the ARRs or MRRs, it is likely that they reside in the separate train designated ARR and MRR cabinets. Hence, redundancy with respect to cabinets and components is likely to exist. Redundancy with respect to power supplies may also exist.

3. Manual local actions may be possible in response to postulated safety system failures which could be associated with this issue.

RECOMMENDED CORRECTIVE ACTION

Since Diablo Canyon was originally supplied (since corrected) with ARRs which housed a safety-related component and external ARR wiring was routed with safety-related circuits at other plants, all customers which have Westinghouse ARRs and MRRs will be informed of this issue.

The potential for safety functions to be performed in the ARRs or MRRs, or the association of ARR/MRR external wiring with safety-related, train oriented wiring should be identified by each utility. If either condition is identified, utilities will be advised to review the plant licensing basis to determine the acceptability of the condition. If either condition is identified and found to be inconsistent with the licensing basis, either of two alternatives may be considered.

1. For safety functions performed in the ARRs or MRRs, evaluate the feasibility of relocating the safety-related components to a seismically qualified, safety related system. Electrical separation criteria for these safety-related components should be met consistent with the plant specific licensing basis commitments.

   If the ARR/MRR external wiring is found to be associated with safety-related, train oriented wiring, evaluate the feasibility of relocating the ARR/MRR external wiring to a routing which is not train oriented and safety-related. Alternatively, any ARR/MRR external wiring associated with safety-related, train oriented wiring can be provided with suitable isolation devices so that an electrical upset in the ARRs/MRRs will not be propagated to safety-related systems.

2. If safety functions are performed in the ARRs or MRRs, or ARR/MRR external wiring is found to be associated with safety-related, train oriented wiring, and the above recommendations are impractical or undesirable, then the following steps are recommended.

   a. Perform a seismic evaluation of the ARRs or MRRs consistent with the plant licensing basis. Take any necessary actions indicated by the evaluation to upgrade the status of the ARRs or MRRs to a seismic classification consistent with other safety-related equipment.

b. Ensure that Class-1E power is provided to the ARRs or MRRs.

c. Verify that cable routing criteria for safety-related systems are met consistent with the plant licensing basis.

d. Verify that electrical isolation criteria are met for any interfaces between the ARRs or MRRs and interfacing systems which are not safety-related.

If you have any questions regarding this matter, please contact Mr. P. J. Morris of my staff at (412) 374-5761, or myself.

Sincerely,

S. R. Tritch, Manager
Nuclear Safety Department