UNITED STATES NUCLEAR REGULATORY COMMISSION REGION V

1450 MARIA LANE, SUIVE 210 WALNUT CREEK, CALIFORNIA 94596

MAR 1 2 1984

MEMORANDUM FOR: D. G. Eisenhut, Director Division of Licensing, NRR

FROM: T. W. Bishop, Director Division of Reactor Safety and Projects, Region V

SUBJECT: ALLEGATIONS REGARDING THE SUPPORTING OF DIFFERENT ELECTRICAL VITALITIES FROM A COMMON SUPPORT; ALLEGATION NO. 147, ATS No. RV-84-A-0015

Region V has recently examined the subject concern. The results of our investigation are attached. As noted under "Action Required," we indicated that this matter would be referred to NRR for use in your evaluation of acceptability of an FSAR amendment request, to be submitted by the licensee.

Accordingly, Region V requests that NRR assume lead responsibility for the evaluation and closeout of this issue. If you have any questions regarding this matter, please contact D. F. Kirsch of Region V.

I.W/ Sodep

T. W. Bishop, Director Division of Reactor Safety and Projects

Enclosure

cc: G. Knighton, LB3, NRR H. Schierling, LB3, NRR Allegation File No. 147



STARK

6609190295 660916 PDR FOIA HOLMES86-197 PDR Allegation or Concern Number: 147

ATS No. RV 84 A 0015

Characterization

Cable tray and conduits of independent and redundant trains were installed on common raceway supports. (No specific examples were given by the allegers).

Implied Significance to Plant Design, Construction, or Operation

The required independence of circuits that are essential to emergency reactor shutdown, containment and reactor heat removal, or otherwise essential in preventing significant release of radioactive materials to the environment is compromised by the possibility of common failure through the common support.

Assessment of Safety Significance

This issue was reviewed by; (1) by review of NRC regulatory requirements and industry standards within the topic area, (2) examination of approved licensee commitments as stated in the FSAR, and (3) extensive field inspections of Class I raceway supports to determine if common supports had in fact been utilized.

There is no generic requirement by the NEC to install redundant circuits on separate supports. Indeed, most facilities, even those most recently licensed, such as Washington Nuclear Project Number 2 (WNP 2), feature common supports of redundant safety related electrical divisions. The requirements are that the redundant safety related electrical circuits must be (1) electrically independent of each other and (2) physically separated from each other in order to preclude in the first case common electrical failures that would render both circuits inoperable or in the second case that common harms such as fire or missile bazards would affect both circuits. With respect to supports, if the support is seismically designed to withstand the design basis earthquake with its total load imposed, it is acceptable.

The adequacy of the tray supporting system is reviewed with respect to the ability to perform the intended safety function under the postulated seismic event. This review of safety related raceway supporting systems does not require inclusion of the independence criteria. The NRC p sition is expressed in REGULATORY GUIDE 1.29 which requires that safety related electrical systems have supports that are designed to withstand the effects of the safe shutdown earthquake and remain functional. There is no mention in this REGULATORY GUIDE of any requirement to provide independent supports.

The adequacy of safety related electrical systems with respect to electrical independence and physical separation is defined in IEEE 308 and IEEE 384 (REGULATORY DUIDE 1.75). These standards state the requirements for physical separation of redundant circuits in terms of distance or barriers, but remain silent as to any requirements of the raceway supporting system.

The specific separations of IEEE 384 (REGULATORY GUIDE 1.75) were not imposed upon the licensee because the licensee's proposed wethods as stated in the FSAR Amendment 24 were found acceptable by the NRC Staff. (See Supplement No. 1 to the Safety Evaluation of the Diablo Canyon Nuclear Power Station Units 1 and 2) dated 31 January, 1975. The specific requirements are stated in FSAR Section 8.3.3 "Analysis of A-C Power Systems", "Separation Criteria for Class I Systems" on page 8.3-19.

On page 8.3-28 of the FSAR under the title "Supports" is a reference to section 3.10 for the seismic design and a statement that "Class I supports are not shared by mutually redundant Class I circuits".

Therefore, the inspector concludes that although there is no firm regulatory requirement to support different divisions on separate support systems, the licensee added this commitment to the FSAR to provide additional conservatism.

An NRC inspector conducted extensive examinations of Unit 1 areas containing large concentrations of safety related electrical cable raceway to determine whether the alleged condition existed. The inspector observed that several raceway supports in the cable spreading room supported conduit of redundant Class I divisions.

At the inspector's request the licensee evaluated this situation. The licensee stated by letter (DCL-84-064) dated February 17, 1934, that "supports in the cable spreading room under the centrol room and the K area, elevation 100'" were exceptions to the design approach of assuring that mutually redundant Class I conduits and trays were not supported by shared support systems. This response from the licensee also stated that Section 8.3.1 of the FSAR was in process of being updated to reflect this plant condition. The licensee's response however did not address the degree of compliance with the

FSAR commitment and the engineering justifictaion for failure to implement the FSAR Commitment. The licensee supplied additional information related to this issue by Letter No. DCL-84-092, dated March 7, 1984. The eaclosure to this Letter states that "The FSAR statement that Class I supports are not shared by mutually redundant circuits was a design conservation established by PG&E; however, deviation from this design standard was found to be required to show seismic qualification of raceways to the revised seismic spectra generated during the Diablo Canyon Phase 1 Verification Program. Prior to acceptance of this design standard change, reviews were performed which showed that no regulatory requirements, including those stated earlier, were impacted. The design of supports has sufficient margin to assure that loss of a single support will not cause loss of safety function. As stated in the previous submittal on this issue, an FSAR change will be submitted to clarify Page 8.3-28." Thus, it appears that the licensee had evaluated this change in design criteria, for compliance with regulatory requirements, with the result that the deviation from the additional conservatism, previously committed to in the FSAR, was justified based on analysis of regulatory requirements and industry standards. Furthermore, the licensee's engineering had brought this issue to the attention of the organization responsible for submitting requests for amendment of the FSAR. Although an amendment request had not yet been submitted this item was scheduled for inclusion in an amendment request. Therefore, the staff feels that the licensee acted in responsible manner as regards this situation; however, a more timely action to resolve the FSAR discrepancy would have been desirable. The staff feels that this situation does not represent a breakdown in the design process.

The failure to comply with the above referenced FSAR commitment is considered to be a Deviation.

Staff Position

Inspection of Unit 1 cable spreading room area indicated that the licensee did not comply with the provisions of the FSAR with respect to independence of supports for redundant safety related circuits. This represents a Deviation from an FSAR commitment.

Action Required

The matter of acceptability of the installed supports will be referred to the Office of Nuclear Reactor Regulation for use in their evaluation of the FSAR change, which PG&E will submit. No further regional action is anticipated.