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SUBJECT: Forwards marked-up revision to FSAR Section 8.3.1.4
 reflecting analysis justification for coil-to-contact relay
 isolation between redundant Class IE circuits & forwards
 Revision 0 to "Electrical Separation Practices"

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December 9, 1982

G02-82-974

Docket No. 50-397

Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Schwencer:

Subject: NUCLEAR PROJECT NO. 2
FSAR SECTION 8.3, ELECTRICAL SEPARATION

Enclosed are sixty (60) copies of a revision to FSAR Section 8.3.1.4, reflecting analysis justification for the coil-to-contact relay isolation between redundant Class 1E circuits.

Also, enclosed is the WNP-2 Electrical Separation Practices document as committed in previous conversations on this subject. Section IV, Field Verification, is currently being revised and will be submitted prior to December 24, 1982, as Revision 1 to this document.

Additional clarifications to the FSAR section on Electrical Separation will also be provided by December 24, 1982.

Very truly yours,



for G. D. Bouchey
Manager, Nuclear Safety and Regulatory Programs

CDT/jca
Enclosure

cc: R Auluck - NRC
WS Chin - BPA
R Feil - NRC Site

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8.3.1.4.3.6.3 PGCC Cable Assembly and Routing

The cable assembly within the power generation control complex is designed around the following variables: engineered system designation, circuit signal classification, PGCC separation classification based on power supply, and finally, the origination/destination which provides the routing and length (see Table 8.3-21). Each PGCC cable is precut, assembled (with lugs and connectors at either end as required) and installed in the panel/floor module shipping section. Special cable and routing requirements are shown on Table 8.3-22. The cable jacket and conductor insulation for the cables within the PGCC is either Raychem Flamtrol, General Electric Vulkene/Geoprene, or Tefzel. The fire suppression system has been provided to limit any off-gasing/smoke that could result from a cable fire.

Cable routing consists of two categories: field interface terminations (fits) and system interface terminations (sits). Fits cables are routed between termination cabinets and PGCC control panels, while sits cables are routed between PGCC control panels and do not interface with BOP field cable (see Figure 8.3-30).

8.3.1.4.3.7 Separation Within Panels

Separation of wiring in panels and instrument racks for redundant divisions of Class 1E circuits is accomplished by mounting redundant equipment on physically separated panels or control boards wherever practicable. Where locating control devices on separate panels is considered prohibitive for manual operation of equipment for optimum equipment arrangement, and where no single credible event in a single panel could disable two sets of redundant control circuits, both devices are located in the same panel. Where control devices of redundant systems are mounted in the same panel, physical separation (six inches), barriers, or isolation devices are provided. Wherever wiring of two redundant divisions exists in a single panel section, separated or isolated terminal boards and wiring preclude the possibility of fire propagation from one division of wiring to another. This separation is adequate since the material used in the construction of panel board, devices, and wiring are of a fire retardant nature.

In a few instances it is necessary for a single device such as a relay to be connected to wiring from redundant safety divisions. In such cases the intruding division wiring is routed immediately away from the device to attain the required 6" separation or to the extent where a barrier can be installed.

8.3-58c

Insert "A"

Insert "A" to 8.3.1.4.3.7, Page 8.3-58c

The justification for this configuration is provided below.

The coil-to-contact relays used for isolation included General Electric types HMA, HFA and CR105 and Agastat type GP. The relays are used for 125VDC or less applications. The justification for this type configuration is the following:

- a. The circuits are all control circuits which are low energy.
- b. Wire insulation is fire retardant complying with the requirements of IEEE 383-1974.
- c. Each circuit is provided with Class 1E over-current protective devices to isolate faults.
- d. These circuits are not allowed to bridge directly between redundant Class 1E raceways.
- e. Fire loading inside panels is a minimum.
- f. Wire insulation within these relays is rated at 600 V minimum Type Class A or H while the control circuit voltage carried by this wiring is 125 VDC maximum.

