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ACCESSION NBR:8305310081 DOC.DATE: 83/05/20 NOTARIZED: NO DOCKET #
FACIL:50-269 Oconee Nuclear Station, Unit 1, Duke Power Co. 05000269
50-270 Oconee Nuclear Station, Unit 2, Duke Power Co. 05000270
50-287 Oconee Nuclear Station, Unit 3, Duke Power Co. 05000287
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RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation, Director
STOLZ,J.F. Operating Reactors Branch 4

SUBJECT: Submits addl info re safety-related environ qualification of electrical equipment,per 10CFR50.49(g) & IE Bulletin 79-01B, Electrical isolation provided for all reactor protective sys & engineered safeguards protective sys.

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May 20, 1983

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. John F. Stolz, Chief
Operating Reactors Branch No. 4

Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287

Dear Sir:

Pursuant to 10 CFR 50, §50.49(g) the following information regarding environmental qualification of electrical equipment important to safety at Oconee Nuclear Station is provided.

Electrical equipment required to perform a safety function in a harsh environment is included in the Oconee equipment qualification program and is identified in the Oconee IEB 79-01B submittal. By letter dated May 19, 1983 Duke Power Company provided a response to the NRC/FRC Technical Evaluation Report (TER) for Oconee. This response provided a discussion of the technical resolutions to outstanding items identified in the TER including schedules for qualification/replacement of equipment which is not yet qualified and justification for continued operation.

With regard to 10 CFR 50.49(b)(2), the Oconee design incorporates the following features:

- Electrical isolation for all signals leaving the Reactor Protective System (RPS). Isolation is provided by use of isolation amplifiers or by relay contacts. The effect of this isolation is to prevent faults occurring to signal lines outside the RPS cabinets from being reflected into more than one protective channel. The isolation thus provided also assures that two or more protective channels cannot interact through the cross-coupling or faulting of related signal lines. Additionally, faults such as short, open, or grounded circuits of analog output signals from two or more channels have no effect on the protective channels or their functions (ref. Oconee FSAR Chapter 7).

- Electrical isolation for analog signals is provided in the Engineered Safeguards Protective System (ESPS). Also, the use of individual output relays from the ESPS to each controlled device preserves the isolation of each device and of the elements of one protective channel from another. Faults in control wiring between the output relays and its associated control relay in the controller of a protective device will not affect any other device or protective channel action (ref. Oconee FSAR Chapter 7).

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- Emergency power system design incorporates many redundant protective features in order to maintain the integrity of the system. These features include phase overcurrent, ground fault, and differential protective relaying. Additionally, each load bus feeder breaker is provided with redundant trip coils, powered from separate DC supplies, thus assuring positive trip action (ref. Oconee FSAR Chapter 8).

It should also be noted that in addition to the above design features, Duke Power Company performed an analysis of control systems at Oconee in response to an NRC 50.54(f) letter dated September 17, 1979 and IE Information Notice 79-22. The purpose of the analysis was to determine what, if any, design changes or operator actions would be necessary to assure that environments caused by high energy line breaks would not cause a non-safety-related control system to fail in such a manner as to complicate the event beyond the assumptions of the accident analysis. The systems considered in this analysis were identified by B&W and Duke and reviewed by Duke for the interaction described above. The functions (and associated systems) reviewed were reactor power control and shutdown, reactor pressure control, main steam system isolation and pressure control, and feedwater system isolation and pressure control. The results of this analysis were provided to the NRC by letter dated October 5, 1979.

In summary, only the steam line break inside containment — pressurizer PORV control combination was identified as potentially involving a variation from the safety analysis basis. To preclude this potential unacceptable interaction, the unqualified component associated with the PORV control system was relocated to a mild environment.

Based on the design features described above and our previous efforts concerning IE Information Notice 79-22, we feel that there is reasonable assurance that non-safety-related equipment would not preclude the accomplishment of essential safety functions.

Duke Power Company, therfore, concludes that the Oconee Nuclear Station equipment qualification program conforms to the requirements of 10 CFR 50.49.

Very truly yours,

Hal B. Tucker

RLG/php

cc: Mr. J. C. Bryant
NRC Resident Inspector
Oconee Nuclear Station

cc: Mr. James P. O'Reilly, Regional Administrator
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