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April 29, 1982

NUCLEAR PRODUCTION DEPARTMENT

U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D.C. 20555

Attention: Mr. Harold R. Denton, Director

Dear Mr. Denton:



SUBJECT: Grand Gulf Nuclear Station
Units 1 and 2
Docket Nos. 50-416 and 50-417
File 0262/0472/L-860.0/L-401.0
Status of Evaluation Concerning
IE Bulletin 79-27 and NRC
Request for Additional
Information
Reference: AECM-80/51,
AECM-81/78, and
AECM-81/187
AECM-82/121

The following information is submitted in response to IE Bulletin 79-27 entitled "Loss of Non-Class 1E instrumentation and Control Power System Bus During Operation" and GGNS Safety Evaluation Report (SER), NUREG-0831, License Condition 1.11(9). The detailed report, including Attachments 1 through 4, is enclosed with this letter. Items listed below are the specific items in the Bulletin which solicit this response:

ITEM 1:

Review the class 1E and non-class 1E buses supplying power to safety and non-safety related instrumentation and control systems which could affect the ability to achieve a cold shutdown condition using existing procedures or procedures developed under item 2 below. For each bus:

- a) Identify and review the alarm and/or indication provided in the control room to alert the operator to the loss of power to the bus.
- b) Identify the instrument and control system loads connected to the bus and evaluate the effects of loss of power to these loads including the ability to achieve a cold shutdown condition.

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- c) Describe any proposed design modifications resulting from these reviews and evaluations, and your proposed schedule for implementing those modifications.

RESPONSE:

The following buses provide power to the systems required to achieve cold shutdown:

- | | | |
|----|-----------------------------------|--------------|
| 1. | 4.16KV bus 15AA, 125 VDC Bus 11DA | Division I |
| 2. | 4.16KV bus 16AB, 125 VDC Bus 11DB | Division II |
| 3. | 4.16KV bus 17AC, 125 VDC Bus 11DC | Division III |

Each AC bus supplies 480V Load Control Centers (LCC's) and Motor Control Centers (MCC's) within the respective ESF Divisions. 120V AC instruments and control power supplies are fed from these MCC's. 120V DC instruments and control power supplies are fed from battery busses with chargers connected to the 480V MCC's. The 125 VDC buses supply loads within the respective ESF Divisions.

The study performed by MP&L included effects of loss of power to these ESF Division I, II and III buses and their loads, and evaluated the resultant primary and secondary effects and indications. These buses supply power to all the systems required to achieve cold shutdown under normal or worst-case accident conditions including a loss-of-coolant accident. The study included:

- a) Defining the systems (including instrumentation) used to achieve cold shutdown.
- b) Constructing a bus tree showing loads (including instruments and controls) associated with those primary systems.
- c) Listing all power loss alarm indicators for each bus (and indication status).
- d) Evaluation of the effect of each bus failure on the ability to go to cold shutdown.
- e) Listing backup instruments, controls, components and required software and hardware changes.

The study confirmed the diversity and redundancy of the GGNS ESF power supplies. It determined that the capability to place the plant in a cold shutdown condition under normal or worst-case conditions--loss of offsite power and one ESF Division--would not be compromised by a loss of class 1E or non-class 1E instrument and control systems. It was determined that, assuming these worst-case conditions, no design modifications were necessary to ensure ability to place the plant in cold shutdown.

ITEM 2:

Prepare emergency procedures or review existing ones that will be used by control room operators, including procedures required to achieve a cold shutdown condition, upon loss of power to each class 1E and non-class 1E bus supplying power to safety and non-safety related instrument and control systems. The emergency procedures should include:

- a) The diagnostics/alarms/indicators/symptoms resulting from the review and evaluation conducted per item 1 above.
- b) The use of alternate indication and/or control circuits which may be powered from other non-class 1E or class 1E instrumentation and control buses.
- c) Methods for restoring power to the bus.

Describe any proposed design modification or administrative controls to be implemented resulting from these procedures, and your proposed schedule for implementing the changes.

RESPONSE:

Attachment 3 to this letter provides details of the procedure review. The procedures which are used by control room operators upon loss of power to ESF buses are the selected Alarm Response Instructions (ARI's):

| | | |
|------------------|-----------|--|
| ESF Division I | AC and DC | 04-1-02-1H13-P864-1A (A1 thru H4) |
| ESF Division II | AC and DC | 04-1-02-1H13-P864-2A (A1 thru H4) |
| ESF Division III | AC and DC | 04-1-02-1H13-P601-1A (A1 thru H5) (HPCS) |

These procedures have undergone review and revision for inclusion of 2a, b, and c (above) by GGNS Operations. Additionally, selected Emergency Procedures (EP's) and Off-Normal Event Procedures (ONEP's) used (in whole or in part) to place the plant in a cold shutdown condition have also undergone this extensive review and revision.

ITEM 3:

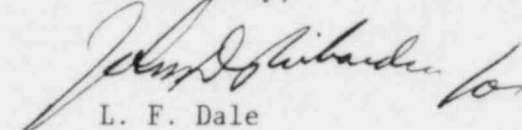
Re-review IE Circular No. 79-02, Failure of 120 Volt Vital AC Power Supplies, dated January 11, 1979, to include both class 1E and non-class 1E safety-related power supply inverters. Based on a review of operating experience and your re-review of IE Circular No. 79-02, describe any proposed design modifications or administrative controls to be implemented as a result of the re-review.

RESPONSE:

A re-review of IE Circular 79-02, Failure of 120 Volt Vital AC Power Supplies (January 11, 1979) was performed by MP&L. It was determined that IE Circular 79-02 is not applicable to Grand Gulf Nuclear Station. It should be noted that there is no class 1E 120 VAC uninterruptible power supply at GGNS. However, there is a 120/240 VAC uninterruptible (BOP) power supply which employs SCI static inverters. The problems described in the Circular are unique to the design of ANO Unit 2 and are not applicable to the Grand Gulf 120/240 VAC system design.

We trust that you will find this information satisfactory; however, should you desire additional information, please advise this office.

Yours truly,



L. F. Dale
Manager of Nuclear Services

DDW/SHH/JDR:lm
Attachments

cc: Mr. N. L. Stampley (w/a)
Mr. G. B. Taylor (w/a)
Mr. R. B. McGehee (w/a)
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