GULF STATES UTILITIES COMPANY
POST OFFICE BOX 2951 • BEAUMONT, TEXAS 77704
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May 13, 1985
RBG- 20,960
File No. G9.5, G9.8.6.2

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

Dear Mr. Denton:

River Bend Station - Unit 1
Docket No. 50-458

Enclosed are revisions to the River Bend Station Final Safety Analysis Report which supplement Gulf States Utilities' (GSU) report submitted under cover of my letter dated December 3, 1984 (RBG-19724). The report was written to address NRC I&E Bulletin 79-27, "Loss of Non-Class 1E Instrumentation and Control Power System During Operation." This letter completes GSU's response to Confirmatory Item (31) of Table 1.4 of the Safety Evaluation Report (NUREG-0989).

Sincerely,

J. E. Booker

J. E. Booker
Manager-Engineering
Nuclear Fuels & Licensing
River Bend Nuclear Group

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QUESTION 421.003 (7.5)

If reactor controls and vital instruments derive power from common electrical distribution systems, the failure of such electrical distribution systems may result in an event requiring operator action concurrent with failure of important instrumentation upon which these operator actions should be based. IE Bulletin 79-27 addresses several concerns related to the above subject. You are requested to provide information and a discussion based on each IE Bulletin 79-27 concern. Also, you are to:

1) Confirm that all a.c. and d.c. instrument buses that could affect the ability to achieve a cold shutdown condition were reviewed. Identify these buses.

2) Confirm that all instrumentation and controls required by emergency shutdown procedures were considered in the review. Identify these instruments and controls at the system level of detail.

3) Confirm that clear, simple, unambiguous annunciation of loss of power is provided in the control room for each bus addressed in Item 1 above. Identify any exceptions.

4) Confirm that the effect of loss of power to each load on each bus identified in Item 1 above, including ability to reach cold shutdown, was considered in the review.

5) Confirm that the re-review of IE Circular No. 79-02 which is required by Action Item 3 of Bulletin 79-27 was extended to include both Class 1E and non-Class 1E inverter supplied instrument or control buses. Identify these buses or confirm that they are included in the listing required by Item 1, above.

This item was also addressed in the April 16, 1981, letter from R. Tedesco to E. L. Draper (See Question 421.002).

RESPONSE

Items 1, 3, 4: A review of the buses supplying power to instrumentation and control systems which could affect the ability to achieve a cold shutdown condition has been | 11

performed for River Bend Station in accordance with IE Bulletin 79-27, as follows:

1. All instrument and control systems utilized to achieve a cold shutdown by normal and emergency means, as described in FSAR Section 7.4 and Fig. 7.4-3, were considered.

2. All ac and dc buses supplying power to these systems were reviewed to determine the effects of loss of power to each bus and its associated devices on the ability to achieve cold shutdown.

3. Alarms and/or indications provided in the main control room to alert the operator to the loss of power to these buses were identified.

4. Control room indicators were reviewed to determine if any fail as is or at midscale such that erroneous information is provided to the operator.

11 The results of this review indicate the following:

1. For each ac and dc bus supplying power to instrument and control systems utilized to achieve a cold shutdown by normal or emergency means:

   a. Cold shutdown can be achieved assuming loss of power to the bus.

   b. Clear, unambiguous annunciation is provided in the main control room to alert the operator of an undervoltage condition on the bus. Upon receipt of an undervoltage alarm while the plant is in the normal shutdown path, the operator can switch to an alternate shutdown path as governed by the emergency operating procedures.

2. No main control room indicators for the systems identified above fail as is. This, in accordance with IEEE Standard 279-1971 paragraph 4.20, prevents erroneous information from being presented to the operator.

INSERT

Item 2: River Bend Station emergency operating procedures are not yet complete. Prior to receipt of an operating license, GSU will confirm that all instrumentation and controls required by emergency shutdown procedures were considered in the review and will identify these instruments and controls at the system level.

INSERT

The River Bend Station emergency operating procedures have been reviewed to identify the instrumentation and controls which could affect the ability to achieve a cold shutdown condition. Further review has confirmed that these instrumentation and controls are powered from busses which were considered in the review. These instrument and controls are included in the following systems:

automatic depressurization
containment isolation
containment monitoring
control rod drive
heating, ventilation and air-conditioning
high pressure core spray
low pressure core spray
nuclear boiler
neutron monitoring
radiation monitoring
reactor core isolation cooling
reactor protection
reactor recirculation
residual heat removal
safety and relief valves
service water
spent fuel cooling
standby liquid control

1BYS-INV06

Item 5: The review of IE Circular 79-02 has been extended to include both Class 1E and non-Class 1E power supply inverters. There are two safety-related uninterruptible power supply systems (1ENB*INV01A and 1ENB*INV01B) and six ~~five~~ nonsafety-related (UPS) systems (1IHS-INV01, 1BYS-INV01A, 1BYS-INV01B, 1BYS-INV02, ~~and~~ 1BYS-INV04) at River Bend Station. All ~~seven~~ eight UPS systems are identical in design. This design, as discussed in FSAR Section 8.3.1.1.3.7, differs from the subject of IE Circular No. 79-02, and therefore does not fail in a similar manner. In addition, an eighth power supply inverter has recently been added to the design. This nonsafety-related (UPS) system (1BYS-INV06), located in the Technical Support Center, furnishes power to DRMS, ERIS, and other support service loads. The additional nonsafety-related (UPS) system is currently being evaluated in context with IE Bulletin No. 79-27.