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 RECIP. NAME RECIPIENT AFFILIATION
 O'REILLY, J.P. Region 2, Atlanta, Office of the Director

SUBJECT: Forwards response to IE Bulletin 79-27. Lists buses supplying power to control sys bringing plant to cold shutdown. Re-reviewed IE Circular 79-02. Problems would not occur due to differences in sys design. Response being reevaluated.

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STEAM PRODUCTION

March 7, 1980

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Mr. James P. O'Reilly, Director
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Re: Oconee Nuclear Station
RII:JPO
50-269
50-270
50-287

Dear Sir:

Please find attached our response to IE Bulletin 79-27. This response is somewhat preliminary in that the aspects of the Crystal River 3 Incident have not been specifically addressed in this response. As requested by Mr. Harold R. Denton's letter of March 6, 1980 Duke will reevaluate our response in light of this incident. The schedule for completion of this review will be provided as requested in Mr. Denton's letter.

Very truly yours,

William O. Parker Jr.
William O. Parker, Jr.

by WAH

KRW:scs

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

Attention: Mr. Robert W. Reid, Chief
Operating Reactors Branch No. 4

*Acc'd
3/11*

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

RESPONSE

The following buses supply power to the instrumentation and control systems needed to bring the plant to a cold shutdown.

Class 1E - Buses

KVIA
KVIB
KVIC
KVID
DIB
DIC

Non-Class 1E Buses

KI
KX
KU

- a. A control room annunciator alarm is actuated on loss of power to any of the above listed buses.
- b. See Table 1 for a list of the Instrumentation and Control System loads required to bring the plant to a cold shutdown, their power supply and use during shutdown, and the effect of losing a single power supply. As shown in Table 1, the loss of any single power supply, with the exception of KI, will not effect the ability to achieve a cold shutdown. The loss of KI panelboard is covered by emergency procedure EP/O/A/1800/31 which is sufficient to maintain primary system inventory.
- c. In our response to NRC letter of November 7, 1979 on ICS Reliability Analysis, we described a modification to add another automatic transfer switch which would transfer ICS power (KI Panelboard) to the regulated supply in case the static transfer switch originally installed fails to function properly. An automatic transfer switch has been installed on units 1 and 3 and will be installed on unit 2 before it starts back up.

QUESTION 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/symptom 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

See Emergency Procedure EP/O/A/1800/31

QUESTION 3

Re-review 1E 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 1E Circular No. 79-02, describe any proposed design modifications or administrative controls to be implemented as a result of the re-review.

RESPONSE

We have re-reviewed 1E Circular No. 79-02 and reconfirmed that the same problems encountered at Arkansas Nuclear One - Unit 2 would not occur at Oconee due to the differences in system design.

LOAD	POWER SUPPLY	NUMBER OF CHANNELS	EFFECTS OF LOSS OF POWER	USE
1. Source Range Nuclear Instrumentation	KVIA, KVIC	2	See Note 1	Indication Only
2. Wide Range Reactor Coolant System Pressure	KVIA, KVIB, KVIC	3	See Note 1	Indication and ES Actuation
3. Narrow Range Reactor Coolant System Pressure	KVIA, KVIB, KVIC, KVID	4	See Note 1	Indication and RPS Input
4. ES Bypass Control For High and Low Pressure Injection	KVIA, KVIB, KVIC	3	See Note 1	To Bypass Automatic ES Actuation When Cooling Down
5. Motor-Driven Emergency Feedwater Pumps A and B Control	DIB DIC	2	See Note 1. Also Turbine-Driven Emergency Feedpump would still be available.	Starts Motor Driven Pumps
6. Emergency Feedwater Flow Control Valves FDW-315, FDW-316.	DIB DIC	1 per S.G.	See Note 1. Also, ICS control of start-up valves FDW-35 and FDW-44 would still be available.	Controls S.G. Level

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LOAD	POWER SUPPLY	NUMBER OF CHANNELS	EFFECTS OF LOSS OF POWER	USE
7. Pressurizer Level	KU	1	No effect. Redundant channels available from KI power.	Indication
8. Turbine-Driven Emergency Feedwater Pump Control-Valve MS-93	KX	1	No effect. Loss of power starts Turbine-Driven Feedwater pumps. Also, Motor-Driven pumps are available.	Starts turbine driven pump.
9. Upper Surge Tank Level	KX & KU	1	No effect. Pneumatic transmitter and local indication would still be available.	Indication
10. Hotwell Level	KX	1	Secondary Source of Emergency Feedwater	Indication
11. Emergency Feedwater Flow Indication	KX	2	No effect. Steam generator level would still be available.	Indication
12. Pressurizer Level	KI	2	See Note 2. Lose normal makeup and cuts off all pressurizer heaters, redundant channel powered from KU for indication.	Indication and Control

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LOAD	POWER SUPPLY	NUMBER OF CHANNELS	EFFECTS OF LOSS OF POWER	USE
13. Low Pressure Injection Outlet Cooler Temperature	KI	4	See Note 2. Also have pneumatic transmitters and control board indications available.	Indication
14. Reactor Coolant System Loop A & B Flow	KI	2	See Note 2.	Indication
15. Turbine Bypass Valves	KI	4	See Note 2. Valves fail closed on loss of KI.	S.G. Pressure Control
16. Steam Generator Level - Startup Range	KI	2 per S.G.	See Note 2. Lose S.G. level control. Have safety level control available.	Control of S.G. Level and Indication
17. Letdown Storage Tank Level	KI	2	Borated Water Storage Tank can also supply charging flow. Valve HP-14 aligns to Bypass Demin.	Indication and Interlock.
18. Wide Range Reactor Coolant System Temperature	KI	2	See Note 2.	Indication

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LOAD	POWER SUPPLY	NUMBER OF CHANNELS	EFFECTS OF LOSS OF POWER	USE
19. Main Steam Header Pressure	KI	6	See Note 2.	Indication
20. RC Pump Seal Water Flow Control Valve HP-31	KI	1	Valve fails to 50% on loss of KI.	Control
21. Narrow Range RC System Pressure	KI	1	See Note. 2. Lose control of pressurizer heaters, spray valve RC-1, and RC-66 (PORV). i.e., Heaters cut off and valves close	Control and Indication

NOTE: 1. Loss of a single channel has no effect since redundant channel or channels are still available.
2. Loss of KI panelboard is covered by emergency procedure EP/O/A/1800/31.

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