THE BABCOCK & WILCOX COMPANY
POWER GENERATION GROUP

SITE INSTRUCTION NO. 5,6/136; 7/196; 8/67; 11/76.
DISTRIBUTION 5,6,7,8 & 11
RESPONSE REQ'D FROM 5,6,7,8 & 11
APPROVED [signature]

To: Distribution

From: D. G. Culberson - Nuclear Service (3615)

BDS 663-5

Cust.: Met Ed, Jersey Central, Florida, Arkansas, SMUD

File No. or Ref.: NSS-5,6,7,8, & 11 T3.17.21

Subj.: Loss of Power to ICS Power Panel Board

Date: September 27, 1977

This letter to cover one customer and one subject only

Distribution

L. C. Rogers
J. T. Janis
G. T. Fairburn
R. C. Luken

References: (1) SPR-215 (Oconee II), "Loss of Power to ICS Power Panel Board 2kI."

(2) Memo, D. L. Allison to Distribution, April 23, 1977, Same Subject.

(3) Memo, J. D. Carlton to D. L. Allison, May 19, 1976, Same Subject.

(4) Memo, D. L. Allison to Distribution, June 9, 1976, Same Subject.

Some time ago an occurrence at Oconee II, involving loss of power to the customer electrical distribution panel 2kI, resulted in an overpressure reactor trip and loss of the power sources supplied from the 2kI panel. (Loss of 2KI produces an equivalent loss of B&W ICS and NNI systems.) Those sources supplied by 2kI include the following:

1. ICS Auto Power
2. Emergency Steam Generator Level Control
3. ICS Hand Power
4. ICS Emergency Power No. 1
5. ICS Emergency Power No. 2

This resulted in the following:

1. No automatic or hand control from the control room.
2. No control from the emergency shutdown panel.
3. No operating indicators at the control panel (only RPS variables are available.) or at the shutdown panel.
   (This includes no OTSG level indication
   no pressurizer level indication
   no feedwater flow indication
4. Pressurizer heaters inoperable (Bank #1 off, 2, 3, and 4 on).

5. Makeup control valve inoperable, letdown control valve inoperable, bypass valves, startup valves, and main feedwater valves are inoperable. A loss of signal to these valves should result in them positioning at the 50% position.
6. Spray valve and electromatic relief valves on pressurizer are inoperable but will remain in their last position.

Loss of power to the 2kI power panel board resulted from an unsuccessful attempt to transfer the 2kI power source from DC Invertors to regulated AC. The problem reported in the subject SPR is attributable to having all three powers (hand, auto, and emergency) powered from the same power supply.

Although this problem appears to be unique to Bailey 721 type equipment, B&W feels that all customers up to TECo (NSS-14) should be alerted to review their electrical systems for a potential similar problem, in particular regarding loss of their class 1-E power sources (fire, explosion, etc.).

If you have any questions regarding this matter, please do not hesitate to contact me.

DGC/cs

cc: K. R. Ellison
W. H. Spangler
J. D. Phinney
J. R. Bohart
W. E. Perks
Record Center
R. J. Finnin
J. F. Walters
N. M. Seeling

REVIEWED FOR ACCURACY

ENGINEERING: A J Brown DATE: 9/27/77

NUCLEAR SERVICE: N M. Seeling DATE: 9/27/77

REPLY

The sources of power to the ICS and NNI have been reviewed by B&W site personnel and discussed with the Customer. The electrical distribution designs of both TMI-1 and TMI-2 do not appear to have the potential problem described in SI #5,6/136. The ICS and NNI power sources for each Unit are listed below:

TMI-1 - NSS-5

ICS	Hand
ICS	Auto
ICS	Auxiliary Feedwater
NNI	X
NNI	Y

All of the above are powered from distribution panel ATA. This panel is supplied from a vital 4160V bus through a battery backed inverter. A static transfer switch is provided which will automatically switch panel ATA to a regulated AC bus in the event of inverter failure. A separate manual tie to a regulated AC bus has been added to provide switching capability in the event that both the inverter and static switch fail.

TMI-2 - NSS-6

ICS - Hand	Vital Bus 2-12E
ICS - Auto	Vital Bus 2-22E
ICS - Emer. FW	Vital Bus 2-22E
NNI - X	Vital Bus 2-22E
NNI - Y	Vital Bus 2-12E