central file

WISCONSIN PUBLIC SERVICE CORPORATION

P.O. Box 1200, Green Bay, Wisconsin 54305

March 3, 1980

Mr. J. G. Keppler, Regional Director
Office of Inspection & Enforcement
Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

Dear Mr. Keppler:

Docket 50-305
Operating License DPR-43
IE Bulletin No. 79-27 - Loss of Non-Class 1-E
Instrumentation & Control Power System Bus During Operation

We have received and reviewed the referenced bulletin. The attached response describes the results of the review and evaluations performed by our corporate engineering staff in conjunction with Fluor Power Serves, the Architect Engineer for the Kewaunee Plant.

Very truly yours,

E.R. Mathews

E. R. Mathews, Vice President
Power Supply & Engineering

snf

Attach.

cc - NRC Office of Inspection & Enforcement
Division of Reactor Operations Inspection
Washington, D. C. 20555

AO/E 3

MAR 6 1980

8003250211

Item 1 - All class 1-E and non-class 1-E buses supplying power to both safety and non-safety related instrument and control systems which could affect cold shutdown were reviewed and the following information is provided.

a. Class 1-E INSTRUMENT POWER SUPPLIES

Instrument buses BRA-113, BRA-114, BRB-113 and BRB-114 have a common control room alarm which indicates loss of 120V AC to any of these buses. The inverters BRA-111, BRA-112, BRB-110, BRB-111 and BRB-112 have a high D. C. voltage trip which disconnects the normal A. C. feed to these inverters and automatically puts them on the D. C. (Alt.) source. This function has an alarm per inverter in the control room.

The D. C. buses (panels BRA-104 and BRB-104) feeding the inverters have the feeder breaker BKR trip alarm per panel. This alarm is common to all breakers in the panel. BRA-109 Emergency lighting inverter is alarmed. Each of the D. C. buses (panels BRA-102 and BRB-102) which feed the above buses have a common breaker trip alarm and a loss of power to bus alarm. BRA-108 and BRB-109, 480V input to the battery chargers are alarmed.

NON-INTERRUPTIBLE (NON 1E) INSTRUMENT POWER SUPPLY

DC bus BRB-103, the standby D. C. source to inverter BRB-109, has a common breaker trip alarm. D. C. panel BRA-103 has a common breaker trip alarm.

CONTROL POWER

Control power to operating equipment is supplied through the same motor control centers as motive power, except for several D. C. operated equipment. The D. C. powered equipment is redundant and powered off separate safeguard trains. Since Kewaunee has been designed to achieve and maintain safe shutdown conditions through the loss of non-class 1-E power in addition to the loss of one train of class 1-E power, the design condition is more conservative than any single loss of a bus. Therefore, the condition requested to be evaluated for control power is bounded by conditions previously analyzed as part of the initial design of the Kewaunee Plant. (Ref: Kewaunee Final Safety Analysis Report)

b. The loss of any single class 1-E or non-class 1-E bus does not affect the ability to achieve safe shutdown conditions (350°F, 400 psig) due to the redundant and separate design of plant instrument and control systems. The effects of the loss of any single bus are less than the design evaluated condition of the loss of one train of safeguards power.

It should be noted that power to the instrument buses is normally supplied through an inverter powered from both the safeguard bus and the battery should the safeguard bus fail. An alternate back-up power supply is available directly from a separate safeguard bus. Power supply details are described in the Kewaunee FSAR Chapter 7 and 8. Therefore, it is very unlikely that failures of power to the instrument buses will cause a loss of redundant instrumentation.

c. No design modifications have been determined necessary as a result of the above evaluations or reviews.

Item 2 - Existing emergency procedures include direction to proceed if certain equipment is not available, e.g. one train of RHR is without power. The procedures to achieve cold shutdown do not include the alarms or indications you would expect to see for the loss of each individual class 1-E and non-class 1-E buses. Separate abnormal procedures or alarm responses would need to be consulted for actions to restore power to these buses. An analysis has been submitted and reviewed by the NRC staff (DOR) concerning the ability to safely shut down the Kewaunee Plant with a minimum of instrumentation. See transmittal to Mr. A. Schwencer from Mr. E. W. James dated February 15, 1979.

As mentioned above, it is highly unlikely that all redundant instrumentation would be lost, therefore, the existing emergency procedures could be implemented without effect on the ability to achieve the desired results. No further changes to existing emergency procedures are intended at this time due to the results of the evaluations for this bulletin.

Item 3 - As a result of the initial review of Circular 79-02, procedures to periodically verify the inverters operability for uninterrupted supply to the instrument buses are being implemented. No further changes have been identified at this time.