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NSIC

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April 23, 1980

1-040-15

Mr. K. V. Seyfrit, Director
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Subject: Arkansas Nuclear One-Unit 1
Docket No. 50-313
License No. DPR 51
IE Bulletin 79-27
(File: 1510.1)

Gentlemen:

In accordance with our letter of April 1, 1980, the following is our response to the subject bulletin for ANO-1. By letter dated February 28, 1980, a response for ANO-2 was provided.

Item 1:

Review the class 1-E and non-class 1-E 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.

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Response:

Our review of the class 1-E and non-class 1-E buses supplying power to safety and non-safety related instrumentation and control systems which could affect the ability to achieve a cold shutdown condition identified the need to increase the reliability of A.C. power supplied to the Non-Nuclear Instrumentation System. Attachment 1 is a listing of the parameters which we feel are necessary to achieve a safe shutdown condition. The attachment gives the effect of various power loss events on each of the parameters. We feel that the addition of a transfer switch which will provide an alternate, diesel generator-backed source of A.C. power to the NNI system upon loss of vital 120 V.A.C. inverter power will significantly enhance the reliability of the NNI system. This modification will prevent the loss of A.C. power to the NNI system due to any single failure of a 120 V.A.C. power supply. This modification will be completed prior to power operation after June 21, 1980. In response to the Item 1.(a), the ANO-1 design provides for annunciation of vital bus status. Also, the status of the back-up power source which will be provided via the automatic transfer switch is annunciated.

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 1-E and non-class 1-E 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 1-E or class 1-E 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:

As a result of our review of the NNI/ICS system, emergency procedures have been amplified to provide additional guidance to operators during transients. This additional guidance includes (1) which instruments to monitor in the event of various power supply failures and (2) corrective action that can be taken. The procedure revisions are complete. Any procedural modifications we deem necessary as a result of the modification described in response to Item 1 alone will be completed prior to power operation after June 21, 1980.

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 1-E and non-class 1-E 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:

As the incident described in IE Circular No. 79-02 occurred at the Arkansas Nuclear One site, review of the incident has been completed. IE Inspection Report No. 50-313/79-02 identified the ANO-1 invertors as an area of concern, and stated the inverters (i.e., class 1-E and non-class 1-E) should be checked in a manner similar to that for the ANO-2 inverters. Subsequent to our review, no design modifications or administrative controls were necessary or implemented as a result of our review.

Very truly yours,

David C. Trimble

David C. Trimble
Manager, Licensing

DCT:MAS:nak

ATTACHMENT 1

Parameter	Power Loss 24VDC-X	Power Loss 24VDC-Y	Power Loss 118VAC-X	Power Loss 118VAC-Y
Pressurizer Level	C	C	C	C
Pressurizer Level Temp Comp	-	SRX	-	SRX
Pressurizer Water Temp	SIY	C,SIX[1]	SCY[1]	C,SIX[1]
RC Outlet Temp(T_h) Loop A WR	C	C	C	C
RC Outlet Temp (T_h) Loop B WR	C	C	C	C
RC Inlet Temp (T_c) Loop A WR	SIY	C,SIX[1]	SCY[1]	C,SIX[1]
RC Inlet Temp (T_c) Loop B WR	SIY	C,SIX[1]	SCY[1]	C,SIX[1]
OTSG A Startup Level	-	C,SIX[1,3]	SCY[1]	C,SIX[1]
OTSG B Startup Level	SCY	SIX[3]	SCY[1]	SIX
OTSG A Operating Level	SRY	C,SRX[2]	SCY[1]	C,SRX[2]
OTSG B Operating Level	C,SRY[2]	SRX	SCY[1]	SRX
OTSG A Pressure	SIY	C,SIX[1]	SCY[1]	C,SIX[1]
OTSG B Pressure	C,SIY[1]	SIX	SCY[1]	SIX
DH Removal Flow A	-	I	-	I
DH Removal Flow B	I	-	I	-
Makeup Tank Level	-	C,SRX[2]	SCY[1]	C,SRX[2]
BWST Level	I	I	-	I
RCS Wide Range Press.	R[4]	R[4]	-	R[4]
DH Cooler Temp Lop A DSCHG	I,C	-	I,C	-
DH Cooler Temp Loop B DSCHG	-	I,C	-	I,C
Saturation Meters	Ch 2 R	Ch 1 R	Ch 2 R	Ch 1 R

ATTACHMENT 1

(Continued)

Symbols:

(-) - Indicates none available

C - Computer

I - Indicator

R - Recorder

Prefix S - Selectable between X or Y

Suffix X or Y - Denotes signal origin or dependency

Notes:

1. Either indication to operator and input to other function or computer input, but not both.
2. Either recorded and input to other functions or computer input, but not both.
3. Either X or Y transmitter can be selected for indication.
4. Transmitter is from Engineered Safeguards.