

Omaha Public Power District
444 South 16th Street Mall
Omaha, Nebraska 68102-2247
402/636-2000

February 3, 1992
LIC-92-013R

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, DC 20555

References: 1. Docket No. 50-285
2. Letter from NRC (J. G. Partlow) dated July 18, 1991 (Generic Letter 91-11)

Gentlemen:

SUBJECT: Response to Generic Letter 91-11

Attached is the Omaha Public Power District (OPPD) response to Generic Letter (GL) 91-11. This document is being submitted under oath in response to the requirements of GL 91-11.

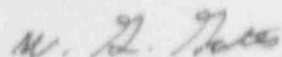
The two issues which GL 91-11 address are as follows:

1. Generic Issue 48 LCOs for Class 1E Vital Instrument Buses
2. Generic Issue 49 Interlocks and LCOs for Class 1E Tie Breakers

As shown in the attachment, OPPD meets the requirements of GL 91-11 through existing design features, procedures and the Technical Specifications.

If you should have any questions, please contact me.

Sincerely,



W. G. Gates
Division Manager
Nuclear Operations

WGG/sel

Attachment

c: LeBoeuf, Lamb, Leiby & MacRae
R. D. Martin, NRC Regional Administrator, Region IV
D. L. Wigginton, NRC Senior Project Manager
R. P. Mullikin, NRC Senior Resident Inspector
S. D. Blook, NRC Project Engineer

9202100241 920203
PDR ADGCK 05000285
P PDR

A027
1/1

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

Omaha Public Power District
(Fort Calhoun Station
Unit No. 1)

}
}
}
Docket No. 50-285

AFFIDAVIT

W. G. Gates, being duly sworn, hereby deposes and says that he is the Division Manager - Nuclear Operations of the Omaha Public Power District; that as such he is duly authorized to sign and file with the Nuclear Regulatory Commission the attached information concerning the response to Generic Letter 91-11 dated February 3, 1992 concerning Generic Issues 48 and 49; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information, and belief.

W. G. Gates

W. G. Gates
Division Manager
Nuclear Operations

STATE OF NEBRASKA)
) ss
COUNTY OF DOUGLAS)

Subscribed and sworn to before me, a Notary Public in and for the State of Nebraska on this 3rd day of February, 1992.

J. T. Gleason

Notary Public



RESPONSE TO GENERIC LETTER 91-11

A simplified one-line electrical distribution diagram for Fort Calhoun Station (FCS) is provided as Figure 1 of this attachment for reference.

Generic Issue 48

Generic Issue 48 concerns administrative controls governing operational restrictions for Class 1E, 120 volt AC vital instrument buses and associated inverters. Fort Calhoun Station (FCS) utilizes four 120 VAC safety-related instrument buses normally fed by a dedicated instrument inverter for each bus. Each of the four buses has an alternate power source supplied by a "bypass transformer" which is fed from the 480 VAC safety related buses. Control Room annunciation is provided when the instrument bus is fed from the alternate source.

Generic Issue 48 discusses ensuring that plant procedures include time limitations and surveillance requirements for vital instrument buses and inverters. At Fort Calhoun Station, the possibilities for abnormal alignment are as follows:

- o Vital instrument bus fed from the alternate supply (bypass transformer)
- o One inverter and bypass transformer out of service and the associated instrument bus crosstied to another instrument bus in the same electrical division

In both of these abnormal alignments, Technical Specification 2.7(2)(g) is invoked which states, "One of the four a-c instrument buses may be inoperable for 8 hours provided the reactor protective and engineered safeguards systems instrument channels supplied by the remaining three buses are all operable". In the event the instrument bus is not returned to the normal configuration within 8 hours, Technical Specification 2.7(2) requires that the reactor must be placed in a hot shutdown condition within 12 hours and if normal alignment is not met within 24 hours, the reactor must be placed in a cold shutdown condition within an additional 24 hours. Therefore, the requirements of the Technical Specifications provide adequate guidance to ensure that appropriate time limitations exist for the vital instrument buses. In the event that abnormal alignment of the vital instrument buses is necessary for maintenance activities, procedure OI-EE-4, "120 Volt AC System Normal Operation", provides the necessary surveillance requirements to ensure all tie breakers and switching are returned to the correct, normal alignment.

During outage conditions, when the Reactor Coolant System is maintained below 300 degrees F, abnormal vital instrument bus alignment is allowed. When returning the station to power operation, and before exceeding 300 degrees F in the Reactor Coolant System, start up checklists are performed which provide the necessary verification of the tie breakers and switches to ensure the vital instrument buses are aligned to their normal position. Procedure OP-1, "Master Checklist for Start-up or Trip Recovery" requires the performance of the check lists contained in procedure OI-EE-4. Based on the FCS Technical Specification requirements and procedural guidance noted above, Generic Issue 48 is satisfied for FCS.

Generic Issue 49

The concern of Generic Issue 49 is that manually actuated tie breakers which can connect normally independent, redundant Class 1E AC or DC buses could be inadvertently left closed and compromise the independence of the buses.

The Fort Calhoun Station safety related electrical system configuration is:

- o Two safety related 4160 volt buses, 1A3 and 1A4, and two non-safety related 4160 volt buses, 1A1 and 1A2. Buses 1A1 and 1A2 are normally fed from the 22 KV system and buses 1A3 and 1A4 are normally fed from 161 KV off-site power. Each of these buses have electrical interlocks that ensures the redundant, Class 1E buses cannot be connected outside the design basis for Fort Calhoun Station, which meets the intent of GL 91-11.
- o Nine 480 volt safety related buses consisting of two divisions fed from the 4160 volt buses, 1A3 and 1A4. These buses are 1B3A, 1B4A, 1B3A-4A (island bus that can be fed from either 1B3A or 1B4A, but electrically interlocked so that the independent 4160 volt buses cannot be crosstied), 1B3B, 1B4B, 1B3B-4B (island bus that can be fed from either 1B3B or 1B4B, but electrically interlocked so that the independent 4160 volt buses cannot be crosstied), 1B3C, 1B4C, and 1B3C-4C (island bus that can be fed from either 1B3C or 1B4C, but electrically interlocked so that the independent 4160 volt buses cannot be crosstied).
- o Two 125 VDC safety related buses, EE-8F and EE-8G.

The 4160 volt buses may all be fed from either the 161kV off-site power system or the Station 22 KV system. However, automatic interlocks are provided that isolate the buses in the event of a loss of off-site power and ensure that diesel generator DG-1 feeds only bus 1A3 and diesel generator DG-2 feeds only bus 1A4. Therefore, the separation criteria is maintained. Surveillance of these breakers is provided by indication and annunciation in the Control Room. The automatic operation of the system, regardless of alignment, assures bus separation in the event of a loss of off-site power (both the 161kV and the 345kV systems).

The 480 volt buses are interlocked in such a manner that divisional separation at the 4160 volt level is maintained, i.e., it is not possible to connect redundant 480 volt buses to both 4160 volt divisions at the same time. In the event an island bus is aligned in any manner other than normal, procedure OI-EE-2, "480 Volt AC System Normal Operation", procedure OI-EE-2B, "480 Volt Hot Bus Transfers", and Abnormal Operating Procedure AOP- 32, "Loss of 4160 Volt or 480 Volt Bus Power", require entry into Technical Specification 2.0.1, which requires plant shutdown. This provides the time limit required by GL 91-11. These buses and associated tie breakers are properly lined up prior to start-up using the guidance contained in procedure OP-1, "Master Check List for Start-up or Trip Recovery". This, coupled with the procedural guidance stated above on returning an abnormal lineup to normal, provides the necessary surveillance for the 480 volt system required by Generic Issue 49.

The 125 volt DC buses are supplied with one tie breaker for each bus which allows a swing battery charger to be placed on either bus. The tie breakers are interlocked with a Kirk Key operated mechanical system that allows only one of the breakers to be closed at a time. Therefore, the two 125 volt DC buses cannot be tied together without violating the interlock. Because of this design feature, no time limit specification is required. Proper lineup of the system is assured prior to returning the plant to operation by the requirements of procedure OP-1, "Master Check List for Start-up or Trip Recovery". This procedure provides adequate surveillance of the 125 VDC system.

Based on the above noted design features, Technical Specification requirements, and procedures, Generic Issue 49 is satisfied for FCS.

FIGURE 1

FORT CALHOUN STATION ELECTRICAL DISTRIBUTION SYSTEM

