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February 15, 1991

Dr. Thomas E. Murley, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attn: Document Control Desk

Subject: Dresden Nuclear Power Station Units 2 and 3
Quad Cities Nuclear Power Station Units 1 and 2
Response to Station Blackout Safety Evaluations
NRC Docket Nos. 50-237/249 and 50-254/265

- References:
- (a) B. Siegel (NRC) letter to T. Kovach (CECo), dated December 11, 1990.
 - (b) M. Richter (CECo) letter to T. Murley (NRC), dated January 21, 1991.
 - (c) M. Richter (CECo) letter to T. Murley (NRC), dated May 18, 1990.

Dr. Murley:

Reference (a) transmitted the safety evaluations for the Dresden and Quad Cities Station responses to the Station Blackout (SBO) rule (10 CFR 50.63). Reference (a) also requested that Commonwealth Edison Company (CECo) provide the schedule for implementation of the proposed hardware modifications and associated procedure revisions, including those modifications/revisions which result from the recommendations documented in the safety evaluations. In Reference (b), CECo provided an implementation schedule for the modifications and procedure revisions which were discussed in Reference (c); however, Reference (b) also indicated that the review of the safety evaluations was still in progress. Upon completion of that review, CECo indicated that your staff would be notified of the following: (1) any new modifications or procedure revisions; (2) any revisions to modifications or procedure revisions previously presented in Reference (c); and (3) any revisions to the schedules previously presented in Reference (c). This letter presents that notification for Dresden and Quad Cities Stations.

Alternate AC Source Modification

In Reference (c), CECo committed to install a non-Class 1E diesel generator as an Alternate AC (AAC) power source at Dresden and Quad Cities Stations. The AAC power source will have the capacity of at least two existing emergency diesel generators (5,700 kW at 2,000 hours), and the capability to connect to all 4 kV safety buses (safe shutdown buses).

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Preliminary engineering for the AAC power source indicates that it would be more advantageous to supply the generating capacity from two equally-sized diesel generators (instead of one), as shown on Figures 1 (Dresden) and 2 (Quad Cities). The AAC diesel generators will be installed in accordance with the criteria in Appendix B of NUMARC 87-00, and will have the capability to connect to all 4 kV safety buses (buses 23-1, 24-1, 33-1 and 34-1 at Dresden/buses 13-1, 14-1, 23-1 and 24-1 at Quad Cities). By maintaining the AAC power source capacity, and the ability to connect to all four safety buses, the 0.95 target reliability for the emergency diesel generators should remain unchanged.

CECo believes utilizing two diesel generators for the AAC power source will provide an enhanced design which will preclude the total loss of the AAC power source should one of the diesel generators become unavailable. Additionally, there is a concern that a single AAC diesel generator will have the capacity of providing fault currents which may exceed the interrupting capability of the existing 4 kV safety buses.

Section 2.2.2 of the safety evaluations state that the AAC power source should be diverse from existing emergency diesel generators, and that a lack of diversity must be justified by addressing how common mode failures are minimized. In the event the same vendor/manufacturer for the AAC and emergency diesel generators is utilized, the potential for common cause failures will be minimized by the implementation of the emergency diesel generator reliability program which is being developed for the CECO nuclear stations. This program, which will include the AAC diesel generators, will provide the capability for failure analyses and root-cause investigations, and will ensure that failures are evaluated for applicability to the other diesel generators.

As part of the AAC power source modification, cross-tie capability between safety buses 23-1 and 33-1 at Dresden Station, and between safety buses 13-1 and 23-1 at Quad Cities Station, was being provided (utilizing the AAC power source bus) to improve the "Independence of Off-Site Power" classification to "Group I 1/2". Sections 2.1 and 2.2.2 of the safety evaluations indicate that in order to credit this cross-connect as a safe shutdown bus transfer, the connections from the output breaker of the proposed AAC power source to the safety buses would have to be safety grade. Since submittal of Reference (c), CECO has determined that a safety grade cross-tie will be installed directly between the safety buses (as shown on Figures 1 and 2), instead of connecting through the AAC power source bus. This configuration will ensure that the cross-tie will be credited as a safe shutdown bus transfer.

It should also be noted that the AAC power source (diesel generators), and its associated buses, breakers and cabling, will not be installed safety-related (as shown on Figures 1 and 2); however, the isolation breaker at each safety bus will be safety grade.

As recommended by Section 2.5 of the safety evaluations, documentation providing a description of the AAC power source modification, and the safety bus cross-tie modification, will be retained in the SBO files for each station.

Shared Emergency Diesel Generator Logic Modification

In Reference (c), CECO committed to modify the shared emergency diesel generator (EDG "2/3" for Dresden, EDG "1/2" for Quad Cities) breaker logic to allow the diesel generator to connect to its safety buses (23-1 and 33-1 for Dresden, 13-1 and 23-1 for Quad Cities) simultaneously from the control room. Section 2.5 of the safety evaluations stated that this modification was not evaluated since it had no bearing on the SBO issue. At this time, CECO is withdrawing this modification from the SBO commitments for each station.

Isolation Condenser Level Indication Modification

In Reference (c), CECO indicated that an isolation condenser level indication transmitter, qualified for the expected SBO thermal profile, would be installed at Dresden Station to ensure that control room indication would be provided during an SBO event. This modification was proposed since the projected temperature in the vicinity of the isolation condenser level sight glass would be too high for operator accessibility. The current isolation condenser level transmitter, which provides control room indication, was not previously credited since it was fed from an AC power supply which would not be available in the event of an SBO. At this time, CECO has confirmed that the existing transmitter would be qualified for the expected SBO temperature profile, and it has been determined that only the power supply would need to be changed to ensure availability of the transmitter (and control room indication) during an SBO event. The modification will therefore only relocate the power supply for the level transmitter to an essential service uninterruptable power supply.

As recommended by Section 2.5 of the Dresden Station safety evaluation, documentation providing a description of the isolation condenser level indication transmitter modification will be retained in the SBO files.

Safety Evaluation Recommendations

The recommendations in Sections 2.3.1 (regarding operability considerations of Dresden Station's diesel driven fire pumps), 2.3.4 (regarding the heatup calculations and equipment evaluations for the loss of ventilation), 2.3.5 (regarding the positioning of containment isolation valves) and 2.3.6 (regarding the cooldown impact on the reactor coolant inventory analysis for Quad Cities Station) of the safety evaluations will be addressed and the supporting documentation will be retained in the SBO files.

Section 2.7 of the safety evaluations recommended that CECO confirm that the emergency diesel generator reliability program would meet the guidance of Regulatory Guide 1.155, Position 1.2, items 2 through 5. As indicated previously, an emergency diesel generator reliability program is being developed for the CECO nuclear stations. This program will include elements which conform with the guidance of Regulatory Guide 1.155, Position 1.2, items 2 through 5. The AAC diesel generators for Dresden and Quad Cities Stations will also be included (following installation) in the emergency diesel generator reliability program.

Schedule

Reference (c) identified the proposed procedure revisions necessary to meet the SBO rule for Dresden and Quad Cities Stations. Procedure revisions that are not associated with a modification will be completed by December 20, 1991, which is one year following receipt of the safety evaluations from NRR. (Reference (a)). Additionally, it is expected that the emergency diesel generator reliability program will be implemented at each station by December 20, 1991.

The isolation condenser level indication modifications, and associated procedure revisions, for Dresden Station will be completed by the end of the Fall 1992 refueling outage for Unit 3 (presently scheduled for October 1992).

The AAC power source modification and safety bus cross-tie modification for Dresden and Quad Cities Stations will require longer than two years (the timeframe specified by the SBO rule) to complete. These modifications require extensive engineering, and long lead times are associated with the procurement of the equipment. Additionally, each modification contains work which must be performed during a refueling outage. It is expected that the modifications, and associated procedure revisions, will be completed at each station by the end of December 1995.

Please contact this office should further information be required.

Respectfully,

Milton H. Richter

M.H. Richter
Nuclear Licensing Administrator

ZNLD743/7

Attachments: Figure 1 - Single Line Diagram for AAC Diesel Generators
(Dresden Station)

Figure 2 - Single Line Diagram for AAC Diesel Generators
(Quad Cities Station)

cc: A.B. Davis - Regional Administrator, Region III
B.L. Siegel - NRR Project Manager, Dresden
L.N. Olshan - NRR Project Manager, Quad Cities
D.E. Hills - Senior Resident Inspector, Dresden
T. Taylor - Senior Resident Inspector, Quad Cities

MR:lmw
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FIGURE 1

Dresden 4-kV AC Single Line for Two New AAC DG Units

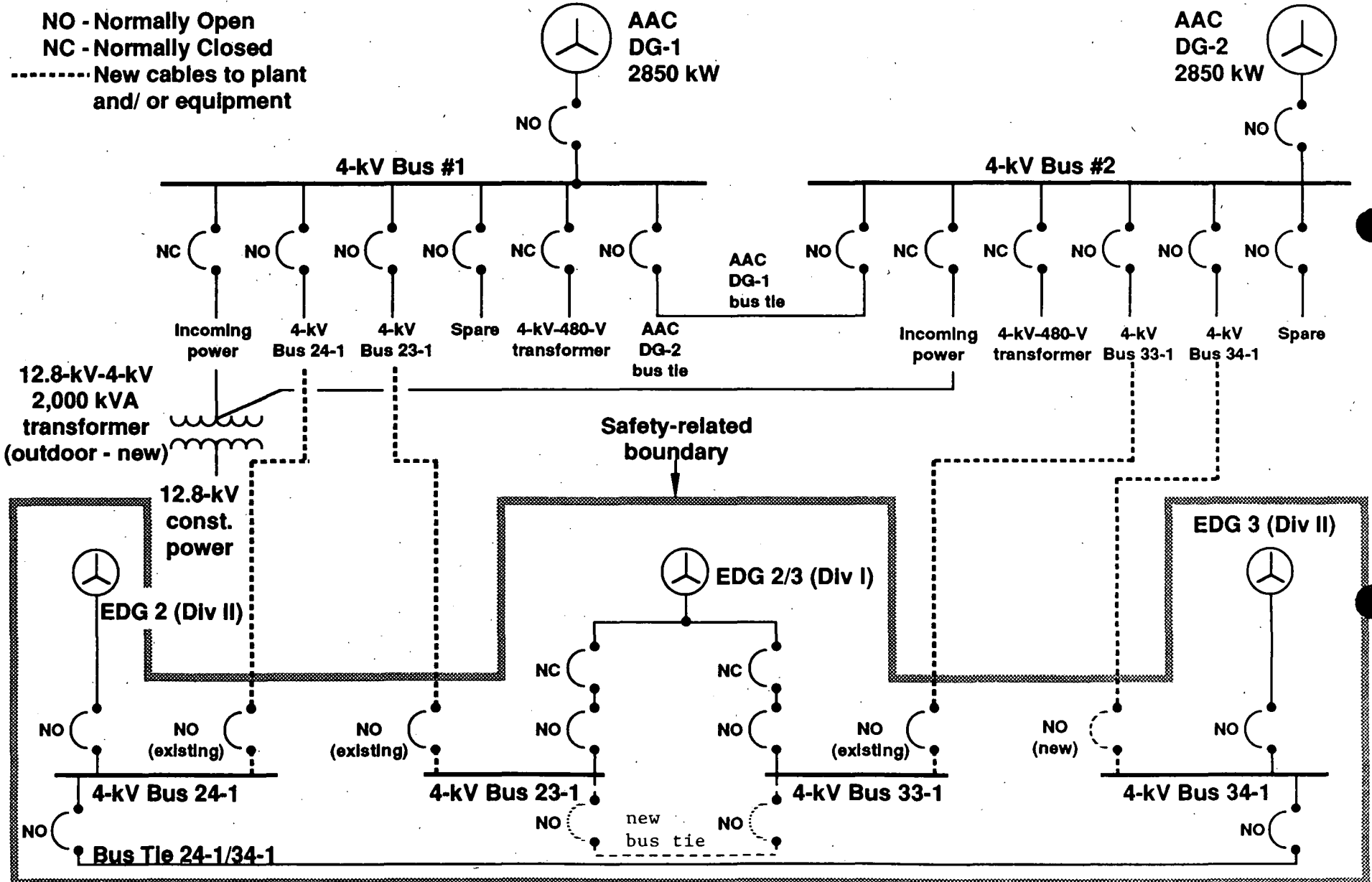


FIGURE 2

Quad Cities 4-kV AC Single Line for Two New AAC DG Units

