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February 8, 1989

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

Subject: Dresden Nuclear Power Station Units 2 and 3
Quad Cities Nuclear Power Station Units 1 and 2
Effect of Postulated DC Power Failures on
ECCS Functionality (TAC Nos. 67046 through 67049)
NRC Docket Nos. 50-237, 50-249, 50-254 and 50-265

- References (a): October 13, 1988 letter from T.M. Ross to
H.E. Bliss.
- (b): February 19, 1988 letter from J.A. Silady to
T.E. Murley.
- (c): January 30, 1989 Conference Call between CECO
(N. Kalivianakis, J. Abel, et al.) and NRC
(D. Muller, W. Hodges, et al.).
- (d): July 12, 1988 letter from R.L. Bax submitting
Quad Cities Licensee Event Report (LER) 88-023
Revision 00.

Dear Dr. Murley:

In Reference (a), the NRC Staff provided two SERs concerning the subject issue, as addressed by Commonwealth Edison (CECO) in the Reference (b) submittal and three related transmittals (dated May 13, 1988, June 21, 1988 and July 8, 1988). The Staff concluded that:

- (1) The CECO-proposed design modifications and associated implementation schedules are acceptable for the Low Pressure Coolant Injection swing bus automatic transfer scheme utilized at the four Dresden and Quad Cities units.
- (2) The loss of any one DC power supply must be included as one of the possible single failures in the analysis of the design basis Loss-of-Coolant Accident (LOCA).

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The revised LOCA reports were required to be submitted prior to the startup from the next scheduled refueling outage of each unit. Reference (a) also requested that the battery system review, which was performed for Quad Cities Unit 1 and provided with the June 21, 1988 letter, be correlated to the plant specific configurations of the other three units and be submitted on the same schedule.

Enclosed as Attachment A are the results of the battery system comparison between Quad Cities Unit 1 (which served as the baseline unit for the detailed study) and the other three units, including Dresden Unit 2 which is nearing the end of its refueling outage prior to Cycle 12 operations. Due to similarities in the configuration of all three DC systems (250V, 125V, and 48/24V), the previous conclusions for Quad Cities Unit 1 apply to Dresden Unit 2 as well as Quad Cities Unit 2 and Dresden Unit 3. That is, no design deficiencies have been identified which could prevent the fulfillment of the design basis safety functions of the Emergency Core Cooling Systems following a single DC supply failure.

As a result of this conclusion and the correction of the LPCI swing bus design deficiency during the current outage, the limiting DC power supply failure at Dresden Unit 2 is the assumed loss of the 125V DC control power battery coincident with the design basis LOCA and Loss of Offsite Power. Since the available ECCS equipment for this scenario is the same as for the previously analyzed Diesel Generator (D/G) failure scenario, no new analyses were required. Both the battery failure and D/G failure are bounded by the worst single active failure scenario, the failure of the LPCI injection valve. As requested, the affected Dresden LOCA reports have been revised to reflect the impact on ECCS availability of the assumed loss of one division of DC power and are enclosed as Attachments B and C. Please note that the DC power failure discussion in these reports apply to Dresden operations beginning with Cycle 12 for each unit. The revisions have been reviewed and approved by both Onsite Review and Offsite Review in accordance with CECO procedures. Similar revisions will be submitted for Quad Cities LOCA reports prior to the next Quad Cities refueling outage.

With the completion of the swing bus modifications, the battery system review, and other related evaluations, CECO has concluded that the loss of one division of either AC or DC emergency power will bound any single electrical failure within a division. An evaluation of auto transfer circuits with alternate feed supplied by a different division has assured that adequate protection currently exists to prevent any single failure from impacting more than one division. This review of auto transfer circuits is discussed further in Attachment D.

In the Reference (c) conference call, CECo discussed the above information with your staff, as summarized in Attachment E, and concluded that, with the completion of the remaining swing bus modifications on Quad Cities Unit 1 and Dresden Unit 3 and the submittal of the revised LOCA report for Quad Cities, all CECo actions will be completed concerning this issue. Your staff concurred with this assessment but requested that CECo propose surveillance requirements for four auto transfer circuits which involve an alternate feed from the other division. CECo noted that this is part of the ongoing program in response to the Reference (d) Licensee Event Report and agreed to discuss it further with the NRR Project Managers for Dresden and Quad Cities.

CECo would appreciate your concurrence that this resolves NRC Staff concerns with respect to the potential impact of single electrical failures on the Dresden and Quad Cities LOCA analyses.

Please contact this office should further information be required.

Very truly yours,



J. A. Silady
Nuclear Licensing Administrator

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Attachments (5)

cc: A.B. Davis - Regional Administrator, RIII
B.L. Siegel - Project Manager, NRR
T.M. Ross - Project Manager, NRR
S.G. DuPont - Senior Resident Inspector, Dresden
R.L. Higgins - Senior Resident Inspector, Quad Cities