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August 19, 1985

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Dresden Station Unit 3
Continued Plant Operation with
an Auxiliary Power Auto-Transfer
Design Deficiency
NRC Docket No. 50-249

Dear Mr. Denton:

This letter documents our continued operation of Dresden 3 until the Fall 1985 refueling outage scheduled for October 26, 1985. The items listed below justify continued operation with a design deficiency in the auxiliary power auto-transfer circuitry. This deficiency would prevent automatic transfer of AC power feed to the unit auxiliary busses in the event of a loss of power feed to the reserve auxiliary transformer (TR32) without an actual transformer failure. The design deficiency was discovered while investigating an event on Dresden 2 on August 16, 1985 where similar auto-transfer circuitry failed to transfer two auxiliary power busses to the unit auxiliary transformer.

Continued operation of Dresden 3 until the Fall 1985 refueling outage scheduled for October 26, 1985 is justified for the following reasons:

1. The nature of the design deficiency is such that failure to auto-transfer bus feed from the reserve auxiliary transformer (TR31) will only occur if power to the reserve auxiliary transformer is lost due to a bus fault that does not result in actuation of the lockout relay. The likelihood of this occurring is low considering that the August 16 event on Dresden 2 was the first occurrence in approximately 29 reactor-years of operation at Dresden. Direct failures of the reserve auxiliary transformer which result in transformer lockout will result in an auto-transfer of bus feeds.

   In the reverse direction, failure of the unit auxiliary transformer will result in an auto-transfer to the reserve auxiliary transformer under all identified failure mechanisms.



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2. The Dresden 2 event was initiated by a faulted Dresden 1 transformer (TR12) connected to the same bus section (Section 3 of the 138 KV system) as the Unit 2 reserve auxiliary transformer. This resulted in a "dead" bus section feeding the reserve auxiliary transformer which does not result in transformer lockout. The main feed to the Unit 3 reserve auxiliary transformer (TR32) is from bus Section 8 of the 345 KV ring-bus system. There are no other lines or transformers fed from this bus section (refer to updated FSAR Figure 8.2.1:1). The reliability of the 345 KV ring-bus system is further discussed in the FSAR and to date, Dresden Station has not experienced a failure of 345 KV bus Section 8. Based on the 345 KV bus configuration, the probability of the loss of the main feed to the reserve auxiliary transformer on Dresden 3 is significantly less than for Dresden 2.

   We have reviewed the possibility of running all four auxiliary power busses off the unit auxiliary transformer. This would preclude the need for an auto-transfer from the reserve to the unit transformer. We feel this alignment is not advisable since the likelihood of a unit shutdown or scram necessitating transfer of all four busses to the reserve transformer is considerably greater than the likelihood of a 345 KV bus section fault. Under the normal bus alignment, only two busses would have to automatically transfer to off-site power upon loss of the unit auxiliary transformer. Under the alternate alignment of all four busses on the unit transformer, all four busses would have to automatically transfer to off-site power. Despite the high reliability of bus feed breaker operation, there is a greater probability of a single breaker failure when four breakers must automatically transfer rather than two. In addition, achieving this alignment would require the manual transfer of 2 auxiliary busses from the reserve to the unit transformer while Unit 3 is operating. This creates the possibility of initiating a system transient or loss of equipment if problems occur during the manual transfer.

   For these reasons and particularly in view of the historical reliability of 345 KV bus section 8, we feel the best alternative to minimize overall risk is to maintain the bus alignment in its current configuration.

3. Dresden 3 operation will only continue for approximately two months until shutdown for refueling and recirculation pipe replacement scheduled for October 26, 1985. The likelihood of an event similar to Dresden 2 event during this short time period is small.

4. If an outage on Dresden 3 of greater than 24 hours occurs prior to the scheduled refueling outage, Commonwealth Edison commits to modify the auto-transfer circuitry to correct the deficiency prior to restarting the unit. Otherwise the modification will be performed during the scheduled refueling outage.

5. A letter has been issued to all shift engineers and shift control room engineers notifying them that the auto-feed transfer will not occur if the bus feeding the reserve auxiliary transformer is lost. This condition will be discussed with the control room operators during the tailgate sessions on each shift.

6. We have reviewed and re-evaluated station procedure DGA-12, "Partial or complete loss of AC Power", and determined that it provides appropriate guidance and instruction for responding to a loss of off-site power. This procedure was successfully used to mitigate the August 16 event on Dresden 2.

7. If the normal supply of off-site power is lost to Unit 3 (both reserve and unit auxiliary transformers), it can be partially restored via a cross-tie to Unit 2 between busses 34-1 and 24-1. Station procedure DOP 6500-8, "Bus 24-1 to Bus 34-1 Tie Breaker Operation", describes the steps necessary to implement this contingency. We have reviewed this procedure and determined that the tie-in can be quickly accomplished if needed by synchronization and closure of two air circuit breakers. This operation is performed via control switches in the control room. The current alignment of the affected components is appropriate to assure quick tie-in if required.

8. In the event of a loss of off-site power, power to essential equipment is automatically provided by the diesel generators. The diesel generators at Dresden are tested frequently (a minimum of monthly per the technical specifications) and have demonstrated a high degree of reliability. Since the first of the year, the Dresden 3 diesel has undergone surveillance testing 17 times and the Dresden 2/3 diesel 24 times. No failures of the diesels occurred during these surveillances. The Dresden 3 diesel was last tested on August 7, 1985. During the Dresden 2 event on August 16, the Dresden 2/3 diesel automatically started and operated as designed without any problems. In addition, to the frequent testing, the Dresden diesel generators are inspected under a monthly, quarterly, semi-annual, annual and bi-annual inspection program. The high reliability of the Dresden diesel generators is also documented in our response to Generic Letter 84-15. Accordingly, there is a very high degree of confidence that the Dresden 3 and Dresden 2/3 diesels will automatically start and operate properly if required.

As a result of the Dresden 2 event, Commonwealth Edison will review the automatic bus transfer circuitry at all our nuclear stations to ensure it will properly operate when required. A preliminary review of the Quad Cities circuit diagrams has determined that the design deficiency does not exist and auto-transfer would occur under all identified scenarios. Completion and documentation of the reviews will be monitored by our Nuclear Safety Department via the Operating Experience Review System.

To provide additional assurance that the likelihood of a grid initiated loss of off-site power during the continued operation of Dresden 3 is small, we have reviewed the status of our transmission and distribution system. During the next few months the generating capacity of Commonwealth Edison and neighboring utilities should be more than the minimum required margin to meet projected loads while providing sufficient reserves to offset unexpected unit outages. Commonwealth Edison's strong internal bulk power transmission system along with our numerous interconnections with adjacent utilities should provide redundant paths to move power throughout our service territory.

The above information provides our basis for continuing operation of Dresden 3 until its scheduled refueling outage. If you desire further information on this matter, please contact this office.

One signed original and forty (40) copies of this transmittal are provided for your use.

Very truly yours,

M. S. Turbak

for D. L. Farrar
Director of Nuclear Licensing

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cc: R. Gilbert
J. Streeter - Region III
Dresden Resident Inspector

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August 19, 1985

Mr. Art Chomacke:

The INPO letter attached gives you an example of how INPO people examine the adequacy of industry programs. They use a check list (not included) to assure that all key objectives are covered for a given program. You may want to evaluate the Byron NGET-RP Program to see if it covers the subject adequately.

Frank A. Palmer
Manager of Nuclear Safety

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