



Commonwealth Edison
 One First National Plaza, Chicago, Illinois
 Address Reply to: Post Office Box 767
 Chicago, Illinois 60690

December 31, 1985

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

Subject: Dresden Station Units 2 and 3
 Quad Cities Station Units 1 and 2
 Safety Parameter Display System
 Final Review Summary
NRC Docket Nos. 50-237/249 and 50-254/265

Reference: Letter from C. Reed to H.R. Denton
 dated December 6, 1983

Dear Mr. Denton:

The referenced letter documented Commonwealth Edison's commitments with respect to NUREG-0737 Supplement 1. In accordance with the reference, enclosed please find our final summary of the human factors, DCRDR and Reg. Guide 1.97 reviews of the Safety Parameter Display System.

If you have any questions regarding this matter, please contact this office.

One signed original and ten (10) copies of this transmittal are provided for your use.

Very truly yours,

J. R. Wojnarowski
 Nuclear Licensing Administrator

8601060130 851231
 PDR. ADCK 05000237
 F PDR

/klj
 cc: R. Gilbert-NRR
 R. Bevan-NRR
 NRC Resident Inspector-Dresden
 NRC Resident Inspector-Quad Cities
 1067K

A003
1/1

Add:

EB (LIAW)
 PSB (L. HULMAN)
 EICSB (SRINIVASAN)
 RSB (ACTING)
 FOB (VASSALLO)
 AD - G. LAINAS (LTR ONLY)

Commonwealth Edison Company
Final Summary
Safety Parameter Display System
Dresden and Quad Cities Stations

Human Factors Review & Parameter Verification

The Human Factors Review of the Dresden and Quad Cities SPDS's was conducted in August-October, 1985. The purpose of the review was to ensure that the design of the installed SPDS complied with sound human factors engineering principles and to verify the parameter selection by referring to the task analysis data collected during the Detailed Control Room Design Review (DCRDR) and to the criteria established in NUREG 0737, Supplement 1.

The review evaluated the appropriateness and completeness of the information available through the SPDS, the effectiveness of the display format and coding techniques, the location and positioning of the CRTs in the control room, the readability of the display given hardware and environmental factors, and the adequacy of procedures and documentation for interpreting the display.

The review was conducted in three phases. The first phase consisted of data collection activities from which Human Engineering Discrepancies (HEDs) were documented. The second phase consisted of an assessment of the HEDs identified in Phase 1 by a team consisting of human factors, operation, and engineering personnel. The third phase entailed documenting the results of the assessment and developing a schedule for implementing modifications to the SPDS.

To assure that the parameters displayed on the SPDS adequately monitor plant safety status during emergency conditions, which is accomplished by monitoring the critical safety functions, a comparison was made between the DCRDR task analysis and the SPDS display parameters.

The findings of the DCRDR evaluation confirmed that the parameters currently displayed on the SPDS indicate the accomplishment or maintenance of plant safety functions. The HED's developed during the data collection phase represented minor modifications to the SPDS, the most significant of which are discussed in the modification schedule section. In general, the verification and validation of the SPDS confirmed that the final product adequately met the criteria of NUREG 0737, Supplement 1.

Modification Schedule

In general, the results of the DCRDR, SPDS HFR, and the RG 1.97 review indicated that the original design of the SPDS satisfied the intent of NUREG 0737 Supplement 1. Several minor recommendations were made concerning for example, the use of color, labeling, and size of characters. These changes have already been incorporated into the display or will be incorporated by the next refueling outage. However, the existing parameters and the method in which the parameter values are currently accumulated, processed, and displayed on the SPDS screen are sufficient to determine the safety status of the plant. Therefore, no modifications are planned for the basic design of the SPDS.

CECo will continue to improve the training program for the SPDS and to develop additional User's information as required or as more experience with the use of the SPDS in the control room dictates.

KMD/ji
6997D