

June 8, 1990

Docket No. 50-461

Mr. Frank A. Spangenberg
Licensing and Safety
Clinton Power Station
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Dear Mr. Spangenberg:

SUBJECT: SAFETY EVALUATION REPORT FOR THE CLINTON POWER STATION, UNIT 1
DETAILED CONTROL ROOM DESIGN REVIEW (TAC NO. 62992)

The NRC staff, with the assistance of Science Applications International Corporation, has evaluated the Detailed Control Room Design Review (DCRDR) for the Clinton Power Station, Unit 1. The staff DCRDR evaluation results are contained in the enclosed Safety Evaluation Report. It is the staff's conclusion that the licensee meets the DCRDR requirements of Supplement 1 to NUREG-0737.

Should you have any questions on this issue please contact me at
(301) 492-3017.

Original signed by

John B. Hickman, Project Manager
Project Directorate III-2
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc: See next page

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Date: 6/6/90

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6/8/90

DFG



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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A handwritten signature in dark ink, appearing to read "John B. Hickman".

John B. Hickman, Project Manager
Project Directorate III-2
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosure:
As stated

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE DETAILED CONTROL ROOM DESIGN REVIEW

ILLINOIS POWER COMPANY

CLINTON POWER STATION, UNIT 1

DOCKET NO. 50-461

1.0 POSITION

Item 1.D.1, "Control Room Design Reviews," of Task 1.D., "Control Room Design," of the "NRC Action Plan Developed as a Result of the TMI-2 Accident" (NUREG-0660), states that operating reactor licensees and applicants for operating licenses will be required to perform a Detailed Control Room Design Review (DCRDR) to identify and correct design discrepancies. The objective, as stated in NUREG-0660 is to improve the ability of nuclear power plant control room operators to prevent accidents or to cope with them, should they occur, by improving the information provided to them. Supplement 1 to NUREG-0737 confirmed and clarified the DCRDR requirement in NUREG-0660. In accordance with Supplement 1 to NUREG-0737, each applicant or licensee is required to conduct its DCRDR on a schedule negotiated with the NRC.

2.0 INTRODUCTION

The Illinois Power Company has conducted a Detailed Control Room Design Review for the Clinton Power Station, Unit 1. A chronology of the Clinton DCRDR is provided below.

September 20, 1985	-	Control Room Design Review Summary Report
January 1986	-	Safety Evaluation Report Supplement No. 5 for Clinton Power Station, Unit 1
March 28, 1987	-	DCRDR Supplemental Summary Report
July 17, 1987	-	DCRDR Final Summary Report
January 27, 1989	-	DCRDR Category "C" Human Engineering Deficiencies Report

This Safety Evaluation Report (SER) is based on the documentation and events mentioned above. The staff was assisted in its evaluation by Science Applications International Corporation (SAIC).

3.0 EVALUATION

The staff evaluation of Clinton Power Station, Unit 1 follows.

3.1 Establishment of a Qualified Multidisciplinary Review Team

In the January 1986 SER the staff concluded that the Clinton DCRDR Review Team had met the necessary qualification requirements to fully satisfy the requirements of Supplement 1 to NUREG-0737.

3.2 Function and Task Analysis to Identify Control Room Operator Tasks and Information and Control Requirements During Emergency Operations

In the January 1986 SER the staff concluded that the system and function task analysis complied with the requirements of Supplement 1 to NUREG-0737. Some of the elements of the system and function task analysis, however, were not yet complete.

The evaluations provided in the Supplemental Summary Report and the Final Summary Report adequately addressed the open items.

Based on the above information, Clinton has satisfied the Supplement 1 to NUREG-0737 requirement for function and task analysis to identify control room operator tasks and information and control requirements during emergency operations.

3.3. Comparison of Display and Control Requirements with a Control Room Inventory

Illinois Power Company's comparison of operator needs vs. the capabilities of displays and controls was generally complete; however, a number of open items were noted during the audit.

The additional information and evaluations provided in the Supplemental Summary Report and the Final Summary Report adequately addressed the open items. It is the staff's judgement that the licensee satisfactorily completed the Supplement 1 to NUREG-0737 requirement.

3.4 Control Room Survey

Based on the NRC audit team's review of documentation, the mini-survey and the audit discussions, the staff found the control room survey generally adequate and well-conducted. Illinois Power was requested to provide the NRC with a report which formalized the administrative control procedures in the control room; an evaluation of the readability problem on chart recorders using non-glare glass; environmental surveys; and an evaluation of communications from the remote shutdown to other local control stations were also requested.

Based on a review of the Supplemental Summary Report and the Final Supplemental Summary Report, the Supplement 1 to NUREG-0737 requirement for a control room survey to identify deviations from accepted human factors principles has been properly implemented.

3.5 Assessment of Human Engineering Discrepancies to Determine Which are Significant and Should be Corrected

The assessment process seemed to be sound in concept and generally effective. Participation by management in the process had a positive effect and aided in making the process more complete.

All corrective actions for Category A and Category B HEDs have been completed. Based on a review of the January 1989 licensee submittal and phone conversations with the licensee, May 9 and May 14, 1990, the Supplement 1 requirement of NUREG-0737 for the assessment of HEDs to determine which are significant and should be corrected has been satisfied.

3.6 Selection of Design Improvements

In the January 1986 SER the staff concluded that the methodology used by Illinois Power and Light Company and the manner in which the selection process was executed was adequate. The design improvement selection process meets the intent of Supplement 1 of NUREG-0737.

3.7 Verification that Selected Improvements Will Provide the Necessary Corrections Without Introducing New HEDs

The process for verifying that design improvements provide the necessary corrections lacked the formality of other DCRDR activities appeared to have. The NRC audit team requested a report which would reconfirm and formalize the verification process of the DCRDR. The Supplemental Summary Report included a formalized procedure for the verification of implemented HEDs.

Based on a review of the information provided in the Supplemental Summary Report and the Final Summary report, the Supplement 1 to NUREG-0737 requirement for verification that the selected design improvements do provide the necessary corrections without introducing new HEDs has been satisfied.

3.8 Coordination of Control Room Improvements with Changes from Other Programs Such as Safety Parameter Display System (SPDS), Operator Training, Regulatory Guide 1.97 Instrumentation, and Upgraded Emergency Operating Procedures

The NRC audit team found the Clinton DCRDR coordination effort to be well-planned and implemented throughout the review process. Clinton used many of the results of the DCRDR in the verification and validation program for SPDS. Regulatory Guide 1.97 instrumentation was evaluated as part of the DCRDR and EOP verification. Operator training appears to be well integrated into the various activities.

Based on the Summary Report and the preimplementation audit conducted on October 29, 1985, the Supplement 1 to NUREG-0737 requirement for coordination of the DCRDR with other programs is satisfied.

4.0 CONCLUSIONS

The DCRDR program implemented at Clinton Power Station, Unit 1, satisfies all DCRDR requirements of Supplement 1 to NUREG-0737. The staff may confirm, by means of an inspection at some future date, that corrective actions have been completely and properly implemented.