

Enclosure 2

EVALUATION OF THE  
SUPPLEMENTAL INFORMATION FOR THE  
DETAILED CONTROL ROOM DESIGN REVIEW  
SUMMARY REPORT FOR OCONEE NUCLEAR STATION,  
UNITS 1, 2, AND 3

Supplement to the  
Technical Evaluation Report

Final

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Supplement  
to the Technical Evaluation Report  
for  
Oconee Nuclear Station

On November 5, 1984, the Duke Power Company submitted supplemental information regarding open items identified by the NRC in its evaluation of the Detailed Control Room Design Review (DCRDR) (Reference 1). In order to permit a more valid assessment of the DCRDR effort, Duke responded to the following items (Reference 2):

- 1) Duke Power should provide the NRC assurance that the five scenarios developed from the emergency operating procedures (ATOGs) and used in the task analysis represents a complete set of emergency tasks performed by operators for plant-specific emergency operations.
- 2) Duke Power should verify that the task analysis process resulted in the identification of operator information and control needs and their associated display and control characteristics required to perform emergency tasks derived from the five selected scenarios. Duke Power should also describe the process(es) used to identify these needs and characteristics and the bases for determining their adequacy.
- 3) Duke Power should provide additional information and/or description for the proposed corrective actions involving the 48 HEDs identified in the Technical Evaluation Report (Enclosure A).
- 4) Duke Power should provide information concerning control room modifications made or planned as a result of other post-TMI Actions and as a result of Salem ATWS events and how those modifications or changes were incorporated into the DCRDR process.
- 5) Duke Power should provide revised schedules with sufficient information for the staff to make an adequate determination of the timeliness of Duke's scheduling process. The staff has reviewed Oconee Units 1, 2, and 3 HED Solution Implementation Commitment

Schedules (Revision 4) and finds that the scheduling process for implementing design changes lacks sufficient detail to identify which individual HEDs are assigned to each of the four implementation categories linked to the refueling outages.

The following is SAIC's evaluation of Duke's response to the above items based on the requirements of Supplement 1 to NUREG-0737 and based on the guidance of NUREG's-0700 and 0800:

1. Duke's response (Reference 1) indicates that the five scenarios used in the task analysis at Oconee represent a complete set of emergency tasks performed by operators for plant specific emergency operations. They provide a comprehensive set of emergency operating tasks for task analysis of all of the emergency operating events covered by the B&W Abnormal Transient Operating Guidelines (ATOGs) as well as the existing Oconee emergency procedures. Furthermore, the events used in the task analysis cover operating tasks which exercise all emergency as well as normal operating systems in the control room.
2. Based on our review of Reference 1 it appears that Duke has adequately implemented processes to identify emergency task information and control needs and their associated display and control characteristics and to assess their adequacy. Essentially, the objective of Duke's task analysis was to evaluate the human engineering suitability of the controls and displays necessary to support the operator actions required during emergency operations. To accomplish this, Duke conducted a number of activities which included: 1) determination of the display and control requirements for emergency operator tasks, 2) documentation of the presence or absence of such requirements in the existing control room, and 3) evaluation of the human engineering suitability of the required controls and displays.

To accomplish the above, emergency operating tasks were analyzed to determine the characteristics and parameters of displays and controls required for task performance. These control and display characteristics then were compared to existing control room components and those components missing or not conforming to the required characteristics were documented as HEDs.

Operators then engaged in walk-throughs observed by engineers. Observations included the sequence of activities performed and the operator's interaction with the controls to determine the adequacy of controls and displays available to the operator. To accomplish this, the plant systems engineers systematically used checklists developed to query operators on the suitability of the existing instruments and controls and their characteristics.

3. Duke Power's clarification leads us to conclude that 46 of the resolutions are adequate. The remaining two are adequate with some clarification required. For HED No. O-1-0575, the resolution is adequate provided that it is consistent with operating procedures and technical specifications (See NUREG-0700, Guideline 6.5.1.5c). The corrective action proposed for HED No. O-1-253 also is adequate provided that the labeling on the additional nameplates is consistent with the labeling on the vertical legends (See NUREG-0700, Guideline 6.6.3.3b,c).
4. Based on Duke's submittal (Reference 1) it appears that various control room changes identified as a result of compliance with Generic Letter 83-28, and NUREG-0737 (Items II.B.1, II.D.3, II.F.1, II.F.2, and II.E.1.2) have been integrated in with control room changes made or proposed as a result of compliance with the DCRDR. Specifically reactor coolant system vents, relief and safety valve position indication, accident monitoring instrumentation, inadequate core cooling instrumentation, and emergency feedwater flow/steam generator level indication were integrated in the DCRDR process. Also the task analyses for the DCRDR included both the inadequate core cooling and ATWS events. HEDs identified during these task analysis activities were assessed in accordance with the DCRDR process.
5. The HED solution implementation schedule that was submitted in Duke's (Reference 1) is inadequate in that Duke has failed to identify HEDs by number to be corrected during specific refueling outages (Reference 2). Furthermore, it appears that solutions to HEDs are not being implemented in a timely fashion. More specifically, approximately 1/3 of all HEDs suggested for implementation by the next outages are label solutions (Reference 1). Although Duke has indicated factors that must be

considered in implenting solutions, label solutions are generally inexpensive and relatively easy to fix, require little or no training, and frequently can be accomplished during normal plant operations.

As a means to reduce the time needed to implement the HED solutions, we suggest that surface enhancements be accomplished as soon as possible. This suggestion is supported by paragraph 5.1.c of Supplement 1 to NUREG-0737 which requires that "improvements that can be accomplished with an enhancement program (paint-label-tape) should be done promptly."

We suggest that Duke Power implement all other HED corrective actions by the end of the next two refueling outages currently scheduled for each of the three units. These refueling outages would correspond to the end of fuel cycle #10 for Unit 1 and the end of fuel cycle #9 for Units 2 and 3. A schedule assigning specific HEDs to be corrected during each of the two outages should be submitted for each unit. Those HEDs that cannot be accommodated under this suggested schedule should be justified in writing on an HED by HED basis to the NRC. This will help the NRC and the licensee negotiate an HED Implementation Schedule that is approved by the NRC as required by paragraph 5.2.g, Supplement 1 to NUREG-0737.

#### REFERENCES

1. Letter from H.B. Tucker, Duke Power Company, to H.R. Denton, NRC, dated November 5, 1984 regarding Oconee Nuclear Station Docket No. 50-269, -270, -287.
2. Memorandum for G.C. Lainas, NRC, from W.T. Russell, NRC. Detailed Control Room Design Review Safety Evaluation Report for Oconee 1, 2, and 3. September 10, 1984.
3. Letter from H.B. Tucker, Duke Power Company, to H.R. Denton, NRC, dated March 23, 1984 regarding Oconee Nuclear Station Docket No. 50-269, -270, -287.