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April 14, 1981

ELECTRIC ENGINEERING  
DEPARTMENT

Mr. Voss A. Moore  
Division of Human Factors Safety  
Office of Nuclear Reactor Regulations  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555



Subject: Comments and Questions Concerning NUREG-0659

Reference: Federal Register, Volume 46, No. 58, March 26, 1981

Dear Mr. Moore:

In response to the notice given in the referenced document, Baltimore Gas and Electric Company is pleased to submit its comments on NUREG-0659, "Staff Supplement to the Draft Report on Human Engineering Guide to Control Room Evaluation (NUREG-CR/1580). Our Mr. K. G. Tietjen will attend the meeting on April 24, 1981, which will be held at the Commission's offices in Bethesda, MD.

Baltimore Gas and Electric Company has been conducting a Human Engineering Survey of the Calvert Cliffs Nuclear Power Plant Control Room in accordance with NUREG-CR/1580. Based on our review of NUREG-0659, we find that your changes forthcoming in NUREG-0700, "Guidelines for Control Room Design Reviews" are not as limited in scope as the staff supplement implies. The reformatting of the guidelines and checklists into more generalized criteria increases the ambiguity of the criteria and will lead to problems of interpretation during the study. We feel that this is a step in the wrong direction. The industry needs unambiguous and properly validated guidelines if this effort is to be successful.

The following are specific comments or questions relating to NUREG-0659 which we would like to discuss at the April 24, 1981, meeting:

1. Section III of NUREG-0659 references "NFER Preferred Practices". A significant number of the guidelines reference these practices.
  - a. What is the source of the NFER practices?
  - b. Have these practices ever been published before?
  - c. What factors qualify these practices to be referenced as a "source" in the guidelines?
2. Throughout Section III, the guidelines reference "sources" like BWR Owners Group (1980), General Atomic Corporation (1980), Institute of Nuclear Power Operations (1980), and Kabokawa (1969). Do these "sources" refer to industry approved standards? Where can these references be found?

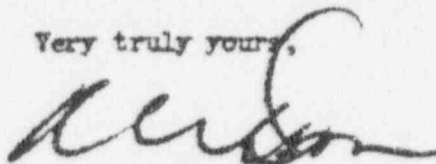
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3. The annunciation scheme recommended in guide 6.3.1.3 and shown in III does have wide spread usage, but this does not necessarily make it a universal design for application to nuclear plants. This guide should identify the system/operator interface requirements for an annunciation system. The engineering details are not within the scope of a human factors effort. Also, we do not feel that the backfitting of nuclear standardization is within the scope of this effort.
4. What validation method or procedure was used by the NRC to insure that the guidelines, primarily developed for the military and aerospace industries, are compatible with and applicable to the nuclear industry?
5. In Section IV, page IV-22, there is a statement that the preferred approach to NED's is to correct all discrepancies. ~~We feel that~~ NRC must provide a cost-benefit or other analysis which supports this statement.
6. In Section V, page V-2, a statement near the bottom of the page indicates that the principal concerns of the audit are:
  - (1) NED's which are not proposed to be corrected in any way; and
  - (2) the adequacy of other proposed corrections.
  - a. There is a conflict between the note at the bottom of page V-2 and this statement. If NUREG-0700 implies that corrective action be taken prior to submitting the report, and the audit guidelines require approval of proposed changes, which procedure should the licensee follow?
  - b. There is apparent conflict or lack of NRC guidance between the requirement to correct all discrepancies (Section IV) and the requirement for the NRC to audit all items for which no backfit is accomplished. What specific criteria are used to determine if the decision not to correct a discrepancy is valid?
7. What is the schedule requirement for performing the study?
  - a. To implement short and long term backfits?
  - b. For submission of the report to the NRC for audit?
8. How long will it take the NRC to perform the report audit?
  - a. Page V-2, indicates that the audit will preferably be done at the NRC offices with a possible site visit to the Licensee's Control Room. During BGE's review of the control room it has become apparent that many NED's are a direct result of numerous backfits for which the engineering was accomplished from a remote location. We strongly suggest that the audits include a visit to the plant site so that the NRC staff may gain insight into some of the physical problems associated with backfits.

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In summary, we would like to state that BGE is committed to the Human Factors Review of the Control Room, not only for increased assurances for public safety, but also to improve plant reliability. We are concerned over the statement that every identified discrepancy should be corrected by backfit. This situation will lead to a "negative transfer" situation in which operators cannot cope with the numerous changes potentially brought about by the Human Factors review. The strengths of an existing design must be considered prior to recommending a backfit in order to insure that we do not in fact degrade the man-machine interface in the name of "improvement".

Very truly yours,



Richard C. L. Olson  
Principal Engineer

RCLO/sam

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