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Mr. Samuel Chilk
Secretary of the Commission
U. S. Nuclear Regulatory Commission
1717 H Street, N.W.
11th Floor
Washington, D. C. 20555

Attention: Docketing and Service Branch

Subject: NUREG-0696, July 1980, Draft Report "Functional Criteria for Emergency Response Facilities"

Dear Mr. Chilk:

We have reviewed the subject draft report, NUREG 0696, and herewith offer our comments for consideration.

1. A phased, prioritized schedule for implementation of the Emergency Facilities included in NUREG 0696, similar to the implementation schedule included as attachment 1 to Darrell G. Eisenhut letter to applicants and licensees, is supported in the concept that licensee and supplier personnel and material resources are limited, and accordingly, facilities offering the greatest benefit should receive priority in implementation. Of the several Emergency Facility items, only the SPDS offers the possibility to reduce the potential and probability of plant accidents. On this basis alone, then, SPDS should be completed as early as can be achieved. It appears that an SPDS conforming in all manner to the requirements of NUREG 0696 cannot be completed by January 1982. We believe implementation will require in excess of 24 months, after criteria are established, based upon the use of currently available components. The tasks of design verification software validation and equipment qualification will extend this time. Reevaluation of the SPDS operational date is suggested.
2. A seismic design basis for the SPDS is not supported by evident need. In the event of OBE, a complement of seismic category I, qualified, class IE installed instruments and displays is available for operator information needs. Since the SPDS is an operator aid, backed up by highly reliable means, its availability after OBE should not be required.

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3. The prescriptive quality of draft NUREG 0696 is a contradiction of the title "Functional Criteria for Emergency Response Facilities." Requirements should be restated in functional terms wherever possible.
4. A stand-alone dedicated information system is explicitly required by draft NUREG 0696. Alternative designs capable of fulfilling the appropriate functional requirements may already be installed in some plants, and except for the specific inputs, software, and design/implementation quality assurance, functionally capable information systems are being installed in several plants. Early implementation and utilization of these features would be precluded by the requirement for a fully independent dedicated emergency facility information system. The requirement for a stand-alone system should be removed, allowing flexibility in satisfying the stated performance criteria.
5. The specific requirement that the Technical Support Center must be within two minutes walking distance of the main control room is not consistent with typical dimensions of nuclear power facilities and should be deleted as arbitrary and not constructive. In situations where a new, suitable, habitable structure must be designed, built and equipped, locations within the site boundary should be acceptable if unencumbered movement of personnel to the control room can be achieved in less than 10 minutes.
6. P2,1 - Safety Parameter Display System - As the SPDS is an aid to the control room operator, featuring enhanced presentation of information descriptive of the safety status of the plant, there is no EOF usage of SPDS. SPDS should be removed from the EOF requirements.
7. P4,C - Emergency Response Facility Systems Integration - The requirement is stated that "The design performance of the integrated system must meet the most stringent design performance requirements of any of its subsystem." According to the Functional Block Diagram of Data Flow, the SPDS is part of the integrated system. Section II.F states "SPDS data acquisition system shall be designed and qualified to Class IE Standards." The draft NUREG, then, requires that the data acquisition portion of the integrated system must be designed and qualified to Class IE Standards. Most computer system equipment will not meet Class IE Standards. It is suggested the Class IE requirement for the SPDS be deleted, in that SPDS is an aid to the operator and IE backup is available. Further, NUREG should permit SPDS as a separate, independent system, rather than having SPDS requirements control the design of a total integrated system.
8. P7,C - Safety Parameter Display System Size - The explicit requirements for "... readable from the operating stations of shift supervisor, senior reactor operator, shift technical advisor and at least one reactor operator ..." is not justifiable. SPDS should include some audible notification feature to alert control room personnel to abnormal situations. Each person does not need his own display.

9. P8,F - SPDS Design Criteria - The data acquisition system requirement to be designed and qualified to the same criteria stated in R.G. 1.97 does not have basis in functional roles. The SPDS is an enhanced display of selected safety status information which role is principally in avoiding the approach to safety limits, i.e., prevention of accidents. R.G. 1.97 display functions are different in that the R.G. 1.97 displays have roles in accident detection, mitigation, analysis of plant status, and system performance. As previously stated in item 7, the SPDS data system should not be required to be Class IE. Further, the stated availability goal of 0.001 appears unnecessarily restrictive for an operating aid which has redundant, independent, IE qualified back-up displays. The required reliability of an operator aid should be consistent with the reliability of instruments and controls currently used in nuclear plants.
10. P11,E - TSC Structure - It is suggested that design and construction of the TSC to the requirements of the Uniform Building Code for the seismic region should replace ".....well engineered structure...", to provide an explicit statement of the structural requirement.
11. P11,H - TSC Instrumentation and Power Supplies - The stated requirement "to display data needed to analyze plant conditions independently from actions in the control room" suggests total access in the TSC to all information which could be needed in analysis. The data needed in the TSC on a continuous basis and on demand independent of the control room is a limited part of even the R.G. 1.97 scope. The scope of data needed in the TSC should be specified in terms of functional needs for TSC response roles, recognizing the capability of data communication by telephone, messenger and physical access to the plant areas other than the control room, and also the time-scale of information needs at the TSC.

The unavailability of an individual parameter of less than 0.001 is not consistent with the stated system goal of 0.01. The designer should be allowed to partition unavailabilities to achieve the needed functional performance. It appears that unavailability of a single parameter could reasonably be close to the required overall system unavailability, given that ongoing maintenance will be in use. Further, 0.001 unavailability stated on p. 14 is not consistent with the statement on p. 12.

12. The NRC staff has indicated that information validation requirements will be added to NUREG 0696 for the SPDS. Validation of information is highly complex and is not achieved with simply the use of redundant inputs. Reasonableness checking and comparisons between channels appear appropriate for SPDS, but will not of themselves allow "validation." It should be recognized that any output display system, no matter how well conceived may be incorrect.

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13. P19 EOF Technical Data and Data System - The requirement for the full data set of R.G. 1.97 is not consistent with the stated functional role of the EOF: to assess the environmental consequences of an accident. Accordingly the EOF data should include environmental radiological information, meteorological information, and plant effluent information. Provision of SPDS and plant process information other than stated above may lead to conjecture and the promotion of confusion as to the actual plant state. Plant status information for the EOF should be via the TSC to assume controlled, consistent information at all emergency management locations.
14. Although the NUREG 0696 title is Functional Criteria for Emergency Response Facilities, no criteria are provided for the on-site operational support center.

To maintain brevity, we have attempted to restrict our comments to items affecting design and construction and have not commented on the operational considerations of failure reporting and limiting conditions of operation associated with NUREG 0696. Similarly, absent a stated role for the Nuclear Data Link, we have not offered comments on this aspect of NUREG 0696.

We thank you for the opportunity to comment on this draft criteria report and would be pleased to answer any questions you may have on the comments.

Sincerely,



A. L. Cahn
Manager of Engineering,
Thermal Power Organization

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