

400 Chestnut Street Tower II

September 30, 1980

Mr. Steve L. Ramos
Office of Nuclear Reactor Regulation
Emergency Preparedness Program Office
U.S. Nuclear Regulatory Commission
Mail Stop Phillips 242
Washington, DC 20555

50-257

Dear Mr. Ramos:

The Tennessee Valley Authority (TVA) is pleased to provide comments on NUREG-0696, "Functional Criteria for Emergency Response Facilities," as noticed in the August 15, 1980, Federal Register (45 FR 54708-54709).

The need for defining an integrated basis for emergency facilities cannot be debated. TVA supports the development of advanced data systems to aid the operator and facilitate accident recovery. We suggest that a more deliberate cost-effective approach, with close cooperation between the utilities and the NRC, would provide for better support systems. Enclosed are our specific comments on NUREG-0696.

We appreciate the opportunity to comment.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills

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Enclosure
cc (Enclosure):

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ENCLOSURE

TVA'S COMMENTS ON NUREG-0696 - FUNCTIONAL CRITERIA
FOR EMERGENCY RESPONSE FACILITIES

General

The introduction to NUREG-0696 briefly outlines the need for overall management and coordination of response organizations, adequate and timely assessment of the accident and offsite consequences, and accurate and timely information to the public. These are all recognized as responsibilities of the utility, State, and local authorities. NUREG-0654 has established appropriate criteria to ensure that these responsibilities are fulfilled. However, repeatedly in the text of NUREG-0696 the Nuclear Regulatory Commission (NRC) indicates that in some of these areas it intends to take the lead. If this is the intent, we believe the results will be multiple sources of information, misinformation, and/or multiple sources of recommendations similar to those which occurred at Three Mile Island unit 2 (TMI-2).

Since TMI-2, there has been a renewed awareness on the part of NRC and industry concerning the benefits of using digital computers for improving human factors engineering, diagnostic capability, and data handling. The functions described in NUREG-0696 fall in this category. To accomplish the NUREG-0696 functions properly, it is important that unwarranted restraints not be imposed on systems utilizing such technology. These restraints will work against providing systems with the increased advantages mentioned previously. The result will be to provide minimum systems that meet the restraints and functional requirements at the sacrifice of additional benefits offered by a more powerful system.

More powerful capabilities are needed to meet the requirement in Section II.E, which calls for the capability to expand the system in the future to incorporate "advance diagnostic concepts and evaluation techniques."

We believe NUREG-0696 should avoid restricting the utilities' use including process computers for emergency facilities. The principal concern is that the functional criteria be met, regardless of the equipment used. Several benefits arise from the use of existing equipment. Since any new system requires the addition of complex hardware, system reliability will be enhanced by using existing equipment as maintenance personnel is already familiar with existing systems. Further improvements to the data acquisition and display systems can be made earlier to existing systems.

Reliability

There appears to be a conflict regarding the quality and reliability requirements for response facilities and equipment in paragraph C, p. 4. The second sentence states, ". . . this is not meant to imply that all components and systems for these facilities are designed to the same quality and reliability standards." In contrast, the fourth sentence in the same paragraph states, "The design performance of the integrated system must meet the most stringent design performance requirements of any of its subsystems."

A program for proving the reliability of emergency facilities should be directed to improving component reliability, rather than producing quality assurance documentation. Qualified review within the utility, combined with NRC program review, should fulfill the need for validation. Extensive documentation or rigid quality assurance requirements encourage limiting the emergency facilities data systems to very simple systems of marginal use. A reasonable validation program should stress periodic reviews of system operating experience rather than imposing unnecessary restraints.

The Operational Basis Earthquake (OBE) requirement for the Safety Parameter Display System (SPDS) is a restraint of this type. Very little computer hardware has been designed and tested for a seismic event. In addition to forcing a minimum system, it will have a big impact on schedule and cost for very little benefit in return.

We strongly suggest that the OBE requirement for the SPDS be removed so that all four emergency response functions conform to the same requirement. This would still ensure that a well-engineered, highly reliable system would be provided. In addition, the separate instrumentation required by Regulatory Guide 1.97 would still be qualified to operate during seismic events. We do not believe NUREG-0696's purpose should overlap 1.97's purpose in this way.

In addition, since the SPDS is not designed to meet Class IE standards or required for safe shutdown, it is inconsistent to require the data acquisition system to meet Class IE requirements. A suitable criteria would require that the level of qualification be consistent with the design criteria of the parameter measured. Similarly, since the SPDS is not required for safe shutdown, the system should use the best technology without the restriction of seismic requirements.

Availability

Some of the statements on availability seem both confusing and contradictory. Section III.H states the Technical Support Center (TSC) shall have a "functional unavailability goal of .01." However, Section III.I states the TSC systems (meaning data systems), including power supplies, shall have less than .001 unavailability. This needs clarification.

Also, there is confusion concerning a reportable occurrence. According to Section III.A a reportable occurrence arises "if the TSC is not operational for a period exceeding eight hours" and Section IV.A makes a similar statement for the Emergency Operations Facility (EOF). Section I.D states it shall be a reportable occurrence if any of the emergency response facilities are not operational for any period exceeding the unavailability goal. These requirements would be appropriate if both the TSC and EOF unavailability goals are .01. Presently the TSC unavailability goal is unclear and the EOF goal appears to be .001.

A Computer Systems Interface (TSA88-361) report prepared by Macro Corporation (for Electric Power Research Institute (EPRI)) states (page 4-1) that system availability higher than 99.8 percent cannot be achieved except at unreasonable cost. Setting a goal of unavailability of 0.001 in all modes of operations for the SPDS serves to severely limit the useful information that could be provided to the operator. Unrealistically high levels of reliability encourage the design and construction of simple systems of limited scope and utility. Similarly, requiring SPDS operation during and following an operational basis earthquake prohibits the inclusion of desirable components (such as large capacity disk storage units) in the system design. Therefore, the unavailability requirements should be set at a more reasonable level.

The unavailability goals can be met with sophisticated systems provided operation is required only for modes of operation incurring significant risk. Existing redundant systems could achieve the goal of 0.001 unavailability in these operational modes.

Monitoring Requirements

NUREG-0696 makes reference several times to using the Regulatory Guide 1.97 (R.G. 1.97) parameters as a minimum data set. However, it was obvious from the NRC regional meeting in Atlanta (August 22, 1980), that only a subset of 1.97 is required for the SPDS and the Nuclear Data Link. This clarification should be added to NUREG-0696.

In addition, rather than require a specific data set for any of the emergency response facilities, it would be more appropriate to only define the plant functions to be monitored as in Section II.E.

This is appropriate for two basic reasons. First, the stated purpose of R.G. 1.97 is to specify instrumentation to monitor, rather than prevent, an accident. In the interest of safety, emphasis should be directed to the prevention and mitigation of abnormal events. Secondly, within NUREG-0696, proposed implementation schedule of compliance with R.G. 1.97 will involve the anticipation of final instrumentation requirements in the design of the emergency facilities. As demonstrated in the August 13, 1980, letter from Milton S. Plesset of the Advisory Committee on reactor safeguards to William J. Dircks, Acting Executive for Operations, USNRC, substantial problems still exist within the proposed R.G. 1.97. Before the commitment of engineering effort to the design of emergency facilities can be made, all requirements must be in final form.

Schedule

We believe the schedule attached to NUREG-0696 cannot be accomplished without gross distortion of the original purpose of the emergency facilities. The SPDS involves the greatest immediate need and should be addressed in the context of the Control Room Design Review. Design of the TSC data system cannot proceed until the critical parameters are finalized. Requiring unrealistic schedules for implementation again encourages developing a simple system of very limited value.

The schedule requirements are unrealistic for systems of the magnitude presented in NUREG-0696. The Computer Systems Interface (TSA88-361) report prepared by Macro Corporation (for EPRI) estimates a project duration of four years for computer projects of this magnitude. The schedule should be revised to require an early start on these facilities, but the completion dates must be extended to a more reasonable time. In addition, Regulatory Guide 1.97 is not required to be completed until June 1983, while the present NUREG-0696 dates force the 1.97 data to be completed at an earlier date. NUREG-0696 dates should at least conform to the 1.97 requirement, if they are used.