

PACIFIC GAS AND ELECTRIC COMPANY

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J. O. SCHUYLER
VICE PRESIDENT
NUCLEAR POWER GENERATION ..

September 26, 1980

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention Docketing and Service Branch

Dear Sir:

Pacific Gas and Electric ("PG&E") hereby submits its comments on NUREG-0696, "Functional Criteria For Emergency Response Facilities," pursuant to Federal Register Notice 45FR54708 dated August 15, 1980. The potentially great impact of these criteria on nuclear plant owners and their emergency response capabilities make it imperative that the NRC carefully review all comments on NUREG-0696 to arrive at a reasonable and balanced regulatory position.

Generally, the proposed criteria do not allow sufficient flexibility for site specific factors or innovative design approaches. PG&E strongly believes that emergency response is an area where no universal solutions lie. Admittedly, the framework of an effective accident management system can be sketched in functional and conceptual terms. This is the legitimate, and indeed desirable, scope of NUREG-0696. But to venture further along the design specification path, through prescriptive and narrowly detailed requirements, is to require a compromise system design that serves no site well. The NRC should review each situation on a case-by-case basis and determine the merits of each emergency facilities design as it relates to the exigencies of the individual site. In the attached comments, principal areas are identified where the proposed criteria overreach the bounds of functionalism and suggested alternate criteria are provided. The clearest example of overprescription is the location of the EOF. The EOF concept that emerges from these criteria is heavily weighted by the TMI-2 experience to the exclusion of other possible approaches. While the proposed criteria recognize a tradeoff in the location of the EOF relative to the plant, it is clear that a close-in site is preferred in the proposed NUREG-0696. This approach is reminiscent of "trailer city" across the river from TMI-2. However, for accidents with potential releases of significant quantities of radioactive materials (unlike TMI-2) siting the EOF near the plant could make access difficult or impossible. This would compromise the function of the EOF to coordinate and effectuate the offsite accident response. Further, the requirements for sophisticated communications and data links between the EOF, TSC and Control Room will allow more remote siting of the EOF while still assuring adequate interactive capability. As a minimum, the criteria should make more remote siting of the EOF a viable, if not preferred option.

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Secretary of the Commission
U.S. Nuclear Regulatory Commission

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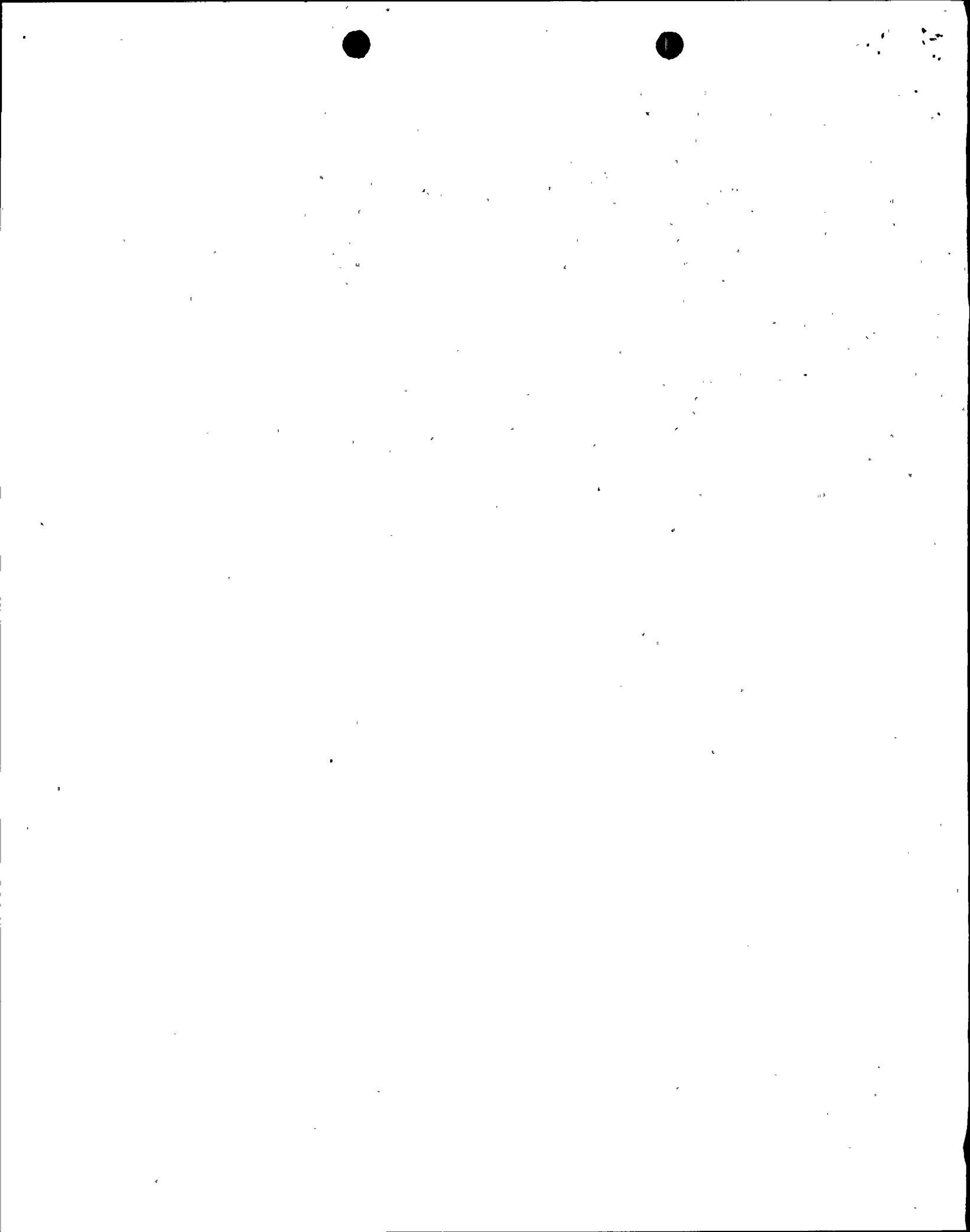
September 26, 1980

These comments are also responsive insofar as the proposed NUREG-0696 criteria directly impact on PG&E. PG&E is committed to the concept that emergency preparedness is an essential element in the safe operation of nuclear power plants and has made every attempt to be responsive to the perceived need for enhanced emergency capabilities. In fact, PG&E has proceeded with the design and procurement of emergency facilities for Diablo Canyon in advance of the specific criteria now provided in proposed NUREG-0696. Since PG&E's approach is not in all respects consonant with NUREG-0696, it is faced with the prospect of being penalized for taking the initiative. We believe that this is both unfortunate and unnecessary. If utilities are to take the lead in resolving nuclear safety concerns, there must be a corresponding willingness of the NRC to entertain and accept on a cooperative basis these well-engineered alternatives. PG&E is prepared to cooperate with the NRC in developing effective functional criteria for emergency response facilities and demonstrating the ability of the Diablo Canyon facilities to perform those functions.

Sincerely,

B. F. Hahn
Per J. O. Schuyler

Enclosures



COMMENTS OF PACIFIC GAS AND ELECTRIC COMPANY (PGandE) ON NUREG-0696

"PROPOSED FUNCTIONAL CRITERIA
FOR EMERGENCY RESPONSE FACILITIES"

September 26, 1980

I. GENERAL COMMENTS

1. COMMENT

The location of emergency facilities should be determined on a site specific basis and reflect their separate and distinct emergency functions. The current version of NUREG-0696 contains prescriptive criteria that inhibit the ability to locate the TSC and EOF in an optimum or even feasible manner. At the same time, these prescriptive criteria are not necessary for, and in some cases not consistent with, the emergency response function to be performed.

Example 1

Section III.B requires the TSC to be within two minutes walking time of the control room and provisions made for the safe and timely movement of personnel between the TSC and control room, under all emergency conditions.

These criteria are not necessary to the TSC function, which is to provide a location separate from the control room for the analysis of plant conditions. Interaction between the TSC, control room, and EOF is via communications and data links, and does not require direct physical access.

For the TSC at Diablo Canyon, PGandE has selected and proceeded with construction in an area enclosed by the Turbine Building buttresses prior to the issuance of NUREG-0696. This area provides a spacious and seismically designed TSC that is also strategically located within the plant. However, this location is approximately three minutes walking time to the control room. Relocation of the TSC at this time would be prohibitively costly, but of greater importance, would not materially enhance the functionality of the TSC.

Proposed Criterion

The TSC shall be located within the plant security boundary at a location that facilitates the performance of its emergency function.

This criterion will allow the selection of an optimum location of the TSC within each plant based on available space. Any location within the security boundary will be within a reasonable distance of the control room and capable of rapid staffing in the event of an emergency. TSC interaction with the control room will be via the dedicated data and



communication links. There is no requirement for personnel movement between the TSC and control room.

Example 2

Section IV.B requires the EOF to be located not further than 5 to 10 miles from the reactor with a maximum ground travel time of 20 minutes. Regardless of where the EOF is located, it must meet habitability requirements.

These criteria mandate an EOF located irrespective of the remoteness of the site, the location of state and local government response centers, the quality of communication or transportation links, and the potential need to evacuate the EOF if significant radioactivity is released offsite.

The Diablo Canyon EOF is located 11.2 miles from the reactor with a ground travel time of 30-40 minutes. This location is adjacent to the County Sheriff's Emergency Operations Center and is served by high quality roads for rapid access. Relocation closer to the reactor would impede access (due to the remoteness of the Diablo Canyon site) and would pose additional problems of coordination and communication with offsite agencies to implement protective actions to protect the public health and safety. We have attached our letter of June 9, 1980 (P. A. Crane to D. G. Eisenhut) describing in greater detail the compelling rationale for the current EOF location. In addition, the EOF is located at the Sheriff's Office allowing access to helicopter service which would transport people to the site within ten minutes.

Proposed Criterion

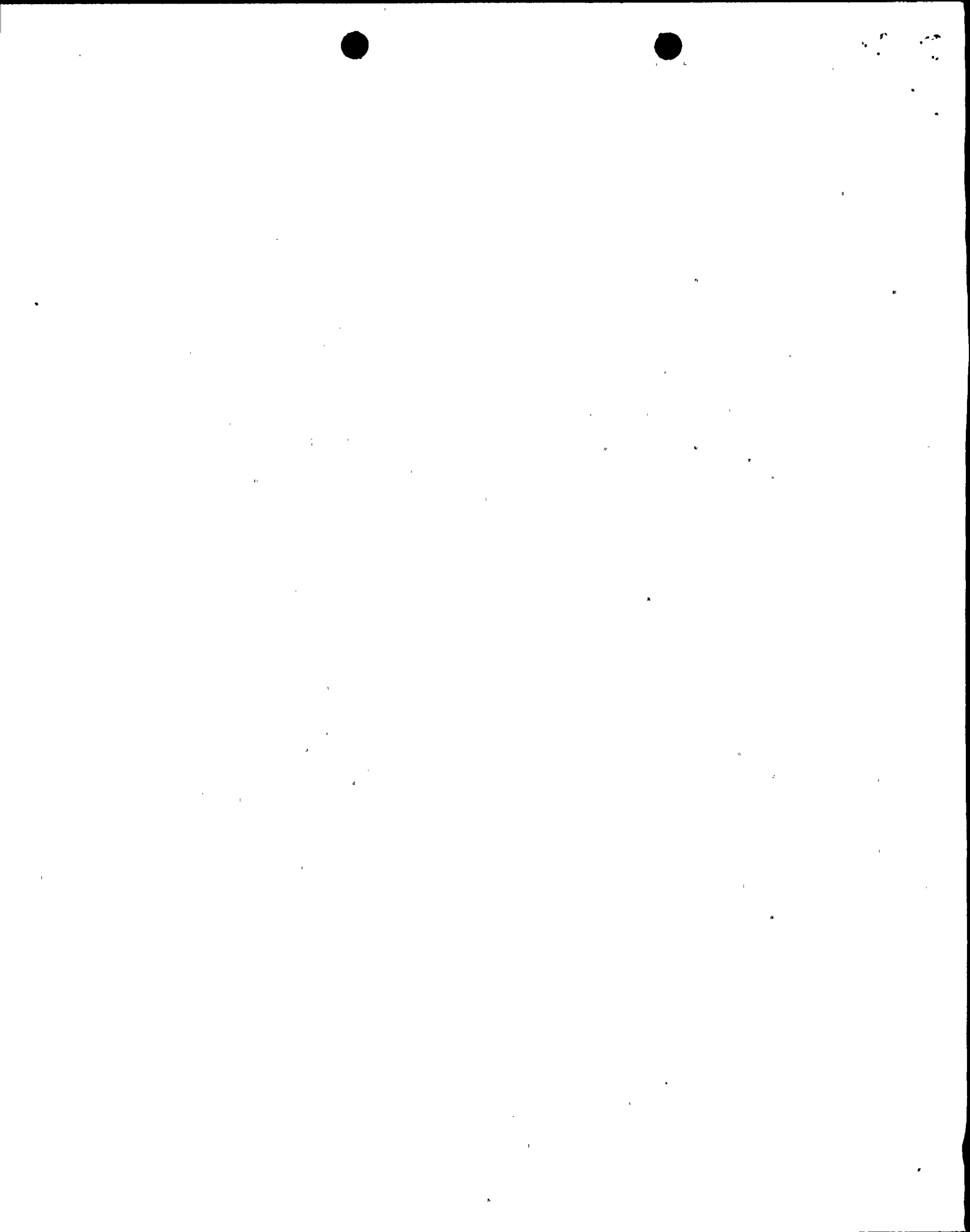
The EOF shall be located offsite at a location that facilitates the performance of its emergency function. Since the EOF function is directed at overall emergency management and offsite consequences, it should be located to facilitate interaction and coordination with government and private resources available away from the reactor site. The ability to continuously habitate and access the EOF during accidents that release significant quantities of radioactive materials offsite, should be considered.

This criterion will allow selection of an optimum location of the EOF based on the characteristics of each individual site. It eliminates specific geographic based criteria since such criteria do not uniformly relate to the EOF function.

2. COMMENT

Quantitative unavailability goals should not be specified for emergency response facilities. We believe that the emergency function of these systems can be accomplished with well engineered designs and reliable systems.

The specification of reliability is desirable, but if undertaken, must be done in a more comprehensive manner than a numerical "unavailability." Reliability engineering is an extensively well developed field that



requires the selection of a reliability methodology, determination and application of specifications, (e.g., mil specs), identification of acceptable reliability data bases, and a reliability support effort similar to existing QA programs. The implications of demonstrating a .001 unavailability for an entire system are enormous, and could readily increase the cost by a factor of 20, and extend delivery times of components by two years or more. In addition specification of .001 unavailability for systems that serve as operational aids is not justified or cost effective.

Examples

Section II.F states that the "total system shall be designed to achieve an unavailability goal of 0.001 for the SPDS." A similar criterion is contained in Section III.I for the TSC data systems. A precise definition of "system unavailability" is needed. For example, should system unavailability be defined as loss of all displays, loss of any single set of displays necessary to monitor a single safety function, or loss of any single display of a parameter or derived variable? Is a data display unavailable if it is completely lost or if it is outside of some specified tolerance range?

The criteria for TSC instrumentation and power supplies presented in Section III.H includes a criterion that states that the "total system shall be designed to achieve a functional unavailability goal of .01 for the TSC." Neither the "total system" nor "system unavailability" are well enough defined to allow this criterion to be applied in the system design or its successful application demonstrated to the NRC.

Section III.H also includes a criterion for unavailability of individual parameters of less than .001. There is apparently no flexibility in this requirement to account for variations in the safety importance of the individual parameters or to allow a higher unavailability if the value of the parameter can be determined or inferred from other parameter displays.

The criteria in Section IV.H on accuracy and reliability of instrumentation are so vague as to be unusable. The phrase "data vital to EOF functions" is unclear and implies that some of the data stream to the EOF is not required.

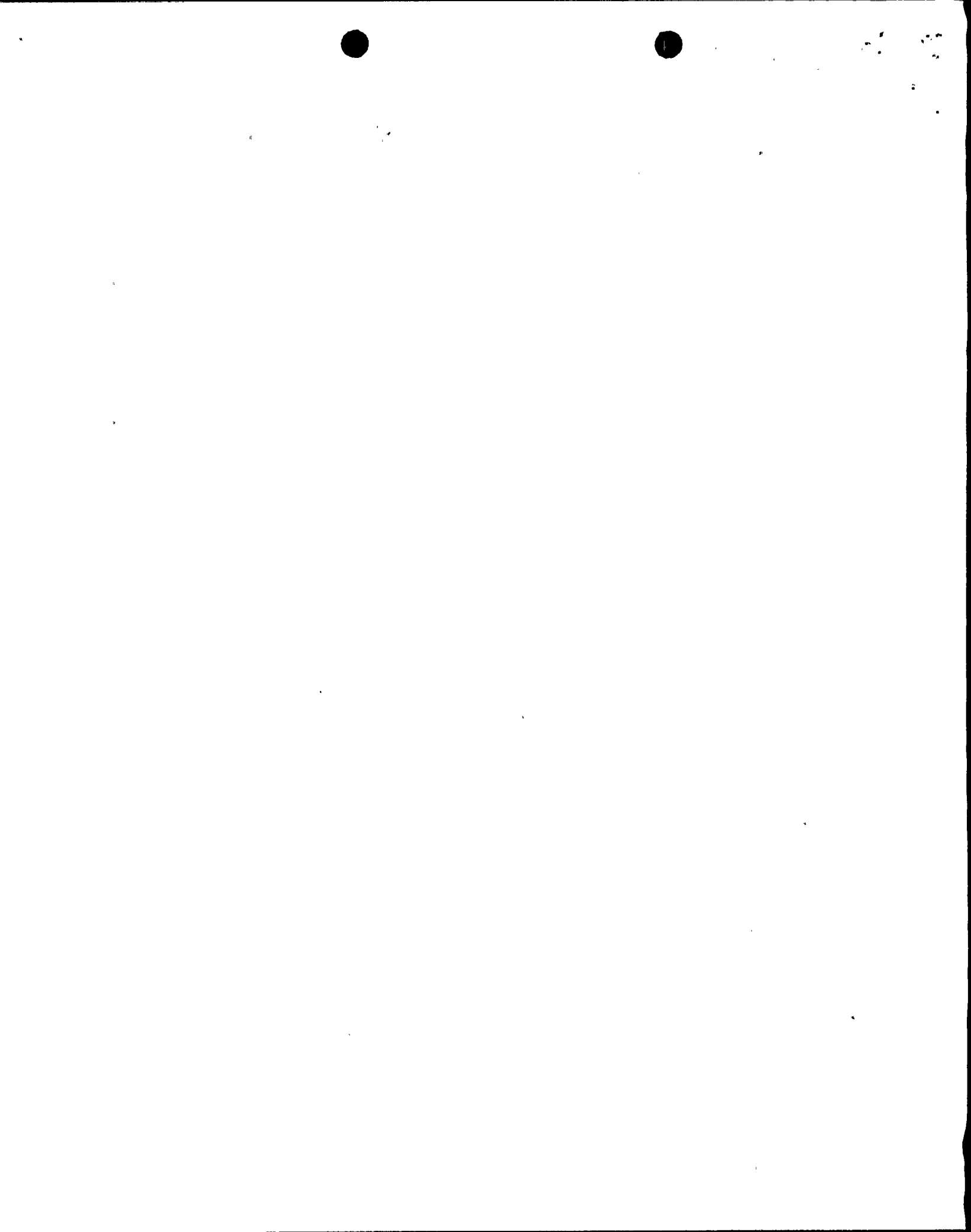
Proposed Criterion

Emergency response data systems and facilities should be of high quality and reliability such that they would be expected to be available under anticipated accident conditions.

3. COMMENT

Accident monitoring instrumentation signals should not be required to be transmitted, processed, and displayed independently of the normal plant operations computer.

The requirement that signals shall be input directly into data acquisition processors and not be processed in any equipment used for normal operation



is overly restrictive. The criteria should be stated in terms of the functional requirements of the system and not the specific plant equipment.

Example

Section I.C requires that Regulatory Guide 1.97 signals be transmitted, processed and displayed independently of any equipment used for normal plant operations, such as the process computer. Sections III.I and IV.I contain similar requirements.

Proposed Criterion

Data signals shall be transmitted, processed and displayed in the emergency response facility in a manner that satisfies the time requirements of the facility.

4. COMMENT

The proposed criteria contain excessive duplication and overlap between functions of emergency facilities and equipment. Each facility function should be carefully circumscribed and coordinated. The current approach encourages splitting of responsibilities and decision-making authority, which increases the potential for contradictory management directives to the plant staff and which may, in fact, divert resources from managing the emergency to managing and coordinating the activities of the emergency facilities.

Examples

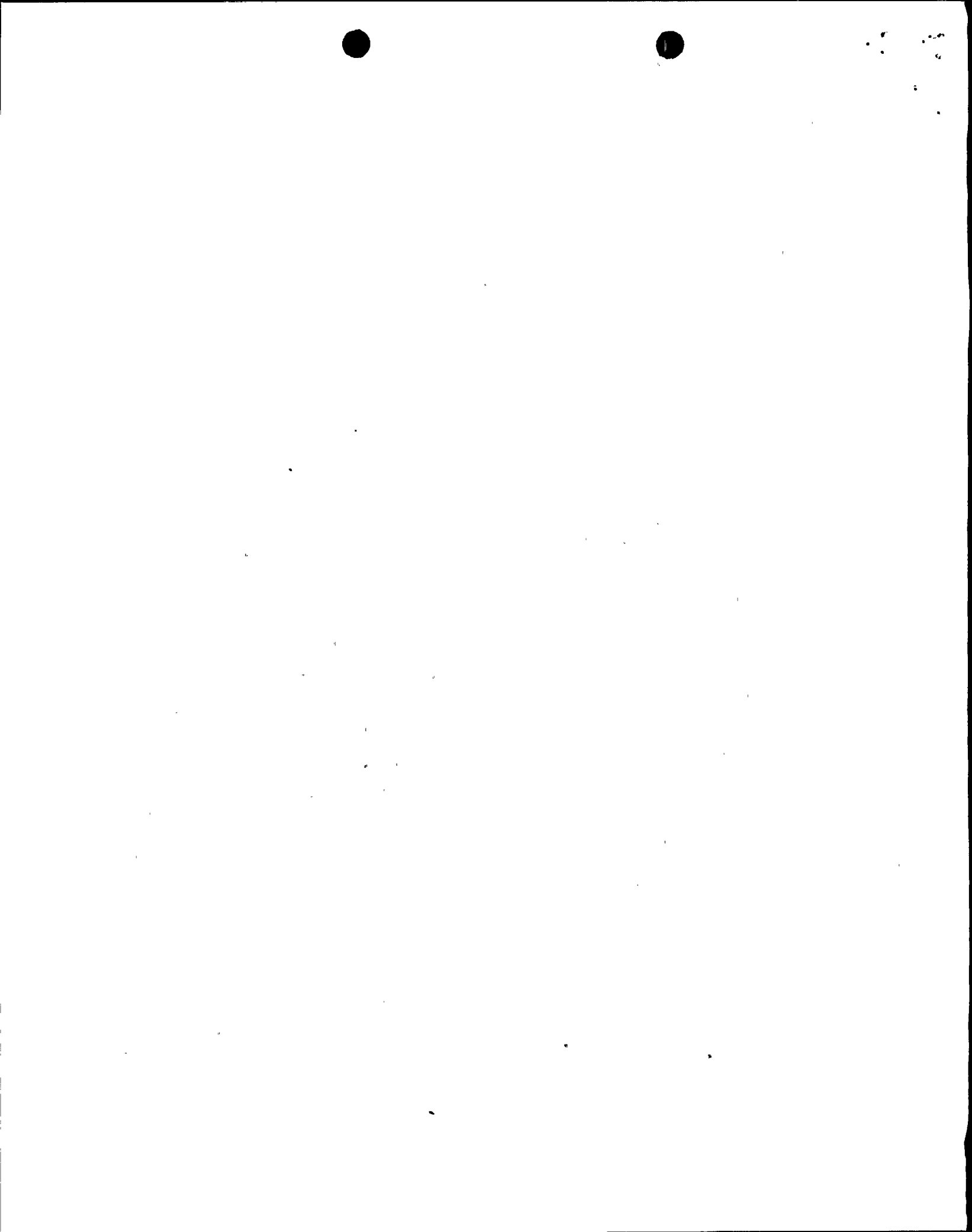
Section I.B.1 requires an SPDS display in the TSC and EOF as well as the control room.

The SPDS is a display of a limited number of plant parameters from which the safety status of the plant can be quickly discerned. Its function is to allow operating personnel to make rapid assessments of plant safety. The EOF does not require this type of operational aide.

Section IV.I requires all R.G.1.97 data and the same plant data transmitted to the NRC displayed in the EOF. Assessment of plant status and conditions is accomplished in the TSC. The data supplied to the EOF should be limited to that pertaining to its principal function, which is only offsite consequences analysis. The EOF should obtain insight into plant conditions from the TSC, where the appropriate expertise is located.

Proposed Criteria

The SPDS shall be displayed in the control room and the technical support center. The EOF shall be supplied radiological and meteorological data sufficient to direct offsite emergency response activities.



5. COMMENT

Questions on the type of security required for the emergency systems were raised during the regional meetings. Although security is required, the NRC spokesmen were unable to state whether "security" means physical security of equipment, source code security, data file security, secure access to operation, scrambling of communications, etc. The type of security required by the NUREG is very ambiguous, yet is of major significance in determining the design approach, cost, and availability of the emergency systems.

6. COMMENT

While it is apparent that a single TSC and EOF can adequately serve a multiple unit site, it should be made clear in NUREG-0696.

Proposed Criterion

A single TSC and a single EOF is acceptable for multiple unit sites.

7. COMMENT

Section I.D, III.A, and IV.A require that SPDS, TSC, and EOF operational status will be part of the Limiting Conditions for Operation in the Technical Specifications. While these systems should be available, it would not be appropriate to include their status as LCOs. Changes in plant status or operation would not appear necessary in response to the loss of the SPDS, TSC or EOF. It is not clear that additional staffing as suggested in the criteria would constitute a compensatory measure.

Proposed Criterion

Loss of function of the SPDS, TSC or EOF for a period exceeding 24 hours shall be reported to the NRC. A report of the cause of failure and identification of corrective actions shall be provided.

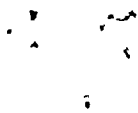
II. SPDS COMMENTS

1. COMMENT

Section II.F states that the SPDS shall be capable of functioning during and following the Operating Basis Earthquake and other natural phenomena. We believe that reliable SPDS instrument readings during an OBE are extremely difficult to ensure and, in any event, not necessary to plant safety. The proposed criterion should be limited to functional capability of the SPDS following the OBE.

Proposed Criterion

The SPDS shall be capable of functioning following the Operating Basis Earthquake and other natural phenomena.



2. COMMENT

Section II.C requires the SPDS display to be readable from the operating stations of the shift supervisor, control room SRO, shift technical advisor, and at least one RO. This factor may not be consistent with good human factors engineering.

Proposed Alternative

The SPDS shall be readable from the normal operating stations within the control room.

III. TSC/EOF COMMENTS

1. COMMENT

The requirement in Section III.J to maintain current, up-to-date drawings, schematics and diagrams down to the component level is not justified nor necessary. Utilities should be allowed to be selective in establishing the scope and level of drawings to be maintained current and "on-line" in the TSC. Their selection should be based on a reasonable evaluation of the potential need for them in an accident situation.

Proposed Criterion

The TSC shall have available plant drawings, schematics and diagrams sufficient to perform its emergency function.

2. COMMENT

Section III.H requires that circuit transients in the TSC power supply not cause a loss of data. Circuit transients will inevitably cause fluctuations in any measured data, but should not cause loss of any stored data.

Proposed Alternative

Circuit transients or power supply failures and fluctuations shall not cause a loss of TSC stored data.

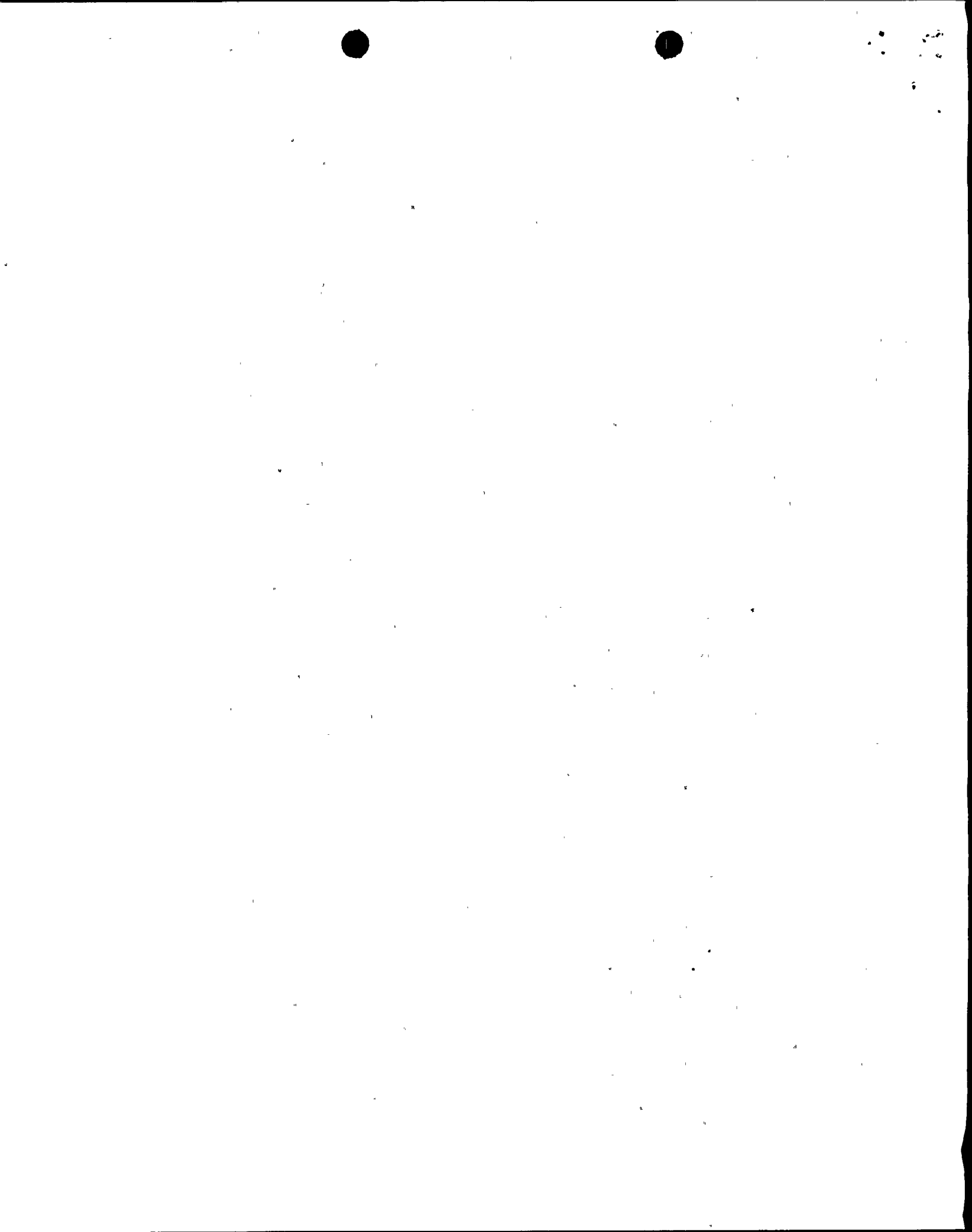
3. COMMENT

Minimum data set requirements for TSC or EOF are specified in terms of Reg. Guide 1.97. Appropriate data for each facility should be developed based on the function of that facility and the site-specific data needs to serve that function.

Example

Section III.I requires specific Reg. Guide 1.97 variables to be provided in the TSC. These variables may or may not be appropriate to the TSC function depending on the final form of Reg. Guide 1.97.

Section IV.I is the same as Section III.I.



4. COMMENT

Section I.B.2 defines the Technical Support Center as "a facility as near to the control room as possible where plant management personnel will utilize technical data and displays necessary for assisting control room personnel during emergency conditions." This seems to infer that plant management personnel must be in the TSC. This location may not be the most effective location for senior plant management and the criteria must allow the plant manager to choose the most appropriate location depending on existing conditions, personnel availability, shift manning, etc.

Proposed Criterion

The onsite Technical Support Center (TSC) shall be near the control room. Appropriate personnel, data and documentation are gathered at the TSC to assist plant management and control room personnel during emergency conditions and minimize congestion in the control room.

5. COMMENT

Section III.A, paragraph 5, requires "interactive terminal and display capability." This requirement and the need for it is not clear. If some function would be improved, the function should be stated.

6. COMMENT

The size of TSC and EOF facilities should not be stated in terms of how many personnel are to be accommodated. The size of each facility should be determined in the design process based on the function of the facility and the number of personnel and type of equipment needed to fulfill that function.

Example

Section III.D and Section IV.D.

IV. NDL COMMENTS

1. COMMENT

There is no need to time-tag each parameter with a resolution of one second as required by Section V.B.c.1. Time-tagging should be done on a data set basis, and a resolution of ± 1 minute is more than adequate for this purpose.



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