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 RECIP. NAME RAMOS, S.L. RECIPIENT AFFILIATION Emergency Preparedness Program Office

SUBJECT: Forwards comments on NUREG-0696, "Functional Criteria for Emergency Response Facilities." Guidelines should be developed from evaluation of what is attainable & actually necessary.

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S. RAMOS

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Carolina Power & Light Company

September 26, 1980

FILE: NG-3514(R)  
NG-3514(B)

SERIAL NO.:

Office of Nuclear Reactor Regulation  
Emergency Preparedness Program Office  
ATTENTION: Mr. Steve L. Ramos  
Mail Stop Phillips 242  
United States Nuclear Regulatory Commission  
Washington, D. C. 20555

SHEARON HARRIS NUCLEAR POWER PLANT  
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LICENSE NO. DPR-23

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 & 2  
DOCKET NOS. 50-325 AND 50-324  
LICENSE NOS. DPR-71 AND DPR-62

COMMENTS ON NUREG 0696 - "FUNCTIONAL CRITERIA FOR EMERGENCY RESPONSE FACILITIES"

Dear Mr. Ramos:

Attached please find Carolina Power & Light Company's (CP&L) specific comments on NUREG 0696. It is requested that you consider them carefully in your review and revision of NUREG-0696. As indicated in the attached comments, CP&L has serious concerns with and objections to the criteria contained in NUREG-0696.

BACKGROUND

Carolina Power & Light Company has always been dedicated to providing adequate safety and emergency response capabilities at its nuclear units and to providing necessary improvements which enhance those capabilities. Since the accident at Three Mile Island, CP&L has undertaken a responsive and responsible approach to meeting improvements dictated by the NRC and by our own internal reviews. CP&L implemented all Category A Short Term Lessons Learned items by the required date of January 1, 1980 at its operating units and has been striving vigorously to have the Category B items implemented by January 1, 1981. In many cases, this effort has required the commitment of large amounts of manpower and funds to accomplish tasks that had, in many cases, undefined criteria. CP&L, however, took these actions because it believed that the nuclear industry needed to be responsive and to take the lead in instituting needed improvements.

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Because of the amount of resources required to be committed to establish the Technical Support Center (TSC) and the Emergency Operations Facility (EOF), CP&L began discussions with the NRC in early 1980 to gain assurance that our plans for these facilities were appropriate. The location of the TSC in particular was the subject of several discussions. These included discussions with the NRC Lessons Learned Audit Teams and the Emergency Planning Teams which visited CP&L's nuclear units during the period of January through April of 1980. Additionally, conversations were held with Mr. John Hannon and Mr. Tom Ippolito of the Division of Licensing concerning the location of the Brunswick TSC. Although CP&L was given verbal assurances that the locations of the TSCs at Robinson and Brunswick were acceptable, CP&L strove to get a more definite response from the Staff. CP&L requested a meeting in May to discuss criteria for emergency centers but was told by the Staff that such a meeting would not be useful, since no better direction could be given. On June 18, 1980, CP&L submitted letters to the NRC detailing plans for emergency centers at both Robinson and Brunswick. The letters requested a rapid review and response by the NRC. To date, no response has been received.

In early July, CP&L reviewed an early draft of NUREG 0696 and became deeply concerned with the new and extensive criteria contained within it. At that time, CP&L was actively constructing TSCs at both operating nuclear sites and procuring data systems for the TSCs. CP&L followed closely the discussions and presentations involving the NRC Staff, AIF, ACRS and the NRC Commissioners regarding NUREG-0696. CP&L was finally able to arrange a meeting with the Staff for August 12, 1980.

The positions of the Emergency Planning Staff at the August 12, 1980 meeting, ran counter to our previous discussions with the Staff and with the plans detailed in our June 18, 1980 letters. CP&L was informed that our present plans would not satisfy the new criteria of NUREG-0696 (which were issued for comment August 1, 1980 and received by licensees ten to fourteen days later). The same position was evident at the Regional Workshop attended by CP&L on August 22, 1980. Therefore, CP&L temporarily suspended the work on emergency centers which required a firm monetary commitment. Additionally, CP&L's commitments to the NRC in the area of emergency centers in our letters of October 18 and December 31, 1979 have become invalid due to the significant changes which have been proposed to the criteria for these facilities.

#### SCHEDULE

We believe that the schedule proposed by the NRC in Mr. D. G. Eisenhower's letter of August 1, 1980 is unrealistic. To meet that schedule, a utility would have to make commitments based on faith that the NRC would not alter the criteria again or that the criteria were firm enough such that detailed plans could be finalized. There is no basis at present for that type of confidence. In developing the schedule outlined in the August 1, 1980 letter it appears that the NRC Staff has not comprehensively studied the tasks required to implement the criteria of NUREG-0696 and has not factored in the appropriate amount of time to fully complete the tasks. We believe that plant licensees should have been contacted about the proposed schedule prior to its promulgation and after the criteria had been firmed up so that good data could have been obtained. Instead, we

September 26, 1980

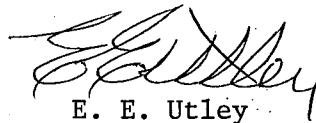
understand the Staff polled individuals from industry organizations or equipment vendors who either did not realize the large scale of the functional requirements or who were misunderstood by the Staff who used the information to create the schedule. In particular, requirements for seismic qualifications and criteria for reliability goals appear to be arbitrarily established, without regard to the safety related benefits to be obtained. Insufficient time is allowed in the implementation schedule to complete the development, and testing work which would be required to achieve these requirements, and no basis is identified which would demonstrate the validity of these requirements in light of the time delay in system implementation which accrues from such criteria.

#### CONCLUSIONS

We believe it is important that NRC guidance be developed from a comprehensive evaluation of not only what is desirable, but also what is attainable and actually needed. The NRC Staff must acknowledge that there exists finite technical, time, and financial resources available to licensees; and that the deployment of these resources on criteria that periodically change could ultimately have a deleterious effect on the public health and safety. At the NRC's Regional Workshop on September 22, 1980, Mr. D. G. Eisenhut stated that it was not the NRC's intent to penalize those licensees who took the initiative to meet the NRC's deadlines despite the lack of criteria approved by NRC. Based on Mr. Eisenhut's offer at the September 22, 1980 NRC Workshop to discuss site specific applications of the new criteria, we will request a meeting with Mr. Eisenhut and his staff in order to further consider our plans to meet the intent of appropriate criteria.

If you have any questions concerning the content of this letter or the attached comments, please contact our staff.

Yours very truly,



E. E. Utley  
Executive Vice President  
Power Supply and  
Engineering and Construction

EEU/dk  
Attachment

cc: Messrs. H. R. Denton  
D. G. Eisenhut  
B. K. Grimes  
J. N. Hannon  
T. A. Ippolito  
J. D. Neighbors  
S. A. Varga  
NRC Commissioners  
Secretary of the Commission, USNRC

COMMENTS ON NUREG-0696  
FUNCTIONAL CRITERIA FOR EMERGENCY RESPONSE FACILITIES  
CAROLINA POWER & LIGHT COMPANY

1. Safety Parameter Display System (SPDS)

- a. During presentations made in the regional NRC meetings, the SPDS was referred to as a system "important to safety" and that input data should be verified prior to display to operators. This implies some means of auctioneering between channels of a parameter or methods of eliminating channels of data which may be erroneous due to the channel being out of service, inoperable, etc. The criteria should be clarified in the document so that its importance will be recognized in system design.
- b. The SPDS is described on Page 6 of the document as a system "to assist control room personnel in evaluating-----" and is "solely a monitoring system to aid the operator." The requirements and criteria belie these words and seem to imply instead that the operator will rely on this system to tell him all he needs to know rather than using it as a backup to his normal control room instrumentation. This emphasis has inherent dangers to safe operation, and should be recognized by the Commission. Also, the removal of confusion for the operator by using this system which is implied by the document and the staff as the benefit of installing this system is a narrow view, ignoring all of the overhauls of procedures, human factors reviews of control rooms, training improvements and other programs which have been carried out or will be carried out following TMI. As a result, overly restrictive criteria should be relaxed so that a true operational aide to the control room operator may be achieved in a timely manner.
- c. Page 7, Section II.E, paragraph 4 states "for each mode a single primary display format--shall be respectively displayed." The SPDS should only be required when the reactor is in hot shutdown, startup or operating modes, and should not be required for cold shutdown and refueling modes. To require it operable for all modes, unduly restricts the capability to service and maintain the SPDS system, and to institute changes and properly checkout the system. Also, the type of accidents that can occur during cold shutdown and refueling modes are limited in the number of variables which can indicate accident conditions and can be easily interpreted by the operator observing normal control board indications. This criteria should be changed to require the SPDS only in modes above cold shutdown conditions.
- d. The unavailability goal of 0.001 for the total SPDS is not readily achievable with a non-redundant computerized system and is unreasonably restrictive. This unavailability goal should be justified or a less restrictive number which recognizes the real limitations of installing available data acquisition systems in existing power plant control rooms should be chosen. This goal is equivalent to eight hours per year out of service time which is unachievable when instrument loop

calibration requirements are considered. It is a factor of ten, or more, more restrictive than safety grade instruments required for plant protection, and is not consistent with the stated SPDS function.

- e. The requirement for OBE seismic qualification of the SPDS is too restrictive. Although sensors, instruments and associated system components may be fully capable of being qualified to this level, the problem arises in being able to specify and perform qualification testing and not significantly impact delivery and installation schedules. In addition, the data acquisition processor and associated computer equipment will in all probability require long lead time testing and qualification to demonstrate post-OBE capability. This requirement should be removed as it is unnecessarily restrictive in view of the SPDS function as an assistance to the operator.

After the issuance of NUREG-0696 with its OBE requirement for the Safety Parameter Display System, a check was made with some of the fossil plants that experienced an earthquake which was centered in Kentucky at the end of July of this year. The fossil plants were checked because they do not have earthquake qualified equipment and control boards, and the buildings are generally not designed to seismic standards. As a general rule, the operators in the plants did not report a large number of alarms going off erroneously or problems with plant process control displays. There were no reports of "operator confusion." It should be noted here that these operators do not receive training that is as detailed and rigorous as that training required of nuclear plant operators. In one fossil plant, in close proximity to the earthquake epicenter, the Shift Engineer, who was in the control room, felt the floor begin to shake. His first thought was that they were running a coal mill without any coal in it. He started to leave the control room (approximately 15 seconds after the floor began to shake) when a number of alarms went off indicating that the turbine had tripped. The operators had no problem interpreting the alarms correctly and secured the units that had tripped (this plant has multiple units and multiple control rooms).

Also, within the last two years, a number of Japanese nuclear plants have experienced earthquakes of varying intensity. According to personnel present in the control rooms during the earthquakes, few, if any, abnormal or unexpected events (alarms, etc.) occurred. In all cases, the operators had no problems in interpreting the information on the control boards. The most severe earthquake struck the Fukushima site. The earthquake registered a 7.5 on the Richter scale. The epicenter was 20 miles from the site. All operating units at the site tripped off line. The operators had no problems understanding what had happened and had no problems in interpreting their control board readings. They experienced no confusion.

- f. Unavailability goals should be established consistent with equivalent standards for plant protective equipment. Out of service time for preventative maintenance of the SPDS should not be included in the unavailability goal, which should reflect non-planned outage time

only. Preventive maintenance time should be recognized in the criteria, and a requirement for increased monitoring of plant status during preventive maintenance should be included (e.g. Shift Technical Advisor in the control room when the plant is at temperature and power and the SPDS is down). It should not be an LCO in Technical Specifications if the system is out for preventative maintenance.

## 2. Technical Support Center (TSC)

- a. NUREG-0578 and Mr. H. R. Denton's October 30, 1979 letter designated establishment of an "onsite Technical Support Center (i.e., within the plant security boundary [undefined])" and in "close proximity to the control room [undefined]." The distance from the Control Room to the TSC was to be compensated for by increased sophistication of data display and communications. NUREG-0696 changes this philosophy subtly but significantly by specifying it to be "as near to the control room as possible" (p. 2), "preferably within the same building" (p. 8), "inplant" (p. 10), and "normally--within approximately two minutes comfortable walking time" (p. 10). We see no technical basis for moving the TSC in as close as specified. As stated in the Atlanta regional meeting, CP&L does not disagree with the need for occasional face-to-face discussion between TSC and Control Room personnel, but strongly believes this interface should be limited so as not to distract the attention of Control Room personnel from the course of the accident or recovery operations. We see no reason why a transport time of two minutes between the TSC and Control Room should be required when, for example, a Shift Technical Advisor has up to ten minutes to report to the control room after the shift foreman or supervisor requests his presence. The two minute limit is inordinately short considering the sophistication and flexibility of data transfer and communication between the TSC and Control Room. We recommend this requirement be struck from the document.

Although no mention is made in NUREG-0696 of locating the TSC inside the "security boundary", a term which is undefined in 10CFR Part 73, the NRC Staff in the Atlanta regional meeting stated that any location outside the area guarded by strict security precautions, otherwise defined in 10CFR Part 73 as the "protected area", would not be acceptable. We question this statement for several reasons. First, the transport time of two minutes between the TSC and Control Room is unwarranted (see above). Second, provisions can be made for priority passthrough of emergency personnel at the security checkpoint so that a bottleneck or delay would not arise. Third, in a radiological emergency of the types envisioned, having the TSC located inside the protected area close to the source of the emergency may unduly delay deployment of TSC personnel to the area and establishment of the TSC functions. It is obvious that this last consideration has been unrecognized by the drafters of NUREG-0696. We concur that the TSC should be in the locality of the plant, preferably within the owner controlled area of the plant site, and preferentially located so as to enhance habitability and accessibility under emergency conditions. We strongly recommend that requirements on location of the TSC be changed to

reflect the above comment. If this is not done, then many plants will be restricted in capability to meet this requirement. If the Staff rejects these comments, then the location criteria should be clarified to clearly state that the location should be inside the "protected area" to be consistent with security regulations and staff demands.

- b. In paragraph H, page 13, a functional unavailability goal of 0.01 for the TSC total system is required, while individual parameters must have an unavailability of 0.001. In paragraph I, page 14 the total system must meet an unavailability goal of .001. This is inconsistent, and indicative of the arbitrary basis on which the unavailability goals have been established. These requirements are not consistent with the stated requirement that data displayed shall be qualitatively comparable in accuracy and reliability to corresponding data displayed in the control room (paragraph h, p. 13).
- c. Criteria for multiple unit sites are missing from the document. These should be included in the final version. Clarification is also required for technical documentation availability. Provisions are made at each site for protected storage of original and/or baseline documentation. Provision for access to plant drawings, specifications, QA records, etc. from the TSC should suffice for those documents not required for actual operational purposes.

### 3. Emergency Operations Facility (EOF)

- a. Although p. 4 paragraph C states that the same reliability standards are not intended to be used for all emergency response facilities, the reliability goals in paragraph H and I on p. 19 for the EOF are the same arbitrarily established goals as set for the TSC and SPDS. A graduated reliability goal, recognizing the period of time during which various emergency facilities will be manned, and the significance to safe control and recovery operations of loss of individual display parameters, or indeed entire systems, is required.
- b. The need for a separate Emergency Operations Facility is not apparent. We believe that this facility should not be required, and that the functions intended there be delegated to other facilities that licensees and States will institute in their emergency response plans.

### 4. General Comments

- a. Regarding the implementation schedule in Mr. Eisenhut's letter of August 1, 1980, the fourth, fifth and sixth line items (equipment/interface specifications, building construction/modification, and hardware procurement) are unrealistic considering they occur prior to completion of NRC review and approval of conceptual design. Those licensees who responsibly and responsively sought to implement



NUREG-0578 requirements by January 1, 1981 in this area only to see the requirements change and escalate by the issuance of NUREG-0696 will be reluctant to commit to any course of action without explicit approval by NRC. This need for NRC approval makes the end date of April 1982 for full operation capability totally unrealistic in light of present prescriptive, inflexible, and unrealistic requirements demanded by various NRC Staff.

We perceive that a site specific schedule which calls for installation of the SPDS, NDL etc. would require a minimum of 2 1/2 years after NRC approval. The specification development, request for proposal process and vendor selection would take a minimum of 9 months. System construction and installation, software development, system testing and training would require 21 months. This schedule is based on an ambitious best-effort approach utilizing off-the-shelf equipment integrated into a sophisticated data acquisition, process and display system. Construction of new emergency facilities for the performance of the required functions can be completed within this time frame for most utilities, but specific schedules should be developed with each utility. It does no good to hastily rush into development and implementation of a capability of this type, if sufficient time is not allowed for ensuring that the systems instituted can be relied on in an emergency situation. An arbitrarily short schedule promises to be detrimental to safety rather than to promote safety.

For the NRC approval process to proceed on schedule, the functional requirements must be finalized before utilities can develop conceptual designs. Other complications, such as seismic requirements and human factors considerations may negatively impact on the above schedule.

- b. We recommend that NRC establish a comprehensive training program, for all personnel involved in the interface between NRC and a licensee during an emergency, which includes familiarity with the design and operation of all plants. This should also include an inplant program of approximately six months at selected reactors with the trainee involved in onshift operations. We believe this is vital to the increased understanding of NRC as to what is actually occurring at a plant, and will serve to improve the level of practical experience within the Staff.