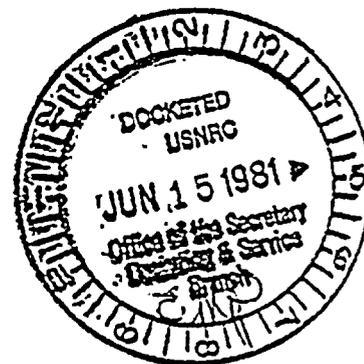


UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Joseph M. Hendrie, Chairman
Victor Gilinsky
Peter A. Bradford
John F. Ahearne



In the Matter of
FLORIDA POWER & LIGHT COMPANY
(St. Lucie Nuclear Power Plant,
Unit No. 2)

Docket No. 50-389 CP

SERVED JUN 15 1981

MEMORANDUM AND ORDER (CLI-81-12)

Introduction

This decision completes the Commission's review of certain issues raised by the decision of the Atomic Safety and Licensing Appeal Board, ALAB-603, 12 NRC 30 (1980), regarding designation of the loss of all AC power as a design basis event. Because of the generic nature of these issues, the Commission invited briefs from persons other than the parties. Briefs on the issues were received from the NRC staff and the Atomic Industrial Forum Committee on Reactor Licensing and Safety. 1/ In addition, a Memorandum was issued on December 27, 1980 by two of

1/ Applicant Florida Power and Light Company contends that the Commission has no jurisdiction to review ALAB-603 because the review time provided by the rules expired before the Commission exercised its review authority. 10 CFR 2.786(a). Applicant's jurisdictional argument is incorrect because the Commission's rules do not explicitly address reconsideration. Reconsideration is a well-recognized power inherent in the Commission's authority to decide in the first instance. Albertson v. FCC, 182 F.2d 397, 399 (D.C. Cir. 1950), Trujillo v. General Electric Company, 621 F.2d 1084, 1086 (10th Cir. 1980). Thus, as long as the Commission retains jurisdiction it can reconsider an earlier decision not to review an Appeal Board decision. Moreover, reconsideration does not disturb finality significantly because the Commission retains jurisdiction over a final decision only for the sixty days in which to seek judicial review under the Hobbs Act. American Farm Lines v. Blackball Freight, 397 U.S. 523, 540 (1970), Pan American Petroleum Corp. v. Federal Power Comm., 322 F.2d 99, 1004 (D.C. Cir. 1963):

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the Administrative Judges who were members of the Appeal Board which decided ALAB-603. The Commission has determined that these filings fully present the issues and that oral argument would not aid our deliberations. For the reasons discussed below, the Commission has determined that ALAB-603 does not establish generic guidelines for determining the design basis events to be used for plant design and operation and does not establish station blackout as a design basis event as that term is used by the staff.

Events Leading To Review

A. Decision Below

In ALAB-603, the Appeal Board concluded its consideration of the adequacy of electric power systems for Unit 2 of the St. Lucie nuclear power plant. The Appeal Board finding relevant to this review was that the probability of total loss of on-site and off-site AC power -- station blackout was sufficiently high that protecting the plant against such an occurrence was warranted. Specifically, the Board found that the probability of occurrence of station blackout was in the range of one chance in ten thousand to one chance in one hundred thousand ($10E-4$ to $10E-5$) per year which the Board noted is significantly higher than the threshold values in Section 2.2.3 of the Standard Review Plan (SRP) at which the staff requires analysis of the implications for plant integrity of certain off-site man-made hazards. 2/ Consequently, the Board designated station blackout a design basis event for St. Lucie Unit 2 and directed that the applicant's Final Safety Analysis Report include: (1) an analysis demonstrating the plant's ability to operate through such an event; and (2) a detailed training program for station operation during a blackout transient and for the restoration of AC power. 3/

2/ The SRP threshold values for the probability of occurrence of initiating events leading to exposures in excess of 10 CFR Part 100 guidelines are one chance in one million ($10E-6$) per year for a conservatively calculated probability of occurrence and one chance in ten million ($10E-7$) per year for a realistically calculated probability of occurrence.

3/ These conditions were included in the construction permit for St. Lucie Unit 2 by an amendment issued on September 18, 1980.

B. Commission action

No party petitioned the Commission for review of ALAB-603; and on October 14, 1980 the time expired for Commission sua sponte review of that decision. The staff has been reviewing the generic issue of station blackout since 1977 under Task Action Plan A-44. On November 10, 1980 the Director, Nuclear Reactor Regulation (NRR), responded to the Chairman's request for further information on the status of Task Action Plan A-44 - Station Blackout (TAP A-44). That response included a memorandum from the Director, Division of Systems and Reliability Research, to the Director, NRR, which alerted the Commission to certain staff positions which had not been presented in the staff's filings before the Appeal Board and the Commission. These staff positions raised important generic issues regarding the impact of the Appeal Board's decision on the regulatory process. As a result, on December 22, 1980 the Commission decided to reconsider its previous determination not to review ALAB-603. 4/ Upon reconsideration, the Commission affirmed the license amendments which the Appeal Board ordered for the St. Lucie Unit 2 construction permit but took review on the following generic issues:

- (1) What are the generic implications of using the threshold probabilities in Section 2.2.3 of the Standard Review Plan as guidelines in determining the design basis events to be used for plant design and operation?
- (2) Granting the need for protective measures against loss of all AC power for some reasonable period of time, is designation of station blackout as a design basis event the appropriate regulatory framework in which to consider such measures pending completion of the staff generic study TAP A-44?

4/ CLI-80-41 (1980).

Positions On The Issues

A. Use of Threshold Probabilities in the Standard Review Plan as Guidelines for Determining Design Basis Events

The Administrative Judges state that ALAB-603 does not present this issue because the decision to consider station blackout as a design basis event for St. Lucie Unit 2 was based on an independent judgment of the probability of occurrence of that event. They explain that threshold probability values in the Standard Review Plan were looked to only for perspective and guidance.

Staff believes that the Administrative Judge's clarification of ALAB-603 clearly shows that it should not be interpreted to mandate use of the threshold probabilities in Section 2.2.3 of the Standard Review Plan as guidelines for determining design basis events. Moreover, staff contends that if those probabilities were to be used for this purpose, such use would have a severe impact on the regulatory process because there are a large number of accident sequences with an estimated probability of occurrence exceeding one in ten million per reactor year and which could produce or result in core melt or severe core damage. Allocation of staff resources to evaluate these sequences would require substantial additional staff personnel. If personnel were provided for this purpose by diverting staff resources from other activities, staff believes that the result could be an increase in risk to public health and safety.

The Atomic Industrial Forum (AIF) believes that the Appeal Board's use of the Standard Review Plan values as decision criteria misinterpreted staff's intent regarding the use of those values. In AIF's view, staff intended those values to be used as screening criteria for excluding consideration of accidents involving the presence or use of hazardous materials in the vicinity of a plant. Those values were not intended to be used to determine the need to design against accident sequences like station blackout. Moreover, the use of those values as decision criteria would result in the incorporation of measures to prevent or mitigate the effects of many accident sequences which AIF believes are insignificant contributors to reactor risk.

AIF also notes that the Commission has initiated a proceeding to establish quantitative safety goals. 5/ AIF believes that this proceeding provides the appropriate vehicle for establishing probabilities to be used in decisions regarding the need for additional protective measures in plant design and operation.

B. Designation of Station Blackout as a Design Basis Event

Staff contends that the Appeal Board used the term design basis event only to denote those events whose consequences require mitigation to protect public health and safety. On the basis of this interpretation, staff believes that the Appeal Board's imposition of mitigative conditions was appropriate because it was consistent with the logic in River Bend 6/ as applied to the unresolved generic safety issue in TAP-A-44, Station Blackout. Accordingly, staff believes that it was appropriate for the Appeal Board to designate station blackout a design basis event for St. Lucie Unit 2.

The AIF believes that any decision to designate station blackout as a design basis event should be based on comprehensive probabilistic risk assessments that include a comparison of the risk from this event with the risk from other events. Moreover, AIF appears to suggest that additional measures to reduce the risk associated with station blackout should be considered only if the overall risk from all accident sequences exceeds a predetermined quantitative safety goal.

Decision

A. Use of Threshold Probabilities in the Standard Review Plan as Guidelines for Determining Design Basis Events

Section 2.2.3 of the Standard Review Plan establishes numerical thresholds for the probability of occurrence of certain events which the staff considers

5/ 45 Fed. Reg. 71023 (October 27, 1980).

6/ Gulf State Utilities Co. (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760 (1977). In River Bend, the Appeal Board held that in individual licensing proceedings involving unresolved generic safety issues, staff must provide the Licensing Board with evidence explaining why resolution of those issues can be deferred.

in evaluating the design of a plant. Those events are limited to potential accidents resulting from the presence of hazardous materials or activities in the vicinity of the plant. Staff considers such an event if a realistic calculation of the expected rate of occurrence of potential exposure in excess of Part 100 Guidelines results in a value exceeding one part in ten million per year (or a conservative calculation results in a value exceeding one part in a million per year).

The Appeal Board, in ALAB-603, explicitly recognized the narrow applicability of the threshold values contained in Section 2.2.3 of the Standard Review Plan. The Board looked to these values as guidelines, not as established requirements for identifying potential accidents requiring additional consideration. Moreover, as two members 7/ of the Board stated in their subsequent memorandum of December 22, 1980, the Board's treatment of station blackout was based on its independent assessment of the probability of the event for St. Lucie Unit 2 as established by the evidentiary record. Thus, in our view, ALAB-603 does not establish any single numerical threshold for the mandatory consideration of accident sequences. The Appeal Board found, as a matter of judgment, that the probability of station blackout at St. Lucie was high enough to warrant additional measures to protect the public health and safety. That judgment was based on the entire record of the St. Lucie proceeding. Under these circumstances, the probability values calculated for that particular event should not be interpreted as establishing a generic numerical threshold to be used for future consideration of accident sequences.

The Commission has adopted a plan for the development and articulation of safety objectives for nuclear power. "Plan for Developing a Safety Goal," 45 Fed. Reg. 71023 (October 27, 1980). This effort should provide the context for resolving the generic issue of a numerical threshold for the analysis of accident sequences. However, the pendency of the safety goal matter should not inhibit the boards from examining closely any accident sequence which in their judgment poses an unacceptable risk to the public health and safety. Probabilistic or numerical calculations may be

7/ The third Board member is no longer with the Commission.



used in such an examination and boards have a responsibility to mandate whatever mitigative actions they deem necessary to protect adequately the public health and safety when such actions are supported by the record.

B. Designation of Station Blackout as a Design Basis Event

The term "design basis event" is not defined in the regulations. However, staff's licensing review of a nuclear power plant includes an analysis of the plant's responses to certain postulated accidents referred to as design basis events. These accident scenarios are chosen on the basis of staff's engineering judgment and are not necessarily identified as design basis accidents from a calculation of their probability of occurrence. In ALAB-603, the Appeal Board did not use the term design basis event as it has been used by the staff. Rather, the Appeal Board used that term in a more general sense to denote an event which posed an unacceptably high risk to the public health and safety unless preventive or mitigative measures were taken. There is no indication in ALAB-603 that the Appeal Board intended to go further and subject station blackout to the regulatory regime established by the staff for considering design basis events. Thus, the Appeal Board's use of this phrase was, as they have indicated, as a label for the purpose of expressing its judgment that additional measures were required at St. Lucie to deal with the possibility of station blackout either by lowering the probability or by mitigating the consequences.

Conclusion

For the reasons discussed above, the Commission finds that ALAB-603 does not establish any generic guidelines for determining the design basis events to be used for plant design and operation and does not establish station blackout as a design basis event as that term is used by the staff.

The separate views of Commissioner Gilinsky and additional views of Commissioner Ahearne are attached.



It is so ORDERED.



For the Commission


SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.

this 15th day of June 1981.

Additional Views of Commissioner Ahearne

I concur in the Commission's opinion. I note that its practical effect is to instruct the boards that the Appeal Board decision does not establish that a particular event of sequence of events automatically required further consideration whenever the probability of occurrence exceeds some numerical threshold.



Commissioner Gilinsky's Separate Opinion

The Appeal Board acted correctly in independently evaluating the risks posed by station blackout at St. Lucie and in requiring that steps be taken to prevent or mitigate the consequences of such events.

Had the Appeal Board included in its decision the reasoning presented in its memorandum of December 22, Commission review of this case would have been unnecessary. It is now clear that the Appeal Board did not intend to accord the rough probability guidelines used by the staff in certain safety reviews a more formal status. The one-chance-in-a-million-per-year threshold used by the staff in its reviews ^{1/} is not a precise tool for determining which events outside the plant are so probable that preventive or mitigative measures must be taken. It has not been approved by the Commission.

Unfortunately, the Commission opinion goes beyond these findings and introduces unnecessary elements of uncertainty concerning which possible accidents need to be dealt with in the licensing process. A rational safety review process assumes a uniform threshold of safety significance for possible events which need to be protected against. (The commonly used measure of safety significance is probability times consequences.) By rejecting as a threshold for such review and action not only the one-chance-in-million-per-year used by the staff, but also the higher estimate used by the Appeal Board for the probability of station blackout, and putting nothing in their place but the observation that the Board's judgment "was based on the entire

^{1/} Section 2.2.3 of the Standard Review Plan used by the staff provides that when certain events occurring off-site have a conservatively calculated probability of occurrence of one-chance-in-a-million-per-year, or a realistically calculated probability of occurrence of one-chance-in-ten-million-per-year, the implications for plant integrity of these events must be analyzed.

record of the St. Lucie proceeding," the opinion makes NRC's choice of accidents which must be analyzed and protected against seem almost capricious. The Commission should acknowledge what would seem to be implicit in its decision, that events of safety significance (though not necessarily of probability) comparable to, or greater than, station blackout at St. Lucie should be analyzed to determine whether preventive or mitigative actions are required.

As a final matter, the term "design basis accident" is not defined in the Commission's regulations or in any other Commission document. It is not enough to speculate on what the staff or the boards mean when they say that something is or is not a "design basis accident." If the Commission is to use the term, it ought to define it.

Gene Lee

The Commission's Memorandum and Order (CLI-81-12) served on June 15, 1981 was sent to the incorrect service list. On June 18, 1981 I mailed copies of the Memorandum and Order to the persons on the attached service list.

Eugenia M. Pleasant

Eugenia M. Pleasant
Docketing and Service Branch
Office of the Secretary of the
Commission

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